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

December 30, 2021

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

RE: **Notice of Exempt Modification for T-Mobile: CTNH101A**
Crown Site ID#876322
850 West Main Street, Branford, CT 06405
Latitude: 41° 16′ 40.19″ / Longitude: -72° 50′ 12.70″

Dear Ms. Bachman:

T-Mobile currently maintains nine (9) antennas at the 130-foot mount level on the existing 130-foot monopole tower, located at 850 West Main Street, Branford, CT. The property is owned by SBC Real Estate Group. The tower is owned by Crown Castle. T-Mobile now intends to replace six (6) antennas and ancillary equipment at the 130-ft 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) CommScope – W-65A-R1 Antenna
(3) Ericsson – AIR6449 B41 Antenna
(3) Ericsson Radio 4460 B25+B66
(2) HYBRID 6x24 Hybrid Cable (1-5/8")

Remove:
(3) Ericsson-AIR21 KRC118023-1_B2A_B4P – Antennas
(3) RFS- AIR32 KRD901146-1_B66A_B2A- Antennas
(3) Ericsson Twin Style 1B-AWS – TMA
(3) Ericsson Radio 4449 B71+B85
(6) Coaxial Cables (1-5/8")
(1) Hybrid Cables 9x18 (1-5/8")

Ground:

Install New:
(1) 6160 Equipment Cabinet
(1.) B160 Battery Cabinet
(2.) BB 6648 IN (P) Cabinet
(1.) PSU 4813 Voltage Booster
(1.) IXRe Router IN 6160

Remove:

(1) 6131 & S1200 Equipment Cabinet
(1.) DUW30 Equipment Cabinet
(6.) RU22

The facility was approved by the Town of Branford Planning and Zoning Commission in Application Number 97-9.6 on November 20, 1997. The approval was given with conditions which this exempt modification is in compliance with.

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 James B. Cosgrove, First Selectman, Town of Branford, Harry Smith, Town Planner, Town of Branford, SBC Real Estate Group, Property Owner. Crown Castle is the tower owner.

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

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

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

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

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

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

Sincerely,

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

Attachments
cc:

James B. Cosgrove, First Selectman
Town of Branford
1019 Main Street
Branford, CT 06405
203.488.8394

Harry Smith, Town Planner
Town of Branford
1019 Main Street
Branford, CT 06405
203.488.1255

SBC Real Estate Group, Property Owner
819 Bridgeport Ave
Shelton, CT 06484

Crown Castle, Tower Owner.

PLANNING AND ZONING COMMISSION
TOWN OF BRANFORD TOWN HALL DRIVE P.O. BOX 150
Branford, Connecticut 06405 488-1255

NOTICE OF DECISION

November 21, 1997

Attorney John Knuff
Harris, Beach & Wilcox, L:L.P.
147 North Broad Street
Milford, Connecticut 06460

SUBJECT: Special Exception LOCATION: 850 West Main Street

APPLICATION # 97-9.6 OWNER OF RECORD: Remo, Lorraine and Isabel Tartaglia

APPLICANT: Sprint PCS

Dear Sir:

At a meeting of the Branford Planning & Zoning Commission held on Thursday, November 20, 1997, the Commission voted to:

X Approve your above subject application with the conditions noted below.

Very truly yours,

Shirley Rasmussen
Town Planner

NOTE: This Special Exception shall become effective only after it is filed on the Land Records in the office of the Town Clerk.

1. All users of the telecommunications facility must demonstrate compliance with current FCC regulations for electromagnetic frequency emissions and any future changes in these standards.

2. Prior to future co-location of any additional telecommunications equipment, the applicant shall contact the Town of Branford to provide the Town reasonable opportunity to co-locate Town communications equipment at this location.

NOTE: Special Exception shall become null and void in the event the applicant fails to obtain a building permit within one (1) year of date of approval.
(Per Section 31.7 of the Branford Zoning Regulations)

850 WEST MAIN ST

Location	850 WEST MAIN ST	**Mblu**	C08/000 001/ 00006/ /
Acct#	008723	**Owner**	SBC REAL ESTATE GROUP
Assessment	$1,004,900	**Appraisal**	$1,435,600
PID	652	**Building Count**	2

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$681,100	$754,500	$1,435,600
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$476,800	$528,100	$1,004,900

Owner of Record

Owner	SBC REAL ESTATE GROUP
Co-Owner	
Address	819 BRIDGEPORT AVE SHELTON, CT 06484

Sale Price	$850,000
Certificate	
Book & Page	0845/0896
Sale Date	10/15/2003
Instrument	7

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
SBC REAL ESTATE GROUP	$850,000		0845/0896	7	10/15/2003
BRANFORD-LIR LLC	$0		0679/0819		07/02/1999
TARTAGLIA REMO JR ET ALS	$0		0572/0936		

Building Information

Building 1 : Section 1

Year Built:	1972
Living Area:	8,160
Replacement Cost:	$843,285
Building Percent Good:	73

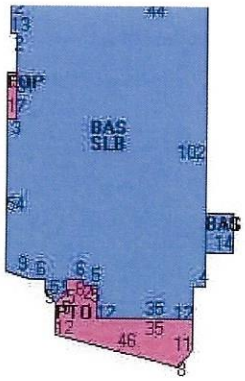
Replacement Cost
Less Depreciation: $615,600

Building Attributes	
Field	**Description**
STYLE	Restaurant
MODEL	Comm/Ind
Grade	B -
Stories:	1
Occupancy	1
Exterior Wall 1	Wood on Sheath
Exterior Wall 2	Brick
Roof Structure	Gable/Hip
Roof Cover	Asphalt
Interior Wall 1	Drywall
Interior Wall 2	Plywood Panel
Interior Floor 1	Wood Laminate
Interior Floor 2	Carpet
Heating Fuel	Gas
Heating Type	Forced Air-Duc
AC Type	Central
Bldg Use	REST/CLUBS MDL94
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	3260
Heat/AC	HEAT/AC PKGS
Frame Type	MASONRY
Baths/Plumbing	AVERAGE
Ceiling/Wall	SUS-CEIL & WL
Rooms/Prtns	AVERAGE
Wall Height	10
% Comn Wall	

Building Photo

(http://images.vgsi.com/photos/BranfordCTPhotos/\00\03\43/63.jpg)

Building Layout



(http://images.vgsi.com/photos/BranfordCTPhotos//Sketches/652_652.jpg)

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	8,160	8,160
FOP	Porch, Open	51	0
PTO	Patio	762	0
SLB	Slab	8,020	0
UST	Utility, Storage, Unfinished	264	0
		17,257	8,160

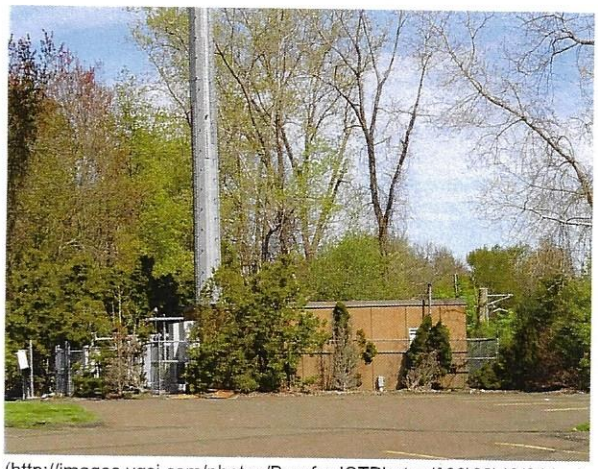
Building 2 : Section 1

Year Built: 2002
Living Area: 360
Replacement Cost: $24,036
Building Percent Good: 86
Replacement Cost
Less Depreciation: $20,700

Building Attributes : Bldg 2 of 2	
Field	**Description**

STYLE	Warehouse
MODEL	Ind/Comm
Grade	B
Stories:	1
Occupancy	1
Exterior Wall 1	Precast Panel
Exterior Wall 2	
Roof Structure	Gable/Hip
Roof Cover	Metal/Tin
Interior Wall 1	Minim/Masonry
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	
Heating Fuel	Electric
Heating Type	Hot Air-no Duc
AC Type	Heat Pump
Bldg Use	TEL REL TW MDL96
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	4310
Heat/AC	HEAT/AC PKGS
Frame Type	LT STEEL
Baths/Plumbing	NONE
Ceiling/Wall	CEILING ONLY
Rooms/Prtns	AVERAGE
Wall Height	9
% Comn Wall	

Building Photo



(http://images.vgsi.com/photos/BranfordCTPhotos//\00\03\43/64.jpg)

Building Layout

(http://images.vgsi.com/photos/BranfordCTPhotos//Sketches/652_13756.jp

Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	360	360
SLB	Slab	360	0
		720	360

Extra Features

Extra Features				Legend
Code	Description	Size	Value	Bldg #
MEZ2	FINISHED	306 S.F.	$3,800	1

Land

Land Use

Use Code 3260
Description REST/CLUBS MDL94

Land Line Valuation

Size (Acres) 2.22
Frontage 200

Zone	BL	**Depth**	
Neighborhood	600	**Assessed Value**	$528,100
Alt Land Appr	No	**Appraised Value**	$754,500
Category			

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
LT2	W/DOUBLE LIGHT			2 UNITS	$1,200	1
FN3	FENCE-6' CHAIN			168 L.F.	$1,700	2
LT4	W/FOUR LIGHTS			1 UNITS	$1,100	1
PAV1	PAVING-ASPHALT			40000 S.F.	$33,000	1
PAV2	PAVING-CONC			35 S.F.	$100	2
PAT2	PATIO-GOOD			513 S.F.	$2,300	1
FOP	OPEN PORCH			96 S.F.	$700	1
LT3	W/TRIPLE LIGHT			1 UNITS	$900	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$681,100	$754,500	$1,435,600
2019	$681,100	$754,500	$1,435,600
2018	$536,700	$763,500	$1,300,200

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$476,800	$528,100	$1,004,900
2019	$476,800	$528,100	$1,004,900
2018	$375,800	$534,400	$910,200

Barbadora, Jeff

From: TrackingUpdates@fedex.com
Sent: Monday, January 3, 2022 9:24 AM
To: Barbadora, Jeff
Subject: FedEx Shipment 775634965736: Your package has been delivered

Hi. Your package was delivered Mon, 01/03/2022 at 9:13am.

Delivered to 1019 MAIN ST, BRANFORD, CT 06405
Received by M.ILICI

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER 775634965736

FROM	Jeff Barbadora 1800 W. Park Drive WESTBOROUGH, MA, US, 01581
TO	James B. Cosgrove, First Selectman Town of Branford 1019 Main Street BRANFORD, CT, US, 06405
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Thu 12/30/2021 05:26 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	BRANFORD, CT, US, 06405
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	1.00 LB
SERVICE TYPE	FedEx Priority Overnight

Barbadora, Jeff

From: TrackingUpdates@fedex.com
Sent: Monday, January 3, 2022 9:25 AM
To: Barbadora, Jeff
Subject: FedEx Shipment 775634988678: Your package has been delivered

Hi. Your package was delivered Mon, 01/03/2022 at 9:13am.

Delivered to 1019 MAIN ST, BRANFORD, CT 06405
Received by M.ILICI

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER 775634988678

FROM	Jeff Barbadora 1800 W. Park Drive WESTBOROUGH, MA, US, 01581
TO	Harry Smith, Town Planner Town of Branford 1019 Main Street BRANFORD, CT, US, 06405
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Thu 12/30/2021 05:26 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	BRANFORD, CT, US, 06405
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	0.50 LB
SERVICE TYPE	FedEx Priority Overnight

Barbadora, Jeff

From: TrackingUpdates@fedex.com
Sent: Friday, December 31, 2021 10:19 AM
To: Barbadora, Jeff
Subject: FedEx Shipment 775635026774: Your package has been delivered

Hi. Your package was delivered Fri, 12/31/2021 at 10:17am.

Delivered to 819 BRIDGEPORT AVE, SHELTON, CT 06484
Received by J.GAVOLITZ

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER 775635026774

FROM	Jeff Barbadora 1800 W. Park Drive WESTBOROUGH, MA, US, 01581
TO	SBC Real Estate Group Property Owner 819 Bridgeport Ave SHELTON, CT, US, 06484
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Thu 12/30/2021 05:26 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	SHELTON, CT, US, 06484
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	1.00 LB
SERVICE TYPE	FedEx Priority Overnight

Date: **November 22, 2021**

Tower Engineering Professionals
326 Tryon Road
Raleigh, NC 27603
(919) 661-6351

Subject: Structural Analysis Report

Carrier Designation:	***T-Mobile* Co-Locate**	
	Site Number:	CTNH101A
	Site Name:	NH101/GlobalSignal/Bran
Crown Castle Designation:	**BU Number:**	876322
	Site Name:	Tartaglia Property
	JDE Job Number:	687337
	Work Order Number:	2046851
	Order Number:	587436 Rev. 0
Engineering Firm Designation:	**TEP Project Number:**	58619.627290
Site Data:	**850 West Main Street, Branford, New Haven County, CT 06405** **Latitude *41° 16' 40.19"*, Longitude *-72° 50' 12.70"*** **130 Foot - Monopole Tower**	

Tower Engineering Professionals 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 - 70.2%**

This analysis utilizes an ultimate 3-second gust wind speed of 121 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: Matthew G. Young, P.E. / CLT

Respectfully submitted by:

Aaron T. Rucker, P.E.

Electronic Copy 11/22/2021

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 120-ft monopole tower designed by Paul J. Ford and Company. The tower has been modified multiple times in the past to accommodate additional loading. The tower was previously extended 10-ft, bringing the overall tower height to 130-ft.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	121 mph
Exposure Category:	C
Topographic Factor:	1.0
Ice Thickness:	1.0 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
128.0	130.0	3	Ericsson	AIR6449 B41 w/ Mount Pipe	5	1-5/8
		3	RFS Celwave	APXVAARR24_43-U-NA20 w/ Mount Pipe		
		3	Commscope	VV-65A-R1_TMO w/ Mount Pipe		
		3	Ericsson	Radio 4449 B71 B85A_T-Mobile		
		3	Ericsson	Radio 4460 B2/B25 B66_TMO		
	128.0	1	Tower Mounts	Platform Mount [LP 305-1_HR-1]		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
122.0	122.0	3	Alcatel Lucent	TME-800MHZ RRH	-	-
		3	Alcatel Lucent	TME-1900MHz RRH (65 MHz)		
		1	Tower Mounts	Pipe Mount [PM 601-3]		
118.0	120.0	3	RFS Celwave	APXVTM14-C-120 w/ Mount Pipe	1 3	5/8 1-1/4
		3	RFS Celwave	APXVSPP18-C-A20 w/ Mount Pipe		
		3	Alcatel Lucent	TD-RRH8X20-25		
		9	RFS Celwave	ACU-A20-N		
		3	Alcatel Lucent	800 External Notch Filter		
	118.0	1	Tower Mounts	Platform Mount [LP 1201-1]		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
110.0	111.0	3	RFS Celwave	FDJ85020Q4-S1	13	1-5/8
		3	Samsung Telecom.	RFV01U-D1A		
		3	Samsung Telecom.	RFV01U-D2A		
	110.0	6	RFS Celwave	APL868013-42T0 w/ Mount Pipe		
		6	Commscope	JAHH-65B-R3B w/ Mount Pipe		
		3	Samsung Telecom.	MT6407-77A w/ Mount Pipe		
		1	RFS Celwave	DB-C1-12C-24AB-0Z		
		1	Tower Mounts	Platform Mount [LP 1201-1_HR-2]		
50.0	52.0	1	Kathrein	OG-860/1920/GPS-A	1	5/16
	50.0	1	Tower Mounts	Side Arm Mount [SO 701-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
Geotechnical Report	1614542	CCISites
Tower Foundation Drawings	1613605	CCISites
Tower Manufacturer Drawings	1529811	CCISites
Tower Reinforcement Drawings	2483868	CCISites
Post-Modification Inspection	5946300	CCISites
Tower Reinforcement Drawings	5359294	CCISites
Post-Modification Inspection	5606019	CCISites
Tower Reinforcement Drawings	5949763	CCISites
Post-Modification Inspection	6089118	CCISites

3.1) Analysis Method

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

tnxTower was used to determine the loads on the modified structure. Additional calculations were performed to determine the stresses in the pole and in the reinforcing elements. These calculations are presented in Appendix C.

3.2) Assumptions

1) The tower and structures were maintained in accordance with the TIA-222 Standard.
2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2, and the referenced drawings.
3) The following material grades were assumed:
   a) Flange plates: A36

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)[1,2]

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
130 - 125	Pole	TP18x18x0.375	Pole	6.5%	Pass
125 - 120	Pole	TP18x18x0.375	Pole	14.3%	Pass
120 - 115	Pole	TP22.9x22x0.25	Pole	13.9%	Pass
115 - 110	Pole	TP23.8x22.9x0.25	Pole	19.6%	Pass
110 - 105	Pole	TP24.701x23.8x0.25	Pole	28.9%	Pass
105 - 100	Pole	TP25.601x24.701x0.25	Pole	37.0%	Pass
100 - 95	Pole	TP26.501x25.601x0.25	Pole	44.5%	Pass
95 - 91.5	Pole	TP27.131x26.501x0.25	Pole	49.4%	Pass
91.5 - 91.25	Pole + Reinf.	TP27.176x27.131x0.4875	Reinf. 5 Tension Rupture	36.6%	Pass
91.25 - 86.25	Pole + Reinf.	TP28.077x27.176x0.475	Reinf. 5 Tension Rupture	41.6%	Pass
86.25 - 81.25	Pole + Reinf.	TP28.977x28.077x0.475	Reinf. 5 Tension Rupture	46.3%	Pass
81.25 - 80.75	Pole + Reinf.	TP29.742x28.977x0.4688	Reinf. 5 Tension Rupture	46.8%	Pass
80.75 - 75.75	Pole + Reinf.	TP29.467x28.567x0.5375	Reinf. 5 Tension Rupture	46.4%	Pass
75.75 - 70.75	Pole + Reinf.	TP30.367x29.467x0.525	Reinf. 5 Tension Rupture	50.1%	Pass
70.75 - 65.75	Pole + Reinf.	TP31.267x30.367x0.5125	Reinf. 5 Tension Rupture	53.5%	Pass
65.75 - 63	Pole + Reinf.	TP31.762x31.267x0.5125	Reinf. 5 Tension Rupture	55.3%	Pass
63 - 62.73	Pole + Reinf.	TP31.811x31.762x0.725	Reinf. 2 Tension Rupture	40.3%	Pass
62.73 - 62.58	Pole + Reinf.	TP31.838x31.811x0.725	Reinf. 2 Tension Rupture	40.3%	Pass
62.58 - 61.5	Pole + Reinf.	TP32.032x31.838x0.7125	Reinf. 2 Tension Rupture	40.9%	Pass
61.5 - 61.25	Pole + Reinf.	TP32.077x32.032x0.5125	Reinf. 2 Tension Rupture	56.4%	Pass
61.25 - 56.25	Pole + Reinf.	TP32.977x32.077x0.5	Reinf. 2 Tension Rupture	59.5%	Pass
56.25 - 51.25	Pole + Reinf.	TP33.878x32.977x0.5	Reinf. 2 Tension Rupture	62.4%	Pass
51.25 - 46.25	Pole + Reinf.	TP34.778x33.878x0.4938	Reinf. 2 Tension Rupture	65.2%	Pass
46.25 - 42.25	Pole + Reinf.	TP36.308x34.778x0.4875	Reinf. 2 Tension Rupture	67.2%	Pass
42.25 - 36.75	Pole + Reinf.	TP35.863x34.873x0.8	Reinf. 2 Tension Rupture	44.9%	Pass
36.75 - 32.25	Pole + Reinf.	TP36.673x35.863x0.7875	Reinf. 2 Tension Rupture	46.4%	Pass
32.25 - 32	Pole + Reinf.	TP36.718x36.673x0.925	Reinf. 1 Tension Rupture	40.8%	Pass
32 - 31.83	Pole + Reinf.	TP36.749x36.718x0.925	Reinf. 1 Tension Rupture	40.8%	Pass
31.83 - 31.48	Pole + Reinf.	TP36.812x36.749x0.55	Reinf. 1 Tension Rupture	60.5%	Pass
31.48 - 31.25	Pole + Reinf.	TP36.853x36.812x0.5438	Reinf. 1 Tension Rupture	60.6%	Pass
31.25 - 26.25	Pole + Reinf.	TP37.754x36.853x0.5375	Reinf. 1 Tension Rupture	62.4%	Pass

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
26.25 - 21.25	Pole + Reinf.	TP38.654x37.754x0.5375	Reinf. 1 Tension Rupture	64.1%	Pass
21.25 - 16.25	Pole + Reinf.	TP39.554x38.654x0.5313	Reinf. 1 Tension Rupture	65.7%	Pass
16.25 - 11.25	Pole + Reinf.	TP40.454x39.554x0.525	Reinf. 1 Tension Rupture	67.2%	Pass
11.25 - 6.25	Pole + Reinf.	TP41.355x40.454x0.525	Reinf. 1 Tension Rupture	68.6%	Pass
6.25 - 1.25	Pole + Reinf.	TP42.255x41.355x0.5188	Reinf. 1 Tension Rupture	69.9%	Pass
1.25 - 0	Pole + Reinf.	TP42.48x42.255x0.5188	Reinf. 1 Tension Rupture	70.2%	Pass
				Summary	
			Pole	58.4%	Pass
			Reinforcement	70.2%	Pass
			Overall	**70.2%**	**Pass**

Table 5 - Tower Component Stresses vs. Capacity - LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,2	Flange Connection	120.0	37.1	Pass
1,2	Anchor Rods	-	47.3	Pass
1,2	Base Plate	-	52.6	Pass
1,2	Base Foundation Structural	-	47.5	Pass
1,2	Base Foundation Soil Interaction	-	30.5	Pass

Structure Rating (max from all components) =	**70.2%**

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

4.1) Recommendations

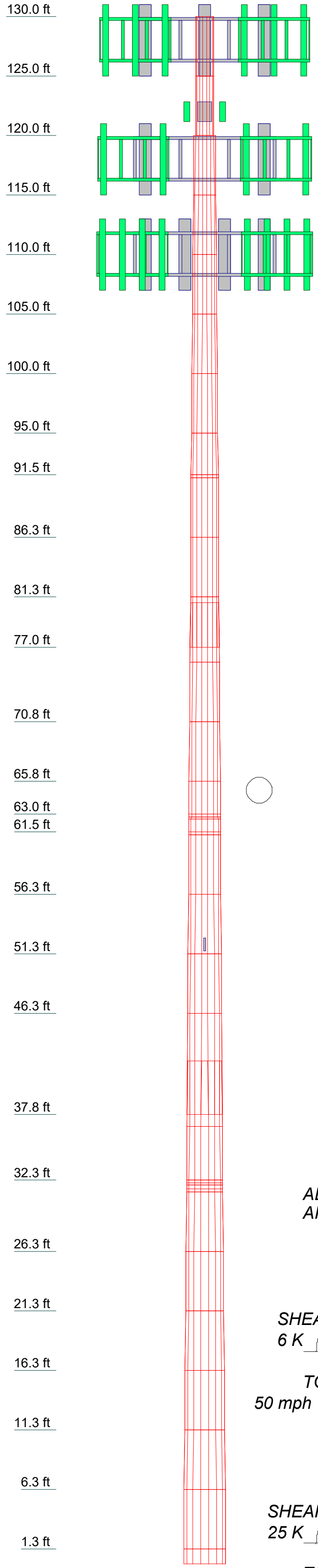
1) The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	5.00	0	0.3750		18.0000	18.0000	A53-B-35	0.4
2	5.00	0	0.3750		18.0000	18.0000		0.4
3	5.00	12	0.2500		22.0000	22.9002	A572-65	0.3
4	5.00	12	0.2500		22.9002	23.8005		0.3
5	5.00	12	0.2500		23.8005	24.7007		0.3
6	5.00	12	0.2500		24.7007	25.6009		0.3
7	5.00	12	0.2500		25.6009	26.5012		0.4
8	3.50	12	0.2500		26.5012	[illegible]		0.3
9	0.25	12	[illegible]		[illegible]	[illegible]		0.0
10	5.00	12	0.4750		[illegible]	28.0766		0.7
11	5.00	12	0.4750		28.0766	28.9768		0.7
12	[illegible]	12	0.4688	3.75	28.9768	29.7420		0.6
13	[illegible]	12	[illegible]		[illegible]	[illegible]		0.8
14	5.00	12	0.5250		[illegible]	[illegible]		0.8
15	5.00	12	0.5125		30.3671	31.2672		0.8
16	2.75	12	[illegible]		[illegible]	[illegible]		0.5
17–20	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]
21	5.00	12	[illegible]		[illegible]	[illegible]		0.9
22	5.00	12	0.5000		32.9775	33.8776		0.9
23	5.00	12	0.4938		33.8776	34.7778		0.9
24	8.50	12	0.4875	4.50	34.7778	36.3080		1.5
25	5.50	12	[illegible]		[illegible]	[illegible]		1.6
26	4.50	12	[illegible]		[illegible]	[illegible]		1.3
27–30	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]
31	5.00	12	[illegible]		[illegible]	[illegible]		1.2
32	5.00	12	0.5375		37.7537	38.6539		1.2
33	5.00	12	0.5313		38.6539	39.5542		1.2
34	5.00	12	0.5250		39.5542	40.4544		1.2
35	5.00	12	0.5250		40.4544	41.3547		1.2
36	5.00	12	[illegible]		[illegible]	[illegible]		1.3
37	1.25	12	[illegible]		[illegible]	[illegible]		[illegible]

Total weight: 22.8



MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-35	35 ksi	60 ksi	A572-65	65 ksi	80 ksi

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 121 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 70.2%

ALL REACTIONS ARE FACTORED

AXIAL 60 K
SHEAR 6 K
MOMENT 523 kip-ft
TORQUE 0 kip-ft
50 mph WIND - 1.0000 in ICE

AXIAL 44 K
SHEAR 25 K
MOMENT 2272 kip-ft
TORQUE 1 kip-ft
REACTIONS - 121 mph WIND

Tower Engineering Professionals
Tower Engineering Professionals
326 Tryon Road
Raleigh, NC 27603
Phone: (919) 661-6351
FAX: (919) 661-6350

Job: ***Tartaglia Property (BU 876322)***		
Project: ***TEP No. 58619.627290***		
Client: Crown Castle	Drawn by: myoung	App'd:
Code: TIA-222-H	Date: 11/22/21	Scale: NTS
Path: C:\Users\myoung.TOWER\Desktop\tnx\876322-Tartaglia Property\EQT\876322_2046851_LC7.eri		Dwg No. E-1

Tower Input Data

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

Tower is located in New Haven County, Connecticut.
Tower base elevation above sea level: 50.00 ft.
Basic wind speed of 121 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 1.0000 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Tower analysis based on target reliabilities in accordance with Annex S.
Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
Maximum demand-capacity ratio is: 1.05.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs	Distribute Leg Loads As Uniform	Use ASCE 10 X-Brace Ly Rules
Consider Moments - Horizontals	Assume Legs Pinned	Calculate Redundant Bracing Forces
Consider Moments - Diagonals	√ Assume Rigid Index Plate	Ignore Redundant Members in FEA
Use Moment Magnification	√ Use Clear Spans For Wind Area	SR Leg Bolts Resist Compression
√ Use Code Stress Ratios	Use Clear Spans For KL/r	All Leg Panels Have Same Allowable
√ Use Code Safety Factors - Guys	Retension Guys To Initial Tension	Offset Girt At Foundation
Escalate Ice	√ Bypass Mast Stability Checks	√ Consider Feed Line Torque
Always Use Max Kz	√ Use Azimuth Dish Coefficients	Include Angle Block Shear Check
Use Special Wind Profile	√ Project Wind Area of Appurt.	Use TIA-222-H Bracing Resist. Exemption
Include Bolts In Member Capacity	Autocalc Torque Arm Areas	Use TIA-222-H Tension Splice Exemption
Leg Bolts Are At Top Of Section	Add IBC .6D+W Combination	Poles
Secondary Horizontal Braces Leg	√ Sort Capacity Reports By Component	√ Include Shear-Torsion Interaction
Use Diamond Inner Bracing (4 Sided)	Triangulate Diamond Inner Bracing	Always Use Sub-Critical Flow
SR Members Have Cut Ends	Treat Feed Line Bundles As Cylinder	Use Top Mounted Sockets
SR Members Are Concentric	Ignore KL/ry For 60 Deg. Angle Legs	Pole Without Linear Attachments
		Pole With Shroud Or No Appurtenances
		Outside and Inside Corner Radii Are Known

Tapered Pole Section Geometry

Section	Elevation 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	130.00-125.00	5.00	0.00	Round	18.0000	18.0000	0.3750		A53-B-35 (35 ksi)
L2	125.00-120.00	5.00	0.00	Round	18.0000	18.0000	0.3750		A53-B-35 (35 ksi)
L3	120.00-115.00	5.00	0.00	12	22.0000	22.9002	0.2500	1.0000	A572-65 (65 ksi)
L4	115.00-110.00	5.00	0.00	12	22.9002	23.8005	0.2500	1.0000	A572-65 (65 ksi)
L5	110.00-105.00	5.00	0.00	12	23.8005	24.7007	0.2500	1.0000	A572-65 (65 ksi)
L6	105.00-100.00	5.00	0.00	12	24.7007	25.6009	0.2500	1.0000	A572-65 (65 ksi)
L7	100.00-95.00	5.00	0.00	12	25.6009	26.5012	0.2500	1.0000	A572-65 (65 ksi)
L8	95.00-91.50	3.50	0.00	12	26.5012	27.1313	0.2500	1.0000	A572-65 (65 ksi)
L9	91.50-91.25	0.25	0.00	12	27.1313	27.1763	0.4875	1.9500	A572-65 (65 ksi)
L10	91.25-86.25	5.00	0.00	12	27.1763	28.0766	0.4750	1.9000	A572-65 (65 ksi)
L11	86.25-81.25	5.00	0.00	12	28.0766	28.9768	0.4750	1.9000	A572-65 (65 ksi)
L12	81.25-77.00	4.25	3.75	12	28.9768	29.7420	0.4688	1.8750	A572-65 (65 ksi)
L13	77.00-75.75	5.00	0.00	12	28.5668	29.4670	0.5375	2.1500	A572-65 (65 ksi)
L14	75.75-70.75	5.00	0.00	12	29.4670	30.3671	0.5250	2.1000	A572-65 (65 ksi)
L15	70.75-65.75	5.00	0.00	12	30.3671	31.2672	0.5125	2.0500	A572-65 (65 ksi)
L16	65.75-63.00	2.75	0.00	12	31.2672	31.7623	0.5125	2.0500	A572-65 (65 ksi)
L17	63.00-62.73	0.27	0.00	12	31.7623	31.8109	0.7250	2.9000	A572-65 (65 ksi)
L18	62.73-62.58	0.15	0.00	12	31.8109	31.8379	0.7250	2.9000	A572-65 (65 ksi)
L19	62.58-61.50	1.08	0.00	12	31.8379	32.0324	0.7125	2.8500	A572-65 (65 ksi)
L20	61.50-61.25	0.25	0.00	12	32.0324	32.0774	0.5125	2.0500	A572-65 (65 ksi)
L21	61.25-56.25	5.00	0.00	12	32.0774	32.9775	0.5000	2.0000	A572-65 (65 ksi)
L22	56.25-51.25	5.00	0.00	12	32.9775	33.8776	0.5000	2.0000	A572-65 (65 ksi)
L23	51.25-46.25	5.00	0.00	12	33.8776	34.7778	0.4938	1.9750	A572-65 (65 ksi)
L24	46.25-37.75	8.50	4.50	12	34.7778	36.3080	0.4875	1.9500	A572-65 (65 ksi)
L25	37.75-36.75	5.50	0.00	12	34.8729	35.8632	0.8000	3.2000	A572-65 (65 ksi)
L26	36.75-32.25	4.50	0.00	12	35.8632	36.6734	0.7875	3.1500	A572-65 (65 ksi)
L27	32.25-32.00	0.25	0.00	12	36.6734	36.7184	0.9250	3.7000	A572-65 (65 ksi)
L28	32.00-31.83	0.17	0.00	12	36.7184	36.7490	0.9250	3.7000	A572-65 (65 ksi)
L29	31.83-31.48	0.35	0.00	12	36.7490	36.8120	0.5500	2.2000	A572-65 (65 ksi)

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L30	31.48-31.25	0.23	0.00	12	36.8120	36.8534	0.5437	2.1750	A572-65 (65 ksi)
L31	31.25-26.25	5.00	0.00	12	36.8534	37.7537	0.5375	2.1500	A572-65 (65 ksi)
L32	26.25-21.25	5.00	0.00	12	37.7537	38.6539	0.5375	2.1500	A572-65 (65 ksi)
L33	21.25-16.25	5.00	0.00	12	38.6539	39.5542	0.5313	2.1250	A572-65 (65 ksi)
L34	16.25-11.25	5.00	0.00	12	39.5542	40.4544	0.5250	2.1000	A572-65 (65 ksi)
L35	11.25-6.25	5.00	0.00	12	40.4544	41.3547	0.5250	2.1000	A572-65 (65 ksi)
L36	6.25-1.25	5.00	0.00	12	41.3547	42.2549	0.5188	2.0750	A572-65 (65 ksi)
L37	1.25-0.00	1.25		12	42.2549	42.4800	0.5188	2.0750	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	18.0000	20.7640	806.6313	6.2328	9.0000	89.6257	1613.2627	10.3758	0.0000	0
	18.0000	20.7640	806.6313	6.2328	9.0000	89.6257	1613.2627	10.3758	0.0000	0
L2	18.0000	20.7640	806.6313	6.2328	9.0000	89.6257	1613.2627	10.3758	0.0000	0
	18.0000	20.7640	806.6313	6.2328	9.0000	89.6257	1613.2627	10.3758	0.0000	0
L3	22.6879	17.5087	1057.2060	7.7865	11.3960	92.7699	2142.1860	8.6173	5.2260	20.904
	23.6199	18.2334	1193.9877	8.1088	11.8623	100.6538	2419.3428	8.9739	5.4673	21.869
L4	23.6199	18.2334	1193.9877	8.1088	11.8623	100.6538	2419.3428	8.9739	5.4673	21.869
	24.5519	18.9581	1342.0858	8.4311	12.3286	108.8592	2719.4297	9.3306	5.7085	22.834
L5	24.5519	18.9581	1342.0858	8.4311	12.3286	108.8592	2719.4297	9.3306	5.7085	22.834
	25.4839	19.6828	1501.9505	8.7533	12.7950	117.3861	3043.3589	9.6873	5.9498	23.799
L6	25.4839	19.6828	1501.9505	8.7533	12.7950	117.3861	3043.3589	9.6873	5.9498	23.799
	26.4158	20.4075	1674.0311	9.0756	13.2613	126.2345	3392.0408	10.0440	6.1910	24.764
L7	26.4158	20.4075	1674.0311	9.0756	13.2613	126.2345	3392.0408	10.0440	6.1910	24.764
	27.3478	21.1322	1858.7778	9.3979	13.7276	135.4044	3766.3878	10.4006	6.4323	25.729
L8	27.3478	21.1322	1858.7778	9.3979	13.7276	135.4044	3766.3878	10.4006	6.4323	25.729
	28.0002	21.6395	1995.8776	9.6235	14.0540	142.0146	4044.1890	10.6503	6.6012	26.405
L9	27.9164	41.8241	3789.7120	9.5385	14.0540	269.6531	7678.9840	20.5846	5.9647	12.235
	27.9630	41.8948	3808.9510	9.5546	14.0773	270.5732	7717.9675	20.6193	5.9768	12.26
L10	27.9675	40.8397	3716.5027	9.5591	14.0773	264.0060	7530.6421	20.1001	6.0103	12.653
	28.8994	42.2166	4105.2233	9.8814	14.5437	282.2689	8318.2955	20.7777	6.2515	13.161
L11	28.8994	42.2166	4105.2233	9.8814	14.5437	282.2689	8318.2955	20.7777	6.2515	13.161
	29.8314	43.5935	4520.1452	10.2036	15.0100	301.1426	9159.0397	21.4554	6.4928	13.669
L12	29.8336	43.0293	4463.6047	10.2059	15.0100	297.3757	9044.4733	21.1777	6.5095	13.887
	30.6258	44.1843	4832.7678	10.4798	15.4064	313.6866	9792.4978	21.7462	6.7146	14.324
L13	30.0839	48.5118	4864.7245	10.0345	14.7976	328.7506	9857.2508	23.8760	6.2154	11.564
	30.3168	50.0697	5348.6153	10.3567	15.2639	350.4098	10837.7447	24.6428	6.4566	12.012
L14	30.3212	48.9264	5231.0038	10.3612	15.2639	342.7046	10599.4318	24.0801	6.4901	12.362
	31.2531	50.4481	5734.4164	10.6835	15.7302	364.5492	11619.4823	24.8290	6.7314	12.822
L15	31.2575	49.2676	5604.9200	10.6879	15.7302	356.3168	11357.0875	24.2480	6.7649	13.2
	32.1894	50.7530	6127.3355	11.0102	16.1964	378.3140	12415.6429	24.9791	7.0061	13.67
L16	32.1894	50.7530	6127.3355	11.0102	16.1964	378.3140	12415.6429	24.9791	7.0061	13.67
	32.7020	51.5700	6428.0291	11.1874	16.4529	390.6933	13024.9297	25.3812	7.1388	13.929
L17	32.6270	72.4566	8909.0634	11.1114	16.4529	541.4897	18052.1778	35.6609	6.5693	9.061
	32.6773	72.5701	8950.9869	11.1288	16.4781	543.2065	18137.1261	35.7168	6.5823	9.079
L18	32.6773	72.5701	8950.9869	11.1288	16.4781	543.2065	18137.1261	35.7168	6.5823	9.079

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
	32.7053	72.6331	8974.3340	11.1384	16.4920	544.1614	18184.4338	35.7478	6.5896	9.089
L19	32.7097	71.4095	8830.2385	11.1429	16.4920	535.4242	17892.4573	35.1456	6.6231	9.296
	32.9110	71.8556	8996.7521	11.2125	16.5928	542.2096	18229.8588	35.3651	6.6752	9.369
L20	32.9815	52.0156	6596.1141	11.2841	16.5928	397.5297	13365.5155	25.6005	7.2112	14.071
	33.0281	52.0899	6624.4101	11.3002	16.6161	398.6749	13422.8509	25.6371	7.2232	14.094
L21	33.0325	50.8395	6470.5202	11.3047	16.6161	389.4134	13111.0282	25.0217	7.2567	14.513
	33.9644	52.2888	7039.7851	11.6269	17.0823	412.1089	14264.5131	25.7349	7.4980	14.996
L22	33.9644	52.2888	7039.7851	11.6269	17.0823	412.1089	14264.5131	25.7349	7.4980	14.996
	34.8963	53.7380	7641.4954	11.9492	17.5486	435.4473	15483.7413	26.4482	7.7392	15.478
L23	34.8985	53.0762	7550.2164	11.9514	17.5486	430.2458	15298.7855	26.1225	7.7560	15.708
	35.8304	54.5073	8177.5663	12.2737	18.0149	453.9339	16569.9664	26.8268	7.9972	16.197
L24	35.8326	53.8271	8078.4693	12.2759	18.0149	448.4331	16369.1690	26.4921	8.0139	16.439
	37.4168	56.2292	9208.9767	12.8237	18.8075	489.6427	18659.8834	27.6743	8.4240	17.28
L25	36.6597	87.7717	13006.4335	12.1981	18.0642	720.0136	26354.5605	43.1986	7.2019	9.002
	36.8461	90.3227	14173.7481	12.5526	18.5771	762.9683	28719.8563	44.4541	7.4673	9.334
L26	36.8505	88.9431	13967.2105	12.5571	18.5771	751.8504	28301.3552	43.7751	7.5008	9.525
	37.6893	90.9976	14957.6438	12.8471	18.9968	787.3766	30308.2415	44.7863	7.7180	9.801
L27	37.6408	106.4765	17368.1136	12.7979	18.9968	914.2647	35192.5070	52.4045	7.3495	7.945
	37.6874	106.6106	17433.8026	12.8140	19.0201	916.5976	35325.6107	52.4705	7.3615	7.958
L28	37.6874	106.6106	17433.8026	12.8140	19.0201	916.5976	35325.6107	52.4705	7.3615	7.958
	37.7191	106.7018	17478.5668	12.8250	19.0360	918.1857	35416.3151	52.5154	7.3697	7.967
L29	37.8513	64.1084	10722.4559	12.9592	19.0360	563.2730	21726.6026	31.5522	8.3747	15.227
	37.9166	64.2200	10778.5519	12.9818	19.0686	565.2506	21840.2684	31.6071	8.3916	15.257
L30	37.9188	63.5012	10661.5793	12.9840	19.0686	559.1163	21603.2501	31.2534	8.4084	15.464
	37.9617	63.5737	10698.1420	12.9989	19.0901	560.4033	21677.3360	31.2890	8.4195	15.484
L31	37.9639	62.8538	10580.6367	13.0011	19.0901	554.2480	21439.2384	30.9347	8.4362	15.695
	38.8959	64.4119	11387.1674	13.3234	19.5564	582.2730	23073.4884	31.7016	8.6775	16.144
L32	38.8959	64.4119	11387.1674	13.3234	19.5564	582.2730	23073.4884	31.7016	8.6775	16.144
	39.8279	65.9700	12233.6771	13.6457	20.0227	610.9893	24788.7464	32.4684	8.9188	16.593
L33	39.8301	65.2136	12097.3739	13.6479	20.0227	604.1818	24512.5593	32.0962	8.9355	16.82
	40.7621	66.7536	12974.7955	13.9702	20.4891	633.2546	26290.4534	32.8541	9.1768	17.274
L34	40.7643	65.9788	12828.3128	13.9724	20.4891	626.1053	25993.6396	32.4728	9.1935	17.511
	41.6963	67.5007	13736.6433	14.2947	20.9554	655.5181	27834.1635	33.2218	9.4348	17.971
L35	41.6963	67.5007	13736.6433	14.2947	20.9554	655.5181	27834.1635	33.2218	9.4348	17.971
	42.6283	69.0226	14686.8698	14.6170	21.4217	685.6062	29759.5801	33.9708	9.6761	18.431
L36	42.6305	68.2113	14518.6914	14.6193	21.4217	677.7554	29418.8050	33.5715	9.6928	18.685
	43.5625	69.7151	15500.2335	14.9416	21.8881	708.1594	31407.6754	34.3116	9.9341	19.15
L37	43.5625	69.7151	15500.2335	14.9416	21.8881	708.1594	31407.6754	34.3116	9.9341	19.15
	43.7955	70.0910	15752.3438	15.0221	22.0046	715.8646	31918.5193	34.4967	9.9944	19.266

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 130.00-125.00				1	1	1			
L2 125.00-120.00				1	1	1			
L3 120.00-115.00				1	1	1			
L4 115.00-110.00				1	1	1			
L5 110.00-105.00				1	1	1			
L6 105.00-100.00				1	1	1			
L7 100.00-95.00				1	1	1			
L8 95.00-91.50				1	1	1			
L9 91.50-91.25				1	1	0.947648			

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L10 91.25-86.25				1	1	0.95759			
L11 86.25-81.25				1	1	0.943968			
L12 81.25-77.00				1	1	0.955013			
L13 77.00-75.75				1	1	0.945932			
L14 75.75-70.75				1	1	0.956791			
L15 70.75-65.75				1	1	0.968889			
L16 65.75-63.00				1	1	0.963199			
L17 63.00-62.73				1	1	0.933538			
L18 62.73-62.58				1	1	0.933101			
L19 62.58-61.50				1	1	0.945921			
L20 61.50-61.25				1	1	0.959671			
L21 61.25-56.25				1	1	0.973344			
L22 56.25-51.25				1	1	0.96395			
L23 51.25-46.25				1	1	0.966962			
L24 46.25-37.75				1	1	0.972225			
L25 37.75-36.75				1	1	0.944256			
L26 36.75-32.25				1	1	0.948003			
L27 32.25-32.00				1	1	0.982282			
L28 32.00-31.83				1	1	0.98179			
L29 31.83-31.48				1	1	1.06521			
L30 31.48-31.25				1	1	1.07682			
L31 31.25-26.25				1	1	1.07969			
L32 26.25-21.25				1	1	1.07067			
L33 21.25-16.25				1	1	1.07438			
L34 16.25-11.25				1	1	1.07859			
L35 11.25-6.25				1	1	1.07056			
L36 6.25-1.25				1	1	1.07552			
L37 1.25-0.00				1	1	1.07363			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
***										
Safety Line 3/8	B	No	Surface Ar (CaAa)	130.00 - 0.00	1	1	0.250 0.250	0.3750		0.22
*										
(Area) CCI-65FP-065125 (H)	A	No	Surface Af (CaAa)	35.00 - 0.00	1	1	0.000 0.000	6.5000	15.5000	0.00
(Area) CCI-65FP-065125 (H)	B	No	Surface Af (CaAa)	35.00 - 0.00	1	1	-0.250 -0.250	6.5000	15.5000	0.00
(Area) CCI-65FP-065125 (H)	C	No	Surface Af (CaAa)	35.00 - 0.00	1	1	-0.250 -0.250	6.5000	15.5000	0.00
*										
(Area) CCI-65FP-060100 (H)	B	No	Surface Af (CaAa)	64.83 - 29.83	1	1	0.000 0.000	6.0000	14.0000	0.00
(Area) CCI-65FP-060100 (H)	C	No	Surface Af (CaAa)	64.83 - 29.83	1	1	0.000 0.000	6.0000	14.0000	0.00
*										
(Area) CCI-65FP-060100 (H)	A	No	Surface Af (CaAa)	65.00 - 35.00	1	1	0.000 0.000	6.0000	14.0000	0.00
*										
(Area) CCI-65FP-065125 (H)	A	No	Surface Af (CaAa)	43.00 - 28.00	1	1	0.250 0.250	6.5000	15.5000	0.00
(Area) CCI-65FP-065125 (H)	B	No	Surface Af (CaAa)	43.00 - 28.00	1	1	0.250 0.250	6.5000	15.5000	0.00
(Area) CCI-65FP-065125 (H)	C	No	Surface Af (CaAa)	43.00 - 28.00	1	1	0.250 0.250	6.5000	15.5000	0.00
*										
(Area) CCI-65FP-060100 (H)	A	No	Surface Af (CaAa)	94.00 - 59.00	1	1	0.250 0.250	6.0000	14.0000	0.00
(Area) CCI-65FP-060100 (H)	B	No	Surface Af (CaAa)	94.00 - 59.00	1	1	0.250 0.250	6.0000	14.0000	0.00
(Area) CCI-65FP-060100 (H)	C	No	Surface Af (CaAa)	94.00 - 59.00	1	1	0.250 0.250	6.0000	14.0000	0.00
*										

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
*									
HCS 6X12 4AWG(1-5/8)	C	No	No	Inside Pole	128.00 - 0.00	3	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	2.40 2.40 2.40
HB158-21U6S24-xx M_TMO(1-5/8)	C	No	No	Inside Pole	128.00 - 0.00	2	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	2.50 2.50 2.50
*									
HB058-M12-XXXF(5/8)	C	No	No	Inside Pole	118.00 - 0.00	1	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.24 0.24 0.24
HB114-1-0813U4-M5J(1-1/4)	C	No	No	Inside Pole	118.00 - 0.00	3	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	1.20 1.20 1.20
*									
LDF7-50A(1-5/8)	C	No	No	Inside Pole	110.00 - 0.00	12	No Ice	0.00	0.82

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
HB158-1-08U8-S8J	C	No	No	Inside Pole	110.00 - 0.00	1	No Ice	0.00	1.30
18(1-5/8)							1/2" Ice	0.00	1.30
							1" Ice	0.00	1.30
*									
860 10000(5/16)	C	No	No	Inside Pole	50.00 - 0.00	1	No Ice	0.00	0.00
							1/2" Ice	0.00	0.00
							1" Ice	0.00	0.00
*									

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	130.00-125.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.04
L2	125.00-120.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.06
L3	120.00-115.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.07
L4	115.00-110.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.08
L5	110.00-105.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.14
L6	105.00-100.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.14
L7	100.00-95.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.14
L8	95.00-91.50	A	0.000	0.000	2.500	0.000	0.00
		B	0.000	0.000	2.631	0.000	0.00
		C	0.000	0.000	2.500	0.000	0.10
L9	91.50-91.25	A	0.000	0.000	0.250	0.000	0.00
		B	0.000	0.000	0.259	0.000	0.00
		C	0.000	0.000	0.250	0.000	0.01
L10	91.25-86.25	A	0.000	0.000	5.000	0.000	0.00
		B	0.000	0.000	5.188	0.000	0.00
		C	0.000	0.000	5.000	0.000	0.14
L11	86.25-81.25	A	0.000	0.000	5.000	0.000	0.00
		B	0.000	0.000	5.188	0.000	0.00
		C	0.000	0.000	5.000	0.000	0.14
L12	81.25-77.00	A	0.000	0.000	4.250	0.000	0.00
		B	0.000	0.000	4.409	0.000	0.00
		C	0.000	0.000	4.250	0.000	0.12
L13	77.00-75.75	A	0.000	0.000	1.250	0.000	0.00
		B	0.000	0.000	1.297	0.000	0.00

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C	0.000	0.000	1.250	0.000	0.03
L14	75.75-70.75	A	0.000	0.000	5.000	0.000	0.00
		B	0.000	0.000	5.188	0.000	0.00
		C	0.000	0.000	5.000	0.000	0.14
L15	70.75-65.75	A	0.000	0.000	5.000	0.000	0.00
		B	0.000	0.000	5.188	0.000	0.00
		C	0.000	0.000	5.000	0.000	0.14
L16	65.75-63.00	A	0.000	0.000	4.750	0.000	0.00
		B	0.000	0.000	4.683	0.000	0.00
		C	0.000	0.000	4.580	0.000	0.07
L17	63.00-62.73	A	0.000	0.000	0.540	0.000	0.00
		B	0.000	0.000	0.550	0.000	0.00
		C	0.000	0.000	0.540	0.000	0.01
L18	62.73-62.58	A	0.000	0.000	0.300	0.000	0.00
		B	0.000	0.000	0.306	0.000	0.00
		C	0.000	0.000	0.300	0.000	0.00
L19	62.58-61.50	A	0.000	0.000	2.160	0.000	0.00
		B	0.000	0.000	2.200	0.000	0.00
		C	0.000	0.000	2.160	0.000	0.03
L20	61.50-61.25	A	0.000	0.000	0.500	0.000	0.00
		B	0.000	0.000	0.509	0.000	0.00
		C	0.000	0.000	0.500	0.000	0.01
L21	61.25-56.25	A	0.000	0.000	7.250	0.000	0.00
		B	0.000	0.000	7.438	0.000	0.00
		C	0.000	0.000	7.250	0.000	0.14
L22	56.25-51.25	A	0.000	0.000	5.000	0.000	0.00
		B	0.000	0.000	5.188	0.000	0.00
		C	0.000	0.000	5.000	0.000	0.14
L23	51.25-46.25	A	0.000	0.000	5.000	0.000	0.00
		B	0.000	0.000	5.188	0.000	0.00
		C	0.000	0.000	5.000	0.000	0.14
L24	46.25-37.75	A	0.000	0.000	14.188	0.000	0.00
		B	0.000	0.000	14.506	0.000	0.00
		C	0.000	0.000	14.188	0.000	0.23
L25	37.75-36.75	A	0.000	0.000	2.083	0.000	0.00
		B	0.000	0.000	2.121	0.000	0.00
		C	0.000	0.000	2.083	0.000	0.03
L26	36.75-32.25	A	0.000	0.000	9.604	0.000	0.00
		B	0.000	0.000	12.523	0.000	0.00
		C	0.000	0.000	12.354	0.000	0.12
L27	32.25-32.00	A	0.000	0.000	0.542	0.000	0.00
		B	0.000	0.000	0.801	0.000	0.00
		C	0.000	0.000	0.792	0.000	0.01
L28	32.00-31.83	A	0.000	0.000	0.368	0.000	0.00
		B	0.000	0.000	0.545	0.000	0.00
		C	0.000	0.000	0.538	0.000	0.00
L29	31.83-31.48	A	0.000	0.000	0.758	0.000	0.00
		B	0.000	0.000	1.121	0.000	0.00
		C	0.000	0.000	1.108	0.000	0.01
L30	31.48-31.25	A	0.000	0.000	0.498	0.000	0.00
		B	0.000	0.000	0.737	0.000	0.00
		C	0.000	0.000	0.728	0.000	0.01
L31	31.25-26.25	A	0.000	0.000	8.938	0.000	0.00
		B	0.000	0.000	10.545	0.000	0.00
		C	0.000	0.000	10.358	0.000	0.14
L32	26.25-21.25	A	0.000	0.000	5.417	0.000	0.00
		B	0.000	0.000	5.604	0.000	0.00
		C	0.000	0.000	5.417	0.000	0.14
L33	21.25-16.25	A	0.000	0.000	5.417	0.000	0.00
		B	0.000	0.000	5.604	0.000	0.00
		C	0.000	0.000	5.417	0.000	0.14

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L34	16.25-11.25	A	0.000	0.000	5.417	0.000	0.00
		B	0.000	0.000	5.604	0.000	0.00
		C	0.000	0.000	5.417	0.000	0.14
L35	11.25-6.25	A	0.000	0.000	5.417	0.000	0.00
		B	0.000	0.000	5.604	0.000	0.00
		C	0.000	0.000	5.417	0.000	0.14
L36	6.25-1.25	A	0.000	0.000	5.417	0.000	0.00
		B	0.000	0.000	5.604	0.000	0.00
		C	0.000	0.000	5.417	0.000	0.14
L37	1.25-0.00	A	0.000	0.000	1.354	0.000	0.00
		B	0.000	0.000	1.401	0.000	0.00
		C	0.000	0.000	1.354	0.000	0.03

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	130.00-125.00	A	0.973	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	1.161	0.000	0.01
		C		0.000	0.000	0.000	0.000	0.04
L2	125.00-120.00	A	0.969	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	1.157	0.000	0.01
		C		0.000	0.000	0.000	0.000	0.06
L3	120.00-115.00	A	0.965	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	1.153	0.000	0.01
		C		0.000	0.000	0.000	0.000	0.07
L4	115.00-110.00	A	0.961	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	1.148	0.000	0.01
		C		0.000	0.000	0.000	0.000	0.08
L5	110.00-105.00	A	0.957	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	1.144	0.000	0.01
		C		0.000	0.000	0.000	0.000	0.14
L6	105.00-100.00	A	0.952	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	1.139	0.000	0.01
		C		0.000	0.000	0.000	0.000	0.14
L7	100.00-95.00	A	0.947	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	1.135	0.000	0.01
		C		0.000	0.000	0.000	0.000	0.14
L8	95.00-91.50	A	0.943	0.000	0.000	2.972	0.000	0.02
		B		0.000	0.000	3.763	0.000	0.02
		C		0.000	0.000	2.972	0.000	0.11
L9	91.50-91.25	A	0.941	0.000	0.000	0.297	0.000	0.00
		B		0.000	0.000	0.353	0.000	0.00
		C		0.000	0.000	0.297	0.000	0.01
L10	91.25-86.25	A	0.938	0.000	0.000	5.938	0.000	0.03
		B		0.000	0.000	7.064	0.000	0.04
		C		0.000	0.000	5.938	0.000	0.17
L11	86.25-81.25	A	0.933	0.000	0.000	5.933	0.000	0.03
		B		0.000	0.000	7.053	0.000	0.04
		C		0.000	0.000	5.933	0.000	0.17
L12	81.25-77.00	A	0.928	0.000	0.000	5.039	0.000	0.03
		B		0.000	0.000	5.986	0.000	0.03
		C		0.000	0.000	5.039	0.000	0.14
L13	77.00-75.75	A	0.924	0.000	0.000	1.482	0.000	0.01
		B		0.000	0.000	1.761	0.000	0.01
		C		0.000	0.000	1.482	0.000	0.04
L14	75.75-70.75	A	0.921	0.000	0.000	5.921	0.000	0.03

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B		0.000	0.000	7.029	0.000	0.04
		C		0.000	0.000	5.921	0.000	0.17
L15	70.75-65.75	A	0.914	0.000	0.000	5.914	0.000	0.03
		B		0.000	0.000	7.016	0.000	0.04
		C		0.000	0.000	5.914	0.000	0.17
L16	65.75-63.00	A	0.909	0.000	0.000	5.613	0.000	0.03
		B		0.000	0.000	6.015	0.000	0.03
		C		0.000	0.000	5.412	0.000	0.10
L17	63.00-62.73	A	0.907	0.000	0.000	0.638	0.000	0.00
		B		0.000	0.000	0.697	0.000	0.00
		C		0.000	0.000	0.638	0.000	0.01
L18	62.73-62.58	A	0.906	0.000	0.000	0.354	0.000	0.00
		B		0.000	0.000	0.387	0.000	0.00
		C		0.000	0.000	0.354	0.000	0.01
L19	62.58-61.50	A	0.905	0.000	0.000	2.551	0.000	0.01
		B		0.000	0.000	2.787	0.000	0.02
		C		0.000	0.000	2.551	0.000	0.04
L20	61.50-61.25	A	0.904	0.000	0.000	0.590	0.000	0.00
		B		0.000	0.000	0.645	0.000	0.00
		C		0.000	0.000	0.590	0.000	0.01
L21	61.25-56.25	A	0.900	0.000	0.000	8.556	0.000	0.04
		B		0.000	0.000	9.644	0.000	0.05
		C		0.000	0.000	8.556	0.000	0.18
L22	56.25-51.25	A	0.892	0.000	0.000	5.892	0.000	0.03
		B		0.000	0.000	6.972	0.000	0.04
		C		0.000	0.000	5.892	0.000	0.17
L23	51.25-46.25	A	0.884	0.000	0.000	5.884	0.000	0.03
		B		0.000	0.000	6.955	0.000	0.04
		C		0.000	0.000	5.884	0.000	0.17
L24	46.25-37.75	A	0.871	0.000	0.000	16.364	0.000	0.08
		B		0.000	0.000	18.163	0.000	0.10
		C		0.000	0.000	16.364	0.000	0.31
L25	37.75-36.75	A	0.860	0.000	0.000	2.391	0.000	0.01
		B		0.000	0.000	2.603	0.000	0.01
		C		0.000	0.000	2.391	0.000	0.04
L26	36.75-32.25	A	0.854	0.000	0.000	10.962	0.000	0.06
		B		0.000	0.000	15.118	0.000	0.08
		C		0.000	0.000	14.181	0.000	0.19
L27	32.25-32.00	A	0.848	0.000	0.000	0.617	0.000	0.00
		B		0.000	0.000	0.961	0.000	0.00
		C		0.000	0.000	0.909	0.000	0.01
L28	32.00-31.83	A	0.847	0.000	0.000	0.419	0.000	0.00
		B		0.000	0.000	0.653	0.000	0.00
		C		0.000	0.000	0.618	0.000	0.01
L29	31.83-31.48	A	0.846	0.000	0.000	0.863	0.000	0.00
		B		0.000	0.000	1.345	0.000	0.01
		C		0.000	0.000	1.272	0.000	0.02
L30	31.48-31.25	A	0.846	0.000	0.000	0.567	0.000	0.00
		B		0.000	0.000	0.884	0.000	0.00
		C		0.000	0.000	0.836	0.000	0.01
L31	31.25-26.25	A	0.838	0.000	0.000	10.196	0.000	0.05
		B		0.000	0.000	12.880	0.000	0.07
		C		0.000	0.000	11.854	0.000	0.19
L32	26.25-21.25	A	0.822	0.000	0.000	6.239	0.000	0.03
		B		0.000	0.000	7.249	0.000	0.04
		C		0.000	0.000	6.239	0.000	0.17
L33	21.25-16.25	A	0.803	0.000	0.000	6.220	0.000	0.03
		B		0.000	0.000	7.211	0.000	0.04
		C		0.000	0.000	6.220	0.000	0.16
L34	16.25-11.25	A	0.779	0.000	0.000	6.195	0.000	0.03
		B		0.000	0.000	7.162	0.000	0.03

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C		0.000	0.000	6.195	0.000	0.16
L35	11.25-6.25	A	0.744	0.000	0.000	6.161	0.000	0.03
		B		0.000	0.000	7.093	0.000	0.03
		C		0.000	0.000	6.161	0.000	0.16
L36	6.25-1.25	A	0.684	0.000	0.000	6.100	0.000	0.02
		B		0.000	0.000	6.972	0.000	0.03
		C		0.000	0.000	6.100	0.000	0.16
L37	1.25-0.00	A	0.572	0.000	0.000	1.497	0.000	0.00
		B		0.000	0.000	1.687	0.000	0.01
		C		0.000	0.000	1.497	0.000	0.04

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	130.00-125.00	0.3675	0.0000	0.9577	0.0000
L2	125.00-120.00	0.3675	0.0000	0.9551	0.0000
L3	120.00-115.00	0.2288	0.0000	0.9605	0.0000
L4	115.00-110.00	0.2288	0.0000	0.9626	0.0000
L5	110.00-105.00	0.2288	0.0000	0.9642	0.0000
L6	105.00-100.00	0.2288	0.0000	0.9653	0.0000
L7	100.00-95.00	0.2288	0.0000	0.9659	0.0000
L8	95.00-91.50	0.1166	0.0000	0.5366	0.0000
L9	91.50-91.25	0.0983	0.0000	0.4588	0.0000
L10	91.25-86.25	0.0993	0.0000	0.4623	0.0000
L11	86.25-81.25	0.1011	0.0000	0.4688	0.0000
L12	81.25-77.00	0.1027	0.0000	0.4745	0.0000
L13	77.00-75.75	0.1027	0.0000	0.4747	0.0000
L14	75.75-70.75	0.1037	0.0000	0.4770	0.0000
L15	70.75-65.75	0.1054	0.0000	0.4823	0.0000
L16	65.75-63.00	-0.0352	-0.0654	0.2567	-0.0615
L17	63.00-62.73	0.0699	0.0000	0.3272	0.0000
L18	62.73-62.58	0.0700	0.0000	0.3274	0.0000
L19	62.58-61.50	0.0702	0.0000	0.3280	0.0000
L20	61.50-61.25	0.0703	0.0000	0.3283	0.0000
L21	61.25-56.25	0.0876	0.0000	0.4031	0.0000
L22	56.25-51.25	0.1100	0.0000	0.4951	0.0000
L23	51.25-46.25	0.1115	0.0000	0.4985	0.0000
L24	46.25-37.75	0.0848	0.0000	0.3869	0.0000
L25	37.75-36.75	0.0737	0.0000	0.3406	0.0000
L26	36.75-32.25	1.1553	-0.6169	1.3503	-0.5842
L27	32.25-32.00	1.7164	-0.9368	1.8811	-0.8902
L28	32.00-31.83	1.7177	-0.9375	1.8823	-0.8909
L29	31.83-31.48	1.7177	-0.9376	1.8820	-0.8908
L30	31.48-31.25	1.7194	-0.9385	1.8836	-0.8917
L31	31.25-26.25	0.9073	-1.9808	1.1412	-1.8711
L32	26.25-21.25	0.5601	-3.2844	0.8941	-3.0109
L33	21.25-16.25	0.5664	-3.3222	0.8958	-3.0431
L34	16.25-11.25	0.5725	-3.3591	0.8945	-3.0737
L35	11.25-6.25	0.5786	-3.3953	0.8882	-3.1021
L36	6.25-1.25	0.5844	-3.4306	0.8687	-3.1257
L37	1.25-0.00	0.5881	-3.4524	0.8197	-3.1293

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

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	2	Safety Line 3/8	125.00 - 130.00	1.0000	1.0000
L2	2	Safety Line 3/8	120.00 - 125.00	1.0000	1.0000
L3	2	Safety Line 3/8	115.00 - 120.00	1.0000	1.0000
L4	2	Safety Line 3/8	110.00 - 115.00	1.0000	1.0000
L5	2	Safety Line 3/8	105.00 - 110.00	1.0000	1.0000
L6	2	Safety Line 3/8	100.00 - 105.00	1.0000	1.0000
L7	2	Safety Line 3/8	95.00 - 100.00	1.0000	1.0000
L8	2	Safety Line 3/8	91.50 - 95.00	1.0000	1.0000
L8	28	(Area) CCI-65FP-060100 (H)	91.50 - 94.00	1.0000	1.0000
L8	29	(Area) CCI-65FP-060100 (H)	91.50 - 94.00	1.0000	1.0000
L8	30	(Area) CCI-65FP-060100 (H)	91.50 - 94.00	1.0000	1.0000
L9	2	Safety Line 3/8	91.25 - 91.50	1.0000	1.0000
L9	28	(Area) CCI-65FP-060100 (H)	91.25 - 91.50	1.0000	1.0000
L9	29	(Area) CCI-65FP-060100 (H)	91.25 - 91.50	1.0000	1.0000
L9	30	(Area) CCI-65FP-060100 (H)	91.25 - 91.50	1.0000	1.0000
L10	2	Safety Line 3/8	86.25 - 91.25	1.0000	1.0000
L10	28	(Area) CCI-65FP-060100 (H)	86.25 - 91.25	1.0000	1.0000
L10	29	(Area) CCI-65FP-060100 (H)	86.25 - 91.25	1.0000	1.0000
L10	30	(Area) CCI-65FP-060100 (H)	86.25 - 91.25	1.0000	1.0000
L11	2	Safety Line 3/8	81.25 - 86.25	1.0000	1.0000
L11	28	(Area) CCI-65FP-060100 (H)	81.25 - 86.25	1.0000	1.0000
L11	29	(Area) CCI-65FP-060100 (H)	81.25 - 86.25	1.0000	1.0000
L11	30	(Area) CCI-65FP-060100 (H)	81.25 - 86.25	1.0000	1.0000
L12	2	Safety Line 3/8	77.00 - 81.25	1.0000	1.0000
L12	28	(Area) CCI-65FP-060100 (H)	77.00 - 81.25	1.0000	1.0000
L12	29	(Area) CCI-65FP-060100 (H)	77.00 - 81.25	1.0000	1.0000
L12	30	(Area) CCI-65FP-060100 (H)	77.00 - 81.25	1.0000	1.0000
L13	2	Safety Line 3/8	75.75 - 77.00	1.0000	1.0000
L13	28	(Area) CCI-65FP-060100 (H)	75.75 - 77.00	1.0000	1.0000
L13	29	(Area) CCI-65FP-060100 (H)	75.75 - 77.00	1.0000	1.0000
L13	30	(Area) CCI-65FP-060100 (H)	75.75 - 77.00	1.0000	1.0000
L14	2	Safety Line 3/8	70.75 - 75.75	1.0000	1.0000
L14	28	(Area) CCI-65FP-060100 (H)	70.75 - 75.75	1.0000	1.0000
L14	29	(Area) CCI-65FP-060100 (H)	70.75 - 75.75	1.0000	1.0000
L14	30	(Area) CCI-65FP-060100 (H)	70.75 - 75.75	1.0000	1.0000
L15	2	Safety Line 3/8	65.75 - 70.75	1.0000	1.0000
L15	28	(Area) CCI-65FP-060100 (H)	65.75 - 70.75	1.0000	1.0000
L15	29	(Area) CCI-65FP-060100 (H)	65.75 - 70.75	1.0000	1.0000
L15	30	(Area) CCI-65FP-060100 (H)	65.75 - 70.75	1.0000	1.0000
L16	2	Safety Line 3/8	63.00 - 65.75	1.0000	1.0000
L16	19	(Area) CCI-65FP-060100 (H)	63.00 - 64.83	1.0000	1.0000
L16	20	(Area) CCI-65FP-060100 (H)	63.00 - 64.83	1.0000	1.0000
L16	22	(Area) CCI-65FP-060100 (H)	63.00 - 65.00	1.0000	1.0000
L16	28	(Area) CCI-65FP-060100 (H)	63.00 - 65.75	1.0000	1.0000
L16	29	(Area) CCI-65FP-060100 (H)	63.00 - 65.75	1.0000	1.0000
L16	30	(Area) CCI-65FP-060100 (H)	63.00 - 65.75	1.0000	1.0000
L17	2	Safety Line 3/8	62.73 - 63.00	1.0000	1.0000
L17	19	(Area) CCI-65FP-060100 (H)	62.73 - 63.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L17	20	(Area) CCI-65FP-060100 (H)	62.73 - 63.00	1.0000	1.0000
L17	22	(Area) CCI-65FP-060100 (H)	62.73 - 63.00	1.0000	1.0000
L17	28	(Area) CCI-65FP-060100 (H)	62.73 - 63.00	1.0000	1.0000
L17	29	(Area) CCI-65FP-060100 (H)	62.73 - 63.00	1.0000	1.0000
L17	30	(Area) CCI-65FP-060100 (H)	62.73 - 63.00	1.0000	1.0000
L18	2	Safety Line 3/8	62.58 - 62.73	1.0000	1.0000
L18	19	(Area) CCI-65FP-060100 (H)	62.58 - 62.73	1.0000	1.0000
L18	20	(Area) CCI-65FP-060100 (H)	62.58 - 62.73	1.0000	1.0000
L18	22	(Area) CCI-65FP-060100 (H)	62.58 - 62.73	1.0000	1.0000
L18	28	(Area) CCI-65FP-060100 (H)	62.58 - 62.73	1.0000	1.0000
L18	29	(Area) CCI-65FP-060100 (H)	62.58 - 62.73	1.0000	1.0000
L18	30	(Area) CCI-65FP-060100 (H)	62.58 - 62.73	1.0000	1.0000
L19	2	Safety Line 3/8	61.50 - 62.58	1.0000	1.0000
L19	19	(Area) CCI-65FP-060100 (H)	61.50 - 62.58	1.0000	1.0000
L19	20	(Area) CCI-65FP-060100 (H)	61.50 - 62.58	1.0000	1.0000
L19	22	(Area) CCI-65FP-060100 (H)	61.50 - 62.58	1.0000	1.0000
L19	28	(Area) CCI-65FP-060100 (H)	61.50 - 62.58	1.0000	1.0000
L19	29	(Area) CCI-65FP-060100 (H)	61.50 - 62.58	1.0000	1.0000
L19	30	(Area) CCI-65FP-060100 (H)	61.50 - 62.58	1.0000	1.0000
L20	2	Safety Line 3/8	61.25 - 61.50	1.0000	1.0000
L20	19	(Area) CCI-65FP-060100 (H)	61.25 - 61.50	1.0000	1.0000
L20	20	(Area) CCI-65FP-060100 (H)	61.25 - 61.50	1.0000	1.0000
L20	22	(Area) CCI-65FP-060100 (H)	61.25 - 61.50	1.0000	1.0000
L20	28	(Area) CCI-65FP-060100 (H)	61.25 - 61.50	1.0000	1.0000
L20	29	(Area) CCI-65FP-060100 (H)	61.25 - 61.50	1.0000	1.0000
L20	30	(Area) CCI-65FP-060100 (H)	61.25 - 61.50	1.0000	1.0000
L21	2	Safety Line 3/8	56.25 - 61.25	1.0000	1.0000
L21	19	(Area) CCI-65FP-060100 (H)	56.25 - 61.25	1.0000	1.0000
L21	20	(Area) CCI-65FP-060100 (H)	56.25 - 61.25	1.0000	1.0000
L21	22	(Area) CCI-65FP-060100 (H)	56.25 - 61.25	1.0000	1.0000
L21	28	(Area) CCI-65FP-060100 (H)	59.00 - 61.25	1.0000	1.0000
L21	29	(Area) CCI-65FP-060100 (H)	59.00 - 61.25	1.0000	1.0000
L21	30	(Area) CCI-65FP-060100 (H)	59.00 - 61.25	1.0000	1.0000
L22	2	Safety Line 3/8	51.25 - 56.25	1.0000	1.0000
L22	19	(Area) CCI-65FP-060100 (H)	51.25 - 56.25	1.0000	1.0000
L22	20	(Area) CCI-65FP-060100 (H)	51.25 - 56.25	1.0000	1.0000
L22	22	(Area) CCI-65FP-060100 (H)	51.25 - 56.25	1.0000	1.0000
L23	2	Safety Line 3/8	46.25 - 51.25	1.0000	1.0000
L23	19	(Area) CCI-65FP-060100 (H)	46.25 - 51.25	1.0000	1.0000
L23	20	(Area) CCI-65FP-060100 (H)	46.25 - 51.25	1.0000	1.0000
L23	22	(Area) CCI-65FP-060100 (H)	46.25 - 51.25	1.0000	1.0000
L24	2	Safety Line 3/8	37.75 - 46.25	1.0000	1.0000
L24	19	(Area) CCI-65FP-060100 (H)	37.75 - 46.25	1.0000	1.0000
L24	20	(Area) CCI-65FP-060100 (H)	37.75 - 46.25	1.0000	1.0000
L24	22	(Area) CCI-65FP-060100 (H)	37.75 - 46.25	1.0000	1.0000
L24	24	(Area) CCI-65FP-065125 (H)	37.75 - 43.00	1.0000	1.0000
L24	25	(Area) CCI-65FP-065125 (H)	37.75 - 43.00	1.0000	1.0000
L24	26	(Area) CCI-65FP-065125 (H)	37.75 - 43.00	1.0000	1.0000
L25	2	Safety Line 3/8	36.75 - 37.75	1.0000	1.0000
L25	19	(Area) CCI-65FP-060100 (H)	36.75 - 37.75	1.0000	1.0000
L25	20	(Area) CCI-65FP-060100 (H)	36.75 - 37.75	1.0000	1.0000
L25	22	(Area) CCI-65FP-060100 (H)	36.75 - 37.75	1.0000	1.0000
L25	24	(Area) CCI-65FP-065125 (H)	36.75 - 37.75	1.0000	1.0000
L25	25	(Area) CCI-65FP-065125 (H)	36.75 - 37.75	1.0000	1.0000
L25	26	(Area) CCI-65FP-065125 (H)	36.75 - 37.75	1.0000	1.0000
L26	2	Safety Line 3/8	32.25 - 36.75	1.0000	1.0000
L26	15	(Area) CCI-65FP-065125 (H)	32.25 - 35.00	1.0000	1.0000
L26	16	(Area) CCI-65FP-065125 (H)	32.25 - 35.00	1.0000	1.0000
L26	17	(Area) CCI-65FP-065125 (H)	32.25 - 35.00	1.0000	1.0000
L26	19	(Area) CCI-65FP-060100 (H)	32.25 - 36.75	1.0000	1.0000
L26	20	(Area) CCI-65FP-060100 (H)	32.25 - 36.75	1.0000	1.0000
L26	22	(Area) CCI-65FP-060100 (H)	35.00 - 36.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L26	24	(Area) CCI-65FP-065125 (H)	32.25 - 36.75	1.0000	1.0000
L26	25	(Area) CCI-65FP-065125 (H)	32.25 - 36.75	1.0000	1.0000
L26	26	(Area) CCI-65FP-065125 (H)	32.25 - 36.75	1.0000	1.0000
L27	2	Safety Line 3/8	32.00 - 32.25	1.0000	1.0000
L27	15	(Area) CCI-65FP-065125 (H)	32.00 - 32.25	1.0000	1.0000
L27	16	(Area) CCI-65FP-065125 (H)	32.00 - 32.25	1.0000	1.0000
L27	17	(Area) CCI-65FP-065125 (H)	32.00 - 32.25	1.0000	1.0000
L27	19	(Area) CCI-65FP-060100 (H)	32.00 - 32.25	1.0000	1.0000
L27	20	(Area) CCI-65FP-060100 (H)	32.00 - 32.25	1.0000	1.0000
L27	24	(Area) CCI-65FP-065125 (H)	32.00 - 32.25	1.0000	1.0000
L27	25	(Area) CCI-65FP-065125 (H)	32.00 - 32.25	1.0000	1.0000
L27	26	(Area) CCI-65FP-065125 (H)	32.00 - 32.25	1.0000	1.0000
L28	2	Safety Line 3/8	31.83 - 32.00	1.0000	1.0000
L28	15	(Area) CCI-65FP-065125 (H)	31.83 - 32.00	1.0000	1.0000
L28	16	(Area) CCI-65FP-065125 (H)	31.83 - 32.00	1.0000	1.0000
L28	17	(Area) CCI-65FP-065125 (H)	31.83 - 32.00	1.0000	1.0000
L28	19	(Area) CCI-65FP-060100 (H)	31.83 - 32.00	1.0000	1.0000
L28	20	(Area) CCI-65FP-060100 (H)	31.83 - 32.00	1.0000	1.0000
L28	24	(Area) CCI-65FP-065125 (H)	31.83 - 32.00	1.0000	1.0000
L28	25	(Area) CCI-65FP-065125 (H)	31.83 - 32.00	1.0000	1.0000
L28	26	(Area) CCI-65FP-065125 (H)	31.83 - 32.00	1.0000	1.0000
L29	2	Safety Line 3/8	31.48 - 31.83	1.0000	1.0000
L29	15	(Area) CCI-65FP-065125 (H)	31.48 - 31.83	1.0000	1.0000
L29	16	(Area) CCI-65FP-065125 (H)	31.48 - 31.83	1.0000	1.0000
L29	17	(Area) CCI-65FP-065125 (H)	31.48 - 31.83	1.0000	1.0000
L29	19	(Area) CCI-65FP-060100 (H)	31.48 - 31.83	1.0000	1.0000
L29	20	(Area) CCI-65FP-060100 (H)	31.48 - 31.83	1.0000	1.0000
L29	24	(Area) CCI-65FP-065125 (H)	31.48 - 31.83	1.0000	1.0000
L29	25	(Area) CCI-65FP-065125 (H)	31.48 - 31.83	1.0000	1.0000
L29	26	(Area) CCI-65FP-065125 (H)	31.48 - 31.83	1.0000	1.0000
L30	2	Safety Line 3/8	31.25 - 31.48	1.0000	1.0000
L30	15	(Area) CCI-65FP-065125 (H)	31.25 - 31.48	1.0000	1.0000
L30	16	(Area) CCI-65FP-065125 (H)	31.25 - 31.48	1.0000	1.0000
L30	17	(Area) CCI-65FP-065125 (H)	31.25 - 31.48	1.0000	1.0000
L30	19	(Area) CCI-65FP-060100 (H)	31.25 - 31.48	1.0000	1.0000
L30	20	(Area) CCI-65FP-060100 (H)	31.25 - 31.48	1.0000	1.0000
L30	24	(Area) CCI-65FP-065125 (H)	31.25 - 31.48	1.0000	1.0000
L30	25	(Area) CCI-65FP-065125 (H)	31.25 - 31.48	1.0000	1.0000
L30	26	(Area) CCI-65FP-065125 (H)	31.25 - 31.48	1.0000	1.0000
L31	2	Safety Line 3/8	26.25 - 31.25	1.0000	1.0000
L31	15	(Area) CCI-65FP-065125 (H)	26.25 - 31.25	1.0000	1.0000
L31	16	(Area) CCI-65FP-065125 (H)	26.25 - 31.25	1.0000	1.0000
L31	17	(Area) CCI-65FP-065125 (H)	26.25 - 31.25	1.0000	1.0000
L31	19	(Area) CCI-65FP-060100 (H)	29.83 - 31.25	1.0000	1.0000
L31	20	(Area) CCI-65FP-060100 (H)	29.83 - 31.25	1.0000	1.0000
L31	24	(Area) CCI-65FP-065125 (H)	28.00 - 31.25	1.0000	1.0000
L31	25	(Area) CCI-65FP-065125 (H)	28.00 - 31.25	1.0000	1.0000
L31	26	(Area) CCI-65FP-065125 (H)	28.00 - 31.25	1.0000	1.0000
L32	2	Safety Line 3/8	21.25 - 26.25	1.0000	1.0000
L32	15	(Area) CCI-65FP-065125 (H)	21.25 - 26.25	1.0000	1.0000
L32	16	(Area) CCI-65FP-065125 (H)	21.25 - 26.25	1.0000	1.0000
L32	17	(Area) CCI-65FP-065125 (H)	21.25 - 26.25	1.0000	1.0000
L33	2	Safety Line 3/8	16.25 - 21.25	1.0000	1.0000
L33	15	(Area) CCI-65FP-065125 (H)	16.25 - 21.25	1.0000	1.0000
L33	16	(Area) CCI-65FP-065125 (H)	16.25 - 21.25	1.0000	1.0000
L33	17	(Area) CCI-65FP-065125 (H)	16.25 - 21.25	1.0000	1.0000
L34	2	Safety Line 3/8	11.25 - 16.25	1.0000	1.0000
L34	15	(Area) CCI-65FP-065125 (H)	11.25 - 16.25	1.0000	1.0000
L34	16	(Area) CCI-65FP-065125 (H)	11.25 - 16.25	1.0000	1.0000
L34	17	(Area) CCI-65FP-065125 (H)	11.25 - 16.25	1.0000	1.0000
L35	2	Safety Line 3/8	6.25 - 11.25	1.0000	1.0000
L35	15	(Area) CCI-65FP-065125 (H)	6.25 - 11.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L35	16	(Area) CCI-65FP-065125 (H)	6.25 - 11.25	1.0000	1.0000
L35	17	(Area) CCI-65FP-065125 (H)	6.25 - 11.25	1.0000	1.0000
L36	2	Safety Line 3/8	1.25 - 6.25	1.0000	1.0000
L36	15	(Area) CCI-65FP-065125 (H)	1.25 - 6.25	1.0000	1.0000
L36	16	(Area) CCI-65FP-065125 (H)	1.25 - 6.25	1.0000	1.0000
L36	17	(Area) CCI-65FP-065125 (H)	1.25 - 6.25	1.0000	1.0000
L37	2	Safety Line 3/8	0.00 - 1.25	1.0000	1.0000
L37	15	(Area) CCI-65FP-065125 (H)	0.00 - 1.25	1.0000	1.0000
L37	16	(Area) CCI-65FP-065125 (H)	0.00 - 1.25	1.0000	1.0000
L37	17	(Area) CCI-65FP-065125 (H)	0.00 - 1.25	1.0000	1.0000

Effective Width of Flat Linear Attachments / Feed Lines

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L8	28	(Area) CCI-65FP-060100 (H)	91.50 - 94.00	Auto	0.0000
L8	29	(Area) CCI-65FP-060100 (H)	91.50 - 94.00	Auto	0.0000
L8	30	(Area) CCI-65FP-060100 (H)	91.50 - 94.00	Auto	0.0000
L9	28	(Area) CCI-65FP-060100 (H)	91.25 - 91.50	Auto	0.0049
L9	29	(Area) CCI-65FP-060100 (H)	91.25 - 91.50	Auto	0.0049
L9	30	(Area) CCI-65FP-060100 (H)	91.25 - 91.50	Auto	0.0049
L10	28	(Area) CCI-65FP-060100 (H)	86.25 - 91.25	Auto	0.0000
L10	29	(Area) CCI-65FP-060100 (H)	86.25 - 91.25	Auto	0.0000
L10	30	(Area) CCI-65FP-060100 (H)	86.25 - 91.25	Auto	0.0000
L11	28	(Area) CCI-65FP-060100 (H)	81.25 - 86.25	Auto	0.0000
L11	29	(Area) CCI-65FP-060100 (H)	81.25 - 86.25	Auto	0.0000
L11	30	(Area) CCI-65FP-060100 (H)	81.25 - 86.25	Auto	0.0000
L12	28	(Area) CCI-65FP-060100 (H)	77.00 - 81.25	Auto	0.0000
L12	29	(Area) CCI-65FP-060100 (H)	77.00 - 81.25	Auto	0.0000
L12	30	(Area) CCI-65FP-060100 (H)	77.00 - 81.25	Auto	0.0000
L13	28	(Area) CCI-65FP-060100 (H)	75.75 - 77.00	Auto	0.0000
L13	29	(Area) CCI-65FP-060100 (H)	75.75 - 77.00	Auto	0.0000
L13	30	(Area) CCI-65FP-060100 (H)	75.75 - 77.00	Auto	0.0000
L14	28	(Area) CCI-65FP-060100 (H)	70.75 - 75.75	Auto	0.0000
L14	29	(Area) CCI-65FP-060100 (H)	70.75 - 75.75	Auto	0.0000
L14	30	(Area) CCI-65FP-060100 (H)	70.75 - 75.75	Auto	0.0000
L15	28	(Area) CCI-65FP-060100 (H)	65.75 - 70.75	Auto	0.0000
L15	29	(Area) CCI-65FP-060100 (H)	65.75 - 70.75	Auto	0.0000
L15	30	(Area) CCI-65FP-060100 (H)	65.75 - 70.75	Auto	0.0000
L16	19	(Area) CCI-65FP-060100 (H)	63.00 - 64.83	Auto	0.0000
L16	20	(Area) CCI-65FP-060100 (H)	63.00 - 64.83	Auto	0.0000
L16	22	(Area) CCI-65FP-060100 (H)	63.00 - 65.00	Auto	0.0000
L16	28	(Area) CCI-65FP-060100 (H)	63.00 - 65.75	Auto	0.0000
L16	29	(Area) CCI-65FP-060100 (H)	63.00 - 65.75	Auto	0.0000
L16	30	(Area) CCI-65FP-060100 (H)	63.00 - 65.75	Auto	0.0000
L17	19	(Area) CCI-65FP-060100 (H)	62.73 - 63.00	Auto	0.0000
L17	20	(Area) CCI-65FP-060100 (H)	62.73 - 63.00	Auto	0.0000
L17	22	(Area) CCI-65FP-060100 (H)	62.73 - 63.00	Auto	0.0000
L17	28	(Area) CCI-65FP-060100 (H)	62.73 - 63.00	Auto	0.0000
L17	29	(Area) CCI-65FP-060100 (H)	62.73 - 63.00	Auto	0.0000
L17	30	(Area) CCI-65FP-060100 (H)	62.73 - 63.00	Auto	0.0000
L18	19	(Area) CCI-65FP-060100 (H)	62.58 - 62.73	Auto	0.0000
L18	20	(Area) CCI-65FP-060100 (H)	62.58 - 62.73	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L18	22	(Area) CCI-65FP-060100 (H)	62.58 - 62.73	Auto	0.0000
L18	28	(Area) CCI-65FP-060100 (H)	62.58 - 62.73	Auto	0.0000
L18	29	(Area) CCI-65FP-060100 (H)	62.58 - 62.73	Auto	0.0000
L18	30	(Area) CCI-65FP-060100 (H)	62.58 - 62.73	Auto	0.0000
L19	19	(Area) CCI-65FP-060100 (H)	61.50 - 62.58	Auto	0.0000
L19	20	(Area) CCI-65FP-060100 (H)	61.50 - 62.58	Auto	0.0000
L19	22	(Area) CCI-65FP-060100 (H)	61.50 - 62.58	Auto	0.0000
L19	28	(Area) CCI-65FP-060100 (H)	61.50 - 62.58	Auto	0.0000
L19	29	(Area) CCI-65FP-060100 (H)	61.50 - 62.58	Auto	0.0000
L19	30	(Area) CCI-65FP-060100 (H)	61.50 - 62.58	Auto	0.0000
L20	19	(Area) CCI-65FP-060100 (H)	61.25 - 61.50	Auto	0.0000
L20	20	(Area) CCI-65FP-060100 (H)	61.25 - 61.50	Auto	0.0000
L20	22	(Area) CCI-65FP-060100 (H)	61.25 - 61.50	Auto	0.0000
L20	28	(Area) CCI-65FP-060100 (H)	61.25 - 61.50	Auto	0.0000
L20	29	(Area) CCI-65FP-060100 (H)	61.25 - 61.50	Auto	0.0000
L20	30	(Area) CCI-65FP-060100 (H)	61.25 - 61.50	Auto	0.0000
L21	19	(Area) CCI-65FP-060100 (H)	56.25 - 61.25	Auto	0.0000
L21	20	(Area) CCI-65FP-060100 (H)	56.25 - 61.25	Auto	0.0000
L21	22	(Area) CCI-65FP-060100 (H)	56.25 - 61.25	Auto	0.0000
L21	28	(Area) CCI-65FP-060100 (H)	59.00 - 61.25	Auto	0.0000
L21	29	(Area) CCI-65FP-060100 (H)	59.00 - 61.25	Auto	0.0000
L21	30	(Area) CCI-65FP-060100 (H)	59.00 - 61.25	Auto	0.0000
L22	19	(Area) CCI-65FP-060100 (H)	51.25 - 56.25	Auto	0.0000
L22	20	(Area) CCI-65FP-060100 (H)	51.25 - 56.25	Auto	0.0000
L22	22	(Area) CCI-65FP-060100 (H)	51.25 - 56.25	Auto	0.0000
L23	19	(Area) CCI-65FP-060100 (H)	46.25 - 51.25	Auto	0.0000
L23	20	(Area) CCI-65FP-060100 (H)	46.25 - 51.25	Auto	0.0000
L23	22	(Area) CCI-65FP-060100 (H)	46.25 - 51.25	Auto	0.0000
L24	19	(Area) CCI-65FP-060100 (H)	37.75 - 46.25	Auto	0.0000
L24	20	(Area) CCI-65FP-060100 (H)	37.75 - 46.25	Auto	0.0000
L24	22	(Area) CCI-65FP-060100 (H)	37.75 - 46.25	Auto	0.0000
L24	24	(Area) CCI-65FP-065125 (H)	37.75 - 43.00	Auto	0.0000
L24	25	(Area) CCI-65FP-065125 (H)	37.75 - 43.00	Auto	0.0000
L24	26	(Area) CCI-65FP-065125 (H)	37.75 - 43.00	Auto	0.0000
L25	19	(Area) CCI-65FP-060100 (H)	36.75 - 37.75	Auto	0.0000
L25	20	(Area) CCI-65FP-060100 (H)	36.75 - 37.75	Auto	0.0000
L25	22	(Area) CCI-65FP-060100 (H)	36.75 - 37.75	Auto	0.0000
L25	24	(Area) CCI-65FP-065125 (H)	36.75 - 37.75	Auto	0.0000
L25	25	(Area) CCI-65FP-065125 (H)	36.75 - 37.75	Auto	0.0000
L25	26	(Area) CCI-65FP-065125 (H)	36.75 - 37.75	Auto	0.0000
L26	15	(Area) CCI-65FP-065125 (H)	32.25 - 35.00	Auto	0.0000
L26	16	(Area) CCI-65FP-065125 (H)	32.25 - 35.00	Auto	0.0000
L26	17	(Area) CCI-65FP-065125 (H)	32.25 - 35.00	Auto	0.0000
L26	19	(Area) CCI-65FP-060100 (H)	32.25 - 36.75	Auto	0.0000
L26	20	(Area) CCI-65FP-060100 (H)	32.25 - 36.75	Auto	0.0000
L26	22	(Area) CCI-65FP-060100 (H)	35.00 - 36.75	Auto	0.0000
L26	24	(Area) CCI-65FP-065125 (H)	32.25 - 36.75	Auto	0.0000
L26	25	(Area) CCI-65FP-065125 (H)	32.25 - 36.75	Auto	0.0000
L26	26	(Area) CCI-65FP-065125 (H)	32.25 - 36.75	Auto	0.0000
L27	15	(Area) CCI-65FP-065125 (H)	32.00 - 32.25	Auto	0.0000
L27	16	(Area) CCI-65FP-065125 (H)	32.00 - 32.25	Auto	0.0000
L27	17	(Area) CCI-65FP-065125 (H)	32.00 - 32.25	Auto	0.0000
L27	19	(Area) CCI-65FP-060100 (H)	32.00 - 32.25	Auto	0.0000
L27	20	(Area) CCI-65FP-060100 (H)	32.00 - 32.25	Auto	0.0000
L27	24	(Area) CCI-65FP-065125 (H)	32.00 - 32.25	Auto	0.0000
L27	25	(Area) CCI-65FP-065125 (H)	32.00 - 32.25	Auto	0.0000
L27	26	(Area) CCI-65FP-065125 (H)	32.00 - 32.25	Auto	0.0000
L28	15	(Area) CCI-65FP-065125 (H)	31.83 - 32.00	Auto	0.0000
L28	16	(Area) CCI-65FP-065125 (H)	31.83 - 32.00	Auto	0.0000
L28	17	(Area) CCI-65FP-065125 (H)	31.83 - 32.00	Auto	0.0000
L28	19	(Area) CCI-65FP-060100 (H)	31.83 - 32.00	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L28	20	(Area) CCI-65FP-060100 (H)	31.83 - 32.00	Auto	0.0000
L28	24	(Area) CCI-65FP-065125 (H)	31.83 - 32.00	Auto	0.0000
L28	25	(Area) CCI-65FP-065125 (H)	31.83 - 32.00	Auto	0.0000
L28	26	(Area) CCI-65FP-065125 (H)	31.83 - 32.00	Auto	0.0000
L29	15	(Area) CCI-65FP-065125 (H)	31.48 - 31.83	Auto	0.0000
L29	16	(Area) CCI-65FP-065125 (H)	31.48 - 31.83	Auto	0.0000
L29	17	(Area) CCI-65FP-065125 (H)	31.48 - 31.83	Auto	0.0000
L29	19	(Area) CCI-65FP-060100 (H)	31.48 - 31.83	Auto	0.0000
L29	20	(Area) CCI-65FP-060100 (H)	31.48 - 31.83	Auto	0.0000
L29	24	(Area) CCI-65FP-065125 (H)	31.48 - 31.83	Auto	0.0000
L29	25	(Area) CCI-65FP-065125 (H)	31.48 - 31.83	Auto	0.0000
L29	26	(Area) CCI-65FP-065125 (H)	31.48 - 31.83	Auto	0.0000
L30	15	(Area) CCI-65FP-065125 (H)	31.25 - 31.48	Auto	0.0000
L30	16	(Area) CCI-65FP-065125 (H)	31.25 - 31.48	Auto	0.0000
L30	17	(Area) CCI-65FP-065125 (H)	31.25 - 31.48	Auto	0.0000
L30	19	(Area) CCI-65FP-060100 (H)	31.25 - 31.48	Auto	0.0000
L30	20	(Area) CCI-65FP-060100 (H)	31.25 - 31.48	Auto	0.0000
L30	24	(Area) CCI-65FP-065125 (H)	31.25 - 31.48	Auto	0.0000
L30	25	(Area) CCI-65FP-065125 (H)	31.25 - 31.48	Auto	0.0000
L30	26	(Area) CCI-65FP-065125 (H)	31.25 - 31.48	Auto	0.0000
L31	15	(Area) CCI-65FP-065125 (H)	26.25 - 31.25	Auto	0.0000
L31	16	(Area) CCI-65FP-065125 (H)	26.25 - 31.25	Auto	0.0000
L31	17	(Area) CCI-65FP-065125 (H)	26.25 - 31.25	Auto	0.0000
L31	19	(Area) CCI-65FP-060100 (H)	29.83 - 31.25	Auto	0.0000
L31	20	(Area) CCI-65FP-060100 (H)	29.83 - 31.25	Auto	0.0000
L31	24	(Area) CCI-65FP-065125 (H)	28.00 - 31.25	Auto	0.0000
L31	25	(Area) CCI-65FP-065125 (H)	28.00 - 31.25	Auto	0.0000
L31	26	(Area) CCI-65FP-065125 (H)	28.00 - 31.25	Auto	0.0000
L32	15	(Area) CCI-65FP-065125 (H)	21.25 - 26.25	Auto	0.0000
L32	16	(Area) CCI-65FP-065125 (H)	21.25 - 26.25	Auto	0.0000
L32	17	(Area) CCI-65FP-065125 (H)	21.25 - 26.25	Auto	0.0000
L33	15	(Area) CCI-65FP-065125 (H)	16.25 - 21.25	Auto	0.0000
L33	16	(Area) CCI-65FP-065125 (H)	16.25 - 21.25	Auto	0.0000
L33	17	(Area) CCI-65FP-065125 (H)	16.25 - 21.25	Auto	0.0000
L34	15	(Area) CCI-65FP-065125 (H)	11.25 - 16.25	Auto	0.0000
L34	16	(Area) CCI-65FP-065125 (H)	11.25 - 16.25	Auto	0.0000
L34	17	(Area) CCI-65FP-065125 (H)	11.25 - 16.25	Auto	0.0000
L35	15	(Area) CCI-65FP-065125 (H)	6.25 - 11.25	Auto	0.0000
L35	16	(Area) CCI-65FP-065125 (H)	6.25 - 11.25	Auto	0.0000
L35	17	(Area) CCI-65FP-065125 (H)	6.25 - 11.25	Auto	0.0000
L36	15	(Area) CCI-65FP-065125 (H)	1.25 - 6.25	Auto	0.0000
L36	16	(Area) CCI-65FP-065125 (H)	1.25 - 6.25	Auto	0.0000
L36	17	(Area) CCI-65FP-065125 (H)	1.25 - 6.25	Auto	0.0000
L37	15	(Area) CCI-65FP-065125 (H)	0.00 - 1.25	Auto	0.0000
L37	16	(Area) CCI-65FP-065125 (H)	0.00 - 1.25	Auto	0.0000
L37	17	(Area) CCI-65FP-065125 (H)	0.00 - 1.25	Auto	0.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
AIR6449 B41 w/ Mount Pipe	A	From Centroid-Leg	4.00 0.00 2.00	0.0000	128.00	No Ice 1/2" Ice 1" Ice	5.18 5.59 6.01	2.72 3.05 3.39	0.12 0.16 0.22
AIR6449 B41 w/ Mount Pipe	B	From Centroid-Leg	4.00 0.00 2.00	0.0000	128.00	No Ice 1/2" Ice 1" Ice	5.18 5.59 6.01	2.72 3.05 3.39	0.12 0.16 0.22
AIR6449 B41 w/ Mount Pipe	C	From Centroid-Leg	4.00 0.00 2.00	0.0000	128.00	No Ice 1/2" Ice 1" Ice	5.18 5.59 6.01	2.72 3.05 3.39	0.12 0.16 0.22
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Centroid-Leg	4.00 0.00 2.00	0.0000	128.00	No Ice 1/2" Ice 1" Ice	14.69 15.46 16.23	6.87 7.55 8.25	0.19 0.31 0.46
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Centroid-Leg	4.00 0.00 2.00	0.0000	128.00	No Ice 1/2" Ice 1" Ice	14.69 15.46 16.23	6.87 7.55 8.25	0.19 0.31 0.46
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Centroid-Leg	4.00 0.00 2.00	0.0000	128.00	No Ice 1/2" Ice 1" Ice	14.69 15.46 16.23	6.87 7.55 8.25	0.19 0.31 0.46
VV-65A-R1_TMO w/ Mount Pipe	A	From Centroid-Leg	4.00 0.00 2.00	0.0000	128.00	No Ice 1/2" Ice 1" Ice	4.46 4.91 5.36	2.69 3.10 3.52	0.05 0.10 0.15
VV-65A-R1_TMO w/ Mount Pipe	B	From Centroid-Leg	4.00 0.00 2.00	0.0000	128.00	No Ice 1/2" Ice 1" Ice	4.46 4.91 5.36	2.69 3.10 3.52	0.05 0.10 0.15
VV-65A-R1_TMO w/ Mount Pipe	C	From Centroid-Leg	4.00 0.00 2.00	0.0000	128.00	No Ice 1/2" Ice 1" Ice	4.46 4.91 5.36	2.69 3.10 3.52	0.05 0.10 0.15
RADIO 4449 B71 B85A_T-MOBILE	A	From Centroid-Leg	4.00 0.00 2.00	0.0000	128.00	No Ice 1/2" Ice 1" Ice	1.97 2.15 2.33	1.59 1.75 1.92	0.07 0.09 0.12
RADIO 4449 B71 B85A_T-MOBILE	B	From Centroid-Leg	4.00 0.00 2.00	0.0000	128.00	No Ice 1/2" Ice 1" Ice	1.97 2.15 2.33	1.59 1.75 1.92	0.07 0.09 0.12
RADIO 4449 B71 B85A_T-MOBILE	C	From Centroid-Leg	4.00 0.00 2.00	0.0000	128.00	No Ice 1/2" Ice 1" Ice	1.97 2.15 2.33	1.59 1.75 1.92	0.07 0.09 0.12
RADIO 4460 B2/B25 B66_TMO	A	From Centroid-Leg	4.00 0.00 2.00	0.0000	128.00	No Ice 1/2" Ice 1" Ice	2.14 2.32 2.51	1.69 1.85 2.02	0.11 0.13 0.16
RADIO 4460 B2/B25 B66_TMO	B	From Centroid-Leg	4.00 0.00 2.00	0.0000	128.00	No Ice 1/2" Ice 1" Ice	2.14 2.32 2.51	1.69 1.85 2.02	0.11 0.13 0.16
RADIO 4460 B2/B25 B66_TMO	C	From Centroid-Leg	4.00 0.00 2.00	0.0000	128.00	No Ice 1/2" Ice 1" Ice	2.14 2.32 2.51	1.69 1.85 2.02	0.11 0.13 0.16
Platform Mount [LP 305-1_HR-1]	C	None		0.0000	128.00	No Ice 1/2" Ice 1" Ice	19.59 24.48 29.24	19.59 24.48 29.24	1.37 1.78 2.29
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TME-800MHZ RRH	A	From Leg	1.00 0.00 0.00	0.0000	122.00	No Ice 1/2" Ice 1" Ice	2.13 2.32 2.51	1.77 1.95 2.13	0.05 0.07 0.10
TME-800MHZ RRH	B	From Leg	1.00 0.00 0.00	0.0000	122.00	No Ice 1/2" Ice 1" Ice	2.13 2.32 2.51	1.77 1.95 2.13	0.05 0.07 0.10
TME-800MHZ RRH	C	From Leg	1.00 0.00	0.0000	122.00	No Ice 1/2" Ice	2.13 2.32	1.77 1.95	0.05 0.07

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1" Ice	2.51	2.13	0.10
TME-1900MHz RRH (65 MHz)	A	From Leg	1.00 0.00	0.0000	122.00	No Ice 1/2" Ice	2.31 2.52	2.38 2.58	0.06 0.08
			0.00			1" Ice	2.73	2.79	0.11
TME-1900MHz RRH (65 MHz)	B	From Leg	1.00 0.00	0.0000	122.00	No Ice 1/2" Ice	2.31 2.52	2.38 2.58	0.06 0.08
			0.00			1" Ice	2.73	2.79	0.11
TME-1900MHz RRH (65 MHz)	C	From Leg	1.00 0.00	0.0000	122.00	No Ice 1/2" Ice	2.31 2.52	2.38 2.58	0.06 0.08
			0.00			1" Ice	2.73	2.79	0.11
Pipe Mount [PM 601-3]	C	None		0.0000	122.00	No Ice 1/2" Ice 1" Ice	3.17 3.79 4.42	3.17 3.79 4.42	0.20 0.23 0.28
***									
APXVTM14-C-120 w/ Mount Pipe	A	From Centroid-Leg	4.00 0.00 2.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice	4.09 4.48 4.88	2.86 3.23 3.61	0.08 0.13 0.19
APXVTM14-C-120 w/ Mount Pipe	B	From Centroid-Leg	4.00 0.00 2.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice	4.09 4.48 4.88	2.86 3.23 3.61	0.08 0.13 0.19
APXVTM14-C-120 w/ Mount Pipe	C	From Centroid-Leg	4.00 0.00 2.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice	4.09 4.48 4.88	2.86 3.23 3.61	0.08 0.13 0.19
APXVSPP18-C-A20 w/ Mount Pipe	A	From Centroid-Leg	4.00 0.00 2.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice	4.60 5.05 5.50	4.01 4.45 4.89	0.10 0.16 0.23
APXVSPP18-C-A20 w/ Mount Pipe	B	From Centroid-Leg	4.00 0.00 2.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice	4.60 5.05 5.50	4.01 4.45 4.89	0.10 0.16 0.23
APXVSPP18-C-A20 w/ Mount Pipe	C	From Centroid-Leg	4.00 0.00 2.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice	4.60 5.05 5.50	4.01 4.45 4.89	0.10 0.16 0.23
TD-RRH8X20-25	A	From Centroid-Leg	4.00 0.00 2.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice	3.70 3.95 4.20	1.29 1.46 1.64	0.07 0.09 0.12
TD-RRH8X20-25	B	From Centroid-Leg	4.00 0.00 2.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice	3.70 3.95 4.20	1.29 1.46 1.64	0.07 0.09 0.12
TD-RRH8X20-25	C	From Centroid-Leg	4.00 0.00 2.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice	3.70 3.95 4.20	1.29 1.46 1.64	0.07 0.09 0.12
(3) ACU-A20-N	A	From Centroid-Leg	4.00 0.00 2.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice	0.07 0.10 0.15	0.12 0.16 0.21	0.00 0.00 0.00
(3) ACU-A20-N	B	From Centroid-Leg	4.00 0.00 2.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice	0.07 0.10 0.15	0.12 0.16 0.21	0.00 0.00 0.00
(3) ACU-A20-N	C	From Centroid-Leg	4.00 0.00 2.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice	0.07 0.10 0.15	0.12 0.16 0.21	0.00 0.00 0.00
800 EXTERNAL NOTCH FILTER	A	From Centroid-Leg	4.00 0.00 2.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice	0.66 0.76 0.87	0.32 0.40 0.48	0.01 0.02 0.02
800 EXTERNAL NOTCH FILTER	B	From Centroid-Leg	4.00 0.00 2.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice	0.66 0.76 0.87	0.32 0.40 0.48	0.01 0.02 0.02
800 EXTERNAL NOTCH	C	From	4.00	0.0000	118.00	No Ice	0.66	0.32	0.01

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
FILTER		Centroid-Leg	0.00			1/2" Ice	0.76	0.40	0.02
			2.00			1" Ice	0.87	0.48	0.02
2.4" Dia x 6-ft Pipe	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice	1.43 1.93 2.30	1.43 1.93 2.30	0.02 0.03 0.05
3.5" Dia. x 5' Pipe	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice	1.66 2.04 2.39	1.66 2.04 2.39	0.04 0.06 0.07
3.5" Dia. x 5' Pipe	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice	1.66 2.04 2.39	1.66 2.04 2.39	0.04 0.06 0.07
3.5" Dia. x 5' Pipe	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice	1.66 2.04 2.39	1.66 2.04 2.39	0.04 0.06 0.07
Platform Mount [LP 1201-1]	C	None		0.0000	118.00	No Ice 1/2" Ice 1" Ice	18.38 22.11 25.87	18.38 22.11 25.87	2.10 2.65 3.26
***									
(2) APL868013-42T0 w/ Mount Pipe	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice 1" Ice	2.63 3.07 3.53	4.13 4.60 5.09	0.03 0.06 0.11
(2) APL868013-42T0 w/ Mount Pipe	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice 1" Ice	2.63 3.07 3.53	4.13 4.60 5.09	0.03 0.06 0.11
(2) APL868013-42T0 w/ Mount Pipe	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice 1" Ice	2.63 3.07 3.53	4.13 4.60 5.09	0.03 0.06 0.11
(2) JAHH-65B-R3B w/ Mount Pipe	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice 1" Ice	5.50 5.97 6.45	4.38 4.84 5.30	0.10 0.17 0.25
(2) JAHH-65B-R3B w/ Mount Pipe	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice 1" Ice	5.50 5.97 6.45	4.38 4.84 5.30	0.10 0.17 0.25
(2) JAHH-65B-R3B w/ Mount Pipe	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice 1" Ice	5.50 5.97 6.45	4.38 4.84 5.30	0.10 0.17 0.25
MT6407-77A w/ Mount Pipe	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice 1" Ice	4.91 5.26 5.61	2.68 3.14 3.62	0.10 0.14 0.18
MT6407-77A w/ Mount Pipe	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice 1" Ice	4.91 5.26 5.61	2.68 3.14 3.62	0.10 0.14 0.18
MT6407-77A w/ Mount Pipe	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice 1" Ice	4.91 5.26 5.61	2.68 3.14 3.62	0.10 0.14 0.18
DB-C1-12C-24AB-0Z	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice 1" Ice	4.06 4.32 4.58	3.10 3.34 3.58	0.03 0.07 0.11
FDJ85020Q4-S1	A	From Centroid-Leg	4.00 0.00 1.00	0.0000	110.00	No Ice 1/2" Ice 1" Ice	0.96 1.09 1.24	0.36 0.43 0.52	0.02 0.03 0.04
FDJ85020Q4-S1	B	From Centroid-Leg	4.00 0.00 1.00	0.0000	110.00	No Ice 1/2" Ice 1" Ice	0.96 1.09 1.24	0.36 0.43 0.52	0.02 0.03 0.04
FDJ85020Q4-S1	C	From Centroid-Leg	4.00 0.00 1.00	0.0000	110.00	No Ice 1/2" Ice 1" Ice	0.96 1.09 1.24	0.36 0.43 0.52	0.02 0.03 0.04

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(2) RFV01U-D1A	A	From Centroid-Leg	4.00 0.00 1.00	0.0000	110.00	No Ice 1/2" Ice 1" Ice	1.88 2.05 2.22	1.25 1.39 1.54	0.08 0.10 0.12
RFV01U-D1A	B	From Centroid-Leg	4.00 0.00 1.00	0.0000	110.00	No Ice 1/2" Ice 1" Ice	1.88 2.05 2.22	1.25 1.39 1.54	0.08 0.10 0.12
RFV01U-D2A	B	From Centroid-Leg	4.00 0.00 1.00	0.0000	110.00	No Ice 1/2" Ice 1" Ice	1.88 2.05 2.22	1.01 1.14 1.28	0.07 0.09 0.11
(2) RFV01U-D2A	C	From Centroid-Leg	4.00 0.00 1.00	0.0000	110.00	No Ice 1/2" Ice 1" Ice	1.88 2.05 2.22	1.01 1.14 1.28	0.07 0.09 0.11
L3x3x1/4 1.8-ft	A	From Centroid-Face	4.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice 1" Ice	0.55 0.69 0.84	0.07 0.11 0.16	0.01 0.01 0.02
L3x3x1/4 1.8-ft	B	From Centroid-Face	4.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice 1" Ice	0.55 0.69 0.84	0.07 0.11 0.16	0.01 0.01 0.02
L3x3x1/4 1.8-ft	C	From Centroid-Face	4.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice 1" Ice	0.55 0.69 0.84	0.07 0.11 0.16	0.01 0.01 0.02
Platform Mount [LP 1201-1_HR-2] ***	C	None		0.0000	110.00	No Ice 1/2" Ice 1" Ice	32.68 38.48 44.02	32.68 38.48 44.02	2.56 3.32 4.20
OG-860/1920/GPS-A	A	From Leg	3.00 0.00 2.00	0.0000	50.00	No Ice 1/2" Ice 1" Ice	0.31 0.40 0.49	0.37 0.46 0.55	0.00 0.01 0.01
Side Arm Mount [SO 701-1] ***	A	From Leg	1.50 0.00 0.00	0.0000	50.00	No Ice 1/2" Ice 1" Ice	0.85 1.14 1.43	1.67 2.34 3.01	0.07 0.08 0.09

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	130 - 125 (1)	TP18x18x0.375	5.00	0.00	0.0	20.7640	-3.71	654.07	0.006
L2	125 - 120 (2)	TP18x18x0.375	5.00	0.00	0.0	20.7640	-4.77	654.07	0.007
L3	120 - 115 (3)	TP22.9002x22x0.25	5.00	0.00	0.0	18.2334	-8.61	1066.66	0.008
L4	115 - 110 (4)	TP23.8005x22.9002x0.25	5.00	0.00	0.0	18.9581	-9.07	1109.05	0.008
L5	110 - 105 (5)	TP24.7007x23.8005x0.25	5.00	0.00	0.0	19.6828	-14.31	1151.44	0.012
L6	105 - 100 (6)	TP25.6009x24.7007x0.25	5.00	0.00	0.0	20.4075	-14.90	1193.84	0.012
L7	100 - 95 (7)	TP26.5012x25.6009x0.25	5.00	0.00	0.0	21.1322	-15.52	1236.23	0.013
L8	95 - 91.5 (8)	TP27.1313x26.5012x0.25	3.50	0.00	0.0	21.6395	-15.97	1265.91	0.013
L9	91.5 - 91.25 (9)	TP27.1763x27.1313x0.4875	0.25	0.00	0.0	41.8948	-16.03	2450.85	0.007
L10	91.25 - 86.25 (10)	TP28.0766x27.1763x0.475	5.00	0.00	0.0	42.2166	-17.01	2469.67	0.007

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L11	86.25 - 81.25 (11)	TP28.9768x28.0766x0.475	5.00	0.00	0.0	43.5935	-18.03	2550.22	0.007
L12	81.25 - 77 (12)	TP29.742x28.9768x0.4688	4.25	0.00	0.0	43.1652	-18.13	2525.17	0.007
L13	77 - 75.75 (13)	TP29.467x28.5668x0.5375	5.00	0.00	0.0	50.0697	-19.89	2929.08	0.007
L14	75.75 - 70.75 (14)	TP30.3671x29.467x0.525	5.00	0.00	0.0	50.4481	-21.05	2951.21	0.007
L15	70.75 - 65.75 (15)	TP31.2672x30.3671x0.5125	5.00	0.00	0.0	50.7530	-22.24	2969.05	0.007
L16	65.75 - 63 (16)	TP31.7623x31.2672x0.5125	2.75	0.00	0.0	51.5700	-22.90	3016.85	0.008
L17	63 - 62.73 (17)	TP31.8109x31.7623x0.725	0.27	0.00	0.0	72.5701	-22.99	4245.35	0.005
L18	62.73 - 62.58 (18)	TP31.8379x31.8109x0.725	0.15	0.00	0.0	72.6331	-23.04	4249.04	0.005
L19	62.58 - 61.5 (19)	TP32.0324x31.8379x0.7125	1.08	0.00	0.0	71.8556	-23.38	4203.55	0.006
L20	61.5 - 61.25 (20)	TP32.0774x32.0324x0.5125	0.25	0.00	0.0	52.0899	-23.44	3047.26	0.008
L21	61.25 - 56.25 (21)	TP32.9775x32.0774x0.5	5.00	0.00	0.0	52.2888	-24.67	3058.89	0.008
L22	56.25 - 51.25 (22)	TP33.8776x32.9775x0.5	5.00	0.00	0.0	53.7380	-25.93	3143.67	0.008
L23	51.25 - 46.25 (23)	TP34.7778x33.8776x0.4938	5.00	0.00	0.0	54.5073	-27.29	3188.68	0.009
L24	46.25 - 37.75 (24)	TP36.308x34.7778x0.4875	8.50	0.00	0.0	54.9575	-28.33	3215.02	0.009
L25	37.75 - 36.75 (25)	TP35.8632x34.8729x0.8	5.50	0.00	0.0	90.3227	-31.42	5283.88	0.006
L26	36.75 - 32.25 (26)	TP36.6734x35.8632x0.7875	4.50	0.00	0.0	90.9976	-33.17	5323.36	0.006
L27	32.25 - 32 (27)	TP36.7184x36.6734x0.925	0.25	0.00	0.0	106.6110	-33.29	6236.72	0.005
L28	32 - 31.83 (28)	TP36.749x36.7184x0.925	0.17	0.00	0.0	106.7020	-33.37	6242.05	0.005
L29	31.83 - 31.48 (29)	TP36.812x36.749x0.55	0.35	0.00	0.0	64.2200	-33.48	3756.87	0.009
L30	31.48 - 31.25 (30)	TP36.8534x36.812x0.5438	0.23	0.00	0.0	63.5737	-33.56	3719.06	0.009
L31	31.25 - 26.25 (31)	TP37.7537x36.8534x0.5375	5.00	0.00	0.0	64.4119	-35.19	3768.10	0.009
L32	26.25 - 21.25 (32)	TP38.6539x37.7537x0.5375	5.00	0.00	0.0	65.9700	-36.85	3859.25	0.010
L33	21.25 - 16.25 (33)	TP39.5542x38.6539x0.5313	5.00	0.00	0.0	66.7536	-38.54	3905.09	0.010
L34	16.25 - 11.25 (34)	TP40.4544x39.5542x0.525	5.00	0.00	0.0	67.5007	-40.25	3948.79	0.010
L35	11.25 - 6.25 (35)	TP41.3547x40.4544x0.525	5.00	0.00	0.0	69.0226	-41.99	4037.82	0.010
L36	6.25 - 1.25 (36)	TP42.2549x41.3547x0.5188	5.00	0.00	0.0	69.7151	-43.76	4078.33	0.011
L37	1.25 - 0 (37)	TP42.48x42.2549x0.5188	1.25	0.00	0.0	70.0910	-44.20	4100.32	0.011

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	130 - 125 (1)	TP18x18x0.375	19.10	305.83	0.062	0.00	305.83	0.000
L2	125 - 120 (2)	TP18x18x0.375	43.37	305.83	0.142	0.00	305.83	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L3	120 - 115 (3)	TP22.9002x22x0.25	82.35	599.41	0.137	0.00	599.41	0.000
L4	115 - 110 (4)	TP23.8005x22.9002x0.25	126.41	639.68	0.198	0.00	639.68	0.000
L5	110 - 105 (5)	TP24.7007x23.8005x0.25	197.75	680.52	0.291	0.00	680.52	0.000
L6	105 - 100 (6)	TP25.6009x24.7007x0.25	270.93	721.85	0.375	0.00	721.85	0.000
L7	100 - 95 (7)	TP26.5012x25.6009x0.25	346.46	763.60	0.454	0.00	763.60	0.000
L8	95 - 91.5 (8)	TP27.1313x26.5012x0.25	400.73	793.03	0.505	0.00	793.03	0.000
L9	91.5 - 91.25 (9)	TP27.1763x27.1313x0.4875	404.65	1661.99	0.243	0.00	1661.99	0.000
L10	91.25 - 86.25 (10)	TP28.0766x27.1763x0.475	484.42	1733.83	0.279	0.00	1733.83	0.000
L11	86.25 - 81.25 (11)	TP28.9768x28.0766x0.475	566.83	1849.77	0.306	0.00	1849.77	0.000
L12	81.25 - 77 (12)	TP29.742x28.9768x0.4688	575.21	1838.28	0.313	0.00	1838.28	0.000
L13	77 - 75.75 (13)	TP29.467x28.5668x0.5375	660.70	2152.39	0.307	0.00	2152.39	0.000
L14	75.75 - 70.75 (14)	TP30.3671x29.467x0.525	748.93	2239.24	0.334	0.00	2239.24	0.000
L15	70.75 - 65.75 (15)	TP31.2672x30.3671x0.5125	839.79	2323.79	0.361	0.00	2323.79	0.000
L16	65.75 - 63 (16)	TP31.7623x31.2672x0.5125	890.88	2399.83	0.371	0.00	2399.83	0.000
L17	63 - 62.73 (17)	TP31.8109x31.7623x0.725	895.94	3336.65	0.269	0.00	3336.65	0.000
L18	62.73 - 62.58 (18)	TP31.8379x31.8109x0.725	898.76	3342.51	0.269	0.00	3342.51	0.000
L19	62.58 - 61.5 (19)	TP32.0324x31.8379x0.7125	919.09	3330.53	0.276	0.00	3330.53	0.000
L20	61.5 - 61.25 (20)	TP32.0774x32.0324x0.5125	923.82	2448.86	0.377	0.00	2448.86	0.000
L21	61.25 - 56.25 (21)	TP32.9775x32.0774x0.5	1019.68	2531.38	0.403	0.00	2531.38	0.000
L22	56.25 - 51.25 (22)	TP33.8776x32.9775x0.5	1118.13	2674.73	0.418	0.00	2674.73	0.000
L23	51.25 - 46.25 (23)	TP34.7778x33.8776x0.4938	1219.58	2788.29	0.437	0.00	2788.29	0.000
L24	46.25 - 37.75 (24)	TP36.308x34.7778x0.4875	1302.37	2872.23	0.453	0.00	2872.23	0.000
L25	37.75 - 36.75 (25)	TP35.8632x34.8729x0.8	1419.13	4686.53	0.303	0.00	4686.53	0.000
L26	36.75 - 32.25 (26)	TP36.6734x35.8632x0.7875	1517.15	4836.46	0.314	0.00	4836.46	0.000
L27	32.25 - 32 (27)	TP36.7184x36.6734x0.925	1522.66	5630.20	0.270	0.00	5630.20	0.000
L28	32 - 31.83 (28)	TP36.749x36.7184x0.925	1526.41	5639.96	0.271	0.00	5639.96	0.000
L29	31.83 - 31.48 (29)	TP36.812x36.749x0.55	1534.13	3472.05	0.442	0.00	3472.05	0.000
L30	31.48 - 31.25 (30)	TP36.8534x36.812x0.5438	1539.22	3442.28	0.447	0.00	3442.28	0.000
L31	31.25 - 26.25 (31)	TP37.7537x36.8534x0.5375	1650.94	3576.61	0.462	0.00	3576.61	0.000
L32	26.25 - 21.25 (32)	TP38.6539x37.7537x0.5375	1764.94	3753.00	0.470	0.00	3753.00	0.000
L33	21.25 - 16.25 (33)	TP39.5542x38.6539x0.5313	1881.07	3889.77	0.484	0.00	3889.77	0.000
L34	16.25 - 11.25 (34)	TP40.4544x39.5542x0.525	1999.20	4026.52	0.497	0.00	4026.52	0.000
L35	11.25 - 6.25 (35)	TP41.3547x40.4544x0.525	2119.28	4211.33	0.503	0.00	4211.33	0.000
L36	6.25 - 1.25 (36)	TP42.2549x41.3547x0.5188	2241.30	4349.87	0.515	0.00	4349.87	0.000
L37	1.25 - 0 (37)	TP42.48x42.2549x0.5188	2272.11	4397.20	0.517	0.00	4397.20	0.000

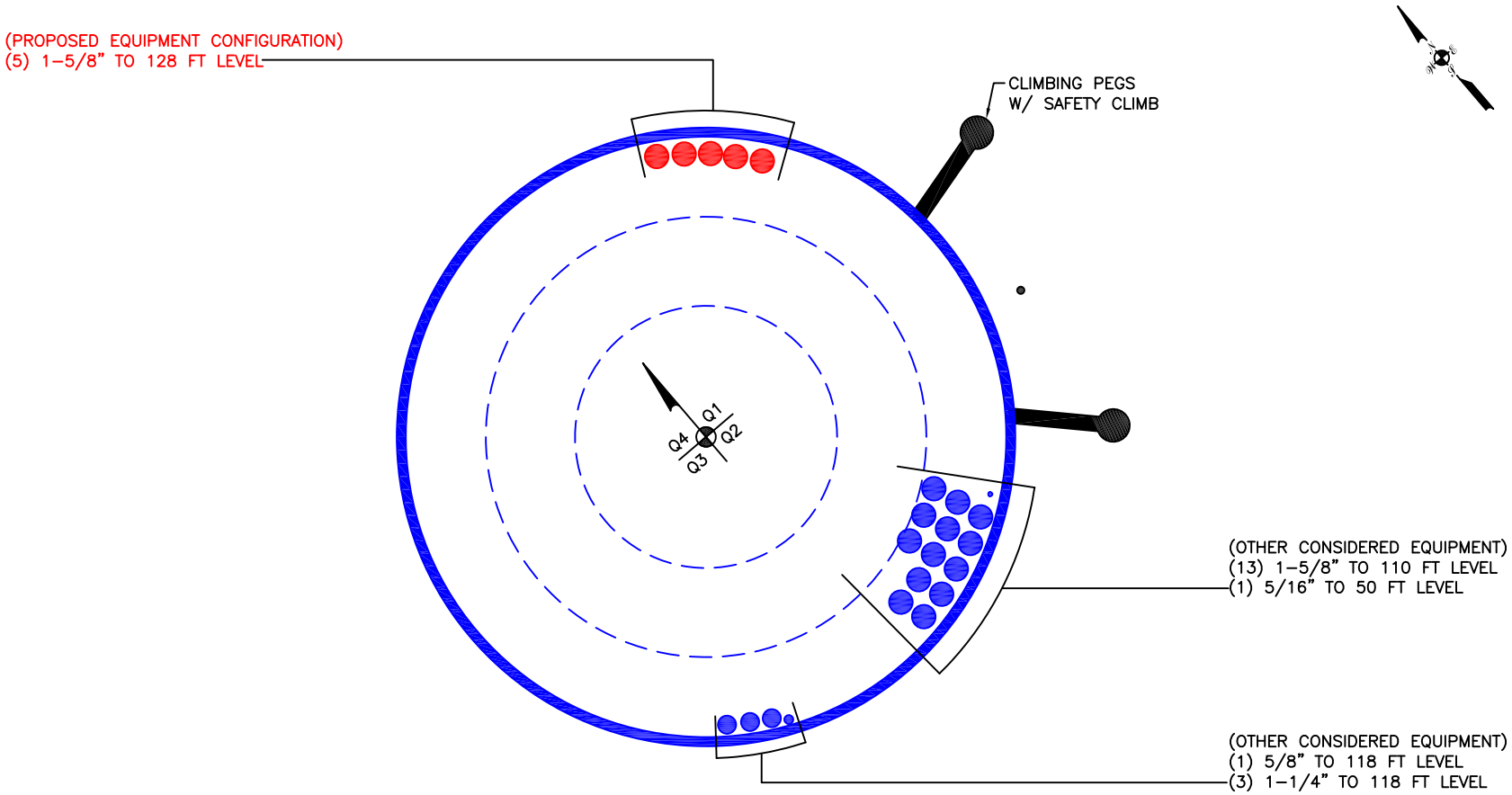
Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	130 - 125 (1)	TP18x18x0.375	4.44	196.22	0.023	0.00	304.05	0.000
L2	125 - 120 (2)	TP18x18x0.375	5.40	196.22	0.028	0.00	304.05	0.000
L3	120 - 115 (3)	TP22.9002x22x0.25	8.58	320.00	0.027	0.00	637.56	0.000
L4	115 - 110 (4)	TP23.8005x22.9002x0.25	9.05	332.71	0.027	0.00	689.24	0.000
L5	110 - 105 (5)	TP24.7007x23.8005x0.25	14.41	342.89	0.042	0.16	742.94	0.000
L6	105 - 100 (6)	TP25.6009x24.7007x0.25	14.88	355.61	0.042	0.16	798.66	0.000
L7	100 - 95 (7)	TP26.5012x25.6009x0.25	15.35	370.87	0.041	0.16	856.38	0.000
L8	95 - 91.5 (8)	TP27.1313x26.5012x0.25	15.68	379.77	0.041	0.16	897.99	0.000
L9	91.5 - 91.25 (9)	TP27.1763x27.1313x0.4875	15.70	735.25	0.021	0.16	1726.10	0.000
L10	91.25 - 86.25 (10)	TP28.0766x27.1763x0.475	16.22	740.90	0.022	0.16	1798.85	0.000
L11	86.25 - 81.25 (11)	TP28.9768x28.0766x0.475	16.75	765.07	0.022	0.16	1918.10	0.000
L12	81.25 - 77 (12)	TP29.742x28.9768x0.4688	16.80	757.55	0.022	0.16	1905.67	0.000
L13	77 - 75.75 (13)	TP29.467x28.5668x0.5375	17.39	878.72	0.020	0.16	2236.11	0.000
L14	75.75 - 70.75 (14)	TP30.3671x29.467x0.525	17.92	885.36	0.020	0.16	2324.07	0.000
L15	70.75 - 65.75 (15)	TP31.2672x30.3671x0.5125	18.44	890.72	0.021	0.16	2409.63	0.000
L16	65.75 - 63 (16)	TP31.7623x31.2672x0.5125	18.73	905.05	0.021	0.16	2487.83	0.000
L17	63 - 62.73 (17)	TP31.8109x31.7623x0.725	18.76	1273.60	0.015	0.16	3482.56	0.000
L18	62.73 - 62.58 (18)	TP31.8379x31.8109x0.725	18.79	1273.60	0.015	0.16	3488.61	0.000
L19	62.58 - 61.5 (19)	TP32.0324x31.8379x0.7125	18.90	1261.07	0.015	0.16	3474.22	0.000
L20	61.5 - 61.25 (20)	TP32.0774x32.0324x0.5125	18.92	914.18	0.021	0.16	2538.25	0.000
L21	61.25 - 56.25 (21)	TP32.9775x32.0774x0.5	19.44	917.67	0.021	0.16	2621.61	0.000
L22	56.25 - 51.25 (22)	TP33.8776x32.9775x0.5	19.96	943.10	0.021	0.16	2768.94	0.000
L23	51.25 - 46.25 (23)	TP34.7778x33.8776x0.4938	20.51	956.60	0.021	0.16	2884.85	0.000
L24	46.25 - 37.75 (24)	TP36.308x34.7778x0.4875	20.91	964.51	0.022	0.16	2970.31	0.000
L25	37.75 - 36.75 (25)	TP35.8632x34.8729x0.8	21.56	1585.16	0.014	0.16	4889.05	0.000
L26	36.75 - 32.25 (26)	TP36.6734x35.8632x0.7875	22.03	1597.01	0.014	0.16	5041.16	0.000
L27	32.25 - 32 (27)	TP36.7184x36.6734x0.925	22.05	1871.02	0.012	0.16	5890.88	0.000
L28	32 - 31.83 (28)	TP36.749x36.7184x0.925	22.07	1872.62	0.012	0.16	5900.96	0.000
L29	31.83 - 31.48 (29)	TP36.812x36.749x0.55	22.10	1127.06	0.020	0.16	3595.01	0.000
L30	31.48 - 31.25 (30)	TP36.8534x36.812x0.5438	22.13	1115.72	0.020	0.16	3563.50	0.000
L31	31.25 - 26.25 (31)	TP37.7537x36.8534x0.5375	22.59	1130.43	0.020	0.49	3700.63	0.000
L32	26.25 - 21.25 (32)	TP38.6539x37.7537x0.5375	23.03	1157.77	0.020	0.49	3881.82	0.000
L33	21.25 - 16.25 (33)	TP39.5542x38.6539x0.5313	23.45	1171.53	0.020	0.49	4021.35	0.000
L34	16.25 - 11.25 (34)	TP40.4544x39.5542x0.525	23.83	1184.64	0.020	0.49	4160.82	0.000
L35	11.25 - 6.25 (35)	TP41.3547x40.4544x0.525	24.22	1211.35	0.020	0.49	4350.55	0.000
L36	6.25 - 1.25 (36)	TP42.2549x41.3547x0.5188	24.61	1223.50	0.020	0.49	4491.76	0.000

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L37	1.25 - 0 (37)	TP42.48x42.2549x0.5188	24.72	1230.10	0.020	0.49	4540.33	0.000

APPENDIX B

BASE LEVEL DRAWING


(PROPOSED EQUIPMENT CONFIGURATION)
(5) 1–5/8" TO 128 FT LEVEL
CLIMBING PEGS
W/ SAFETY CLIMB
Q1
Q2
Q3
Q4
(OTHER CONSIDERED EQUIPMENT)
(13) 1–5/8" TO 110 FT LEVEL
(1) 5/16" TO 50 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(1) 5/8" TO 118 FT LEVEL
(3) 1–1/4" TO 118 FT LEVEL

APPENDIX C

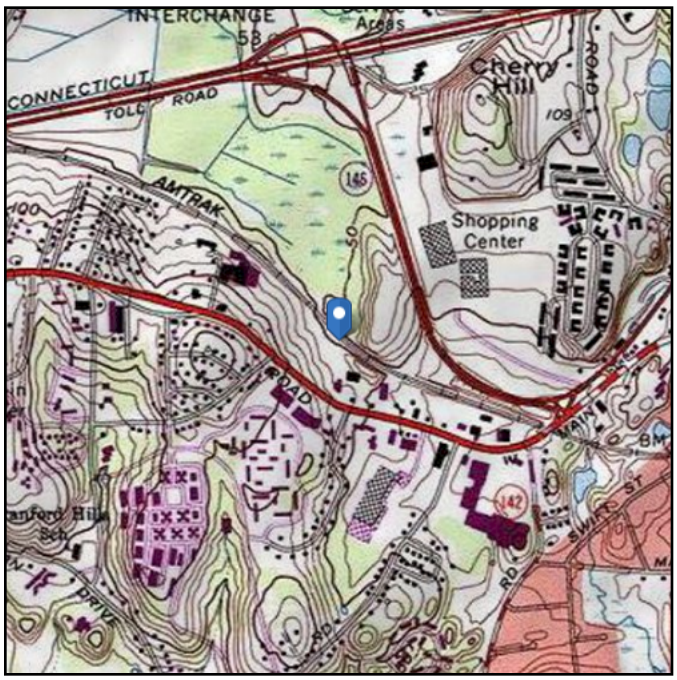
ADDITIONAL CALCULATIONS

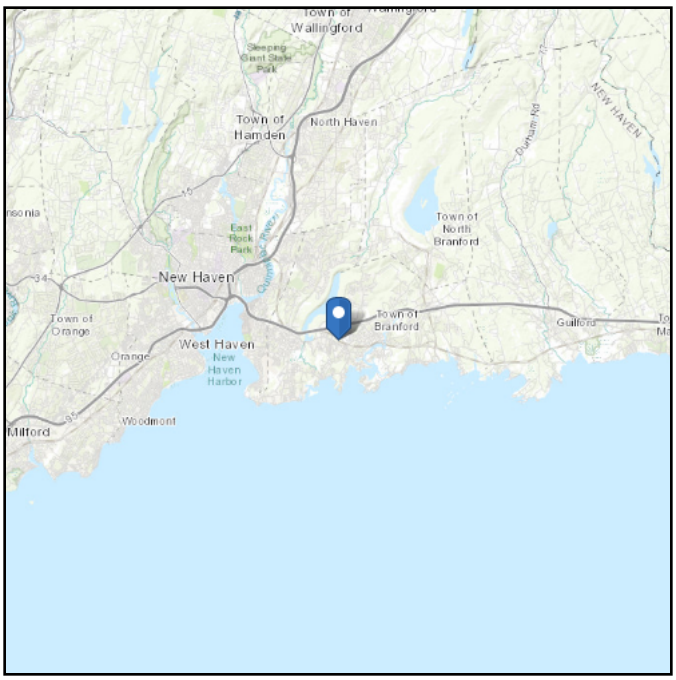
ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 49.82 ft (NAVD 88)
Latitude: 41.277831
Longitude: -72.836861





Wind

Results:

Wind Speed:	121 Vmph
10-year MRI	75 Vmph
25-year MRI	85 Vmph
50-year MRI	92 Vmph
100-year MRI	99 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.

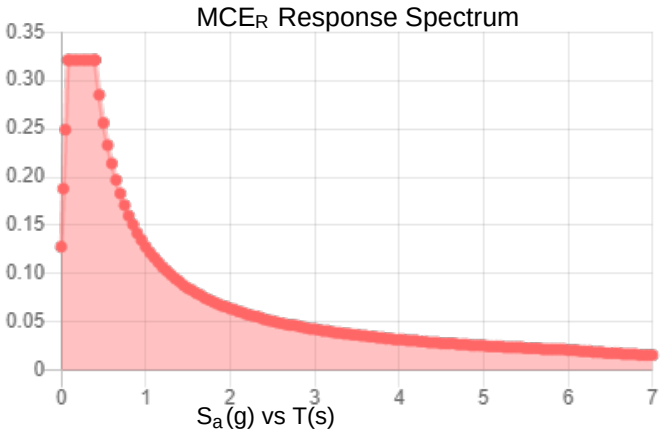
Seismic

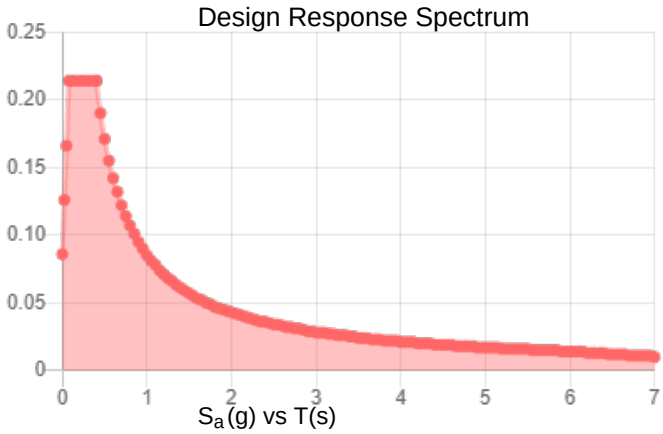
Site Soil Class: D - Default (see Section 11.4.3)

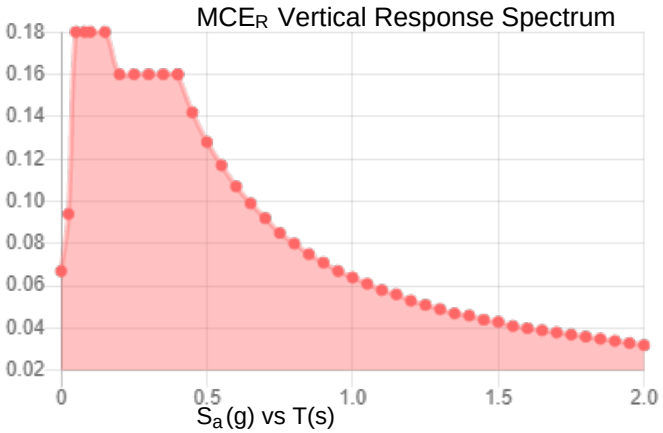
Results:

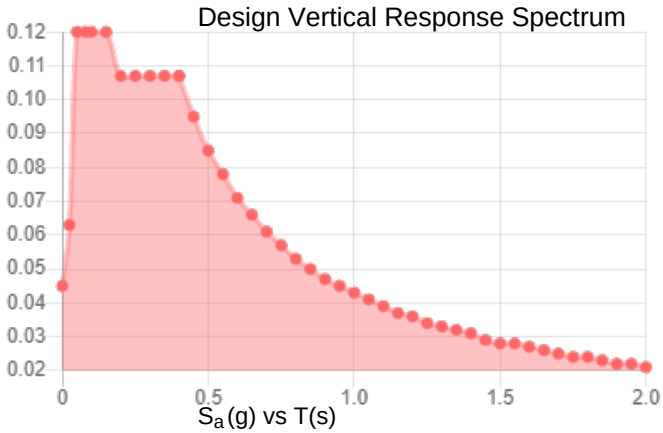
S_S :	0.2	S_{D1} :	0.085
S_1 :	0.053	T_L :	6
F_a :	1.6	PGA :	0.112
F_v :	2.4	PGA_M :	0.176
S_{MS} :	0.321	F_{PGA} :	1.576
S_{M1} :	0.128	I_e :	1
S_{DS} :	0.214	C_v :	0.701

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:	1.00 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	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.

CCIpole

per TIA-222- H

Site BU: 876322

Work Order: 2046851

Pole Geometry

	Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
1	130	10	0	0	18	18	0.375		A53-B-35
2	120	43	3.75	12	22.00	29.742	0.25	Auto	A572-65
3	80.75	43	4.5	12	28.57	36.308	0.3125	Auto	A572-65
4	42.25	42.25	0	12	34.87	42.48	0.375	Auto	A572-65

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number	1	2	3	4	5	6	7	8	9	10	11	12
1	0	32.25	plate	CCI-WSFP-065125	3			x			x					x	
2	31.83	62.83	plate	CCI-SFP-060100	2		x								x		
3	32.25	63	plate	CCI-SFP-060100	1						x						
4	31.5	39.5	plate	CCI-AFP-065125	3	x				x				x			
5	61.5	91.5	plate	CCI-AFP-060100	3	x				x				x			
6																	
7																	
8																	
9																	
10																	

Reinforcement Details

	B (in)	H (in)	Gross Area (in^2)	Pole Face to Centroid (in)	Bottom Termination Type	Bottom Termination Length (in)	Top Termination Type	Top Termination Length (in)	Lu (in)	Net Area (in2)	Bolt Hole Size (in)	Reinforcement Material
1	6.5	1.25	8.125	0.625	Welded	n/a	PC 8.8 - M20 (100)	33.000	19.000	6.563	1.1875	A572-65
2	6	1	6	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	16.000	4.750	1.1875	A572-65
3	6	1	6	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	16.000	4.750	1.1875	A572-65
4	6.5	1.25	8.125	0.625	PC 8.8 - M20 (100)	42	PC 8.8 - M20 (100)	42.000	19.000	6.563	1.1875	A572-65
5	6	1	6	0.5	PC 8.8 - M20 (100)	30	PC 8.8 - M20 (100)	30.000	16.000	4.750	1.1875	A572-65

TNX Geometry Input

Increment (ft): 5 Export to TNX

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	130 - 125	5		0	18.000	18.000	0.375	A53-B-35	1.000
2	125 - 120	5	0	0	18.000	18.000	0.375	A53-B-35	1.000
3	120 - 115	5		12	22.000	22.900	0.25	A572-65	1.000
4	115 - 110	5		12	22.900	23.800	0.25	A572-65	1.000
5	110 - 105	5		12	23.800	24.701	0.25	A572-65	1.000
6	105 - 100	5		12	24.701	25.601	0.25	A572-65	1.000
7	100 - 95	5		12	25.601	26.501	0.25	A572-65	1.000
8	95 - 91.5	3.5		12	26.501	27.131	0.25	A572-65	1.000
9	91.5 - 91.25	0.25		12	27.131	27.176	0.4875	A572-65	0.948
10	91.25 - 86.25	5		12	27.176	28.077	0.475	A572-65	0.958
11	86.25 - 81.25	5		12	28.077	28.977	0.475	A572-65	0.944
12	81.25 - 80.75	4.25	3.75	12	28.977	29.742	0.46875	A572-65	0.955
13	80.75 - 75.75	5		12	28.567	29.467	0.5375	A572-65	0.946
14	75.75 - 70.75	5		12	29.467	30.367	0.525	A572-65	0.957
15	70.75 - 65.75	5		12	30.367	31.267	0.5125	A572-65	0.969
16	65.75 - 63	2.75		12	31.267	31.762	0.5125	A572-65	0.963
17	63 - 62.73	0.27		12	31.762	31.811	0.725	A572-65	0.934
18	62.73 - 62.58	0.15		12	31.811	31.838	0.725	A572-65	0.933
19	62.58 - 61.5	1.08		12	31.838	32.032	0.7125	A572-65	0.946
20	61.5 - 61.25	0.25		12	32.032	32.077	0.5125	A572-65	0.960
21	61.25 - 56.25	5		12	32.077	32.977	0.5	A572-65	0.973
22	56.25 - 51.25	5		12	32.977	33.878	0.5	A572-65	0.964
23	51.25 - 46.25	5		12	33.878	34.778	0.49375	A572-65	0.967
24	46.25 - 42.25	8.5	4.5	12	34.778	36.308	0.4875	A572-65	0.972
25	42.25 - 36.75	5.5		12	34.873	35.863	0.8	A572-65	0.944
26	36.75 - 32.25	4.5		12	35.863	36.673	0.7875	A572-65	0.948
27	32.25 - 32	0.25		12	36.673	36.718	0.925	A572-65	0.982
28	32 - 31.83	0.17		12	36.718	36.749	0.925	A572-65	0.982
29	31.83 - 31.48	0.35		12	36.749	36.812	0.55	A572-65	1.065
30	31.48 - 31.25	0.23		12	36.812	36.853	0.54375	A572-65	1.077
31	31.25 - 26.25	5		12	36.853	37.754	0.5375	A572-65	1.080
32	26.25 - 21.25	5		12	37.754	38.654	0.5375	A572-65	1.071
33	21.25 - 16.25	5		12	38.654	39.554	0.53125	A572-65	1.074
34	16.25 - 11.25	5		12	39.554	40.454	0.525	A572-65	1.079
35	11.25 - 6.25	5		12	40.454	41.355	0.525	A572-65	1.071
36	6.25 - 1.25	5		12	41.355	42.255	0.51875	A572-65	1.076
37	1.25 - 0	1.25		12	42.255	42.480	0.51875	A572-65	1.074

TNX Section Forces

Increment (ft):	5	TNX Output		
	Section Height (ft)	P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	130 - 125	3.71	19.10	4.44
2	125 - 120	4.77	43.37	5.40
3	120 - 115	8.61	82.35	8.58
4	115 - 110	9.07	126.41	9.05
5	110 - 105	14.31	197.75	14.41
6	105 - 100	14.90	270.93	14.88
7	100 - 95	15.52	346.46	15.35
8	95 - 91.5	15.97	400.73	15.68
9	91.5 - 91.25	16.03	404.65	15.70
10	91.25 - 86.25	17.01	484.42	16.22
11	86.25 - 81.25	18.03	566.82	16.75
12	81.25 - 80.75	18.13	575.21	16.80
13	80.75 - 75.75	19.89	660.70	17.39
14	75.75 - 70.75	21.05	748.93	17.92
15	70.75 - 65.75	22.24	839.79	18.44
16	65.75 - 63	22.90	890.88	18.73
17	63 - 62.73	22.99	895.94	18.76
18	62.73 - 62.58	23.04	898.76	18.79
19	62.58 - 61.5	23.38	919.09	18.90
20	61.5 - 61.25	23.44	923.82	18.92
21	61.25 - 56.25	24.67	1019.68	19.44
22	56.25 - 51.25	25.93	1118.13	19.96
23	51.25 - 46.25	27.29	1219.57	20.51
24	46.25 - 42.25	28.33	1302.37	20.91
25	42.25 - 36.75	31.42	1419.13	21.56
26	36.75 - 32.25	33.17	1517.15	22.03
27	32.25 - 32	33.29	1522.66	22.05
28	32 - 31.83	33.37	1526.41	22.07
29	31.83 - 31.48	33.48	1534.13	22.10
30	31.48 - 31.25	33.56	1539.22	22.12
31	31.25 - 26.25	35.19	1650.94	22.59
32	26.25 - 21.25	36.85	1764.94	23.03
33	21.25 - 16.25	38.54	1881.07	23.45
34	16.25 - 11.25	40.25	1999.20	23.83
35	11.25 - 6.25	41.99	2119.28	24.22
36	6.25 - 1.25	43.76	2241.30	24.61
37	1.25 - 0	44.20	2272.11	24.72

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
130 - 125	Pole	TP18x18x0.375	Pole	6.5%	Pass
125 - 120	Pole	TP18x18x0.375	Pole	14.3%	Pass
120 - 115	Pole	TP22.9x22x0.25	Pole	13.9%	Pass
115 - 110	Pole	TP23.8x22.9x0.25	Pole	19.6%	Pass
110 - 105	Pole	TP24.701x23.8x0.25	Pole	28.9%	Pass
105 - 100	Pole	TP25.601x24.701x0.25	Pole	37.0%	Pass
100 - 95	Pole	TP26.501x25.601x0.25	Pole	44.5%	Pass
95 - 91.5	Pole	TP27.131x26.501x0.25	Pole	49.4%	Pass
91.5 - 91.25	Pole + Reinf.	TP27.176x27.131x0.4875	Reinf. 5 Tension Rupture	36.6%	Pass
91.25 - 86.25	Pole + Reinf.	TP28.077x27.176x0.475	Reinf. 5 Tension Rupture	41.6%	Pass
86.25 - 81.25	Pole + Reinf.	TP28.977x28.077x0.475	Reinf. 5 Tension Rupture	46.3%	Pass
81.25 - 80.75	Pole + Reinf.	TP29.742x28.977x0.4688	Reinf. 5 Tension Rupture	46.8%	Pass
80.75 - 75.75	Pole + Reinf.	TP29.467x28.567x0.5375	Reinf. 5 Tension Rupture	46.4%	Pass
75.75 - 70.75	Pole + Reinf.	TP30.367x29.467x0.525	Reinf. 5 Tension Rupture	50.1%	Pass
70.75 - 65.75	Pole + Reinf.	TP31.267x30.367x0.5125	Reinf. 5 Tension Rupture	53.5%	Pass
65.75 - 63	Pole + Reinf.	TP31.762x31.267x0.5125	Reinf. 5 Tension Rupture	55.3%	Pass
63 - 62.73	Pole + Reinf.	TP31.811x31.762x0.725	Reinf. 2 Tension Rupture	40.3%	Pass
62.73 - 62.58	Pole + Reinf.	TP31.838x31.811x0.725	Reinf. 2 Tension Rupture	40.3%	Pass
62.58 - 61.5	Pole + Reinf.	TP32.032x31.838x0.7125	Reinf. 2 Tension Rupture	40.9%	Pass
61.5 - 61.25	Pole + Reinf.	TP32.077x32.032x0.5125	Reinf. 2 Tension Rupture	56.4%	Pass
61.25 - 56.25	Pole + Reinf.	TP32.977x32.077x0.5	Reinf. 2 Tension Rupture	59.5%	Pass
56.25 - 51.25	Pole + Reinf.	TP33.878x32.977x0.5	Reinf. 2 Tension Rupture	62.4%	Pass
51.25 - 46.25	Pole + Reinf.	TP34.778x33.878x0.4938	Reinf. 2 Tension Rupture	65.2%	Pass
46.25 - 42.25	Pole + Reinf.	TP36.308x34.778x0.4875	Reinf. 2 Tension Rupture	67.2%	Pass
42.25 - 36.75	Pole + Reinf.	TP35.863x34.873x0.8	Reinf. 2 Tension Rupture	44.9%	Pass
36.75 - 32.25	Pole + Reinf.	TP36.673x35.863x0.7875	Reinf. 2 Tension Rupture	46.4%	Pass
32.25 - 32	Pole + Reinf.	TP36.718x36.673x0.925	Reinf. 1 Tension Rupture	40.8%	Pass
32 - 31.83	Pole + Reinf.	TP36.749x36.718x0.925	Reinf. 1 Tension Rupture	40.8%	Pass
31.83 - 31.48	Pole + Reinf.	TP36.812x36.749x0.55	Reinf. 1 Tension Rupture	60.5%	Pass
31.48 - 31.25	Pole + Reinf.	TP36.853x36.812x0.5438	Reinf. 1 Tension Rupture	60.6%	Pass
31.25 - 26.25	Pole + Reinf.	TP37.754x36.853x0.5375	Reinf. 1 Tension Rupture	62.4%	Pass
26.25 - 21.25	Pole + Reinf.	TP38.654x37.754x0.5375	Reinf. 1 Tension Rupture	64.1%	Pass
21.25 - 16.25	Pole + Reinf.	TP39.554x38.654x0.5313	Reinf. 1 Tension Rupture	65.7%	Pass
16.25 - 11.25	Pole + Reinf.	TP40.454x39.554x0.525	Reinf. 1 Tension Rupture	67.2%	Pass
11.25 - 6.25	Pole + Reinf.	TP41.355x40.454x0.525	Reinf. 1 Tension Rupture	68.6%	Pass
6.25 - 1.25	Pole + Reinf.	TP42.255x41.355x0.5188	Reinf. 1 Tension Rupture	69.9%	Pass
1.25 - 0	Pole + Reinf.	TP42.48x42.255x0.5188	Reinf. 1 Tension Rupture	70.2%	Pass
				Summary	
			Pole	58.4%	Pass
			Reinforcement	70.2%	Pass
			Overall	70.2%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in^4)			Area (in^2)			% Capacity*					
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4	R5
130 - 125	807	n/a	807	20.76	n/a	20.76	6.5%					
125 - 120	807	n/a	807	20.76	n/a	20.76	14.3%					
120 - 115	1196	n/a	1196	18.21	n/a	18.21	13.9%					
115 - 110	1344	n/a	1344	18.93	n/a	18.93	19.6%					
110 - 105	1504	n/a	1504	19.65	n/a	19.65	28.9%					
105 - 100	1676	n/a	1676	20.38	n/a	20.38	37.0%					
100 - 95	1861	n/a	1861	21.10	n/a	21.10	44.5%					
95 - 91.5	1999	n/a	1999	21.61	n/a	21.61	49.4%					
91.5 - 91.25	2009	1814	3823	21.64	18.00	39.64	25.3%					36.6%
91.25 - 86.25	2217	1930	4147	22.37	18.00	40.37	29.2%					41.6%
86.25 - 81.25	2439	2050	4489	23.09	18.00	41.09	32.9%					46.3%
81.25 - 80.75	2462	2062	4524	23.16	18.00	41.16	33.3%					46.8%
80.75 - 75.75	3187	2116	5303	29.29	18.00	47.29	30.4%					46.4%
75.75 - 70.75	3492	2242	5733	30.20	18.00	48.20	33.2%					50.1%
70.75 - 65.75	3815	2370	6185	31.10	18.00	49.10	35.8%					53.5%
65.75 - 63	4001	2443	6444	31.60	18.00	49.60	37.3%					55.3%
63 - 62.73	4019	4900	8919	31.65	36.00	67.65	27.2%		40.3%	40.3%		40.3%
62.73 - 62.58	4030	4908	8938	31.68	36.00	67.68	27.2%		40.3%	40.3%		40.3%
62.58 - 61.5	4105	4966	9070	31.87	36.00	67.87	27.7%		40.9%	40.9%		40.9%
61.5 - 61.25	4122	2490	6612	31.92	18.00	49.92	38.2%		56.4%	56.4%		
61.25 - 56.25	4483	2625	7108	32.82	18.00	50.82	40.7%		59.5%	59.5%		
56.25 - 51.25	4863	2765	7628	33.73	18.00	51.73	43.2%		62.4%	62.4%		
51.25 - 46.25	5265	2908	8173	34.63	18.00	52.63	45.7%		65.2%	65.2%		
46.25 - 42.25	5602	3025	8627	35.35	18.00	53.35	47.6%		67.2%	67.2%		
42.25 - 36.75	6898	7326	14224	42.79	42.38	85.17	29.7%		44.9%	44.9%	44.3%	
36.75 - 32.25	7381	7648	15029	43.77	42.38	86.14	31.0%		46.4%	46.4%	45.8%	
32.25 - 32	7452	10136	17588	43.82	60.75	104.57	28.8%	40.8%	38.1%		39.1%	
32 - 31.83	7471	10152	17623	43.86	60.75	104.61	28.9%	40.8%	38.2%		39.2%	
31.83 - 31.48	7516	3215	10731	43.93	24.38	68.31	47.8%	60.5%				
31.48 - 31.25	7541	3222	10764	43.98	24.38	68.36	47.9%	60.6%				
31.25 - 26.25	8112	3375	11487	45.07	24.38	69.45	49.7%	62.4%				
26.25 - 21.25	8710	3532	12242	46.16	24.38	70.53	51.5%	64.1%				
21.25 - 16.25	9337	3693	13030	47.24	24.38	71.62	53.2%	65.7%				
16.25 - 11.25	9994	3857	13851	48.33	24.38	72.70	54.9%	67.2%				
11.25 - 6.25	10681	4024	14705	49.41	24.38	73.79	56.5%	68.6%				
6.25 - 1.25	11398	4196	15594	50.50	24.38	74.87	58.1%	69.9%				
1.25 - 0	11583	4239	15822	50.77	24.38	75.14	58.4%	70.2%				

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

Monopole Flange Plate Connection

Elevation = 120 ft.

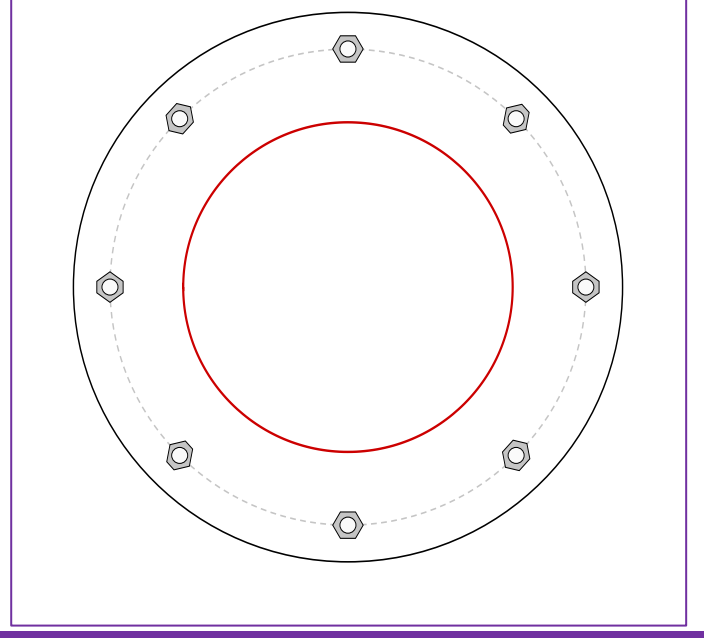
BU #	876322
Site Name	Tartaglia Property
Order #	587436 Rev. 0

TIA-222 Revision	H

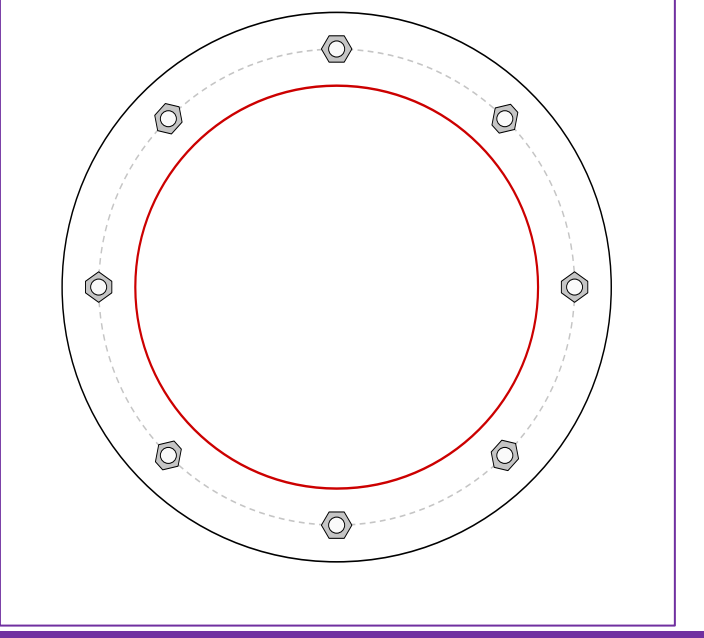
Applied Loads	
Moment (kip-ft)	43.37
Axial Force (kips)	4.77
Shear Force (kips)	5.40

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - External



Connection Properties

Bolt Data

(8) 7/8" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 26" BC

Top Plate Data

30" OD x 1" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Plate Data

30" OD x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

N/A

Bottom Stiffener Data

N/A

Top Pole Data

18" x 0.375" round pole (A53-B-35; Fy=35 ksi, Fu=60 ksi)

Bottom Pole Data

22" x 0.25" 12-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	9.41	
Allowable (kips)	41.57	
Stress Rating:	**21.6%**	**Pass**

Top Plate Capacity

Max Stress (ksi):	12.63	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**37.1%**	**Pass**
Tension Side Stress Rating:	**18.5%**	**Pass**

Bottom Plate Capacity

Max Stress (ksi):	3.92	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**11.5%**	**Pass**
Tension Side Stress Rating:	**4.2%**	**Pass**

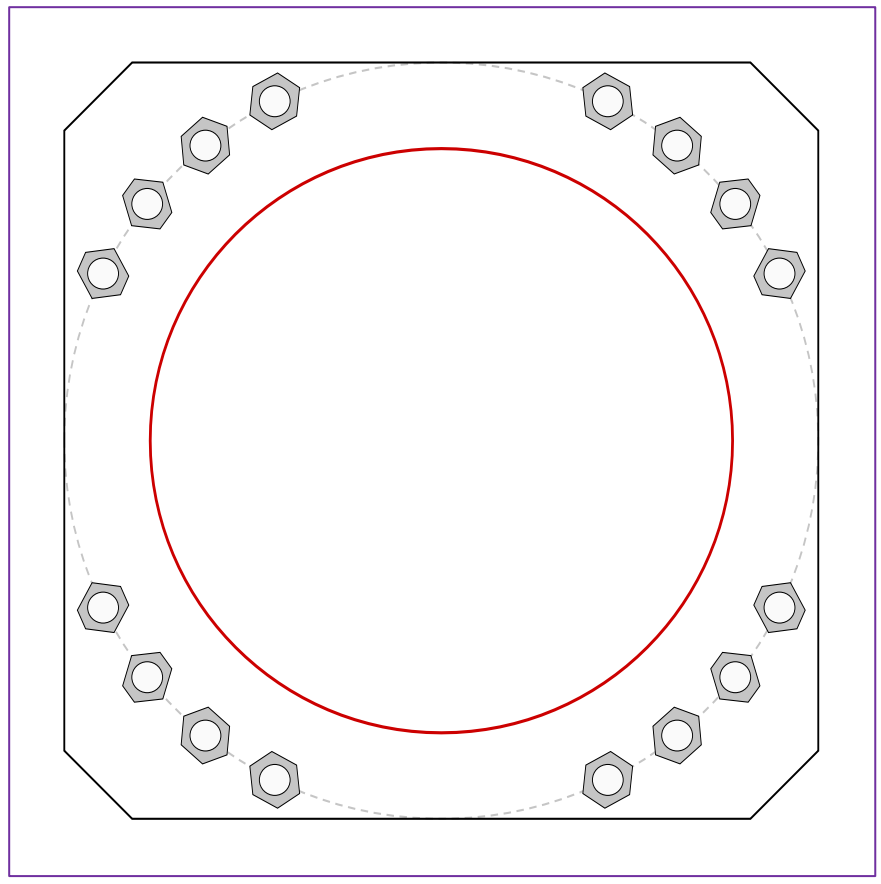
Monopole Base Plate Connection

Site Info	
BU #	876322
Site Name	Tartaglia Property
Order #	587436 Rev. 0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	1.25

Applied Loads	
Moment (kip-ft)	2272.00
Axial Force (kips)	44.00
Shear Force (kips)	25.00

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

(16) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 55" BC

Anchor Spacing: 6 in

Base Plate Data

55" W x 3.5" Plate (A572-50; Fy=50 ksi, Fu=65 ksi); Clip: 4.95 in

Stiffener Data

N/A

Pole Data

42.48" x 0.375" 12-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

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

Pu_t = 121.09	ϕPn_t = 243.75	**Stress Rating**
Vu = 1.56	ϕVn = 149.1	**47.3%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	24.84	(Flexural)
Allowable Stress (ksi):	45	
Stress Rating:	**52.6%**	**Pass**

Drilled Pier Foundation

BU # :	876322
Site Name:	Tartaglia Property
Order Number:	587436 Rev. 0
TIA-222 Revison:	H
Tower Type:	Monopole

Report File:

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

Go to Soil Calculations

Applied Loads	Comp.	Uplift
Moment (kip-ft)	2272	
Axial Force (kips)	44	
Shear Force (kips)	25	

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

Pier Design Data		
Depth	24	ft
Ext. Above Grade	0.5	ft
Pier Section 1		
From 0.5' above grade to 24' below grade		
Pier Diameter	7	ft
Rebar Quantity	32	
Rebar Size	11	
Clear Cover to Ties	4	in
Tie Size	5	
Tie Spacing	18	in

Rebar & Pier Options

Embedded Pole Inputs

Belled Pier Inputs

Analysis Results

Soil Lateral Check	Compression	Uplift
$D_{v=0}$ (ft from TOC)	7.37	-
Soil Safety Factor	4.16	-
Max Moment (kip-ft)	2475.35	-
Rating*	*30.5%*	-
Soil Vertical Check	*Compression*	*Uplift*
Skin Friction (kips)	435.78	-
End Bearing (kips)	230.91	-
Weight of Concrete (kips)	129.37	-
Total Capacity (kips)	666.68	-
Axial (kips)	173.37	-
Rating*	*24.8%*	-
Reinforced Concrete Flexure	*Compression*	*Uplift*
Critical Depth (ft from TOC)	7.34	-
Critical Moment (kip-ft)	2475.34	-
Critical Moment Capacity	7511.99	-
Rating*	*31.4%*	-
Reinforced Concrete Shear	*Compression*	*Uplift*
Critical Depth (ft from TOC)	17.96	-
Critical Shear (kip)	305.93	-
Critical Shear Capacity	613.08	-
Rating*	*47.5%*	-

Structural Foundation Rating*	**47.5%**
Soil Interaction Rating*	**30.5%**

*Rating per TIA-222-H Section 15.5

Soil Profile

Groundwater Depth	10

# of Layers	4

Layer	Top (ft)	Bottom (ft)	Thickness (ft)	γ_{soil} (pcf)	$\gamma_{concrete}$ (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Gross Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	5	5	120	150	0		0.000	0.000					Cohesionless
2	5	10	5	120	150		35	1.017	1.017				23	Cohesionless
3	10	20	10	60	87.6		40	1.466	1.466				67	Cohesionless
4	20	24	4	63	87.6		43	1.669	1.669			8	46	Cohesionless

Date: **November 2, 2021**

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

Subject:	**Mount Analysis Report**	
Carrier Designation:	***T-Mobile* Equipment Change-Out**	
	Carrier Site Number:	CTNH101A
	Carrier Site Name:	NH101/GlobalSignal/Bran
Crown Castle Designation:	**BU Number:**	876322
	Site Name:	TARTAGLIA PROPERTY
	JDE Job Number:	687337
	Order Number:	587436 Rev. 0
Engineering Firm Designation:	**GPD Report Designation:**	2021777.876322.02
Site Data:	**850 West Main Street, Branford, New Haven County, CT 06405** **Latitude 41° 16' 40.19" Longitude -72° 50' 12.70"**	
Structure Information:	**Tower Height & Type:**	**131.0 ft Monopole Tower**
	Mount Elevation:	**128.0 ft**
	Mount Type:	**12.5 ft Platform Mount**

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

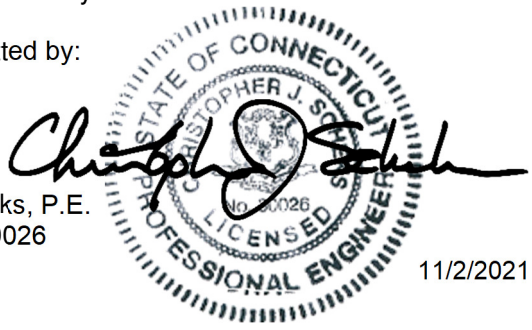
The purpose of the analysis is to determine acceptability of the mount stress level. Based on our analysis we have determined the mount stress level to be:

Platform Mount **Sufficient Capacity – 62.5%**

This analysis utilizes an ultimate 3-second gust wind speed of 121 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

11/2/2021

TABLE OF CONTENTS

1) INTRODUCTION

This is an existing 3-sector 12.5' Platform Mount mapped by P-Sec (Project #: 19651-22, dated 4/16/2019).

The mount has been modified per a conditional passing mount analysis by ETS (Project #: 192562.14, dated 4/29/2019). Reinforcement consists of installing a support rail.

2) ANALYSIS CRITERIA

Building Code:	2018 Connecticut State Building Code
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	121 mph
Exposure Category:	C
Topographic Factor at Base:	1
Topographic Factor at Mount:	1
Ice Thickness:	1 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
128.0	130.0	3	Commscope	VV-65A-R1_TMO	12.5 ft. Platform Mount
		3	Ericsson	AIR6449 B41	
		3	RFS/Celwave	APXVAARR24_43-U-NA20	
		3	Ericsson	RADIO 4449 B71 B85A_T-MOBILE	
		3	Ericsson	RADIO 4460 B2/B25 B66_TMO	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
CCI Application	Crown Order Number 587436 Rev. 0	-	CCI
RF Data Sheet	T-Mobile RFDS #: CTNH101A, dated 10/06/2021	-	CCI
Mount Analysis	ETS Project #: 192562.14, dated 4/29/2019	8371785	CCI
Mount Mapping	P-Sec Project #: 19651-22, dated 4/16/2019 (MAPPED)	8347285	CCI

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:

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

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

4) ANALYSIS RESULTS

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

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
1,3	Standoff	M2	128.0	29.4	Pass
	Toe Rail	M13		26.3	Pass
	Grating Angle	M22		30.4	Pass
	Grating Plate	M7		19.9	Pass
	Ring Plate Outer	M8		27.0	Pass
	Ring Plate Corner	M3		6.9	Pass
	Mount Pipe	A2		62.5	Pass
	Support Rail	M41		24.8	Pass
	Supp. Rail Corner	M43		26.8	Pass
2,3	Mount to Tower Connection	-		40.1	Pass

Structure Rating (max from all components) =	62.5%[3]

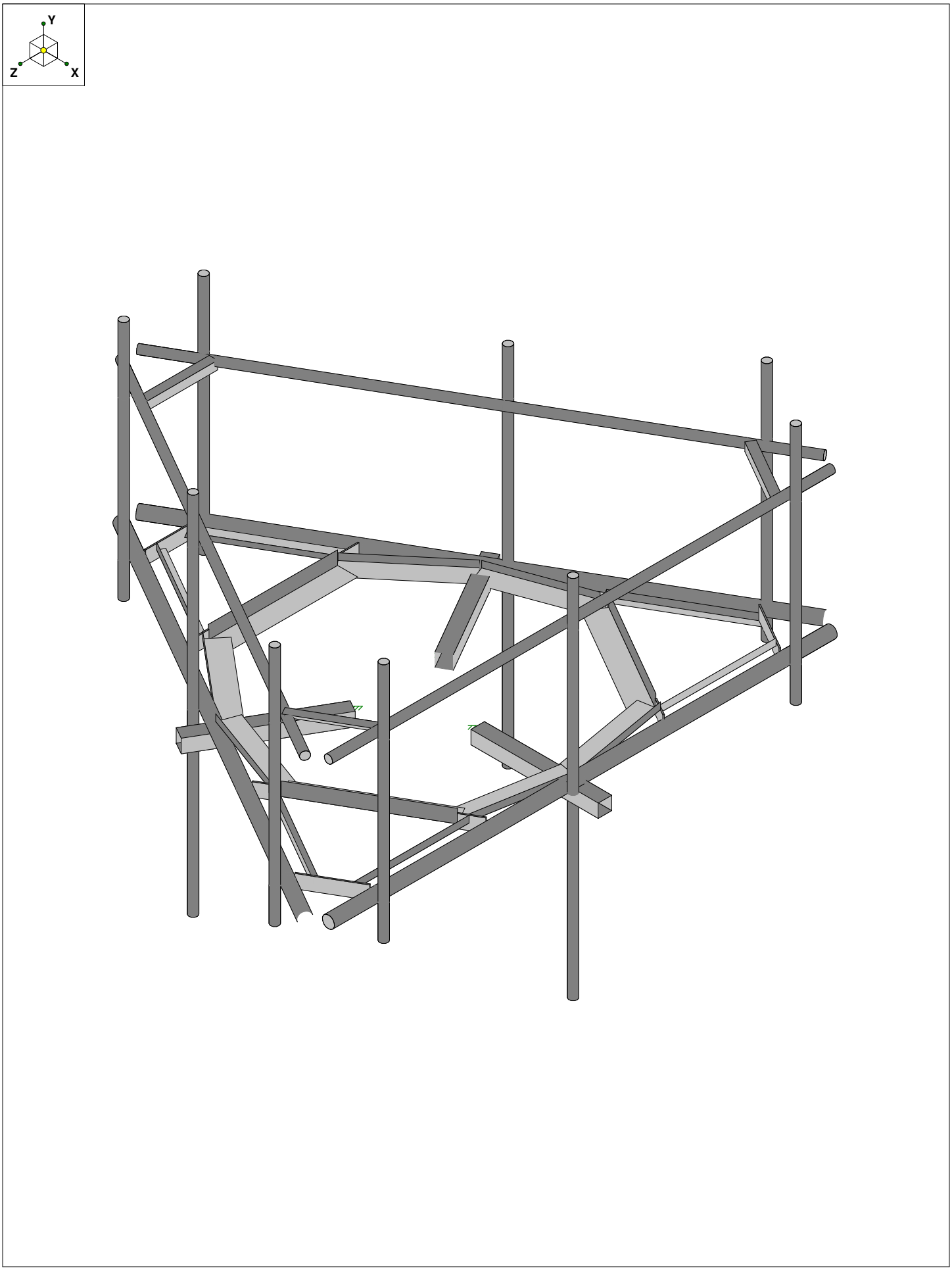
Notes:
1) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.
2) See additional documentation in "Appendix D - Additional Calculations" for calculations supporting the % capacity consumed.
3) Ratings per TIA-222-H section 15.5.

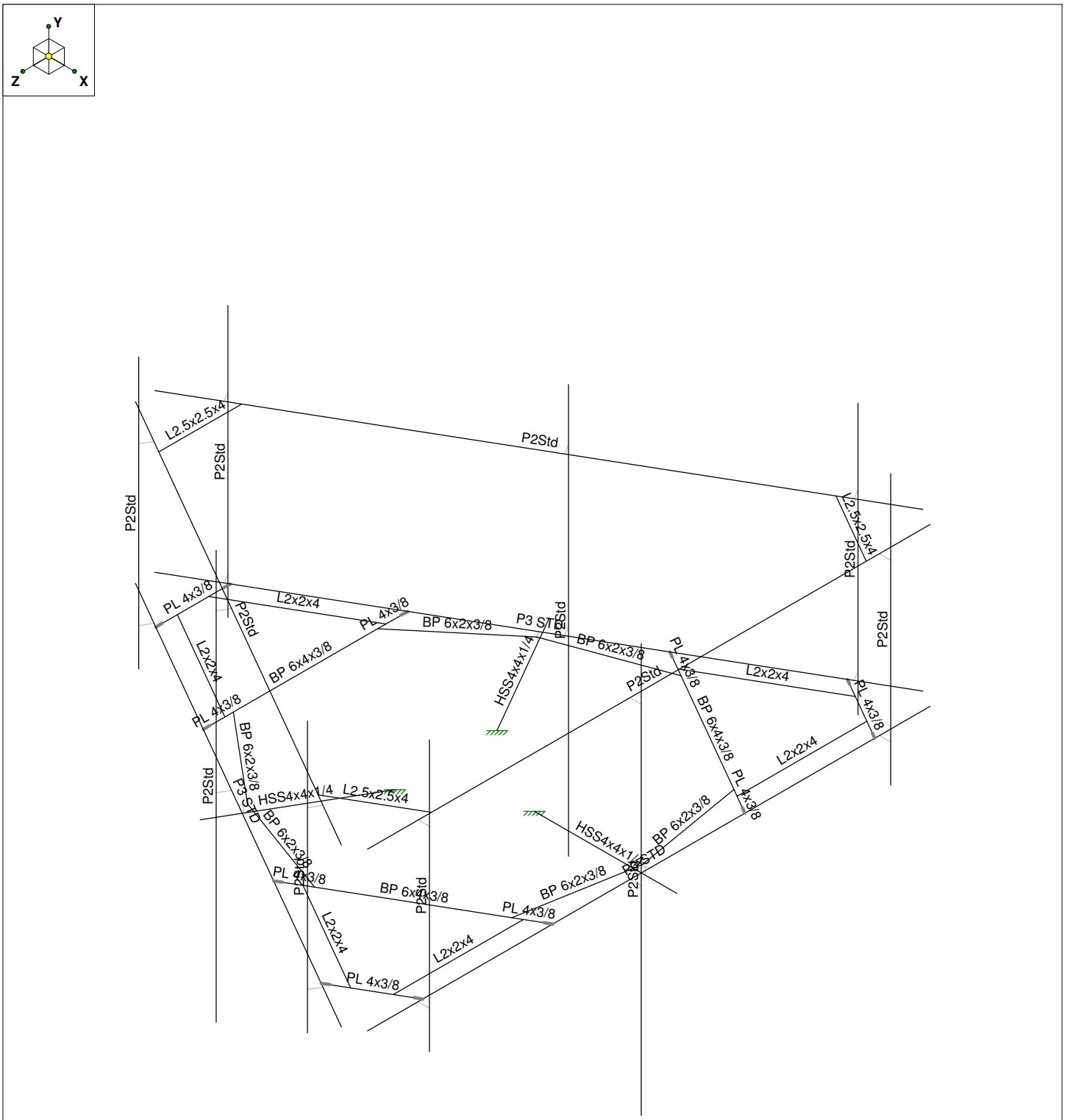
4.1) Recommendations

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

APPENDIX A

WIRE FRAME AND RENDERED MODELS


Y
Z
X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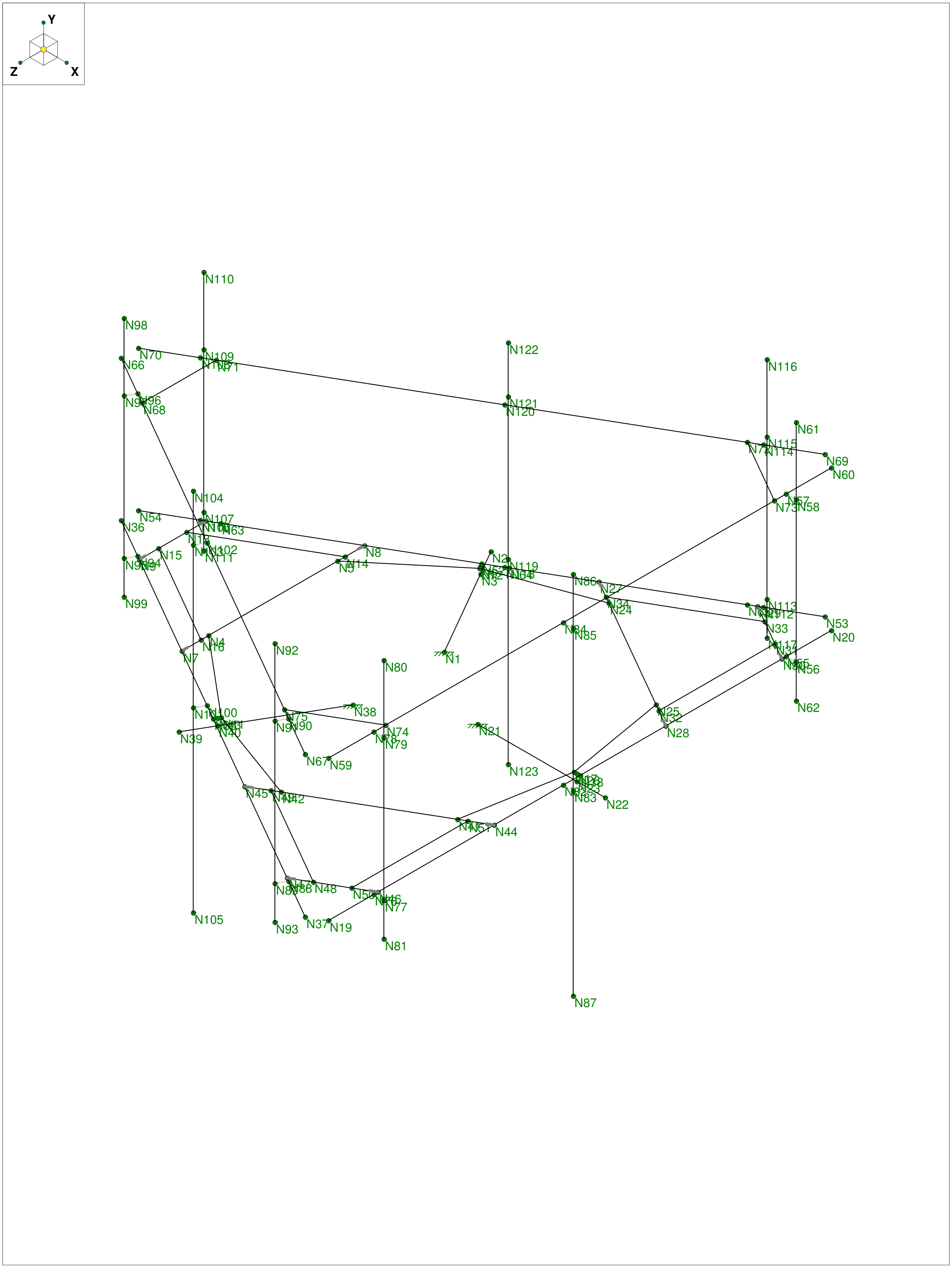
Z
X
L2.5x2.5x4
P2Std
L2x2x4
PL 4x3/8
BP 6x2x3/8
BP 6x4x3/8
P3 STD
HSS4x4x1/4



Y
Z
X
N110
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N69
N61
N60
N73
N58
N104
N54
N107
N36
N63
N8
N2
N119
N15
N102
N111
N5
N3
N99
N86
N27
N34
N24
N113
N112
N53
N33
N20
N4
N16
N7
N1
N85
N84
N117
N56
N55
N62
N92
N80
N38
N100
N75
N25
N32
N28
N39
N90
N74
N79
N21
N67
N59
N123
N22
N83
N45
N42
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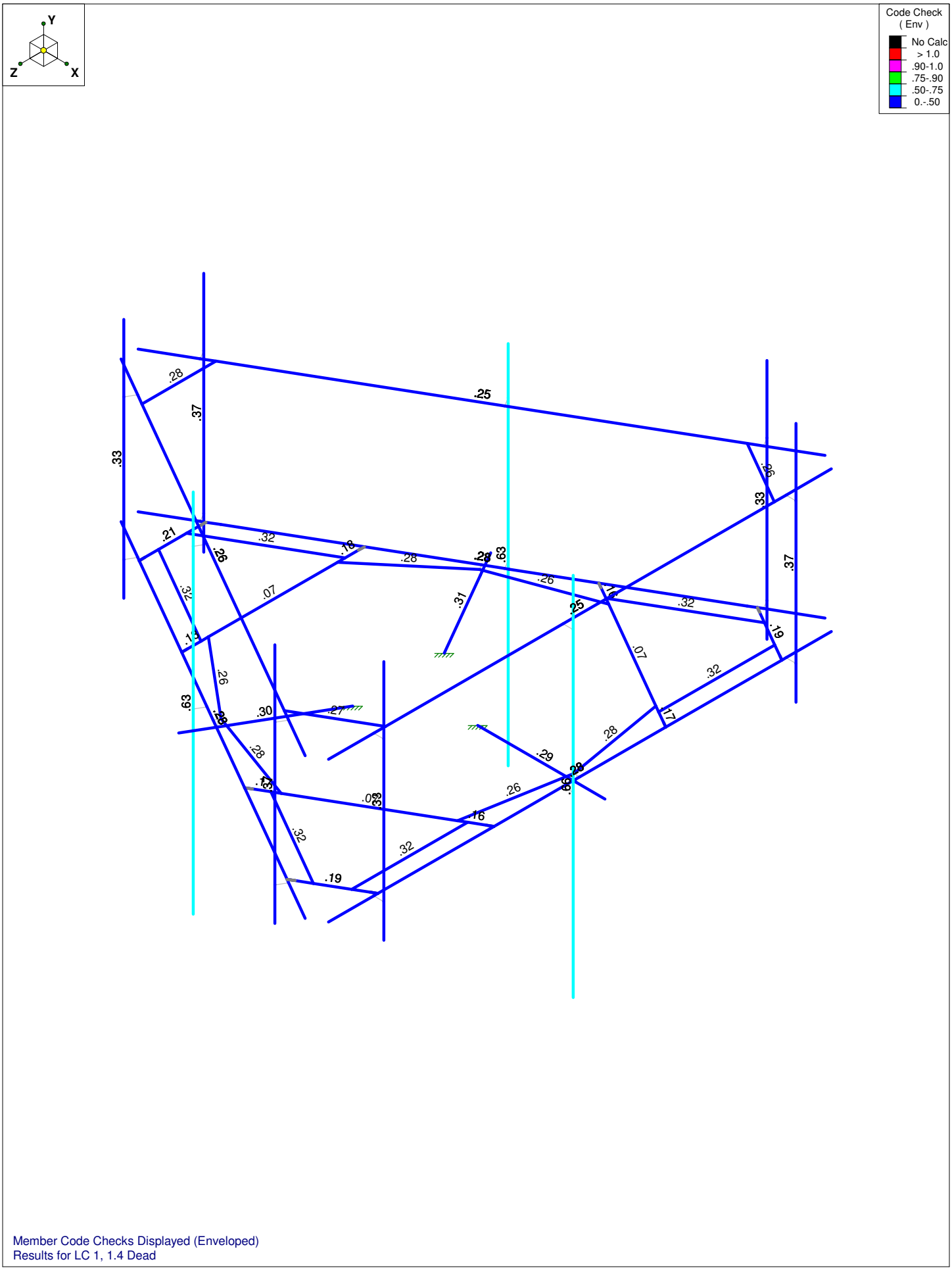
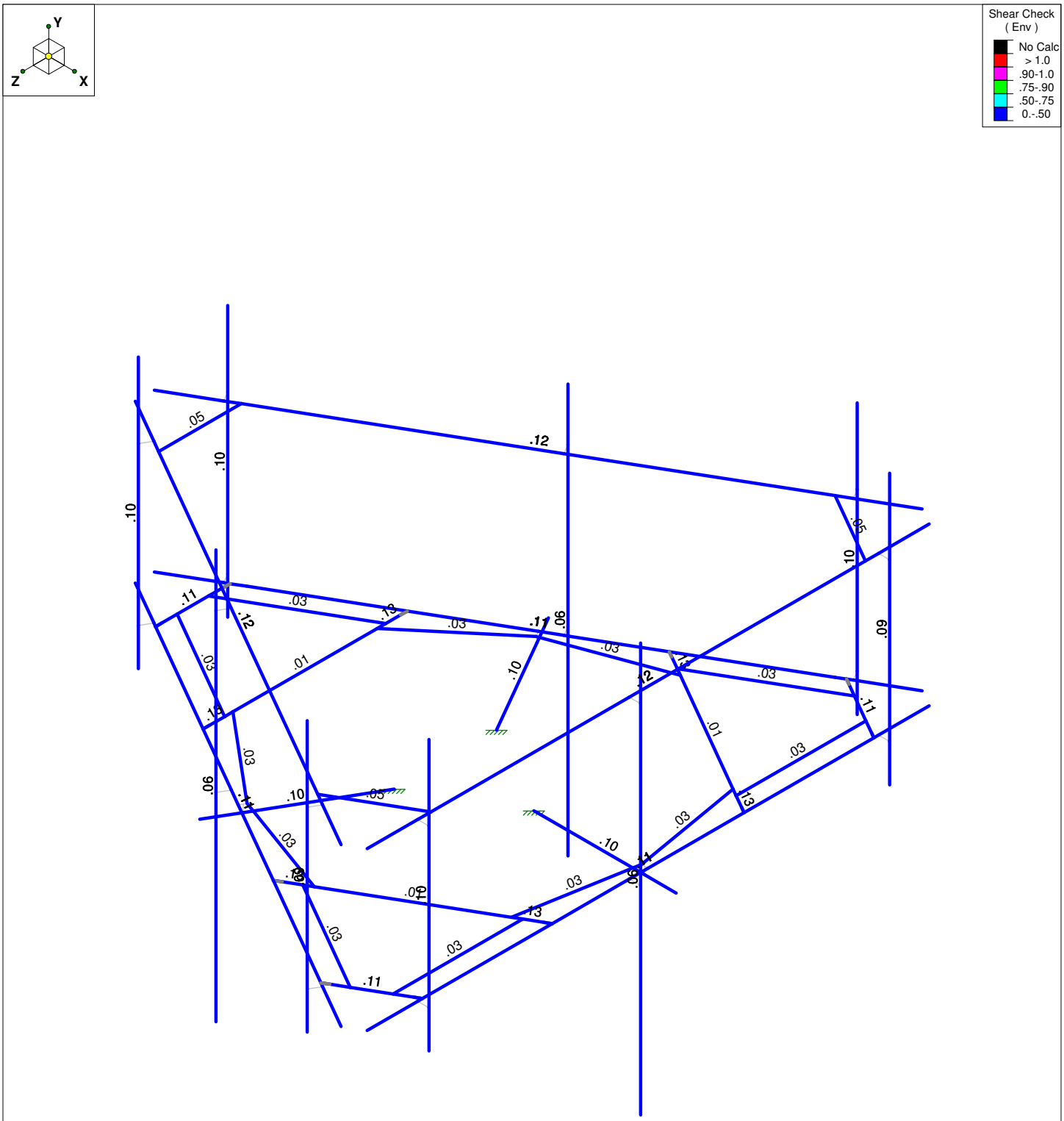
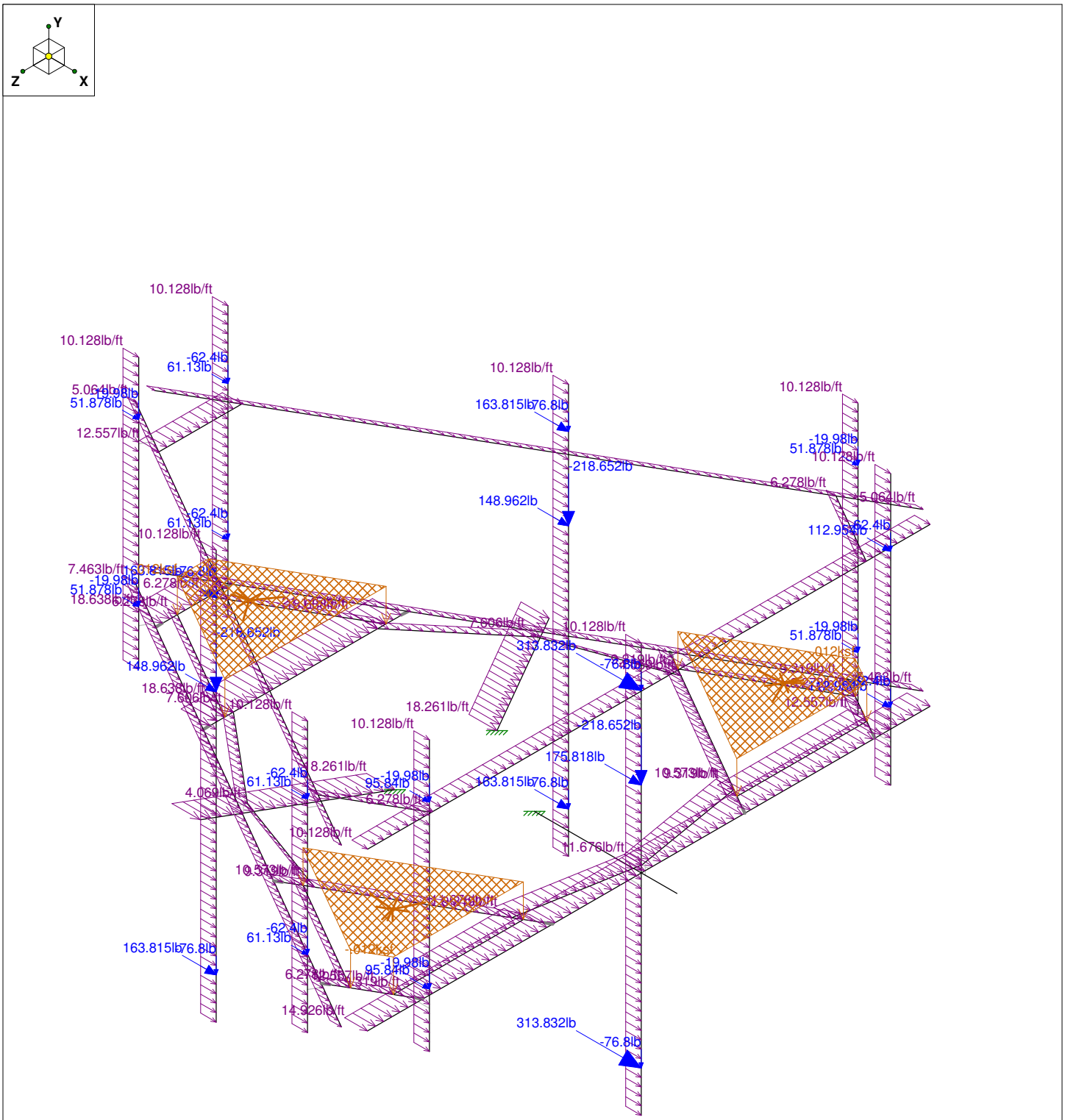
N48
N37
N19
N93
N81
N105
N87
N77
N46



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



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



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

APPENDIX B

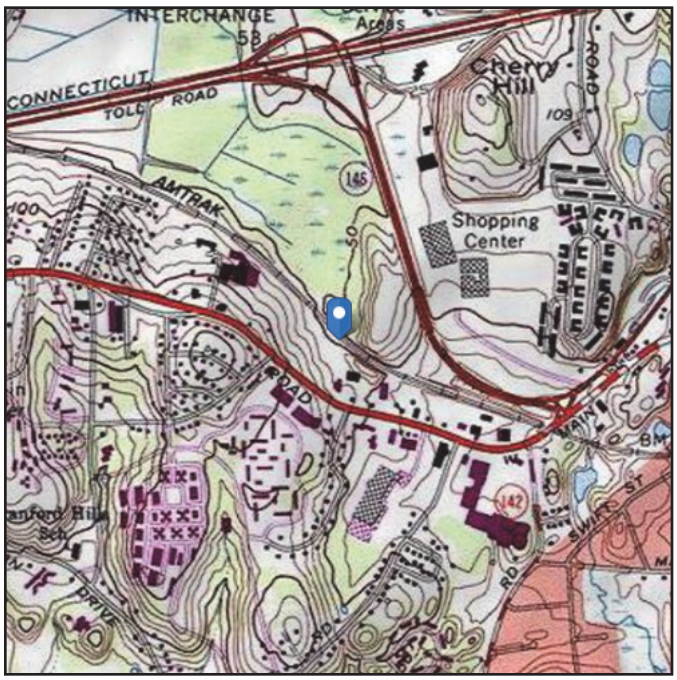
SOFTWARE INPUT CALCULATIONS

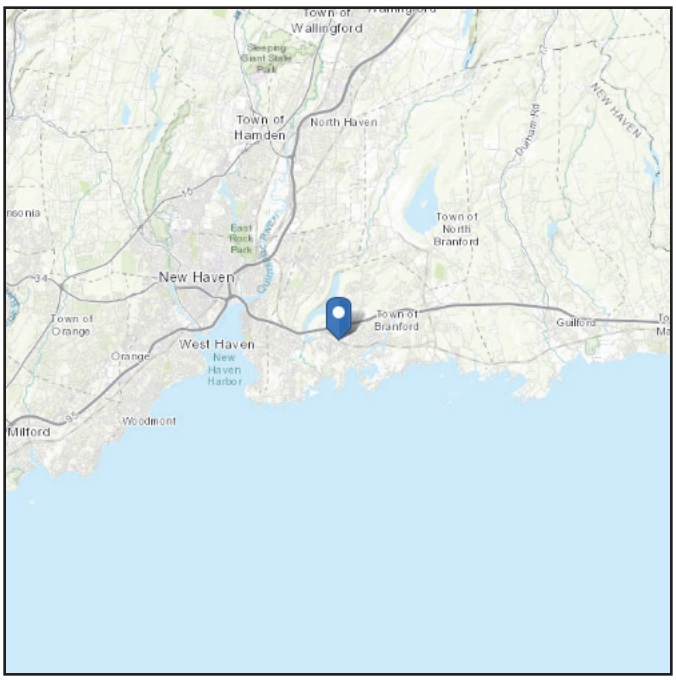
ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 49.82 ft (NAVD 88)
Latitude: 41.277831
Longitude: -72.836861





Wind

Results:

Wind Speed:	121 Vmph
10-year MRI	75 Vmph
25-year MRI	85 Vmph
50-year MRI	92 Vmph
100-year MRI	99 Vmph

Data Source:	ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed:	Tue Nov 02 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.

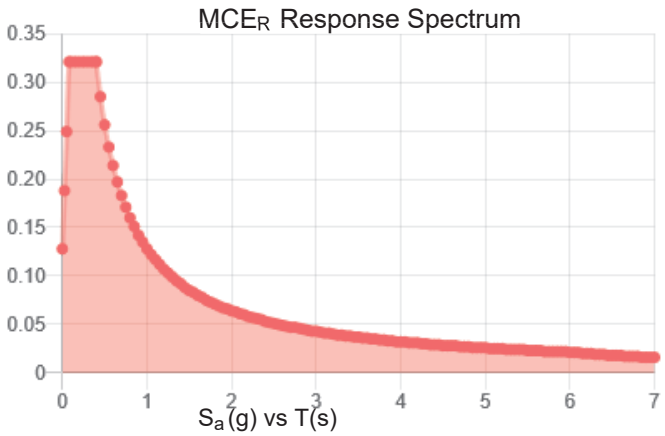
Seismic

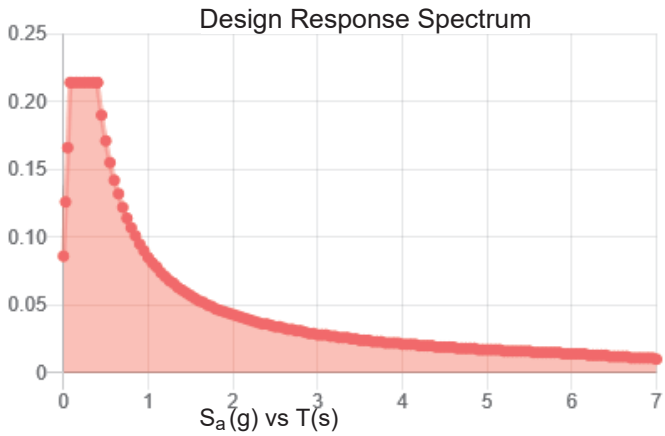
Site Soil Class: D - Default (see Section 11.4.3)

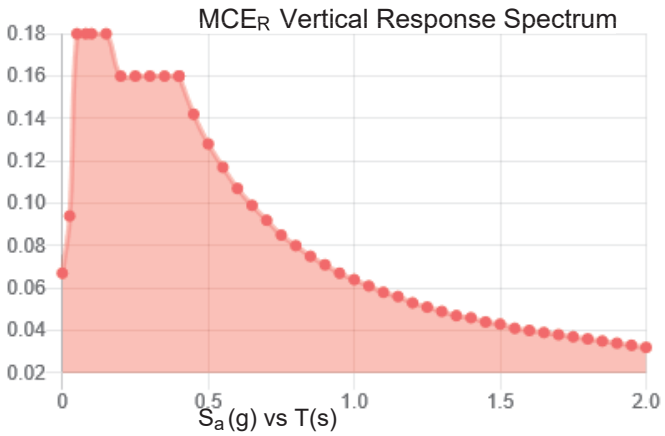
Results:

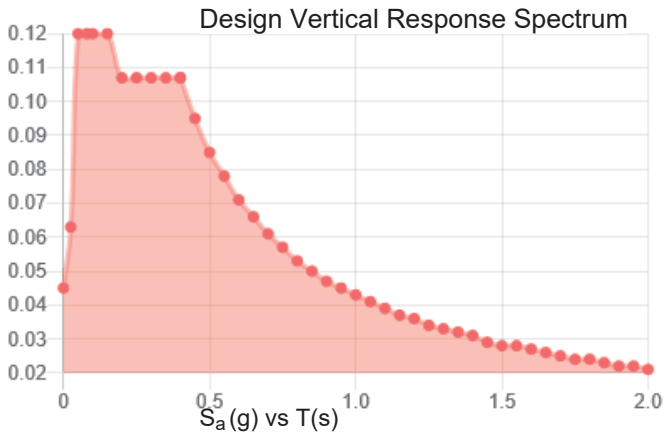
S_S :	0.2	S_{D1} :	0.085
S_1 :	0.053	T_L :	6
F_a :	1.6	PGA :	0.112
F_v :	2.4	PGA_M :	0.176
S_{MS} :	0.321	F_{PGA} :	1.576
S_{M1} :	0.128	I_e :	1
S_{DS} :	0.214	C_v :	0.701

Seismic Design Category B









Data Accessed: Tue Nov 02 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:	1.00 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Tue Nov 02 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.

TIA-222-H: Mount Analysis Wind Loading
876322 - TARTAGLIA PROPERTY
2021777.876322.02

Structure Information		
Structure Type:	Monopole	
Structure Height:	131	ft
z (Mount Centerline) =	128	ft
Gh (Mount Gust Effect Factor) =	1.00	
Risk Category:	II	

Code Specifications		
TIA/EIA Code:	H	
Ultimate Wind Speed (No Ice) =	121	mph (3-s gust)
Ultimate Wind Speed (With Ice) =	50	mph (3-s gust)
Ice Thickness	1	in
Exposure Category	C	
Tower Base Elevation (AMSL)	49	ft

Topographic Inputs	
Topographic Feature:	N/A

Section Sets										No Ice	Ice Output	
Mount Components	Member Type	Length (in)	Side (Longest seeing wind) (in)	Other Side (in)	Calculated Dc, for ice weight (in)	Dc, for ice weight (in)	Area Type (Round or Flat)	K_a	User's Wind Multiplier	Normal Wind Force (lb/ft)*	Normal Ice Wind Force (lb/ft)*	Ice Weight (lb/ft)*
Standoff	Square/Rect.	38.000	4	4		5.66	Flat	0.90	1.00	23.43	4.86	9.52
Toe Rail	Pipe	150.000	3.5	3.5		3.50	Round	0.90	1.00	16.58	4.69	6.50
Grating Angle	Angle	36.000	2	2		2.83	Flat	0.90	1.00	13.95	3.23	5.56
Grating Plate	Square/Rect.	20.000	4	0.375		4.02	Flat	0.90	1.00	20.71	4.42	7.22
Ring Plate Outer	Angle	30.057	2	6		6.32	Flat	0.90	1.00	13.17	3.12	10.45
Ring Plate Corner	Angle	38.500	4	6		7.21	Flat	0.90	1.00	23.49	4.88	11.69
Mount Pipe	Pipe	109.000	2.375	2.375		2.38	Round	0.90	1.00	11.25	3.66	4.93
Support Rail	Pipe	150.000	2.375	2.375		2.38	Round	0.90	1.00	11.25	3.77	4.93
Supp. Rail Corner	Angle	18.500	2.5	2.5		3.54	Flat	0.90	1.00	13.95	3.25	6.55

*All forces are unfactored.

Appurtenances								Shielding			No Ice		Ice Output	
	Appurtenance Model	Loading Elevation (ft)	Height (in)	Front Width (in)	Side Depth (in)	Wt (lbs)	Type for Area	Front Shielding (%)	Side Shielding (%)	K_a and/or block shielding	Normal Wind Force (lbs)*	Wt (lbs) (no ice)*	Normal Wind Force (lbs) (w/ ice)*	Wt (lbs) (only ice)*
(3)	VV-65A-R1_TMO	130	54.7	12	4.6	33.3	CFD	0%	0%	0.90	191.68	33.30	40.65	85.27
(3)	AIR6449 B41	130	33.1	20.6	8.6	104	CFD	0%	0%	0.90	225.91	104.00	45.91	96.98
(3)	APXVAARR24_43-U-NA20	130	95.9	24	8.7	128	CFD	0%	0%	0.90	627.66	128.00	120.12	272.67
(3)	RADIO 4449 B71 B85A_T-MOBILE	130	17.91	13.2	10.63	73.21	Flat	0%	0%	0.90	84.29	73.21	17.11	49.67
(3)	RADIO 4460 B2/B25 B66_TMO	130	17	15.1	11.9	109	Flat	0%	0%	0.90	91.53	109.00	18.43	55.37

*All forces are unfactored.

APPENDIX C

SOFTWARE ANALYSIS OUTPUT

Hot Rolled Steel Properties

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

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design Li...	Material	Design R...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Standoff	HSS4x4x1/4	None	None	A500 Gr.B Rect	Typical	3.75	8.828	8.828	13.184
2	Toe Rail	P3 STD	None	None	A53 Gr.B	Typical	2.228	3.017	3.017	6.034
3	Grating Angle	L2x2x4	None	None	A36 Gr.36	Typical	.944	.346	.346	.021
4	Grating Plate	PL 4x3/8	None	None	A36 Gr.36	Typical	1.5	.018	2	.066
5	Ring Plate Outer	BP 6x2x3/8	None	None	A36 Gr.36	Typical	2.859	.64	10.55	.126
6	Ring Plate Corner	BP 6x4x3/8	None	None	A36 Gr.36	Typical	3.609	4.905	13.469	.161
7	Mount Pipe	P2Std	None	None	A53 Gr.B	Typical	1.075	.666	.666	1.331
8	Support Rail	P2Std	None	None	A53 Gr.B	Typical	1.075	.666	.666	1.331
9	Supp. Rail Corner	L2.5x2.5x4	None	None	A36 Gr.36	Typical	1.19	.692	.692	.026

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	Dead	DL		-1			24		3	
2	No Ice Wind 0 deg	None					24	44		
3	No Ice Wind 30 deg	None					48	72		
4	No Ice Wind 60 deg	None					48	88		
5	No Ice Wind 90 deg	None					24	36		
6	No Ice Wind 120 deg	None					48	88		
7	No Ice Wind 150 deg	None					48	72		
8	No Ice Wind 180 deg	None					24	44		
9	No Ice Wind 210 deg	None					48	72		
10	No Ice Wind 240 deg	None					48	88		
11	No Ice Wind 270 deg	None					24	36		
12	No Ice Wind 300 deg	None					48	88		
13	No Ice Wind 330 deg	None					48	72		
14	Ice Weight	None					24	45		
15	Ice Wind 0 deg	None					24	44		
16	Ice Wind 30 deg	None					48	72		
17	Ice Wind 60 deg	None					48	88		
18	Ice Wind 90 deg	None					24	36		
19	Ice Wind 120 deg	None					48	88		
20	Ice Wind 150 deg	None					48	72		
21	Ice Wind 180 deg	None					24	44		
22	Ice Wind 210 deg	None					48	72		
23	Ice Wind 240 deg	None					48	88		
24	Ice Wind 270 deg	None					24	36		
25	Ice Wind 300 deg	None					48	88		
26	Ice Wind 330 deg	None					48	72		
27	Live Load - A1	None					1			
28	Live Load - A2	None					1			

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
29	Live Load - A3	None					1			
30	Live Load - B1	None					1			
31	Live Load - B2	None					1			
32	Live Load - B3	None					1			
33	Live Load - C1	None					1			
34	Live Load - C2	None					1			
35	Live Load - C3	None					1			
36	Live Load - M2 (Start)	None					1			
37	Live Load - M2 (Midd...	None					1			
38	Live Load - M2 (End)	None					1			
39	Live Load - M3 (Start)	None					1			
40	Live Load - M3 (Midd...	None					1			
41	Live Load - M3 (End)	None					1			
42	Live Load - M8 (Start)	None					1			
43	Live Load - M8 (Midd...	None					1			
44	Live Load - M8 (End)	None					1			
45	Live Load - M9 (Start)	None					1			
46	Live Load - M9 (Midd...	None					1			
47	Live Load - M9 (End)	None					1			
48	Live Load - M10 (Start)	None					1			
49	Live Load - M10 (Mid...	None					1			
50	Live Load - M10 (End)	None					1			
51	Live Load - M11 (Start)	None					1			
52	Live Load - M11 (Mid...	None					1			
53	Live Load - M11 (End)	None					1			
54	Live Load - M13 (Start)	None					1			
55	Live Load - M13 (Mid...	None					1			
56	Live Load - M13 (End)	None					1			
57	Live Load - M14 (Start)	None					1			
58	Live Load - M14 (Mid...	None					1			
59	Live Load - M14 (End)	None					1			
60	Live Load - M15 (Start)	None					1			
61	Live Load - M15 (Mid...	None					1			
62	Live Load - M15 (End)	None					1			
63	Live Load - M20 (Start)	None					1			
64	Live Load - M20 (Mid...	None					1			
65	Live Load - M20 (End)	None					1			
66	Live Load - M21 (Start)	None					1			
67	Live Load - M21 (Mid...	None					1			
68	Live Load - M21 (End)	None					1			
69	Live Load - M22 (Start)	None					1			
70	Live Load - M22 (Mid...	None					1			
71	Live Load - M22 (End)	None					1			
72	Live Load - M23 (Start)	None					1			
73	Live Load - M23 (Mid...	None					1			
74	Live Load - M23 (End)	None					1			
75	Live Load - M25 (Start)	None					1			
76	Live Load - M25 (Mid...	None					1			
77	Live Load - M25 (End)	None					1			
78	Live Load - M26 (Start)	None					1			
79	Live Load - M26 (Mid...	None					1			
80	Live Load - M26 (End)	None					1			
81	Live Load - M27 (Start)	None					1			
82	Live Load - M27 (Mid...	None					1			
83	Live Load - M27 (End)	None					1			
84	Live Load - M32 (Start)	None					1			
85	Live Load - M32 (Mid...	None					1			

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
86	Live Load - M32 (End)	None					1			
87	Live Load - M33 (Start)	None					1			
88	Live Load - M33 (Mid...	None					1			
89	Live Load - M33 (End)	None					1			
90	Live Load - M34 (Start)	None					1			
91	Live Load - M34 (Mid...	None					1			
92	Live Load - M34 (End)	None					1			
93	Live Load - M35 (Start)	None					1			
94	Live Load - M35 (Mid...	None					1			
95	Live Load - M35 (End)	None					1			
96	Live Load - M37 (Start)	None					1			
97	Live Load - M37 (Mid...	None					1			
98	Live Load - M37 (End)	None					1			
99	BLC 1 Transient Area...	None						54		

Load Combinations

	Description	So...	P...	S...	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact...
1	1.4 Dead	Yes	Y		1	1.4	0		0		0		0		0		0							
2	1.2 Dead + 1.0 ...	Yes	Y		1	1.2	2	1	0		0		0		0		0							
3	0.9 Dead + 1.0 ...	Yes	Y		1	.9	2	1	0		0		0		0		0							
4	1.2 Dead + 1.0 ...	Yes	Y		1	1.2	3	1	0		0		0		0		0							
5	0.9 Dead + 1.0 ...	Yes	Y		1	.9	3	1	0		0		0		0		0							
6	1.2 Dead + 1.0 ...	Yes	Y		1	1.2	4	1	0		0		0		0		0							
7	0.9 Dead + 1.0 ...	Yes	Y		1	.9	4	1	0		0		0		0		0							
8	1.2 Dead + 1.0 ...	Yes	Y		1	1.2	5	1	0		0		0		0		0							
9	0.9 Dead + 1.0 ...	Yes	Y		1	.9	5	1	0		0		0		0		0							
10	1.2 Dead + 1.0 ...	Yes	Y		1	1.2	6	1	0		0		0		0		0							
11	0.9 Dead + 1.0 ...	Yes	Y		1	.9	6	1	0		0		0		0		0							
12	1.2 Dead + 1.0 ...	Yes	Y		1	1.2	7	1	0		0		0		0		0							
13	0.9 Dead + 1.0 ...	Yes	Y		1	.9	7	1	0		0		0		0		0							
14	1.2 Dead + 1.0 ...	Yes	Y		1	1.2	8	1	0		0		0		0		0							
15	0.9 Dead + 1.0 ...	Yes	Y		1	.9	8	1	0		0		0		0		0							
16	1.2 Dead + 1.0 ...	Yes	Y		1	1.2	9	1	0		0		0		0		0							
17	0.9 Dead + 1.0 ...	Yes	Y		1	.9	9	1	0		0		0		0		0							
18	1.2 Dead + 1.0 ...	Yes	Y		1	1.2	10	1	0		0		0		0		0							
19	0.9 Dead + 1.0 ...	Yes	Y		1	.9	10	1	0		0		0		0		0							
20	1.2 Dead + 1.0 ...	Yes	Y		1	1.2	11	1	0		0		0		0		0							
21	0.9 Dead + 1.0 ...	Yes	Y		1	.9	11	1	0		0		0		0		0							
22	1.2 Dead + 1.0 ...	Yes	Y		1	1.2	12	1	0		0		0		0		0							
23	0.9 Dead + 1.0 ...	Yes	Y		1	.9	12	1	0		0		0		0		0							
24	1.2 Dead + 1.0 ...	Yes	Y		1	1.2	13	1	0		0		0		0		0							
25	0.9 Dead + 1.0 ...	Yes	Y		1	.9	13	1	0		0		0		0		0							
26	1.2 Dead + 1.0 ...	Yes	Y		1	1.2	15	1	14	1		1	0		0		0							
27	1.2 Dead + 1.0 ...	Yes	Y		1	1.2	16	1	14	1		1	0		0		0							
28	1.2 Dead + 1.0 ...	Yes	Y		1	1.2	17	1	14	1		1	0		0		0							
29	1.2 Dead + 1.0 ...	Yes	Y		1	1.2	18	1	14	1		1	0		0		0							
30	1.2 Dead + 1.0 ...	Yes	Y		1	1.2	19	1	14	1		1	0		0		0							
31	1.2 Dead + 1.0 ...	Yes	Y		1	1.2	20	1	14	1		1	0		0		0							
32	1.2 Dead + 1.0 ...	Yes	Y		1	1.2	21	1	14	1		1	0		0		0							
33	1.2 Dead + 1.0 ...	Yes	Y		1	1.2	22	1	14	1		1	0		0		0							
34	1.2 Dead + 1.0 ...	Yes	Y		1	1.2	23	1	14	1		1	0		0		0							
35	1.2 Dead + 1.0 ...	Yes	Y		1	1.2	24	1	14	1		1	0		0		0							
36	1.2 Dead + 1.0 ...	Yes	Y		1	1.2	25	1	14	1		1	0		0		0							
37	1.2 Dead + 1.0 ...	Yes	Y		1	1.2	26	1	14	1		1	0		0		0							
38	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	27	1.5	2	.061	0		0		0		0							

Load Combinations (Continued)

	Description	So...	P...	S...	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact...
39	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	27	1.5	3	.061	0		0		0		0		0					
40	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	27	1.5	4	.061	0		0		0		0		0					
41	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	27	1.5	5	.061	0		0		0		0		0					
42	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	27	1.5	6	.061	0		0		0		0		0					
43	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	27	1.5	7	.061	0		0		0		0		0					
44	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	27	1.5	8	.061	0		0		0		0		0					
45	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	27	1.5	9	.061	0		0		0		0		0					
46	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	27	1.5	10	.061	0		0		0		0		0					
47	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	27	1.5	11	.061	0		0		0		0		0					
48	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	27	1.5	12	.061	0		0		0		0		0					
49	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	27	1.5	13	.061	0		0		0		0		0					
50	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	28	1.5	2	.061	0		0		0		0		0					
51	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	28	1.5	3	.061	0		0		0		0		0					
52	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	28	1.5	4	.061	0		0		0		0		0					
53	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	28	1.5	5	.061	0		0		0		0		0					
54	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	28	1.5	6	.061	0		0		0		0		0					
55	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	28	1.5	7	.061	0		0		0		0		0					
56	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	28	1.5	8	.061	0		0		0		0		0					
57	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	28	1.5	9	.061	0		0		0		0		0					
58	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	28	1.5	10	.061	0		0		0		0		0					
59	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	28	1.5	11	.061	0		0		0		0		0					
60	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	28	1.5	12	.061	0		0		0		0		0					
61	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	28	1.5	13	.061	0		0		0		0		0					
62	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	29	1.5	2	.061	0		0		0		0		0					
63	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	29	1.5	3	.061	0		0		0		0		0					
64	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	29	1.5	4	.061	0		0		0		0		0					
65	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	29	1.5	5	.061	0		0		0		0		0					
66	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	29	1.5	6	.061	0		0		0		0		0					
67	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	29	1.5	7	.061	0		0		0		0		0					
68	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	29	1.5	8	.061	0		0		0		0		0					
69	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	29	1.5	9	.061	0		0		0		0		0					
70	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	29	1.5	10	.061	0		0		0		0		0					
71	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	29	1.5	11	.061	0		0		0		0		0					
72	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	29	1.5	12	.061	0		0		0		0		0					
73	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	29	1.5	13	.061	0		0		0		0		0					
74	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	30	1.5	2	.061	0		0		0		0		0					
75	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	30	1.5	3	.061	0		0		0		0		0					
76	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	30	1.5	4	.061	0		0		0		0		0					
77	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	30	1.5	5	.061	0		0		0		0		0					
78	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	30	1.5	6	.061	0		0		0		0		0					
79	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	30	1.5	7	.061	0		0		0		0		0					
80	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	30	1.5	8	.061	0		0		0		0		0					
81	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	30	1.5	9	.061	0		0		0		0		0					
82	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	30	1.5	10	.061	0		0		0		0		0					
83	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	30	1.5	11	.061	0		0		0		0		0					
84	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	30	1.5	12	.061	0		0		0		0		0					
85	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	30	1.5	13	.061	0		0		0		0		0					
86	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	31	1.5	2	.061	0		0		0		0		0					
87	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	31	1.5	3	.061	0		0		0		0		0					
88	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	31	1.5	4	.061	0		0		0		0		0					
89	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	31	1.5	5	.061	0		0		0		0		0					
90	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	31	1.5	6	.061	0		0		0		0		0					
91	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	31	1.5	7	.061	0		0		0		0		0					
92	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	31	1.5	8	.061	0		0		0		0		0					
93	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	31	1.5	9	.061	0		0		0		0		0					
94	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	31	1.5	10	.061	0		0		0		0		0					
95	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	31	1.5	11	.061	0		0		0		0		0					

Load Combinations (Continued)

	Description	So...	P...	S...	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact...
96	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	31	1.5	12	.061	0		0		0		0		0					
97	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	31	1.5	13	.061	0		0		0		0		0					
98	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	32	1.5	2	.061	0		0		0		0		0					
99	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	32	1.5	3	.061	0		0		0		0		0					
100	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	32	1.5	4	.061	0		0		0		0		0					
101	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	32	1.5	5	.061	0		0		0		0		0					
102	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	32	1.5	6	.061	0		0		0		0		0					
103	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	32	1.5	7	.061	0		0		0		0		0					
104	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	32	1.5	8	.061	0		0		0		0		0					
105	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	32	1.5	9	.061	0		0		0		0		0					
106	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	32	1.5	10	.061	0		0		0		0		0					
107	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	32	1.5	11	.061	0		0		0		0		0					
108	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	32	1.5	12	.061	0		0		0		0		0					
109	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	32	1.5	13	.061	0		0		0		0		0					
110	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	33	1.5	2	.061	0		0		0		0		0					
111	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	33	1.5	3	.061	0		0		0		0		0					
112	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	33	1.5	4	.061	0		0		0		0		0					
113	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	33	1.5	5	.061	0		0		0		0		0					
114	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	33	1.5	6	.061	0		0		0		0		0					
115	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	33	1.5	7	.061	0		0		0		0		0					
116	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	33	1.5	8	.061	0		0		0		0		0					
117	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	33	1.5	9	.061	0		0		0		0		0					
118	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	33	1.5	10	.061	0		0		0		0		0					
119	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	33	1.5	11	.061	0		0		0		0		0					
120	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	33	1.5	12	.061	0		0		0		0		0					
121	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	33	1.5	13	.061	0		0		0		0		0					
122	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	34	1.5	2	.061	0		0		0		0		0					
123	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	34	1.5	3	.061	0		0		0		0		0					
124	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	34	1.5	4	.061	0		0		0		0		0					
125	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	34	1.5	5	.061	0		0		0		0		0					
126	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	34	1.5	6	.061	0		0		0		0		0					
127	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	34	1.5	7	.061	0		0		0		0		0					
128	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	34	1.5	8	.061	0		0		0		0		0					
129	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	34	1.5	9	.061	0		0		0		0		0					
130	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	34	1.5	10	.061	0		0		0		0		0					
131	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	34	1.5	11	.061	0		0		0		0		0					
132	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	34	1.5	12	.061	0		0		0		0		0					
133	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	34	1.5	13	.061	0		0		0		0		0					
134	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	35	1.5	2	.061	0		0		0		0		0					
135	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	35	1.5	3	.061	0		0		0		0		0					
136	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	35	1.5	4	.061	0		0		0		0		0					
137	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	35	1.5	5	.061	0		0		0		0		0					
138	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	35	1.5	6	.061	0		0		0		0		0					
139	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	35	1.5	7	.061	0		0		0		0		0					
140	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	35	1.5	8	.061	0		0		0		0		0					
141	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	35	1.5	9	.061	0		0		0		0		0					
142	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	35	1.5	10	.061	0		0		0		0		0					
143	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	35	1.5	11	.061	0		0		0		0		0					
144	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	35	1.5	12	.061	0		0		0		0		0					
145	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	35	1.5	13	.061	0		0		0		0		0					
146	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	36	1.5	0		0		0		0		0		0					
147	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	37	1.5	0		0		0		0		0		0					
148	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	38	1.5	0		0		0		0		0		0					
149	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	39	1.5	0		0		0		0		0		0					
150	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	40	1.5	0		0		0		0		0		0					
151	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	41	1.5	0		0		0		0		0		0					
152	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	42	1.5	0		0		0		0		0		0					

Load Combinations (Continued)

	Description	So...	P...	S...	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact...
153	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	43	1.5	0		0		0		0		0		0					
154	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	44	1.5	0		0		0		0		0		0					
155	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	45	1.5	0		0		0		0		0		0					
156	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	46	1.5	0		0		0		0		0		0					
157	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	47	1.5	0		0		0		0		0		0					
158	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	48	1.5	0		0		0		0		0		0					
159	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	49	1.5	0		0		0		0		0		0					
160	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	50	1.5	0		0		0		0		0		0					
161	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	51	1.5	0		0		0		0		0		0					
162	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	52	1.5	0		0		0		0		0		0					
163	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	53	1.5	0		0		0		0		0		0					
164	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	54	1.5	0		0		0		0		0		0					
165	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	55	1.5	0		0		0		0		0		0					
166	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	56	1.5	0		0		0		0		0		0					
167	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	57	1.5	0		0		0		0		0		0					
168	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	58	1.5	0		0		0		0		0		0					
169	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	59	1.5	0		0		0		0		0		0					
170	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	60	1.5	0		0		0		0		0		0					
171	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	61	1.5	0		0		0		0		0		0					
172	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	62	1.5	0		0		0		0		0		0					
173	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	63	1.5	0		0		0		0		0		0					
174	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	64	1.5	0		0		0		0		0		0					
175	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	65	1.5	0		0		0		0		0		0					
176	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	66	1.5	0		0		0		0		0		0					
177	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	67	1.5	0		0		0		0		0		0					
178	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	68	1.5	0		0		0		0		0		0					
179	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	69	1.5	0		0		0		0		0		0					
180	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	70	1.5	0		0		0		0		0		0					
181	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	71	1.5	0		0		0		0		0		0					
182	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	72	1.5	0		0		0		0		0		0					
183	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	73	1.5	0		0		0		0		0		0					
184	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	74	1.5	0		0		0		0		0		0					
185	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	75	1.5	0		0		0		0		0		0					
186	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	76	1.5	0		0		0		0		0		0					
187	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	77	1.5	0		0		0		0		0		0					
188	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	78	1.5	0		0		0		0		0		0					
189	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	79	1.5	0		0		0		0		0		0					
190	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	80	1.5	0		0		0		0		0		0					
191	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	81	1.5	0		0		0		0		0		0					
192	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	82	1.5	0		0		0		0		0		0					
193	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	83	1.5	0		0		0		0		0		0					
194	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	84	1.5	0		0		0		0		0		0					
195	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	85	1.5	0		0		0		0		0		0					
196	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	86	1.5	0		0		0		0		0		0					
197	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	87	1.5	0		0		0		0		0		0					
198	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	88	1.5	0		0		0		0		0		0					
199	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	89	1.5	0		0		0		0		0		0					
200	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	90	1.5	0		0		0		0		0		0					
201	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	91	1.5	0		0		0		0		0		0					
202	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	92	1.5	0		0		0		0		0		0					
203	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	93	1.5	0		0		0		0		0		0					
204	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	94	1.5	0		0		0		0		0		0					
205	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	95	1.5	0		0		0		0		0		0					
206	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	96	1.5	0		0		0		0		0		0					
207	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	97	1.5	0		0		0		0		0		0					
208	1.2 Dead + 1.5 ...	Yes	Y		1	1.2	98	1.5	0		0		0		0		0		0					

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N1	max	963.326	17	2210.229	34	1056.868	21	4.329	34	1.391	2	.21	5
2		min	-1986.223	4	160.507	7	-2827.957	8	-.254	7	-1.389	14	-2.702	117
3	N21	max	3028.993	14	2228.517	26	1052.806	18	.793	47	1.367	6	5.003	26
4		min	-983.735	3	103.332	15	-1052.288	6	-.87	65	-1.368	18	-.501	15
5	N38	max	1076.091	13	2210.615	30	2718.239	20	.314	23	1.465	14	.112	25
6		min	-2099.019	24	159.038	23	-947.135	9	-4.243	29	-1.466	2	-2.761	103
7	Totals:	max	4542.483	15	6163.014	26	4415.136	21						
8		min	-4542.486	2	2398.966	13	-4415.14	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	A2	P2Std	.656	55.635	2	.061	55.635		16	2871.59	33862.5	1.998	1.998	1....	H1-1a
2	B2	P2Std	.633	55.635	8	.061	55.635		24	2871.59	33862.5	1.998	1.998	2....	H1-1a
3	C2	P2Std	.628	55.635	18	.064	55.635		8	2871.59	33862.5	1.998	1.998	1....	H1-1a
4	B1	P2Std	.372	61.5	80	.094	61.5		12	6581.282	33862.5	1.998	1.998	2....	H1-1b
5	A1	P2Std	.371	61.5	40	.094	61.5		4	6581.282	33862.5	1.998	1.998	2....	H1-1b
6	C1	P2Std	.371	61.5	120	.100	61.5		20	6581.282	33862.5	1.998	1.998	2....	H1-1b
7	C3	P2Std	.335	61.5	140	.097	61.5		16	6581.282	33862.5	1.998	1.998	2....	H1-1b
8	A3	P2Std	.334	61.5	72	.096	61.5		2	6581.282	33862.5	1.998	1.998	2....	H1-1b
9	B3	P2Std	.334	61.5	100	.102	61.5		8	6581.282	33862.5	1.998	1.998	2....	H1-1b
10	M22	L2x2x4	.319	17.321	180	.029	34.641	y	1...	5588.435	30585.6	.691	1.577	1....	H2-1
11	M10	L2x2x4	.319	17.321	159	.029	34.641	y	1...	5588.435	30585.6	.691	1.577	1....	H2-1
12	M34	L2x2x4	.319	17.321	201	.029	34.641	y	2...	5588.435	30585.6	.691	1.577	1....	H2-1
13	M35	L2x2x4	.317	17.321	204	.030	34.641	z	2...	5588.435	30585.6	.691	1.577	1....	H2-1
14	M11	L2x2x4	.317	17.321	162	.030	34.641	z	1...	5588.435	30585.6	.691	1.577	1....	H2-1
15	M23	L2x2x4	.317	17.321	183	.030	34.641	z	1...	5588.435	30585.6	.691	1.577	1....	H2-1
16	M2	HSS4x4x1/4	.309	0	20	.102	0	y	1...	148974....	155250	18.22	18.22	1....	H1-1b
17	M26	HSS4x4x1/4	.304	0	8	.103	0	y	1...	148974....	155250	18.22	18.22	1....	H1-1b
18	M14	HSS4x4x1/4	.292	0	4	.103	0	y	65	148974....	155250	18.22	18.22	1....	H1-1b
19	M8	BP 6x2x3/8	.284	0	35	.026	0	y	1...	67764.0...	92643.75	1.414	10.896	2....	H2-1
20	M32	BP 6x2x3/8	.282	0	79	.026	0	y	83	67764.0...	92643.75	1.414	10.895	2....	H2-1
21	M20	BP 6x2x3/8	.282	0	39	.026	0	y	44	67764.0...	92643.75	1.414	10.892	1....	H2-1
22	M43	L2.5x2.5x4	.281	0	20	.052	0	y	8	34513.9...	38556	1.114	2.537	2....	H2-1
23	M13	P3 STD	.276	75	62	.111	75		73	29983.8...	70182	6.124	6.124	1....	H1-1b
24	M37	P3 STD	.276	75	142	.111	75		1...	29983.8...	70182	6.124	6.124	1....	H1-1b
25	M25	P3 STD	.275	75	102	.111	75		1...	29983.8...	70182	6.124	6.124	1....	H1-1b
26	M45	L2.5x2.5x4	.273	0	14	.049	0	y	24	34513.9...	38556	1.114	2.537	2....	H2-1
27	M9	BP 6x2x3/8	.265	30.057	101	.025	30.057	z	1...	67764.0...	92643.75	1.414	10.911	2....	H2-1
28	M33	BP 6x2x3/8	.264	30.057	73	.025	30.057	y	68	67764.0...	92643.75	1.414	10.912	2....	H2-1
29	M21	BP 6x2x3/8	.264	30.057	141	.025	30.057	y	1...	67764.0...	92643.75	1.414	10.915	2....	H2-1
30	M44	L2.5x2.5x4	.264	0	4	.049	0	y	16	34513.9...	38556	1.114	2.537	2....	H2-1
31	M41	P2Std	.260	68.75	8	.121	15.625		20	6687.004	33862.5	1.998	1.998	3....	H1-1b
32	M42	P2Std	.255	70.312	20	.122	134....		8	6687.004	33862.5	1.998	1.998	1....	H1-1b
33	M40	P2Std	.247	68.75	24	.115	134....		16	6687.004	33862.5	1.998	1.998	2....	H1-1b
34	M7	PL 4x3/8	.209	12.269	20	.112	16.359	y	1...	22746.5...	48600	.38	4.05	1....	H1-1b
35	M19	PL 4x3/8	.192	12.269	4	.112	16.359	y	1...	22746.5...	48600	.38	4.05	1....	H1-1b
36	M31	PL 4x3/8	.191	12.269	12	.112	0	y	2...	22746.5...	48600	.38	4.05	1....	H1-1b
37	M6	PL 4x3/8	.182	2.279	20	.133	0	y	1...	43040.8...	48600	.38	4.05	1....	H1-1b
38	M5	PL 4x3/8	.175	2.279	8	.128	6.25	y	1...	43040.8...	48600	.38	4.05	1....	H1-1b
39	M30	PL 4x3/8	.166	2.279	12	.133	0	y	2...	43040.8...	48600	.38	4.05	1....	H1-1b
40	M18	PL 4x3/8	.166	2.279	4	.133	0	y	1...	43040.8...	48600	.38	4.05	1....	H1-1b
41	M17	PL 4x3/8	.159	2.279	16	.128	6.25	y	1...	43040.8...	48600	.38	4.05	1....	H1-1b
42	M29	PL 4x3/8	.159	2.279	24	.128	6.25	y	2...	43040.8...	48600	.38	4.05	1....	H1-1b
43	M3	BP 6x4x3/8	.072	19.25	150	.014	0	z	20	99631.27	116943....	5.219	15.44	1....	H2-1

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
44	M27	BP 6x4x3/8	.072	19.25	192	.013	0	z	12	99631.27	116943....	5.219	15.44	1....	H2-1
45	M15	BP 6x4x3/8	.072	19.25	171	.013	0	z	4	99631.27	116943....	5.219	15.44	1....	H2-1

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

	Member	Shape	Code Check Actual	Code Check Allowable	Ratio (Act./Allow.)	Loc[in]	LC	Shear Check	Shear Check Allowable	Ratio (Act./Allow.)	Loc[in]	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
1	A2	P2Std	0.656	1.05	0.625*	55.64	2	0.061	1.05	0.058*	55.64	2871.59	33862.5	1.998	1.998	1.791	H1-1a
2	B2	P2Std	0.633	1.05	0.603*	55.64	8	0.061	1.05	0.058*	55.64	2871.59	33862.5	1.998	1.998	2.089	H1-1a
3	C2	P2Std	0.628	1.05	0.598*	55.64	18	0.064	1.05	0.061*	55.64	2871.59	33862.5	1.998	1.998	1.729	H1-1a
4	B1	P2Std	0.372	1.05	0.354*	61.5	80	0.094	1.05	0.09*	61.5	6581.282	33862.5	1.998	1.998	2.671	H1-1b
5	A1	P2Std	0.371	1.05	0.353*	61.5	40	0.094	1.05	0.09*	61.5	6581.282	33862.5	1.998	1.998	2.386	H1-1b
6	C1	P2Std	0.371	1.05	0.353*	61.5	120	0.1	1.05	0.095*	61.5	6581.282	33862.5	1.998	1.998	2.593	H1-1b
7	C3	P2Std	0.335	1.05	0.319*	61.5	140	0.097	1.05	0.092*	61.5	6581.282	33862.5	1.998	1.998	2.527	H1-1b
8	A3	P2Std	0.334	1.05	0.318*	61.5	72	0.096	1.05	0.091*	61.5	6581.282	33862.5	1.998	1.998	2.463	H1-1b
9	B3	P2Std	0.334	1.05	0.318*	61.5	100	0.102	1.05	0.097*	61.5	6581.282	33862.5	1.998	1.998	2.69	H1-1b
10	M22	L2x2x4	0.319	1.05	0.304*	17.32	180	0.029	1.05	0.028*	34.64	5588.435	30585.6	0.691	1.577	1.385	H2-1
11	M10	L2x2x4	0.319	1.05	0.304*	17.32	159	0.029	1.05	0.028*	34.64	5588.435	30585.6	0.691	1.577	1.385	H2-1
12	M34	L2x2x4	0.319	1.05	0.304*	17.32	201	0.029	1.05	0.028*	34.64	5588.435	30585.6	0.691	1.577	1.385	H2-1
13	M35	L2x2x4	0.317	1.05	0.302*	17.32	204	0.03	1.05	0.029*	34.64	5588.435	30585.6	0.691	1.577	1.389	H2-1
14	M11	L2x2x4	0.317	1.05	0.302*	17.32	162	0.03	1.05	0.029*	34.64	5588.435	30585.6	0.691	1.577	1.39	H2-1
15	M23	L2x2x4	0.317	1.05	0.302*	17.32	183	0.03	1.05	0.029*	34.64	5588.435	30585.6	0.691	1.577	1.39	H2-1
16	M2	HSS4x4x1/4	0.309	1.05	0.294*	0	20	0.102	1.05	0.097*	0	148974.61	155250	18.22	18.22	1.954	H1-1b
17	M26	HSS4x4x1/4	0.304	1.05	0.29*	0	8	0.103	1.05	0.098*	0	148974.61	155250	18.22	18.22	1.961	H1-1b
18	M14	HSS4x4x1/4	0.292	1.05	0.278*	0	4	0.103	1.05	0.098*	0	148974.61	155250	18.22	18.22	1.972	H1-1b
19	M8	BP 6x2x3/8	0.284	1.05	0.27*	0	35	0.026	1.05	0.025*	0	67764.034	92643.75	1.414	10.896	2.003	H2-1
20	M32	BP 6x2x3/8	0.282	1.05	0.269*	0	79	0.026	1.05	0.025*	0	67764.034	92643.75	1.414	10.895	2.001	H2-1
21	M20	BP 6x2x3/8	0.282	1.05	0.269*	0	39	0.026	1.05	0.025*	0	67764.034	92643.75	1.414	10.892	1.999	H2-1
22	M43	L2.5x2.5x4	0.281	1.05	0.268*	0	20	0.052	1.05	0.05*	0	34513.991	38556	1.114	2.537	2.195	H2-1
23	M13	P3 STD	0.276	1.05	0.263*	75	62	0.111	1.05	0.106*	75	29983.831	70182	6.124	6.124	1.821	H1-1b
24	M37	P3 STD	0.276	1.05	0.263*	75	142	0.111	1.05	0.106*	75	29983.831	70182	6.124	6.124	1.82	H1-1b
25	M25	P3 STD	0.275	1.05	0.262*	75	102	0.111	1.05	0.106*	75	29983.831	70182	6.124	6.124	1.82	H1-1b
26	M45	L2.5x2.5x4	0.273	1.05	0.26*	0	14	0.049	1.05	0.047*	0	34513.991	38556	1.114	2.537	2.208	H2-1
27	M9	BP 6x2x3/8	0.265	1.05	0.252*	30.06	101	0.025	1.05	0.024*	30.06	67764.034	92643.75	1.414	10.911	2.016	H2-1
28	M33	BP 6x2x3/8	0.264	1.05	0.251*	30.06	73	0.025	1.05	0.024*	30.06	67764.034	92643.75	1.414	10.912	2.017	H2-1
29	M21	BP 6x2x3/8	0.264	1.05	0.251*	30.06	141	0.025	1.05	0.024*	30.06	67764.034	92643.75	1.414	10.915	2.02	H2-1
30	M44	L2.5x2.5x4	0.264	1.05	0.251*	0	4	0.049	1.05	0.047*	0	34513.991	38556	1.114	2.537	2.193	H2-1
31	M41	P2Std	0.26	1.05	0.248*	68.75	8	0.121	1.05	0.115*	15.63	6687.004	33862.5	1.998	1.998	3.159	H1-1b
32	M42	P2Std	0.255	1.05	0.243*	70.31	20	0.122	1.05	0.116*	134.4	6687.004	33862.5	1.998	1.998	1.853	H1-1b
33	M40	P2Std	0.247	1.05	0.235*	68.75	24	0.115	1.05	0.11*	134.4	6687.004	33862.5	1.998	1.998	2.987	H1-1b
34	M7	PL 4x3/8	0.209	1.05	0.199*	12.27	20	0.112	1.05	0.107*	16.36	22746.589	48600	0.38	4.05	1.936	H1-1b
35	M19	PL 4x3/8	0.192	1.05	0.183*	12.27	4	0.112	1.05	0.107*	16.36	22746.589	48600	0.38	4.05	1.94	H1-1b
36	M31	PL 4x3/8	0.191	1.05	0.182*	12.27	12	0.112	1.05	0.107*	0	22746.589	48600	0.38	4.05	1.936	H1-1b
37	M6	PL 4x3/8	0.182	1.05	0.173*	2.279	20	0.133	1.05	0.127*	0	43040.873	48600	0.38	4.05	1.052	H1-1b
38	M5	PL 4x3/8	0.175	1.05	0.167*	2.279	8	0.128	1.05	0.122*	6.25	43040.873	48600	0.38	4.05	1.047	H1-1b
39	M30	PL 4x3/8	0.166	1.05	0.158*	2.279	12	0.133	1.05	0.127*	0	43040.873	48600	0.38	4.05	1.05	H1-1b
40	M18	PL 4x3/8	0.166	1.05	0.158*	2.279	4	0.133	1.05	0.127*	0	43040.873	48600	0.38	4.05	1.053	H1-1b
41	M17	PL 4x3/8	0.159	1.05	0.151*	2.279	16	0.128	1.05	0.122*	6.25	43040.873	48600	0.38	4.05	1.045	H1-1b
42	M29	PL 4x3/8	0.159	1.05	0.151*	2.279	24	0.128	1.05	0.122*	6.25	43040.873	48600	0.38	4.05	1.047	H1-1b
43	M3	BP 6x4x3/8	0.072	1.05	0.069*	19.25	150	0.014	1.05	0.013*	0	99631.27	116943.75	5.219	15.44	1.091	H2-1
44	M27	BP 6x4x3/8	0.072	1.05	0.069*	19.25	192	0.013	1.05	0.012*	0	99631.27	116943.75	5.219	15.44	1.091	H2-1
45	M15	BP 6x4x3/8	0.072	1.05	0.069*	19.25	171	0.013	1.05	0.012*	0	99631.27	116943.75	5.219	15.44	1.091	H2-1

*Rating per TIA-222-H, Section 15.5

APPENDIX D

ADDITIONAL CALCULATIONS

TIA-222-H CONNECTION CHECK
Mount to Tower Connection - Typ. All Sectors
2021777.876322.02

Bolt Information		
Bolt Diameter (d)	0.625	in
Net Tensile Area (An)	0.226	in^2
# of Bolts Total (n)	4	
Bolt Distance Up-Down	7	in
Bolt Distance Left-Right	7	in
Bolt Grade	A325N	
Bolt Tensile Strength (F_{ub})	120	ksi

Flange Information		
Height (h)	10	in
Width (w)	10	in
Thickness (t)	0.625	in
Steel Grade	A36	
Plate Yield Strength (Fy)	36	ksi
Support Arm Height	4	in
Support Arm Width	4	in

RISA 3D Reactions (Up-Down)		
Moment (M)	4.49	k-ft
Axial (T)	0.69	kips
Shear (V)	1.76	kips

RISA 3D Reactions (Left -Right)		
Moment (M)	1.38	k-ft
Axial (T)	0.66	kips
Shear (V)	1.69	kips

Bolt Capacity (Up-Down)		
Nominal Tensile Strength (R_{nt})	27.120	kips
Nominal Shear Strength (R_{nv})	18.41	kips
Bolt Tensile Force (T_{ub})	4.02	kips
Bolt Shear Force (V_{ub})	0.441	kips
$T_{ub}/\phi R_{nt}$	0.18821	
$V_{ub}/\phi R_{nv}$	0.03041	
$(V_{ub}/\phi R_{nv})^2+(T_{ub}/\phi R_{nt})^2$	0.03816	
Bolt Capacity =	18.8%	OK

*Rating per TIA-222-H, Section 15.5

Bolt Capacity (Left-Right)		
Nominal Tensile Strength (R_{nt})	27.120	kips
Nominal Shear Strength (R_{nv})	18.41	kips
Bolt Tensile Force (T_{ub})	1.34	kips
Bolt Shear Force (V_{ub})	0.422	kips
$T_{ub}/\phi R_{nt}$	0.06292	
$V_{ub}/\phi R_{nv}$	0.02911	
$(V_{ub}/\phi R_{nv})^2+(T_{ub}/\phi R_{nt})^2$	0.00505	
Bolt Capacity =	6.3%	OK

*Rating per TIA-222-H, Section 15.5

Plate Capacity (Up-Down)		
Bolt Circle (D_{BC})	9.899	in
Effective Width (B_{eff})	9.06	in
Flexural Moment (M_u)	12.06	k-in
Flexural Strength ($\emptyset M_n$)	28.65	k-in
Plate Capacity=	40.1%	OK

*Rating per TIA-222-H, Section 15.5

Plate Capacity (Left-Right)		
Bolt Circle (D_{BC})	9.899	in
Effective Width (B_{eff})	9.06	in
Flexural Moment (M_u)	4.03	k-in
Flexural Strength ($\emptyset M_n$)	28.65	k-in
Plate Capacity=	13.4%	OK

*Rating per TIA-222-H, Section 15.5

EBI Consulting

environmental | engineering | due diligence

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

T-Mobile Existing Facility

Site ID: CTNH101A

NH101/GlobalSignal/Bran
850 West Main Street
Branford, Connecticut 06405

December 16, 2021

EBI Project Number: 6221007723

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**31.46%**

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

December 16, 2021

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

Emissions Analysis for Site: CTNH101A - NH101/GlobalSignal/Bran

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **850 West Main Street** in **Branford, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 850 West Main Street in Branford, 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 UMTS channels (AWS Band - 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

7) 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.

8) 1 LTE Traffic channel (LTE 1C and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 60 Watts.

9) 1 LTE Broadcast channel (LTE 1C and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 20 Watts.

10) 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.

11) 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.

12) 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.

13) 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.

14) 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 APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Commscope VV-65A-R1 for the 1900 MHz / 1900 MHz / 2100 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 APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Commscope VV-65A-R1 for the 1900 MHz / 1900 MHz / 2100 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 APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Commscope VV-65A-R1 for the 1900

MHz / 1900 MHz / 2100 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.

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

16) 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.

17) 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 / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz
Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd
Height (AGL):	130 feet	Height (AGL):	130 feet	Height (AGL):	130 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	36,356.09	ERP (W):	36,356.09	ERP (W):	36,356.09
Antenna A1 MPE %:	**8.50%**	Antenna B1 MPE %:	**8.50%**	Antenna C1 MPE %:	**8.50%**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_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 / 13.35 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd
Height (AGL):	130 feet	Height (AGL):	130 feet	Height (AGL):	130 feet
Channel Count:	5	Channel Count:	5	Channel Count:	5
Total TX Power (W):	200 Watts	Total TX Power (W):	200 Watts	Total TX Power (W):	200 Watts
ERP (W):	4,059.02	ERP (W):	4,059.02	ERP (W):	4,059.02
Antenna A2 MPE %:	**2.26%**	Antenna B2 MPE %:	**2.26%**	Antenna C2 MPE %:	**2.26%**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Commscope VV-65A-R1	Make / Model:	Commscope VV-65A-R1	Make / Model:	Commscope VV-65A-R1
Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz / 2100 MHz
Gain:	15.15 dBd / 15.15 dBd / 15.8 dBd / 15.8 dBd	Gain:	15.15 dBd / 15.15 dBd / 15.8 dBd / 15.8 dBd	Gain:	15.15 dBd / 15.15 dBd / 15.8 dBd / 15.8 dBd
Height (AGL):	130 feet	Height (AGL):	130 feet	Height (AGL):	130 feet
Channel Count:	10	Channel Count:	10	Channel Count:	10
Total TX Power (W):	420 Watts	Total TX Power (W):	420 Watts	Total TX Power (W):	420 Watts
ERP (W):	14,699.59	ERP (W):	14,699.59	ERP (W):	14,699.59
Antenna A3 MPE %:	**3.44%**	Antenna B3 MPE %:	**3.44%**	Antenna C3 MPE %:	**3.44%**

Site Composite MPE %	
Carrier	**MPE %**
T-Mobile (Max at Sector A):	14.20%
Sprint	0.98%
Clearwire	0.14%
Verizon	16.14%
Site Total MPE % :	31.46%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	14.20%
T-Mobile Sector B Total:	14.20%
T-Mobile Sector C Total:	14.20%
Site Total MPE % :	31.46%

T-Mobile Maximum MPE Power Values (Sector A)

T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
T-Mobile 2500 MHz LTE 1C & 2C Traffic	1	11044.63	130.0	25.82	2500 MHz LTE 1C & 2C Traffic	1000	2.58%
T-Mobile 2500 MHz LTE 1C & 2C Broadcast	1	1074.06	130.0	2.51	2500 MHz LTE 1C & 2C Broadcast	1000	0.25%
T-Mobile 2500 MHz NR Traffic	1	22089.26	130.0	51.65	2500 MHz NR Traffic	1000	5.16%
T-Mobile 2500 MHz NR Broadcast	1	2148.13	130.0	5.02	2500 MHz NR Broadcast	1000	0.50%
T-Mobile 600 MHz LTE	2	591.73	130.0	2.77	600 MHz LTE	400	0.69%
T-Mobile 600 MHz NR	1	1577.94	130.0	3.69	600 MHz NR	400	0.92%
T-Mobile 700 MHz LTE	2	648.82	130.0	3.03	700 MHz LTE	467	0.65%
T-Mobile 1900 MHz GSM	4	982.02	130.0	9.18	1900 MHz GSM	1000	0.92%
T-Mobile 1900 MHz LTE	2	1964.04	130.0	9.18	1900 MHz LTE	1000	0.92%
T-Mobile 2100 MHz UMTS	2	1140.57	130.0	5.33	2100 MHz UMTS	1000	0.53%
T-Mobile 2100 MHz LTE	2	2281.14	130.0	10.67	2100 MHz LTE	1000	1.07%
						Total:	**14.20%**

• 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:	14.20%
Sector B:	14.20%
Sector C:	14.20%
T-Mobile Maximum MPE % (Sector A):	14.20%
Site Total:	31.46%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **31.46%** 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: CTNH101A
T-MOBILE SITE NAME: NH101/GLOBALSIGNAL/BRAN
SITE TYPE: MONOPOLE
TOWER HEIGHT: 131'-0"

BUSINESS UNIT #: 876322
SITE ADDRESS: 850 WEST MAIN STREET, BRANFORD, CT 06405
COUNTY: NEW HAVEN
JURISDICTION: TOWN OF BRANFORD

T-MOBILE ANCHOR SITE CONFIGURATION: 67D5998E_1xAIR+1OP+1QP

SITE INFORMATION

CROWN CASTLE USA INC. SITE NAME:	TARTAGLIA PROPERTY
SITE ADDRESS:	850 WEST MAIN STREET BRANFORD, CT 06405
COUNTY:	NEW HAVEN
MAP/PARCEL #:	C08/000/001/00006
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41.27774654° (41° 16' 39.9")
LONGITUDE:	-72.83688840° (-72° 50' 12.8")
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	114 FT
CURRENT ZONING:	BL
JURISDICTION:	TOWN OF BRANFORD
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	SBC REAL ESTATE GROUP 819 BRIDGEPORT AVE SHELTON CT 06484
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	T-MOBILE 12920 SE 38TH STREET BELLEVUE, WA 98006
ELECTRIC PROVIDER:	CONNECTICUT LIGHT & POWER
TELCO PROVIDER:	TBD

PROJECT TEAM

A&E FIRM:	INFINIGY 1033 WATERVLIET SHAKER RD. ALBANY, NY 12205
CROWN CASTLE USA INC. DISTRICT CONTACTS:	1505 WESTLAKE AVENUE NORTH, SUITE 800 SEATTLE, WA 98109 TRICIA PELON - PROJECT MANAGER TRICAIS.PELON@CROWNCASTLE.COM CHRISTOPHER P MILLER - CONSTRUCTION MANAGER CHRISP.MILLER@CROWNCASTLE.COM CONTACT : 585-739-1780

DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1	SITE PLAN & ENLARGED SITE PLAN
C-2	FINAL ELEVATION & ANTENNA PLANS
C-3	ANTENNA & CABLE SCHEDULE
C-4	PLUMBING DIAGRAM
C-5	EQUIPMENT SPECS
C-6	EQUIPMENT SPECS
E-1	AC PANEL SCHEDULES & ONE LINE DIAGRAM
G-1	ANTENNA GROUNDING DIAGRAM
G-2	GROUNDING DETAILS

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

PROJECT DESCRIPTION

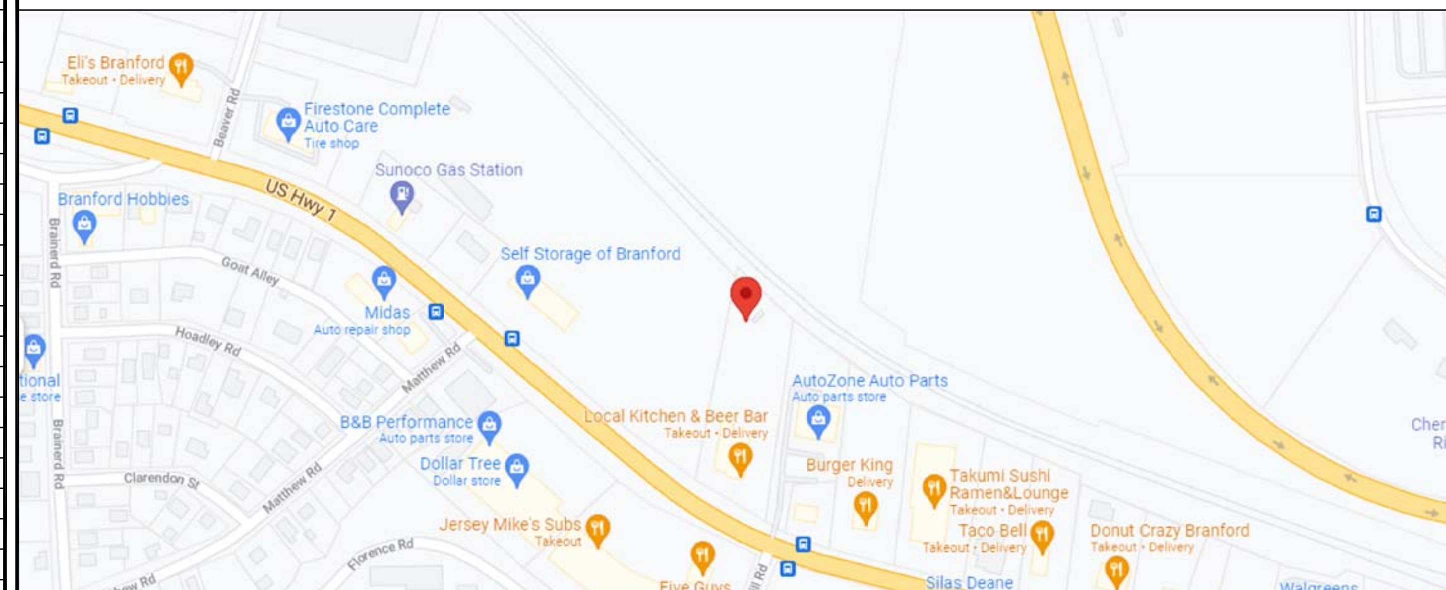
THE PURPOSE OF THIS PROJECT IS TO ENHANCE BROADBAND CONNECTIVITY AND CAPACITY TO THE EXISTING ELIGIBLE WIRELESS FACILITY.

TOWER SCOPE OF WORK:
- REMOVE (6) ANTENNAS
- REMOVE (3) TMA'S
- REMOVE (7) HYBRID CABLES
- INSTALL (6) ANTENNAS
- INSTALL (3) RRHS
- INSTALL (2) HYBRID CABLES INSIDE THE MONOPOLE

GROUND SCOPE OF WORK:
- REMOVE RBS 6131 & S12000 OUTDOOR EQUIPMENT CABINET
- REMOVE (6) RU22
- REMOVE (1) DUW30 IN EQUIPMENT CABINET
- INSTALL (1) 6160 & (1) B160 BATTERY CABINET
- INSTALL (1) IXRE ROUTER IN (P) CABINET
- INSTALL (1) PSU4813 VOLTAGE BOOSTER IN (P) CABINET
- INSTALL (1) BB6648 IN (P) CABINET
- INSTALL (2) RBS6601 IN (P) CABINET

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

LOCATION MAP



NO SCALE

APPLICABLE CODES/REFERENCE DOCUMENTS

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

CODE TYPE	CODE
BUILDING	2018 CT STATE BUILDING CODE
MECHANICAL	2015 IMC
ELECTRICAL	2017 NEC

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS:	TOWER ENGINEERING PROFESSIONALS
DATED:	11/22/2021
MOUNT ANALYSIS:	GPD ENGINEERING AND ARCHITECTURE
DATED:	NOVEMBER 02, 2021
RFDS REVISION:	10
DATED:	10/6/2021
ORDER ID:	587436
REVISION:	0

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.

T-Mobile
12920 SE 38TH STREET
BELLEVUE, WA 98006

CROWN CASTLE
1505 WESTLAKE AVENUE NORTH, SUITE 800
SEATTLE, WA 98109

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www.infinigy.com

T-MOBILE SITE NUMBER:
CTNH101A

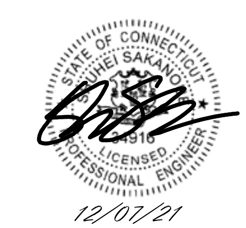
BU #: **876322**
TARTAGLIA PROPERTY

850 WEST MAIN STREET
BRANFORD, CT 06405

EXISTING 131'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	11/18/2021	TJ	FINAL	SS
1	12/07/2021	TJ	FINAL	SS



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

SHEET NUMBER:	REVISION:
T-1	1

CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

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

GENERAL NOTES:

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

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

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

GREENFIELD GROUNDING NOTES:

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

ELECTRICAL INSTALLATION NOTES:

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

CONDUCTOR COLOR CODE

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

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

APWA UNIFORM COLOR CODE:

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

ABBREVIATIONS:

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

T-Mobile

12920 SE 38TH STREET
BELLEVUE, WA 98006

CROWN CASTLE

1505 WESTLAKE AVENUE NORTH, SUITE 800
SEATTLE, WA 98109

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T-MOBILE SITE NUMBER:
CTNH101A

BU #: **876322**
TARTAGLIA PROPERTY

850 WEST MAIN STREET
BRANFORD, CT 06405

EXISTING 131'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	11/18/2021	TJ	FINAL	SS
1	12/07/2021	TJ	FINAL	SS

SHUHEI SAKANO

12/07/21

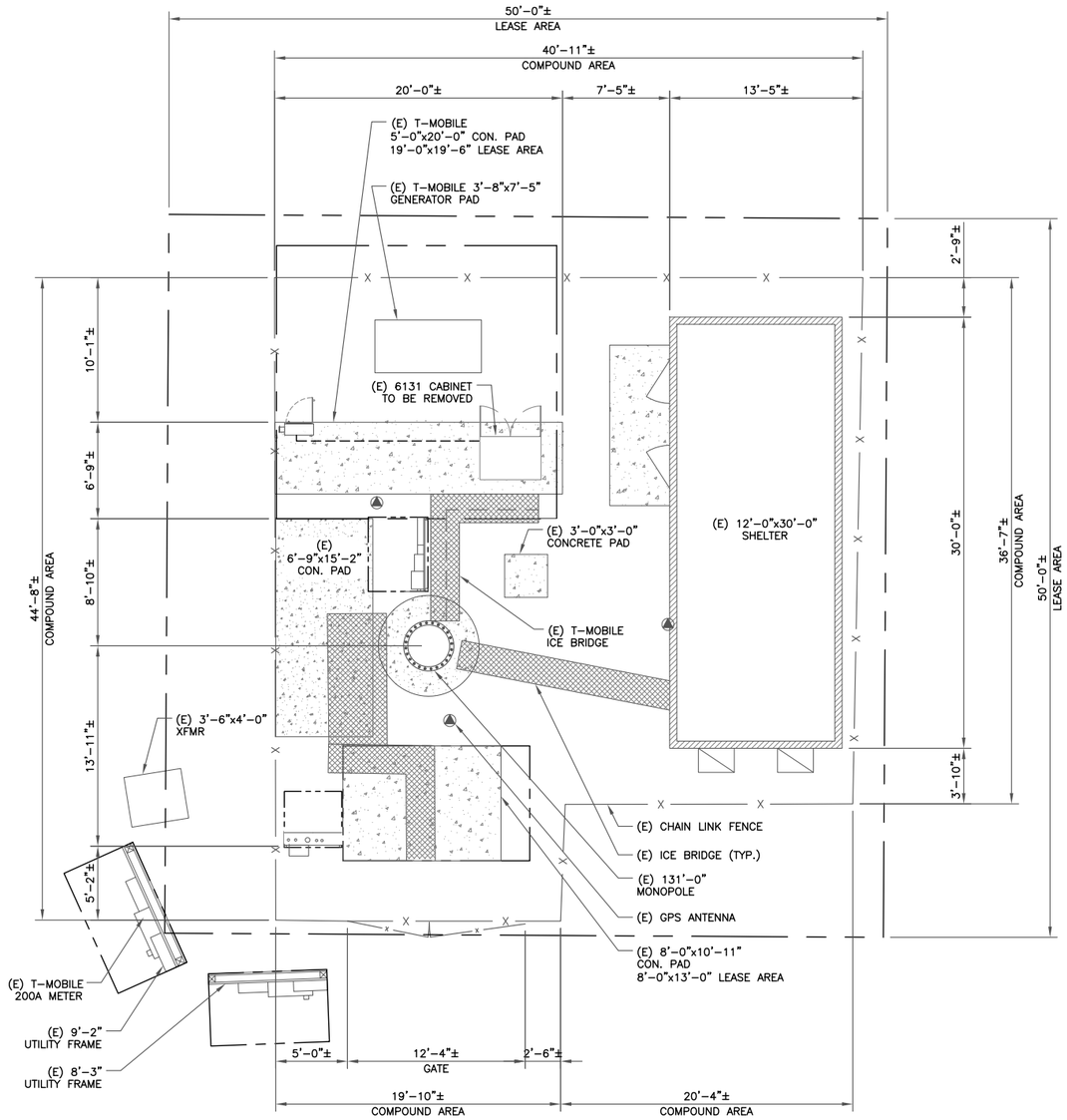
IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: T-2

REVISION: 1

NOTE:

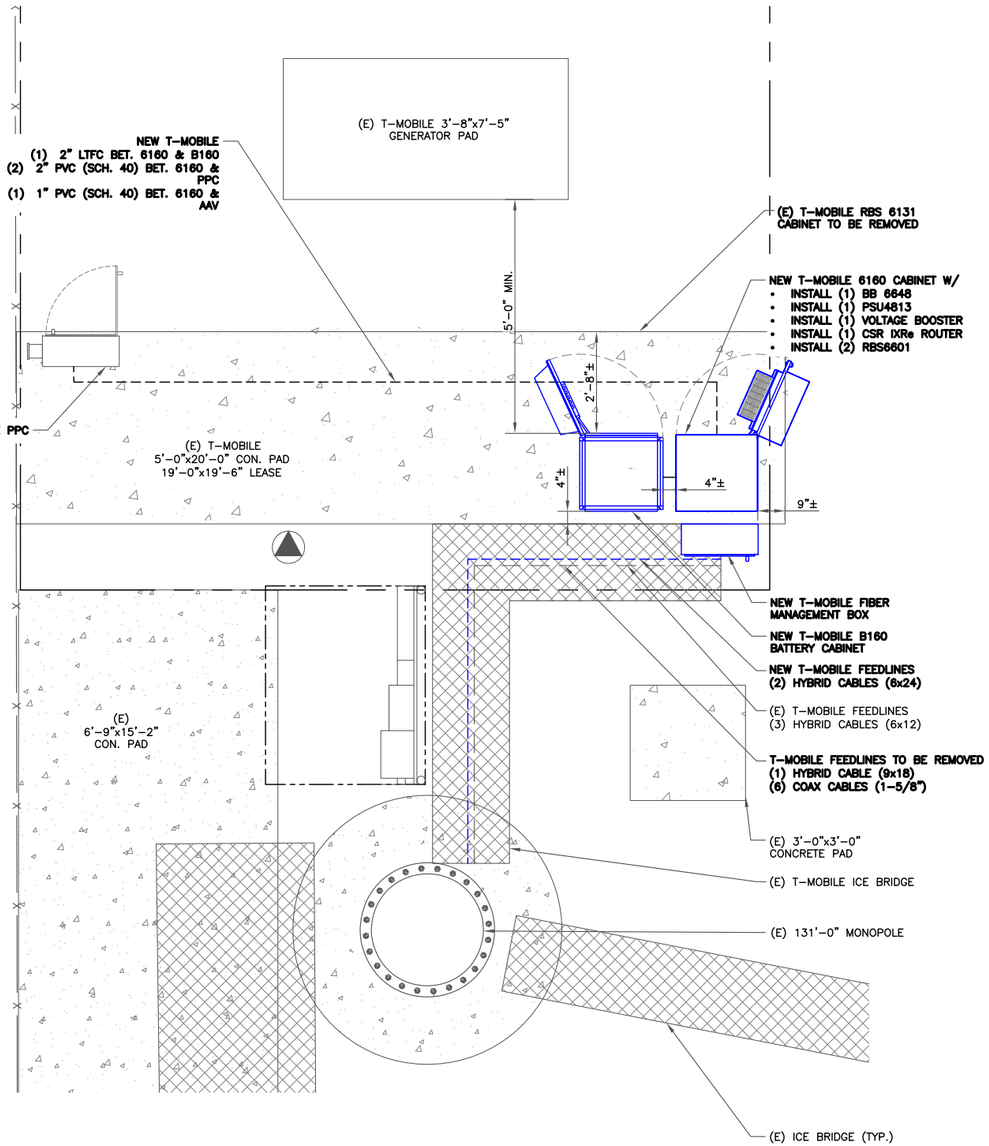
1. PLANS BASED ON SITE PLAN PROVIDED BY TOWER OWNER AND SITE VISIT PERFORMED BY INFINIGY. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND LOCATION/ORIENTATION OF EXISTING T–MOBILE EQUIPMENT.



1 SITE PLAN
SCALE: 4' 2' 0 4' 3/16"=1'–0" (FULL SIZE) 3/32"=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.



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

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EXISTING 131'-0" MONOPOLE

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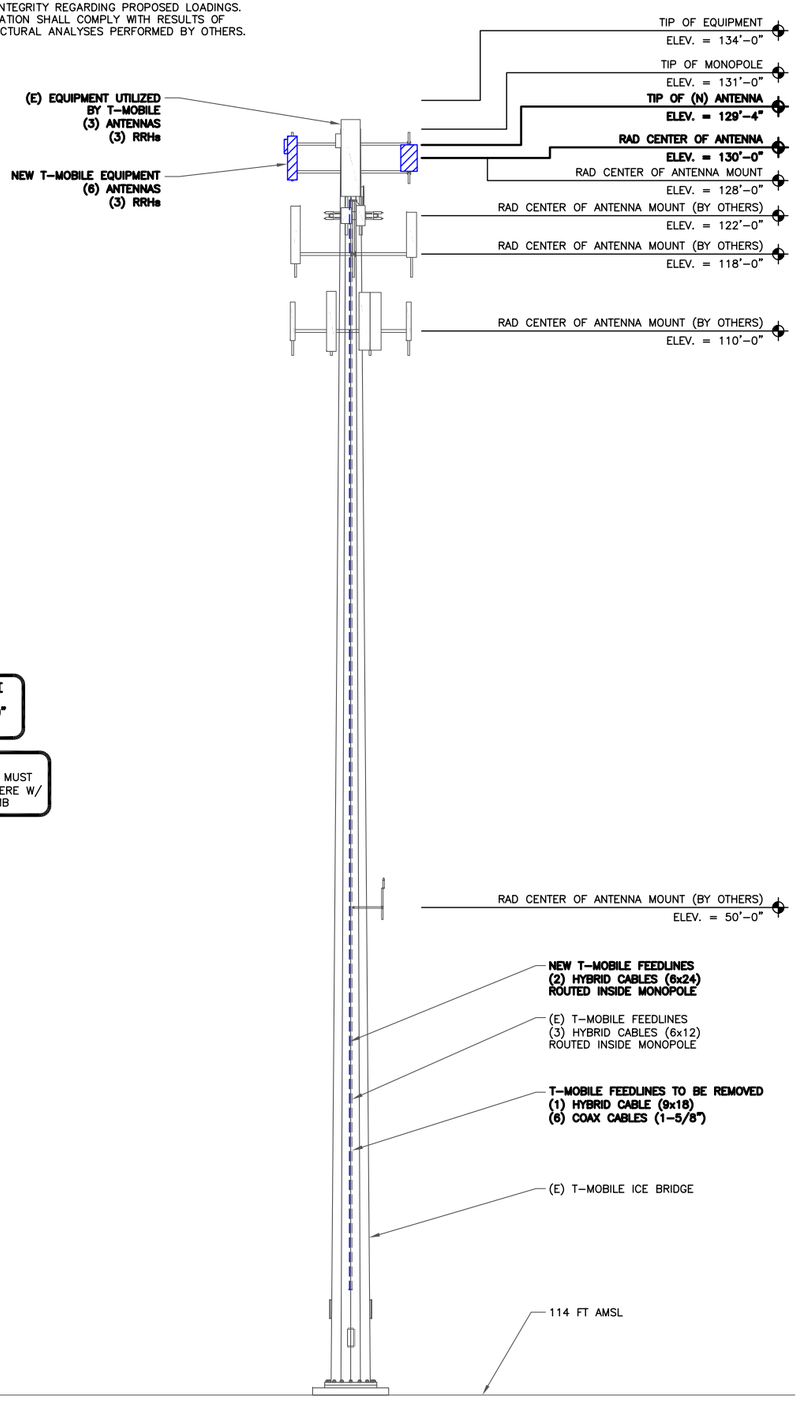
STATE OF CONNECTICUT
SHEI SAKANO
21916
LICENSED PROFESSIONAL ENGINEER
12/07/21

SHEET NUMBER: C-1
REVISION: 1

NOTES:

1. ELEVATION BASED ON DRAWING PROVIDED BY TOWER OWNER. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND LOCATION/ORIENTATION OF EXISTING EQUIPMENT.
2. INFINIGY HAS NOT EVALUATED THE TOWER OR MOUNT STRUCTURE AND ASSUMES NO RESPONSIBILITY FOR THEIR STRUCTURAL INTEGRITY REGARDING PROPOSED LOADINGS. FINAL INSTALLATION SHALL COMPLY WITH RESULTS OF PASSING STRUCTURAL ANALYSES PERFORMED BY OTHERS.

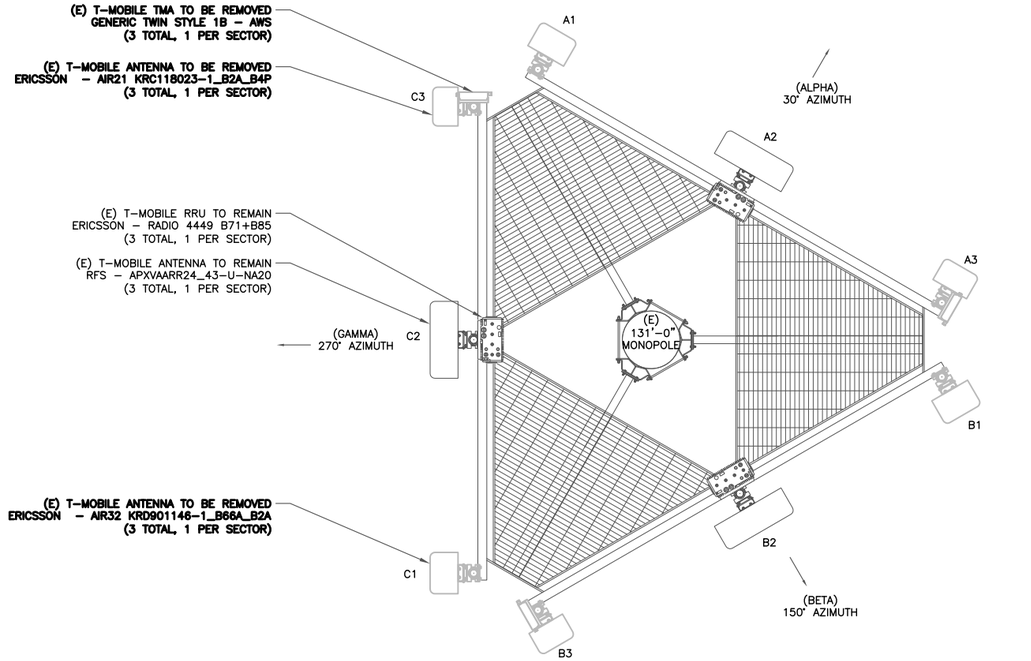


T-MOBILE EQUIPMENT

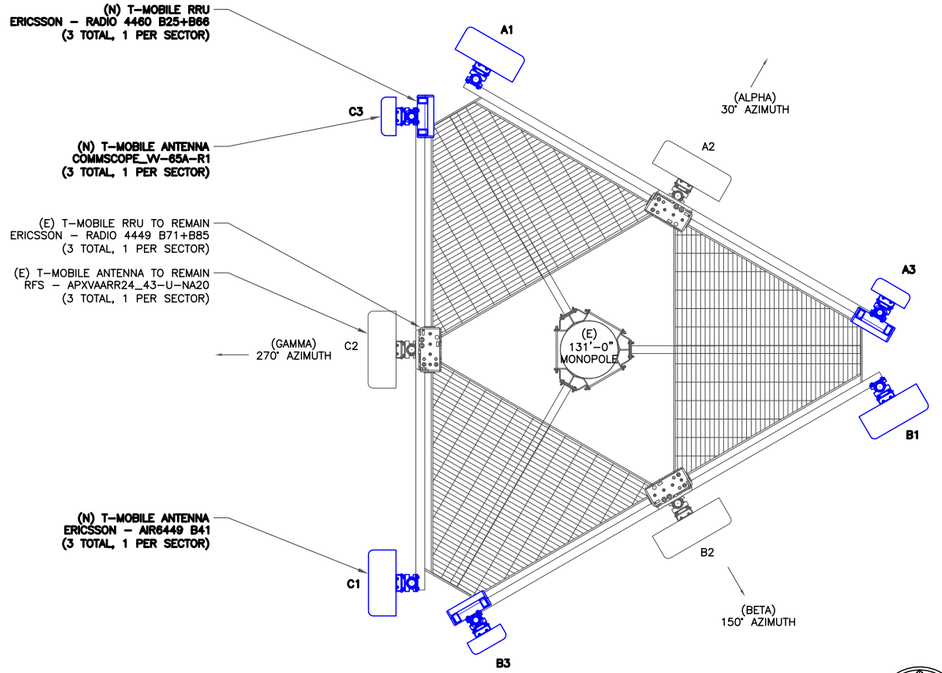
ANTENNA CL: 130'-0"
MOUNT CL: 128'-0"

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

1 FINAL ELEVATION
SCALE: NOT TO SCALE



2 NOT USED
SCALE: NOT TO SCALE



3 FINAL ANTENNA LAYOUT
SCALE: NOT TO SCALE

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T-MOBILE SITE NUMBER:
CTNH101A

BU #: **876322**
TARTAGLIA PROPERTY

850 WEST MAIN STREET
BRANFORD, CT 06405

EXISTING 131'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	11/18/2021	TJ	FINAL	SS
1	12/07/2021	TJ	FINAL	SS

12/07/21

SHEET NUMBER: C-2

REVISION: 1

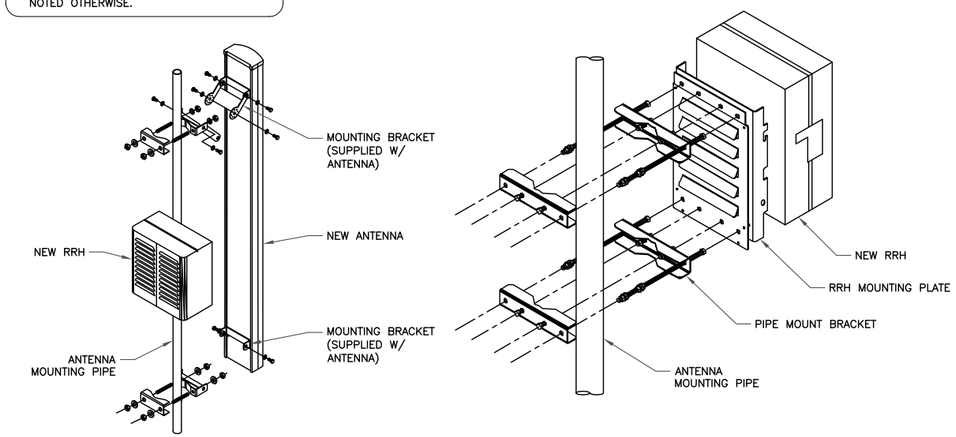
ANTENNA SCHEDULE

SECTOR	POS.	TECHNOLOGY	RAD CENTER	AZIMUTH	ANTENNA MANUFACTURER	ANTENNA MODEL	MECH. TILT	ELECT. TILT	TOWER MOUNTED EQUIPMENT	FEEDLINE TYPE
ALPHA	**A1**	**LTE 2500, N2500**	**130'-0"**	**30°**	**ERICSSON**	**AIR6449 B41**	**0°**	**2°/2°**	**–**	**(2) 6x24 HYBRID (SHARED)**
ALPHA	A2	LTE 600/700/N600	130'-0"	30°	RFS	APXVAARR24_43-U-NA20	0°	2°/2°	(1) ERICSSON – RRUS 4449 B71+B85	(3) 6x12 HYBRID SHARED
ALPHA	**A3**	**LTE 1900/L2100, G1900,U2100**	**130'-0"**	**30°**	**COMMSCOPE**	**VV-65A-R1**	**0°**	**2°/2°**	**(1) ERICSSON – RRUS 4460 B25+B66**	**–**
BETA	**B1**	**LTE 2500, N2500**	**130'-0"**	**150°**	**ERICSSON**	**AIR6449 B41**	**0°**	**2°/2°**	**–**	**(2) 6x24 HYBRID (SHARED)**
BETA	B2	LTE 600/700/N600	130'-0"	150°	RFS	APXVAARR24_43-U-NA20	0°	2°/2°	(1) ERICSSON – RRUS 4449 B71+B85	(3) 6x12 HYBRID SHARED
BETA	**B3**	**LTE 1900/L2100, G1900,U2100**	**130'-0"**	**150°**	**COMMSCOPE**	**VV-65A-R1**	**0°**	**2°/2°**	**(1) ERICSSON – RRUS 4460 B25+B66**	**–**
GAMMA	**C1**	**LTE 2500, N2500**	**130'-0"**	**270°**	**ERICSSON**	**AIR6449 B41**	**0°**	**2°/2°**	**–**	**(2) 6x24 HYBRID (SHARED)**
GAMMA	C2	LTE 600/700/N600	130'-0"	270°	RFS	APXVAARR24_43-U-NA20	0°	2°/2°	(1) ERICSSON – RRUS 4449 B71+B85	(3) 6x12 HYBRID SHARED
GAMMA	**C3**	**LTE 1900/L2100, G1900,U2100**	**130'-0"**	**270°**	**COMMSCOPE**	**VV-65A-R1**	**0°**	**2°/2°**	**(1) ERICSSON – RRUS 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.



NOTE:

1. CONTRACTOR SHALL INSTALL 3RD DUAL RRH MOUNT TO ACCOMMODATE ALL RRH BRACKETS HOLES IF NECESSARY.

2 ANTENNA WITH RRH MOUNTING DETAIL
SCALE: NOT TO SCALE

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BU #: **876322**
TARTAGLIA PROPERTY

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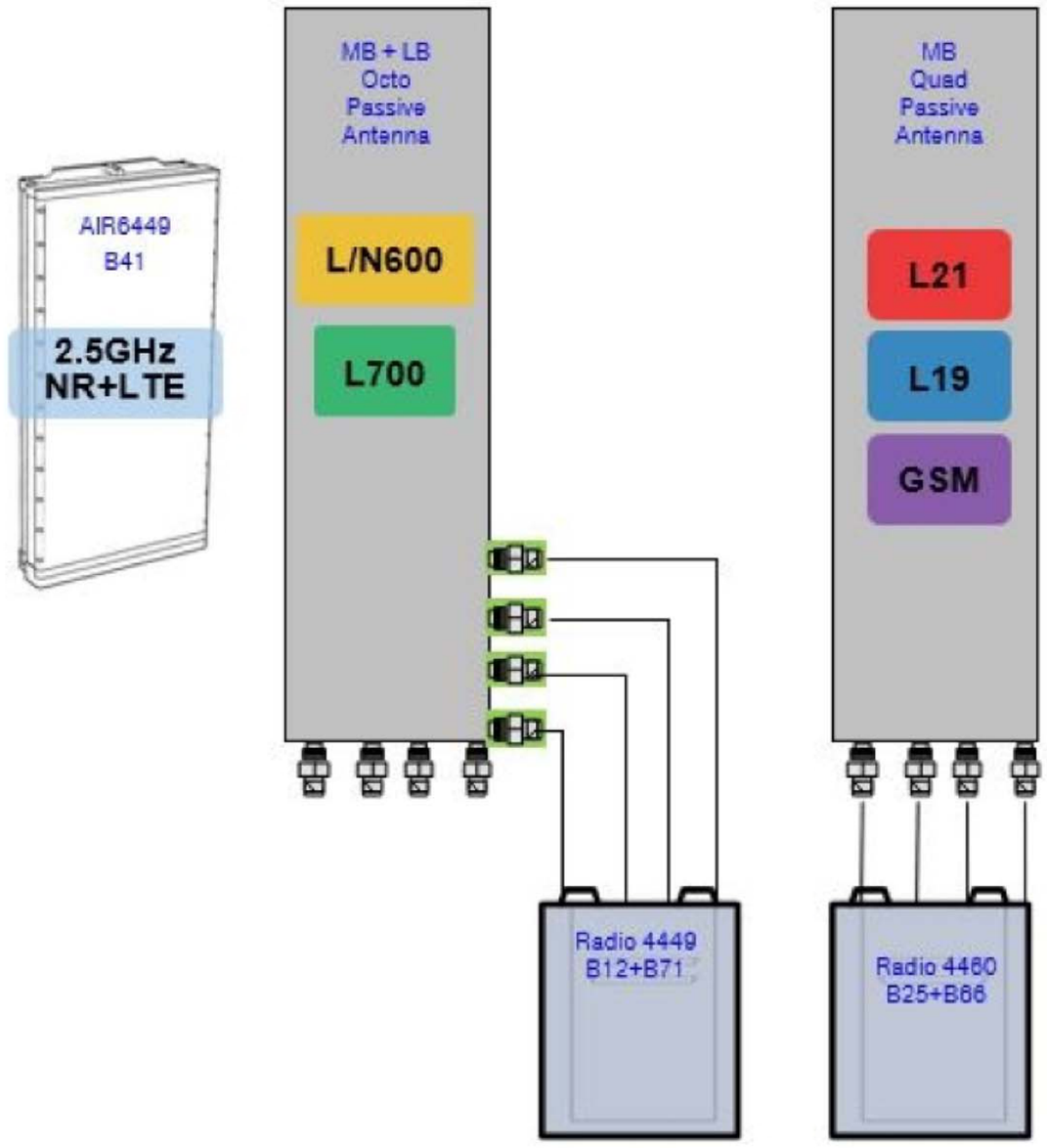
1	12/07/2021	TJ	FINAL	SS

12/07/21

SHEET NUMBER: C-3

REVISION: 1

67D5A998E_1AIR+1QP+1OP.jpg



1 PLUMBING DIAGRAM
SCALE: NOT TO SCALE

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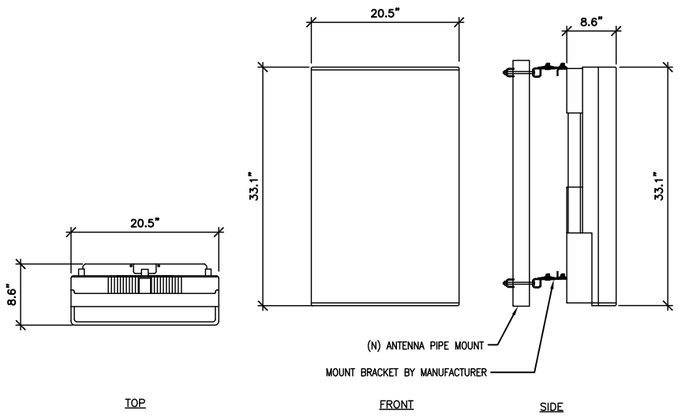
1	12/07/2021	TJ	FINAL	SS

STATE OF CONNECTICUT
SHUHEI SAKAMOTO
24316
LICENSED PROFESSIONAL ENGINEER
12/07/21

SHEET NUMBER: C-4

REVISION: 1

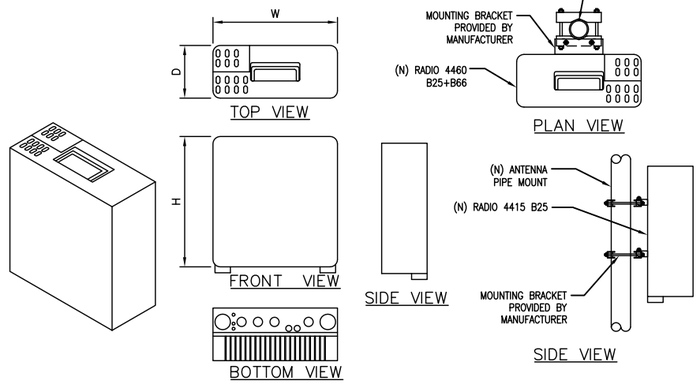
MANUFACTURER: ERICSSON
MODEL: AIR6449 B41
WEIGHT: 104 LBS (W/ MOUNT BRACKET 113)
DIMENSIONS: 33.1"H. X 20.5"W. X 8.6"D.
FREQUENCY: REFER TO RF DATA SHEET



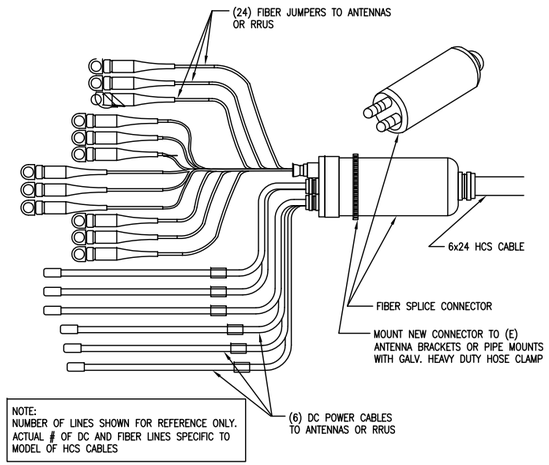
1 (N) AIR6449 B41 ANTENNA SPEC
SCALE: NOT TO SCALE

ERICSSON RADIO-4460 B25+B66

DIMENSIONS, WxDxH:	17.00"x15.10"x11.90"
POWER CONSUMPTION:	660 WATTS
TOTAL WEIGHT:	109.0 lbs
TEMPERATURE:	-40° TO 55° C

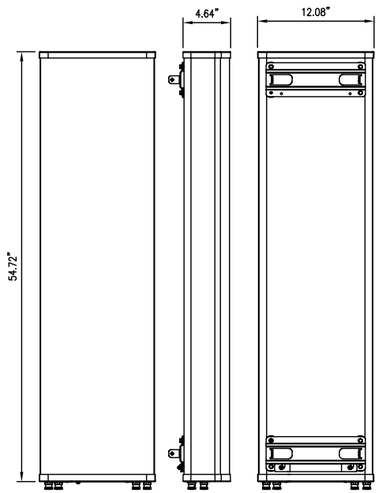


2 (N) RADIO 4460 B25+B66 SPEC
SCALE: NOT TO SCALE

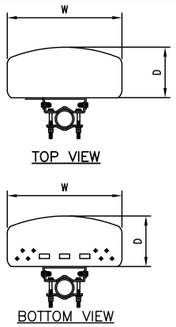


NOTE:
NUMBER OF LINES SHOWN FOR REFERENCE ONLY. ACTUAL # OF DC AND FIBER LINES SPECIFIC TO MODEL OF HCS CABLES

3 (N) 6X24 HCS CABLE DETAIL
SCALE: NOT TO SCALE



1695-2690MHz COMMSCOPE ANTENNAS	
MODEL	WEIGHT (lb)
(5') VV-65A-R1	23.8
WEIGHT W/ MOUNTING BRACKET (lb):	50



4 (N) COMMSCOPE VV-65A-R1 ANTENNA SPEC
SCALE: NOT TO SCALE

5 NOT USED
SCALE: NOT TO SCALE

6 NOT USED
SCALE: NOT TO SCALE

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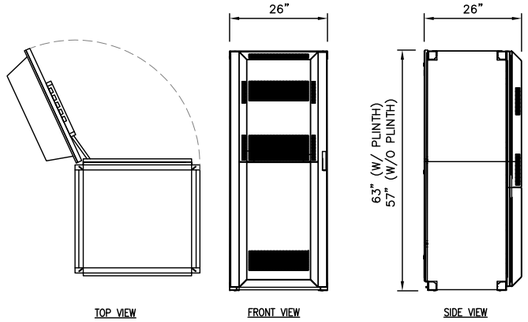
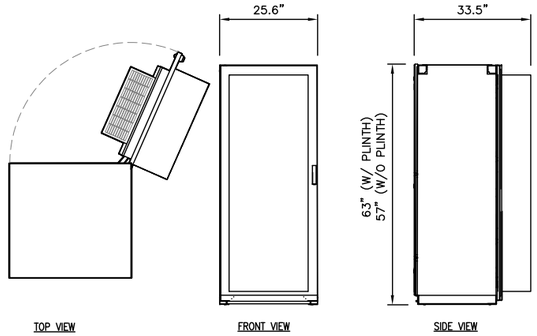
STATE OF CONNECTICUT
MICHAEL SAKANO
24916
LICENSED PROFESSIONAL ENGINEER
12/07/21

SHEET NUMBER: C-5
REVISION: 1



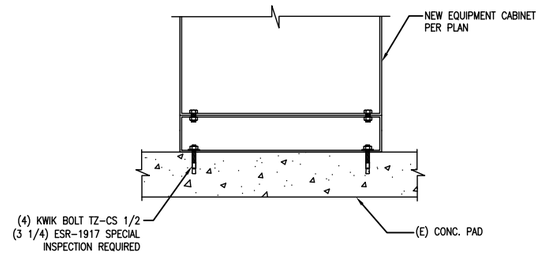
ERICSSON MODEL NO.:	B160
RACK SPACE:	19U
DIMENSIONS, HxWxD:	63"x26"x26" (W/ 6" PLINTH)
CABINET WEIGHT, EMPTY:	485 LBS
MAXIMUM WEIGHT:	2100± LBS

1 (N) B160 CABINET DETAIL
SCALE: NOT TO SCALE

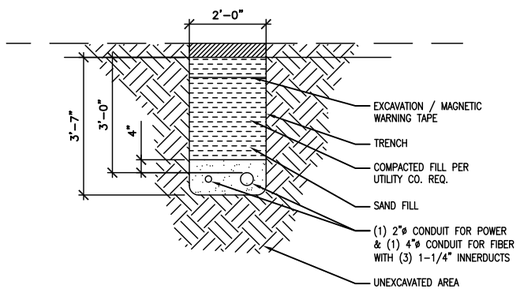


ERICSSON MODEL NO.:	6160
RACK SPACE:	19U
DIMENSIONS, HxWxD:	63"x25.6"x25.6" (W/ 6" PLINTH)
CABINET WEIGHT, EMPTY:	410 LBS
MAXIMUM WEIGHT:	770± LBS

2 (N) 6160 CABINET DETAIL
SCALE: NOT TO SCALE



3 (N) EQUIPMENT CABINET MOUNTING DETAIL
SCALE: NOT TO SCALE



4 (N) CONDUIT TRENCH DETAIL
SCALE: NOT TO SCALE

5 NOT USED
SCALE: NOT TO SCALE

6 NOT USED
SCALE: NOT TO SCALE

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SHEET NUMBER: C-6
REVISION: 1

T-MOBILE PANEL SCHEDULE

MAIN: 200A MAIN BREAKER			**VOTAGE/PHASE:** 120/240V, 1-PHASE, 3-WIRE						**SHORT CIRCUIT CURRENT RATING:** --		
MOUNTING: INSIDE PPC ENCLOSURE			**ENCLOSURE:** NEMA 3R						**SURGE PROTECTION DEVICE:** YES		
					PHASE LOADS (VA)						
DESCRIPTION	LOAD (VA)	C or NC	C/B	CIR No.	A	B	CIR No.	C/B	C or NC	LOAD (VA)	DESCRIPTION
TRANSIENT VOLTAGE SURGE	1	NC	60	1	181		2	20	C	180	TELCO GFI
SUPPRESSOR (TVSS)	1	NC		3		3501	**4**	**100**	**C**	**3500**	**6160**
BTS MAIN	**3600**	**C**	**60**	**5**	7100		**6**		**C**	**3500**	
	3600	**C**		**7**		3780	**8**	**20**	**NC**	**180**	**6160 GFI**
LED LIGHT	200	C	20	9	200		10				
				11		0	12				
				13	0		14				
				15		0	16				
BLANK				17	0		18				BLANK
				19		0	20				
				21	0		22				
				23		0	24				
BASE LOAD (VA) =					7481	7281					
25% OF CONTINUOUS LOAD (VA) =					2125	2125					
TOTAL LOAD (VA) =					9606	9406					
TOTAL LOAD (A) =					80	78					

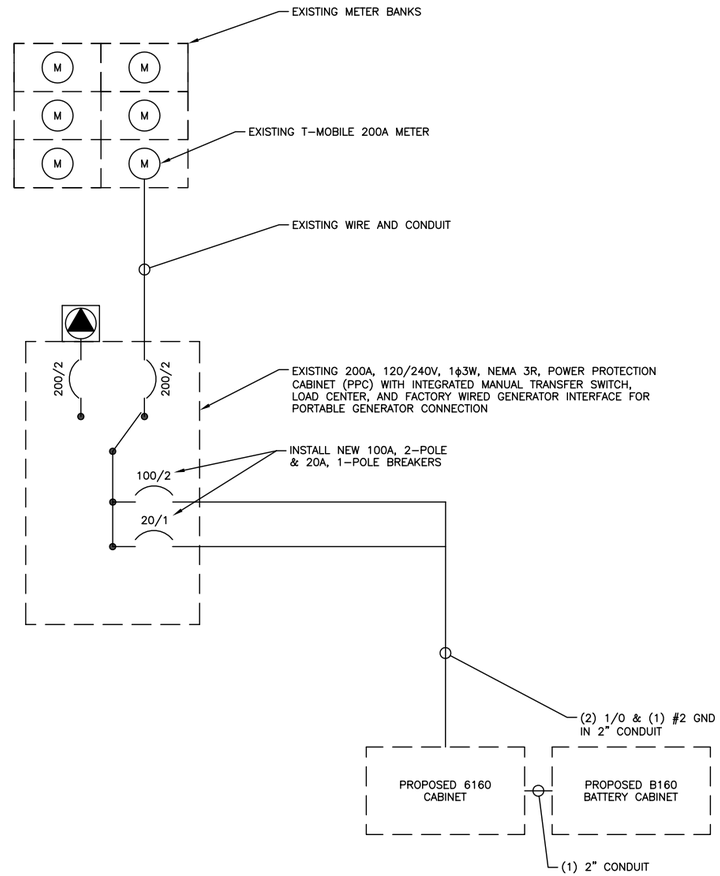
C = CONTINUOUS LOAD; NC = NON-CONTINUOUS LOAD

NEW BREAKER TO BE SAME TYPE AND HAVE SAME AIC RATING AS EXISTING. CUSTOMER HAS NOT PROVIDED LOADS FOR EQUIPMENT CABINETS THEREFORE THE CABINET LOADS SHOWN ARE ESTIMATED VALUES.

1 AC PANEL SCHEDULE
SCALE: NOT TO SCALE

NOTES:

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



2 ONE LINE DIAGRAM
SCALE: NOT TO SCALE

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STATE OF CONNECTICUT
SHUHEI SAKAMOTO
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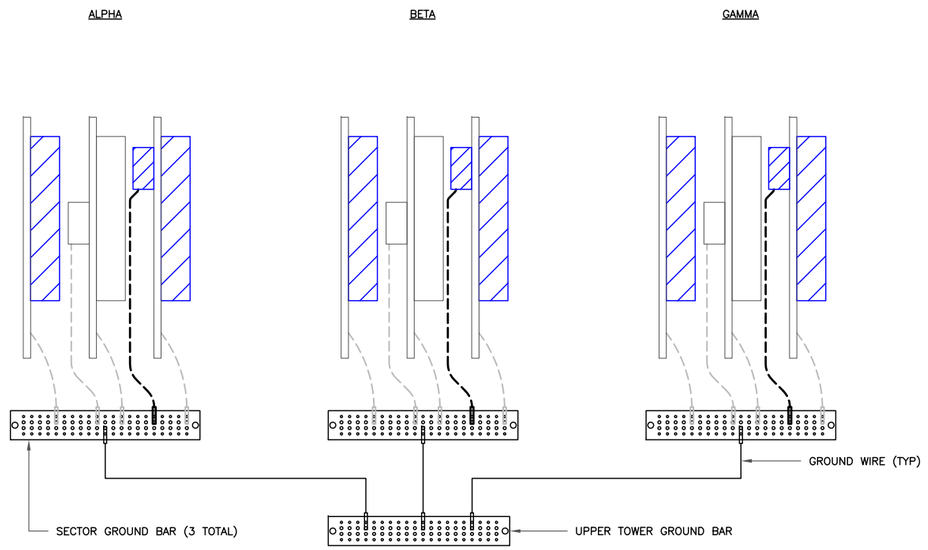
LICENSED PROFESSIONAL ENGINEER
12/07/21

SHEET NUMBER: E-1

REVISION: 1



NOTE:

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

1 ANTENNA GROUNDING DIAGRAM
SCALE: NOT TO SCALE

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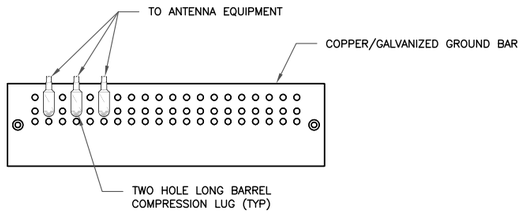
STATE OF CONNECTICUT
SHINEI SAKAMOTO
24916
LICENSED PROFESSIONAL ENGINEER
12/07/21

SHEET NUMBER: G-1

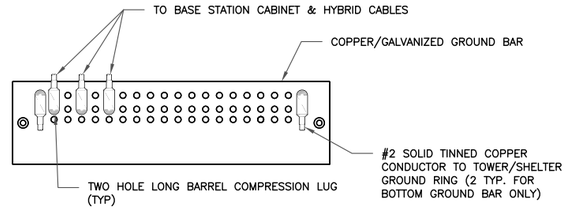
REVISION: 1



NOTES:

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

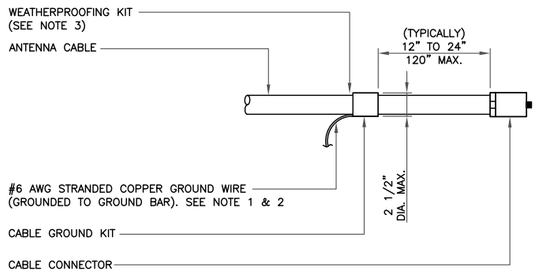
1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

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

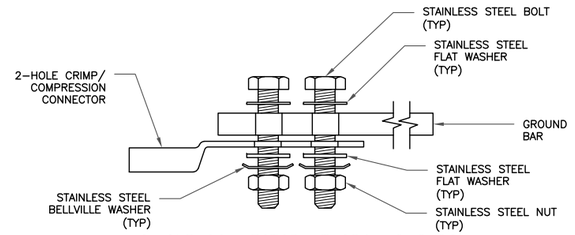
2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE



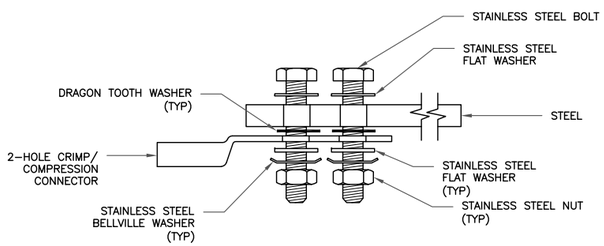
NOTES:

1. 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.

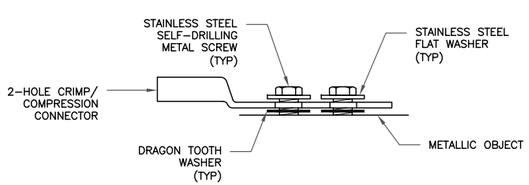
3 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS



SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

4 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE

5 NOT USED
SCALE: NOT TO SCALE

6 NOT USED
SCALE: NOT TO SCALE

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ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	11/18/2021	TJ	FINAL	SS
1	12/07/2021	TJ	FINAL	SS

12/07/21

SHEET NUMBER: G-2
REVISION: 1