Robinson+Cole

KENNETH C. BALDWIN

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Also admitted in Massachusetts and New York

January 4, 2024

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

Re: **Notice of Exempt Modification – Facility Modification**
720 Quinebaug Road, Thompson, Connecticut

Dear Attorney Bachman:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains a wireless telecommunications facility at the above-referenced address (the "Property"). Cellco's facility consists of antennas and remote radio heads attached to a tower. Equipment associated with the facility is located on the ground adjacent to the tower. The tower was approved by the Town of Thompson ("Town") in March of 1998 and is located at the Quinebaug Volunteer Fire Station. Cellco's use of the tower was approved by the Siting Council ("Council") in July of 2007 (EM-VER-141-070614). A copy of the Town's approval and the Council's EM-VER-141-070614 approval are included in Attachment 1.

Cellco's proposed modification involves the installation of two (2) interference mitigation filters ("filters") on its existing antenna platform and antenna mounting assembly. The Filter specification sheet is included in Attachment 2.

Please accept this letter as notification pursuant to R.C.S.A. § 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 Thompson's Chief Elected Official and Land Use Officer. A copy of this letter is also being sent to the Property owner.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

1. The proposed modification will not result in an increase in the height of the existing tower. The filters will be installed on Cellco's existing antenna platform and antenna

mounting assembly.

2. The proposed modifications will not involve any change to ground-mounted equipment and therefore, will not require the extension of the site boundary.

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

4. The installation of the new filters will not result in a change to radio frequency (RF) emissions from the facility. Therefore, no new RF emissions information is included in this filing.

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

6. According to the attached Structural Analysis Report ("SA") and Antenna Mount Analysis Report ("MA"), the existing tower, foundation, antenna platform and mounting assembly can support Cellco's proposed modifications. A copy of the SA and MA are included in Attachment 3.

A copy of the parcel map and Property owner information is included in Attachment 4. A Certificate of Mailing verifying that this filing was sent to municipal officials and the property owner is included in Attachment 5.

For the foregoing reasons, Cellco respectfully submits that the proposed modifications to the above-referenced telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Kenneth C. Baldwin

Enclosures
Copy to:
Amy St. Onge, First Selectman
Tyra Penn Gesek, Director of Planning and Development
Quinebaug Fire Department, Property Owner
Alex Tyurin, Verizon Wireless

ATTACHMENT 1

Town of Thompson

PLANNING & ZONING COMMISSION
MUNICIPAL BUILDING
ROUTE 12
NORTH GROSVENOR DALE, CONN. 06255

TEL.: 203-923-9002

MINUTES
PLANNING & ZONING COMMISSION
MARCH 23, 1998 * 7:00 PM
MERRILL SENEY COMMUNITY ROOM

5). Discussion Regarding Proposed Telecommunications Facility
720 Thompson Road; Map 120, Block 30, Lot 14, Industrial Zone
John Kowalski, Techstar Communications
John Kowalski gave a brief presentation, they received a conceptual approval from the commission last month, he has submitted new information including the 10 ft. fence, materials stating the coverage afforded, they will be located in an industrial zone, the tower will co-host two additional users on the 140 ft. monopole. They are seeking their zoning permit at this time, there is no existing tower in town that will meet their coverage. Atty. St. Onge stated the rules are up in the air at this time, in the Town's Zoning Regulations a structure is defined as all inclusive, a building is defined with the exclusion of radio and TV antennas, and that is the only difference between a building and a structure; clearly there was an intention in the regulations but it was not spelled out. It does fit in under the industrial zone, where it accepts radio & TV towers but the regulations don't list where they're permitted. The law is the Town can regulate but it can't prohibit. The Town does need a regulation to address this issue and specify the height issue, setbacks, screening, fencing, co-location, minimum lot size, signs & lights, removal, etc. The commission may want to act on this application since he already has a conceptual approval but then either a moratorium or drafting of a new regulation must begin immediately to meet the Federal requirements. John Rice noted some approval stipulations: a letter signed by the Director of CT. operations for Techstar Communications that the commission reserves the right to require other applicant's to share their tower; also that Techstar agrees to dismantle and remove at their expense if the facility is not in use for 12 consecutive months, this removal shall occur within 90 days of the end of such 12 month period; the design and plan shall indicate how the tower will collapse without encroaching upon any adjoining property if failure occurs; a report from a licensed telecommunications system engineer indicating that the proposed wireless telecommunications facility will comply with F.C.C. radio frequency emissions standards and that the installation will not interfere with public safety communications. Discussion followed. Mr. Kowalski stated there will be no lights and no signs except for a warning sign.
A Motion was made by John Rice to approve the zoning permit for a free standing 140 ft. monopole tower and in conformity with the drawings submitted upon meeting all aforementioned stipulations and reviewed by the Zoning Enforcement Officer, seconded by Randolph Blackmer. All in favor.
VOTE: 9 YES MOTION CARRIED

Discussion followed regarding amending the regulations, it could be

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
Internet: ct.gov/csc

Daniel F. Caruso
Chairman

July 11, 2007

Kenneth C. Baldwin, Esq.
Robinson & Cole LLP
280 Trumbull Street
Hartford, CT 06103-3597

RE: **EM-VER-141-070614** - Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 720 Quinebaug Road, Thompson, Connecticut.

Dear Attorney Baldwin:

At a public meeting held on July 3, 2007, the Connecticut Siting Council (Council) acknowledged your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies.

The proposed modifications are to be implemented as specified here and in your notice dated June 14, 2007, including the placement of all necessary equipment and shelters within the tower compound. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

Thank you for your attention and cooperation.

Very truly yours,

Daniel F. Caruso
Chairman

DFC/MP/laf

c: The Honorable A. David Babbitt, First Selectman, Town of Thompson
Meredith Robson, Town Manager, Town of Thompson
John E. Mahon, Jr., Zoning Enforcement Officer, Town of Thompson
Christopher B. Fisher, Esq., Cuddy & Feder LLP
Michele G. Briggs, New Cingular Wireless PCS, LLC
Quinebaug Volunteer Fire Department

ATTACHMENT 2

KA-6030

TWIN BANDSTOP 900MHZ INTERFERENCE MITIGATION FILTER

The KA-6030 is ideal for co-located 700, 850 and 900 networks. Utilising a 2.6MHz guardband the KA-6030 provides rejection of the 900 UL band while passing 700/850 UL and DL bands. Capable of being used in an outdoor environment the KA-6030 contains two identical bandstop filters, suitable for 2x2 MIMO configuration, offering excellent insertion loss, group delay and rejection.

FEATURES

- Passes full 700 and 850 bands
- Low insertion loss
- Rejection of 900MHz uplink
- DC/AISG pass
- Twin unit
- Dual twin mounting available

TECHNICAL SPECIFICATIONS

BAND NAME	700 PATH / 850 UPLINK PATH	850 DOWNLINK PATH
Passband	698 - 849MHz	869 - 891.5MHz
Insertion loss	0.1dB typical / 0.3dB maximum	0.5dB typical, 1.45dB maximum
Return loss	24dB typical, 18dB minimum	
Maximum input power (Per Port)	100W average	200W average and 66W per 5MHz
Rejection	53dB minimum @ 894.1 - 896.5MHz	
ELECTRICAL		
Impedance	50Ohms	
Intermodulation products	-160dBc maximum in UL Band (assuming 20MHz Signal), with 2 x 43dBm carriers -153dBc maximum with 2 x 43dBm	
DC / AISG		
Passband	0 - 13MHz	
Insertion loss	0.3dB maximum	
Return loss	15dB minimum	
Input voltage range	± 33V	
DC current rating	2A continuous, 4A peak	
Compliance	3GPP TS 25.461	
ENVIRONMENTAL		
For further details of environmental compliance, please contact Kaelus.		
Temperature range	-20°C to +60°C | -4°F to +140°F	
Ingress protection	IP67	
Altitude	2600m | 8530ft	
Lightning protection	RF port: ±5kA maximum (8/20us), IEC 61000-4-5 – Unit must be terminated with some lightning protection circuits.	
MTBF	>1,000,000 hours	
Compliance	ETSI EN 300 019 class 4.1H, RoHS, NEBS GR-487-CORE	

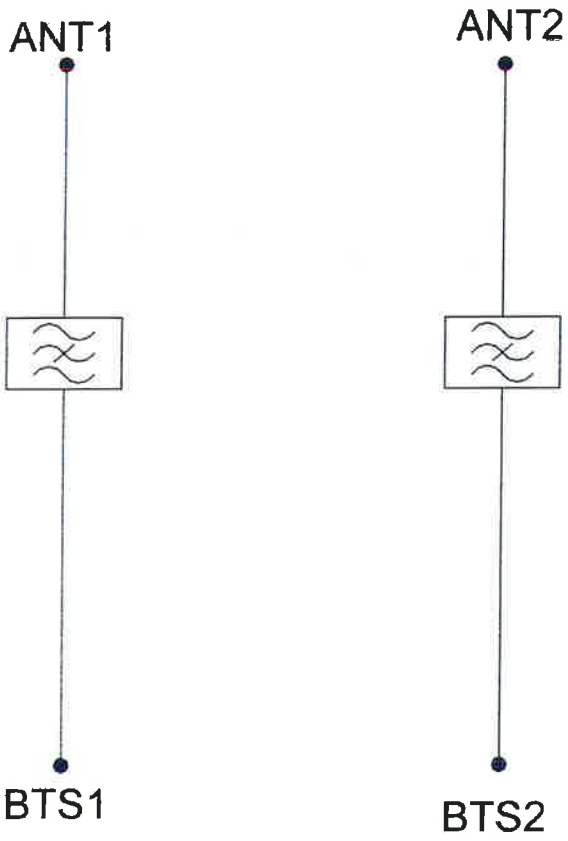
Contact Us: +1 303 768 8080 | +61 (0) 7 3907 1200 | www.kaelus.com

MECHANICAL	
Dimensions H x D x W	269 x 277 x 80mm | 10.60 x 10.90 x 3.15in (Excluding brackets and connectors)
Weight	8.0 kg | 17.6 lbs (no bracket)
Finish	Powder coated, light grey (RAL7035)
Connectors	RF: 4.3-10 (F) x 4
Mounting	Optional pole/wall bracket supplied with two metal clamps 45-178mm diameter poles or custom bracket. See ordering information.

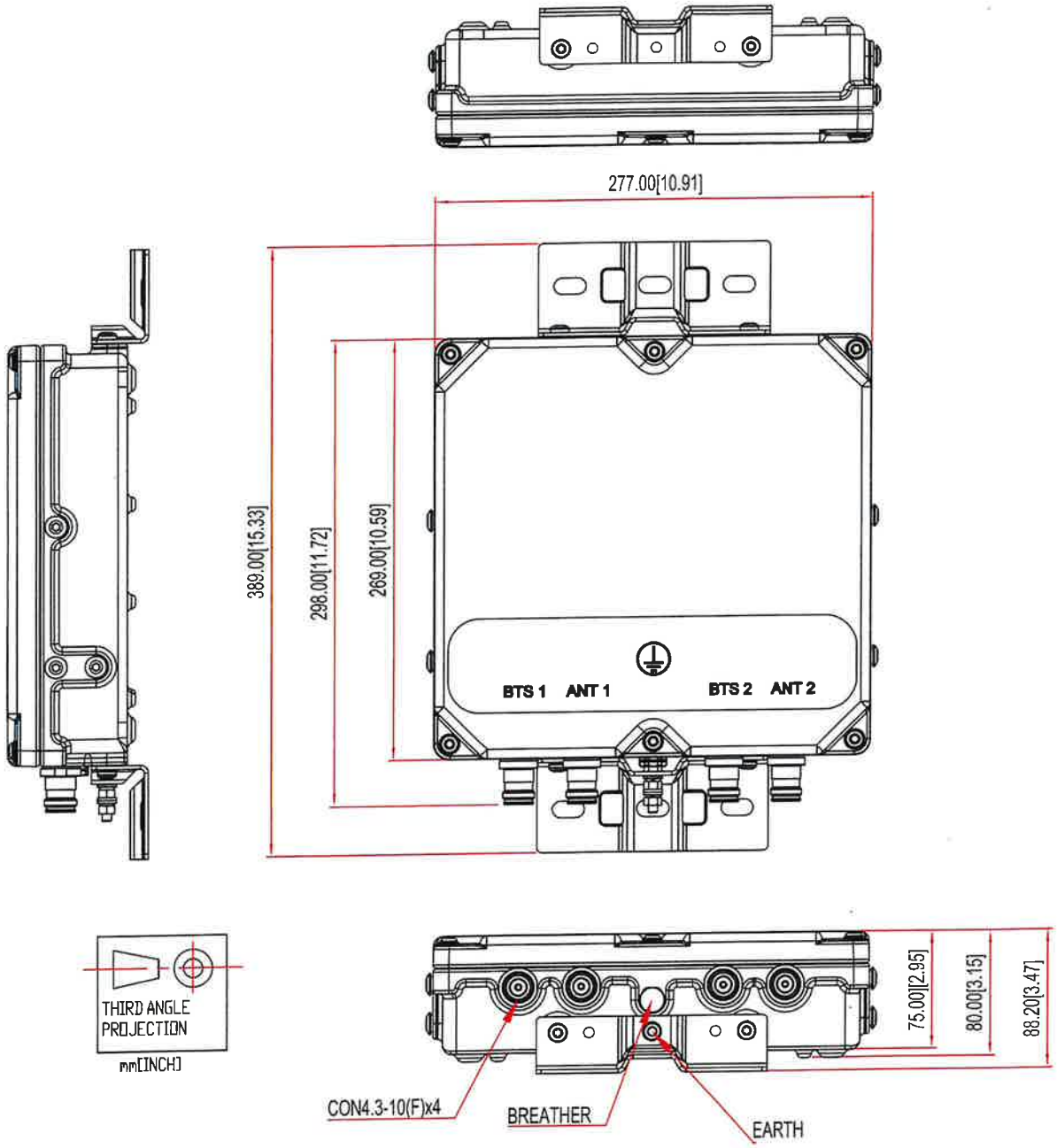
ORDERING INFORMATION

PART NUMBER	CONFIGURATION	OPTIONAL FEATURES	CONNECTORS
KA-6030-2032	TWIN, 2 in / 2 out	DC/AISG PASS	4.3-10 (F)

ELECTRICAL BLOCK DIAGRAM



MECHANICAL BLOCK DIAGRAM



ATTACHMENT 3

CENTERLINE

Structural Analysis Report

Location Code: 468550
Site Name: QUINEBAUG CT
FUZE Project ID: 17123830
Project Name: RF Filter Add
Address: 720 QUINEBAUG RD
Quinebaug, CT 06262

Client:

verizon

20 ALEXANDER DRIVE
WALLINGFORD, CT 06492

Date: 12/27/2023

STATE OF CONNECTICUT
DEREK J. CREASER
LICENSED
PROFESSIONAL ENGINEER

Centerline Engineering Services, PA
750 W Center St, Suite 301
West Bridgewater, MA 02379
781-713-4725

CENTERLINE

Scope of Work:

Centerline Communications was authorized by Verizon Wireless to perform an analysis of the existing 125 ft. Monopole to determine its capacity to support the existing and proposed equipment listed in this report.

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West Bridgewater, MA 02379
781-713-4725

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Existing & Proposed Equipment:

Carrier	Mounting Level (ft)	Center Line Elevation (ft)	Number of Appurtenances	Antenna Manufacturer	Appurtenance Model	Feed Lines (in)
Town	123.0	133.0	1	-	20ft 4-Bay Dipole	(3) 7/8
		128.0	1	-	10ft 8-Bay Dipole	
		128.0	1	-	10 ft Omni	
AT&T	123.0	123.0	6	-	91" x 21" x 7" Panel	(12) 1-5/8 (2) Power (1) Fiber
		123.0	3	-	54.5" x 10.3" x 5.9" Panel	
		123.0	9	-	RRU Unit	
		123.0	6	-	TMA	
		123.0	1	-	Squid/Junction Box	
		123.0	1	-	12 ft Platform w/ Handrail & Kicker	
Verizon Wireless	115.0	115.0	3	Samsung	MT6407-77A	(12) 1-5/8 (2) 6x12 Hybrid
		115.0	6	CommScope	JAHH-65B-R3B	
		115.0	6	Antel	LPA-80080/6CF	
		115.0	3	Samsung	B2/B66A RRH-BR049 (RFV01U-D1A)	
		115.0	3	Samsung	B5/B13 RRH-BR04C (RFV01U-D2A)	
		115.0	3	CommScope	CBC78T-DS-43-2X	
		115.0	2	-	6 OVP Junction Box	
		115.0	1	-	12 ft Platform w/ Handrail & Kicker	
		115.0	**2**	**Kaelus**	**KA-6030**	
		115.0	**1**	**Site Pro 1**	**RRUDSM**	
-	105.0	105.0	4	-	54.5" x 10.3" x 5.9" Panel	(12) 1-5/8
		105.0	4	-	5 ft Panel	
		105.0	4	-	95.9" x 24" x 8.7" Panel	
		105.0	8	-	RRU Unit	
		105.0	4	-	TMA	
		105.0	1	Site Pro 1	12 ft Quad Platform w/ Walkways & Handrail	

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781-713-4725

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*Note: Proposed equipment shown in **bold**.*

Design Criteria:

Design Codes:
2022 Connecticut State Building Code
2021 International Building Code
ASCE 7-16
TIA-222-H Standards

Basic Design Wind Speed (V)	130 mph
Wind Speed with Ice	50 mph
Ice Thickness	1.50 in.
Exposure Category	B
Topographic Category	1
Risk Category	III
Site Soil Class (Assumed)	D – Default
Seismic Design Category	B
Spectral Response Acceleration Parameter at a Short Periods, S_S	0.185 g
Spectral Response Acceleration Parameter at a Period of 1 Second, S_1	0.056 g
Short Period Site Coefficient, F_a	1.60
Long Period Site Coefficient, F_v	2.40

***Refer to calculations for additional design criteria.**

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CENTERLINE

Conclusion:

Tower Section Capacity (Summary)

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	125 - 85.5	Pole	TP29.725x21.037x0.1875	1	-13.899	998.894	92.8	Pass
L2	85.5 - 39.42	Pole	TP39.6246x28.3602x0.2813	2	-22.691	2000.080	99.7	Pass
L3	39.42 - 21	Pole	TP42.9745x37.8193x0.3125	3	-29.115	2487.930	100.0	Pass
L4	21 - 0	Pole	TP47.5932x42.9745x0.3393	4	-34.578	2992.040	95.2	Pass
							Summary	
						Pole (L3)	100.0	Pass
						RATING =	**100.0**	**Pass**

Structure Rating (Max From All Components) =	**100.0%**

Foundation Capacity (Summary)

Component	% Capacity	Pass Fail
Base Plate	91.3	Pass
Anchor Rods	87.0	Pass
Foundation Structural Rating	N/A	N/A
Foundation Soil Rating	N/A	N/A

Foundation Rating (Max From All Components) =	**91.3%**

Recommendations:

The existing tower and its foundation have sufficient capacity to support the existing and proposed loading for the final loading configuration.

Centerline Engineering Services, PA
750 W Center St, Suite 301
West Bridgewater, MA 02379
781-713-4725

CENTERLINE

Reference Documents:

- Structural Analysis Report by Nexius Solutions Inc., dated May 14, 2021
- Antenna Mount Analysis Report by Colliers Engineering & Design Ct. P.C., dated September 5, 2023
- Lease Exhibit by Centerline, dated October 04, 2023

Assumptions and Limitations:

- The tower and structures were built and maintained with the manufacturer's specifications.
- The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in this report and the referenced drawings.
- Existing appurtenance information obtained from the Structural Analysis Report by Nexius Solutions, Inc. dated May 14, 2021 and the Antenna Mount Analysis Report by Colliers Engineering & Design Ct. P.C., dated September 5, 2023
- Tower foundation has not been checked due to insufficient information.

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CENTERLINE

Design Calculations

Centerline Engineering Services, PA
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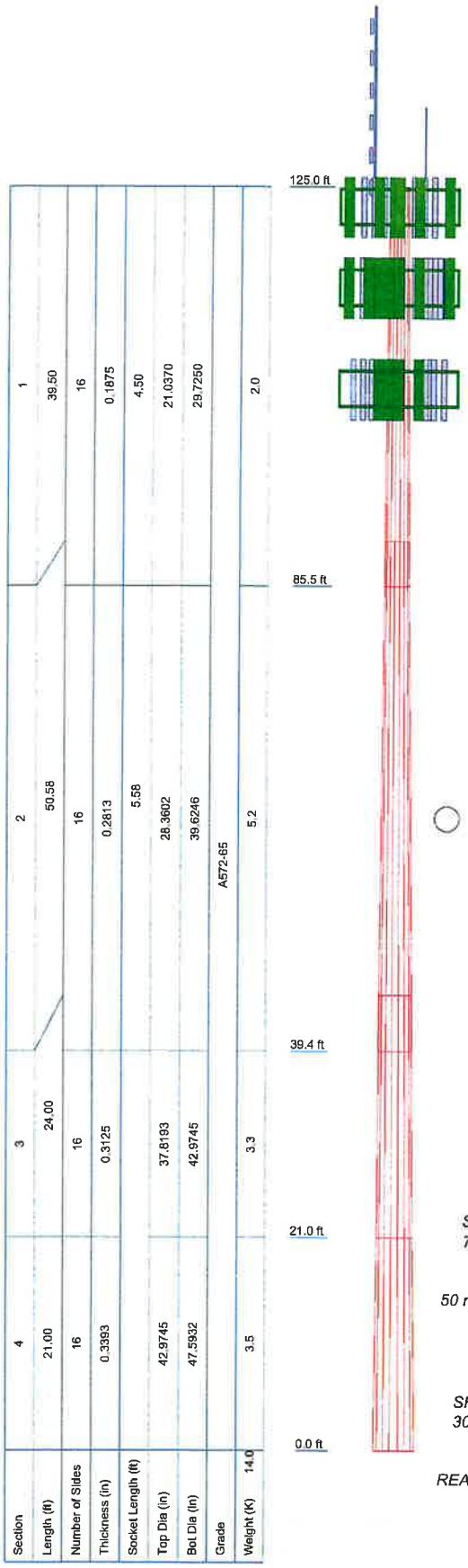
West Bridgewater, MA 02379
781-713-4725



Section	1	2	3	4
Length (ft)	39.50	50.58	24.00	21.00
Number of Sides	16	16	16	16
Thickness (in)	0.1875	0.2813	0.3125	0.3393
Socket Length (ft)	4.50	5.58		
Top Dia (in)	21.0370	28.3602	37.8193	42.9745
Bot Dia (in)	29.7250	39.6246	42.9745	47.5932
Grade	A572-65			
Weight (K)	2.0	5.2	3.3	3.5

ALL REACTIONS ARE FACTORED

AXIAL 65 K
SHEAR 7 K
MOMENT 801 kip-ft
TORQUE 1 kip-ft
50 mph WIND - 1.5000 in ICE

AXIAL 35 K
SHEAR 30 K
MOMENT 3020 kip-ft
TORQUE 5 kip-ft
REACTIONS - 130 mph WIND

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
20' 4-bay Dipole	123	B5/B13 RRH-BR04C (RFV01U-D2A)	115
10' x 1" Omni	123	B5/B13 RRH-BR04C (RFV01U-D2A)	115
10-ft 8-Bay Dipole	123	B5/B13 RRH-BR04C (RFV01U-D2A)	115
91" x 21" x 7" Panel	123	CBC78T-DS-43-2X	115
91" x 21" x 7" Panel	123	CBC78T-DS-43-2X	115
91" x 21" x 7" Panel	123	CBC78T-DS-43-2X	115
91" x 21" x 7" Panel	123	6 OVP Junction Box	115
91" x 21" x 7" Panel	123	6 OVP Junction Box	115
91" x 21" x 7" Panel	123	12 ft Platform w/ Handrail	115
54.5" x 10.3" x 5.9" Panel	123	Kicker Kit	115
54.5" x 10.3" x 5.9" Panel	123	(2) KA-6030	115
54.5" x 10.3" x 5.9" Panel	123	Site Pro 1 Swivel Mount	115
(2) RRU Unit	123	95.9" x 24" x 8.7" Panel	105
(2) RRU Unit	123	95.9" x 24" x 8.7" Panel	105
(2) RRU Unit	123	95.9" x 24" x 8.7" Panel	105
RRU Unit	123	95.9" x 24" x 8.7" Panel	105
RRU Unit	123	54.5" x 10.3" x 5.9" Panel	105
RRU Unit	123	54.5" x 10.3" x 5.9" Panel	105
(2) TMA	123	54.5" x 10.3" x 5.9" Panel	105
(2) TMA	123	54.5" x 10.3" x 5.9" Panel	105
(2) TMA	123	5 ft Panel w/ Mtg Pipe	105
Squid/ Junction Box	123	5 ft Panel w/ Mtg Pipe	105
12 ft Platform w/ Handrail	123	5 ft Panel w/ Mtg Pipe	105
Kicker Kit	123	5 ft Panel w/ Mtg Pipe	105
MT6407-77A	115	RRU Unit	105
MT6407-77A	115	RRU Unit	105
MT6407-77A	115	RRU Unit	105
(2) JAHH-65B-R3B	115	RRU Unit	105
(2) JAHH-65B-R3B	115	RRU Unit	105
(2) JAHH-65B-R3B	115	RRU Unit	105
LPA-80080/6CF	115	RRU Unit	105
LPA-80080/6CF	115	RRU Unit	105
LPA-80080/6CF	115	TMA	105
LPA-80080/6CF	115	TMA	105
LPA-80080/6CF	115	TMA	105
LPA-80080/6CF	115	TMA	105
B2/B66A RRH-BR049 (RFV01U-D1A)	115	12 ft Quad Platform w/ Walkways	105
B2/B66A RRH-BR049 (RFV01U-D1A)	115	Handrail	105
B2/B66A RRH-BR049 (RFV01U-D1A)	115		

MATERIAL STRENGTH

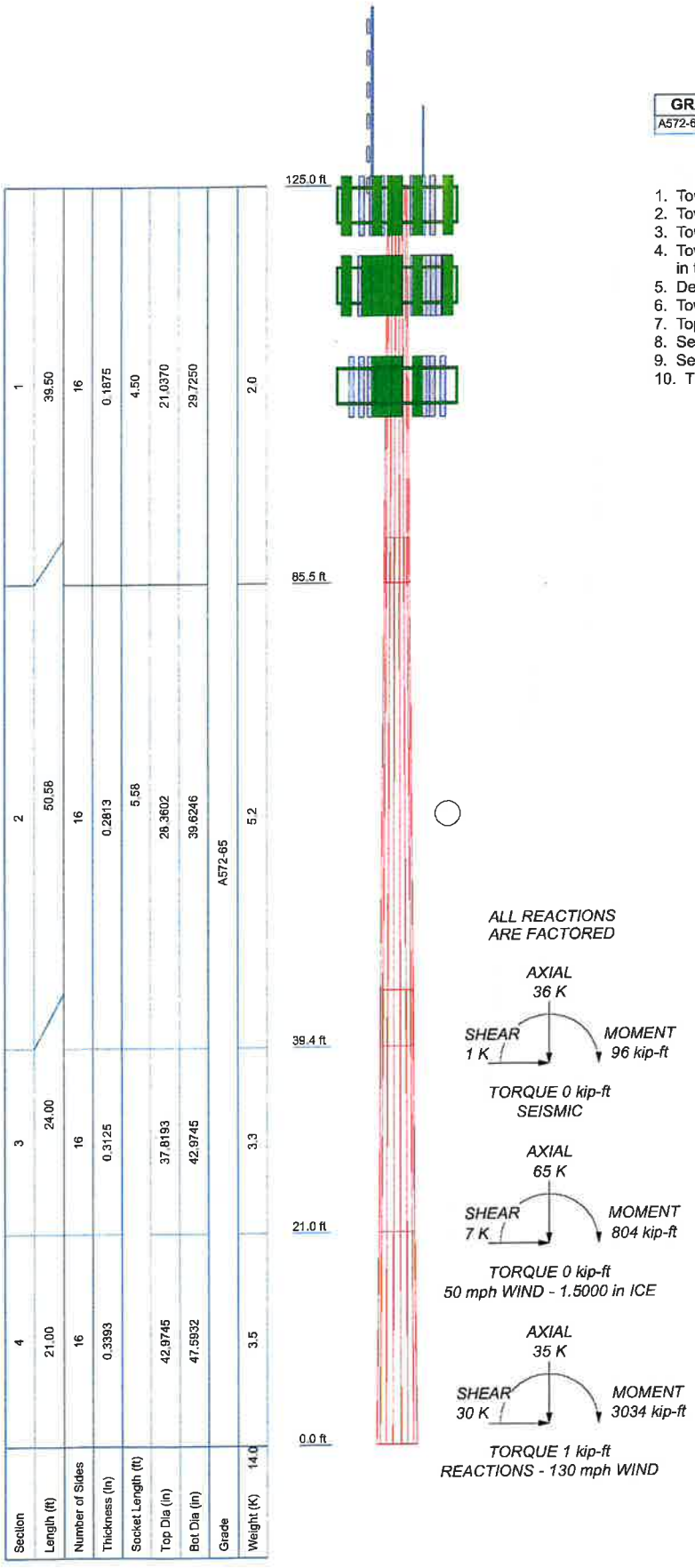
GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in Windham County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 130 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category III.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 100%

Centerline Engineering Services, PA
750 W Center St, Suite 301
West Bridgewater, MA 02379
Phone: (781) 719-4725
FAX:

Job: 23CLVZ-0026			
Project: Quinebaug CT			
Client: Verizon Wireless	Drawn by: jboegel		App'd:
Code: TIA-222-H	Date: 12/27/23		Scale: NTS
Path:			Dwg No. E-1



Section	1	2	3	4
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Top Dia (in)	21.0370	26.3602	37.8193	42.9745
Bot Dia (in)	29.7250	39.6246	42.9745	47.5932
Grade	A572-65			
Weight (K)	2.0	5.2	3.3	3.5

14.0

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

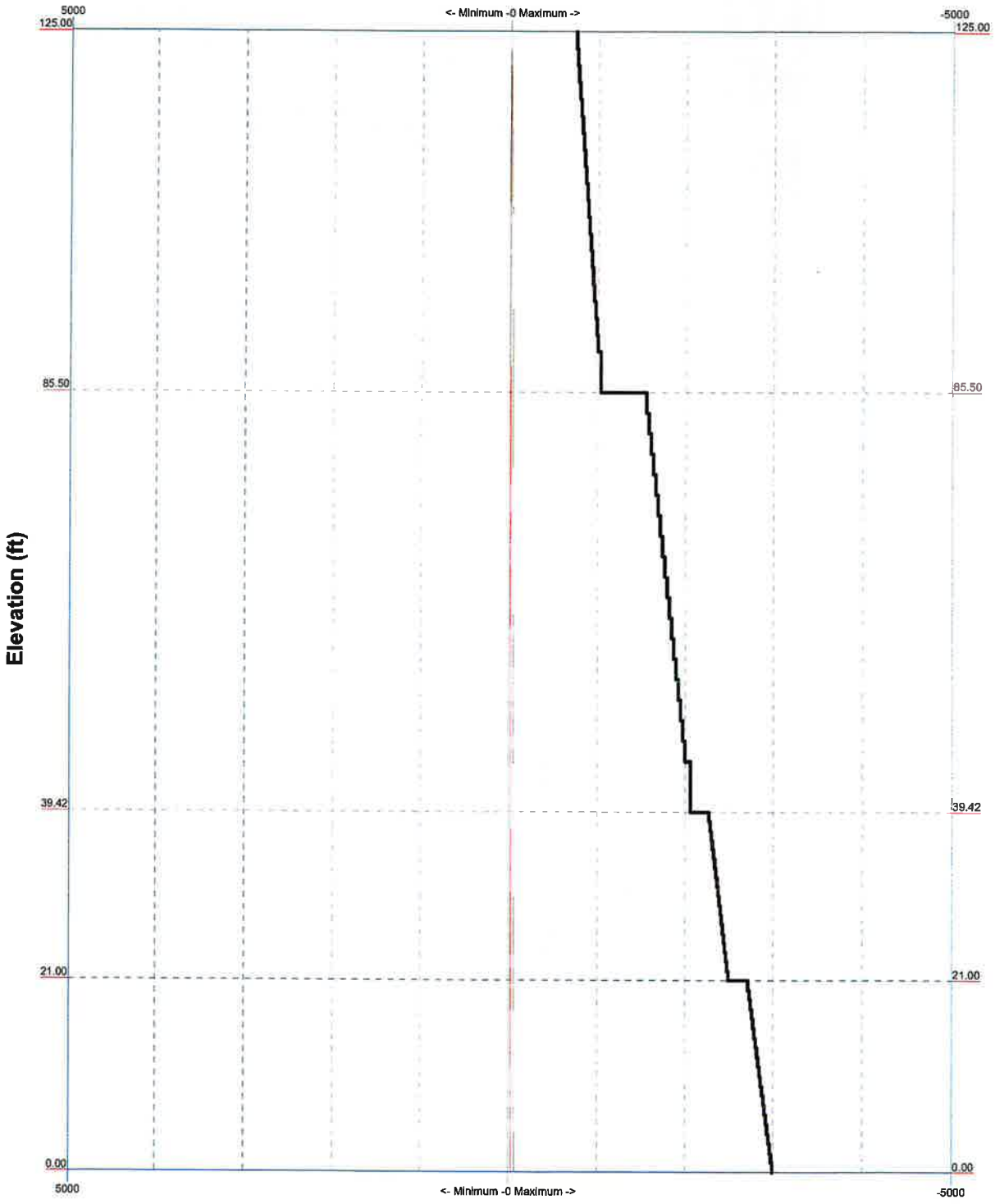
1. Tower is located in Windham County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 130 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category III.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. Seismic calculations are in accordance with TIA-222-H.
9. Seismic loads do not control this analysis.
10. TOWER RATING: 100.5%

Centerline Engineering Services, PA
750 W Center St, Suite 301
West Bridgewater, MA 02379
Phone: (781) 719-4725
FAX:

Job: 23CLVZ-0026			
Project: Quinebaug CT			
Client: Verizon Wireless	Drawn by: jboegel	App'd:	
Code: TIA-222-H	Date: 12/27/23	Scale: NTS	
Path:		Dwg No. E-1	

TIA-222-H - 130 mph/50 mph 1.5000 in Ice Exposure B

Leg Capacity ——— **Leg Compression (K)**



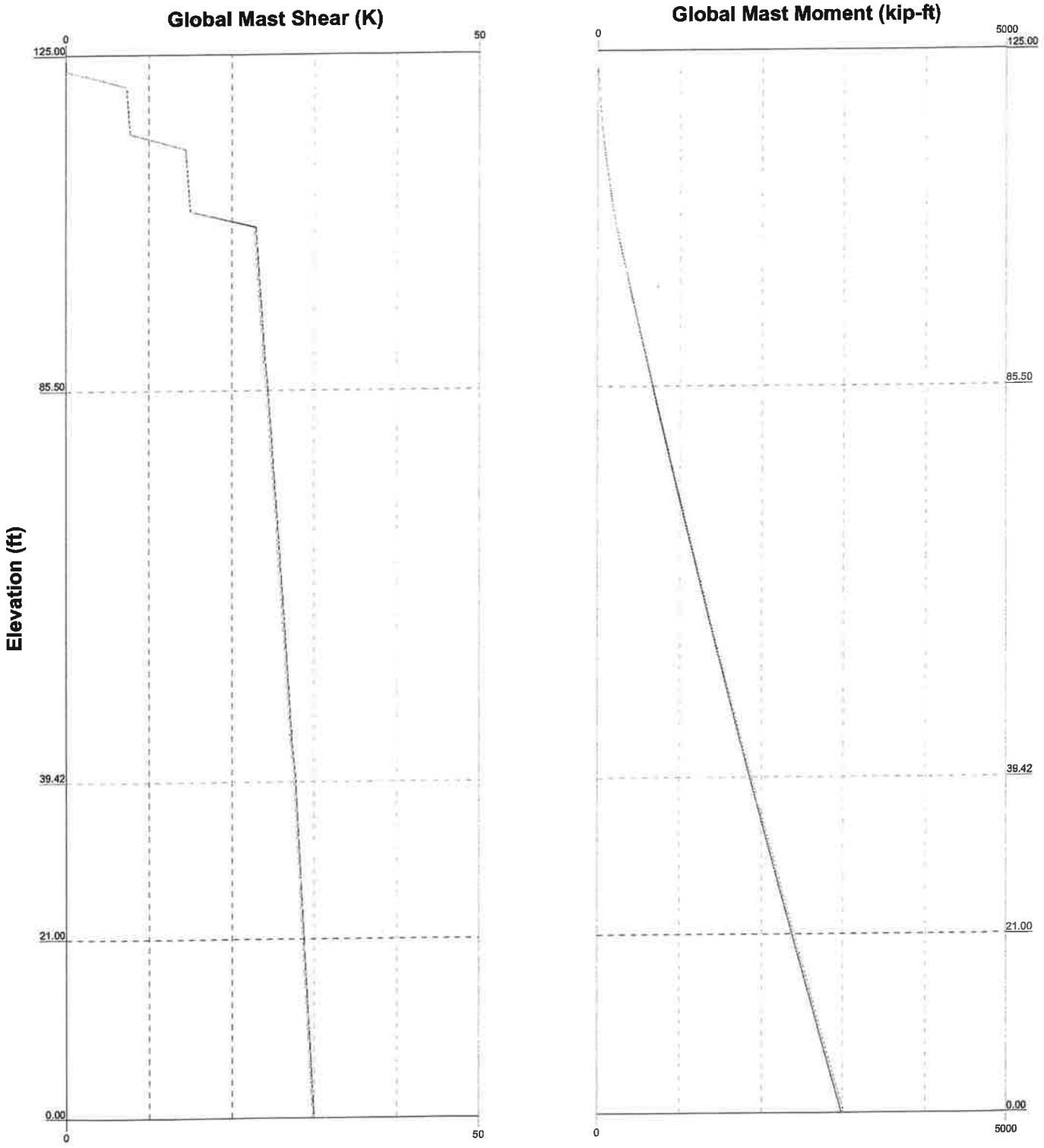
Centerline Engineering Services, PA
750 W Center St, Suite 301
West Bridgewater, MA 02379
Phone: (781) 719-4725
FAX:

Job: 23CLVZ-0026			
Project: Quinebaug CT			
Client: Verizon Wireless	Drawn by: jboegel		App'd:
Code: TIA-222-H	Date: 12/27/23		Scale: NTS
Path:			Dwg No. E-3

TIA-222-H - 130 mph/50 mph 1.5000 in Ice Exposure B

Maximum Values

Vx Vz Mx Mz



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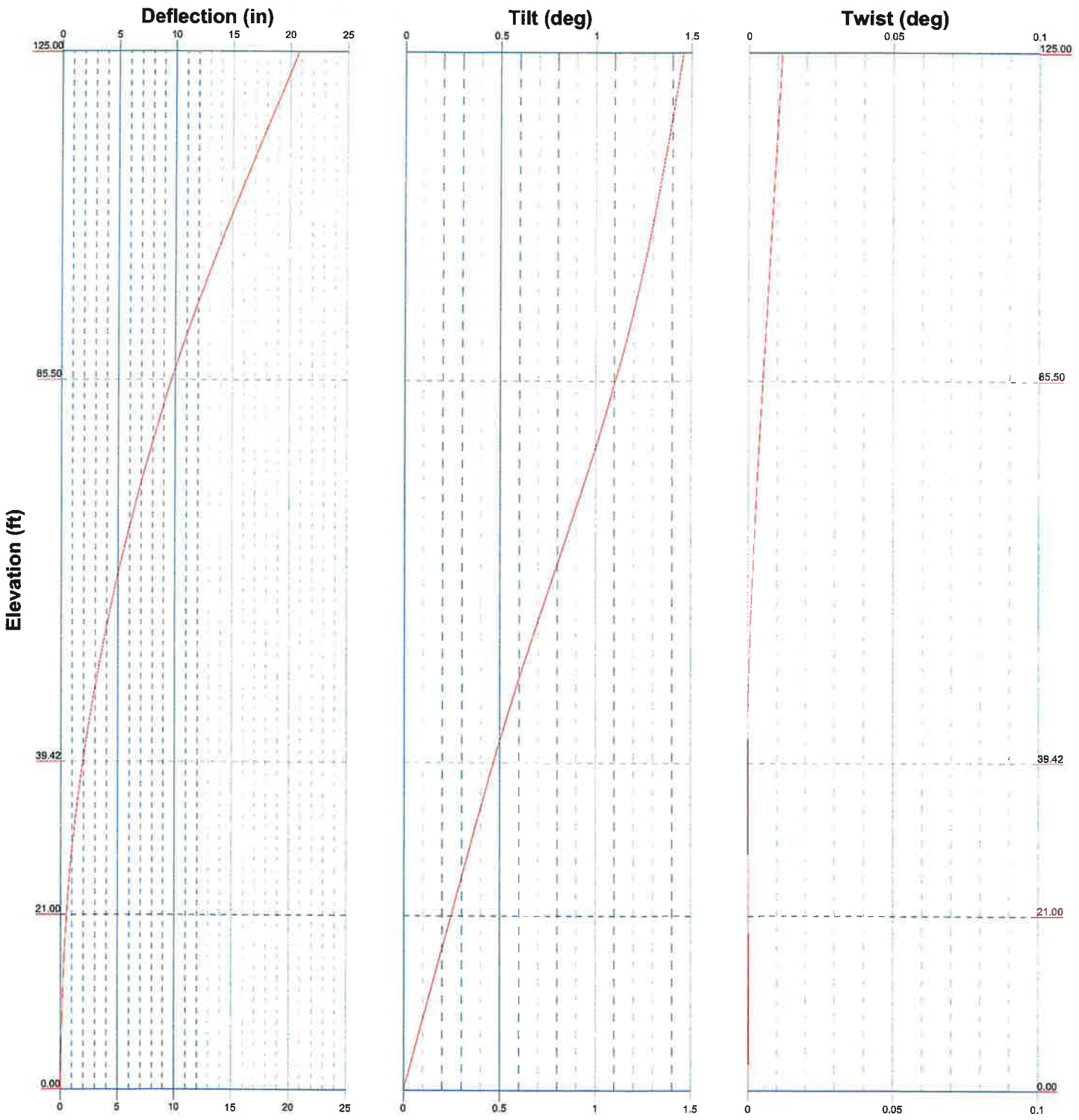
Job: 23CLVZ-0026			
Project: Quinebaug CT			
Client: Verizon Wireless	Drawn by: jboegel	App'd:	
Code: TIA-222-H	Date: 12/27/23	Scale: NTS	
Path:		Dwg No. E-4	

TIA-222-H - Service - 60 mph

Maximum Values



Centerline Engineering Services, PA
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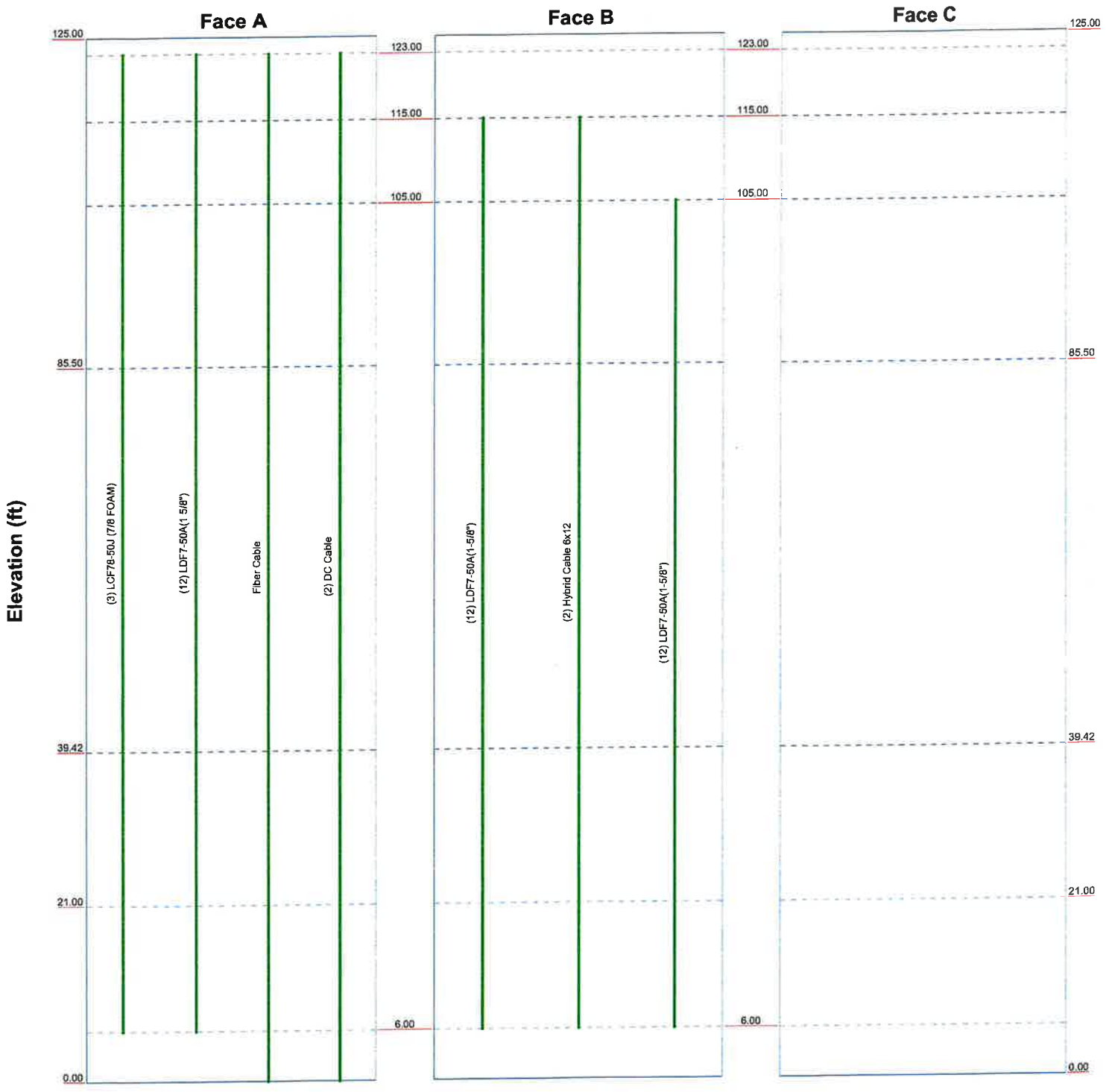
West Bridgewater, MA 02379
Phone: (781) 719-4725
FAX:

Job: **23CLVZ-0026**			
Project: ***Quinebaug CT***			
Client: Verizon Wireless	Drawn by: jboegel		App'd:
Code: TIA-222-H	Date: 12/27/23		Scale: NTS
Path:			Dwg No. E-5

Feed Line Distribution Chart
0' - 125'

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



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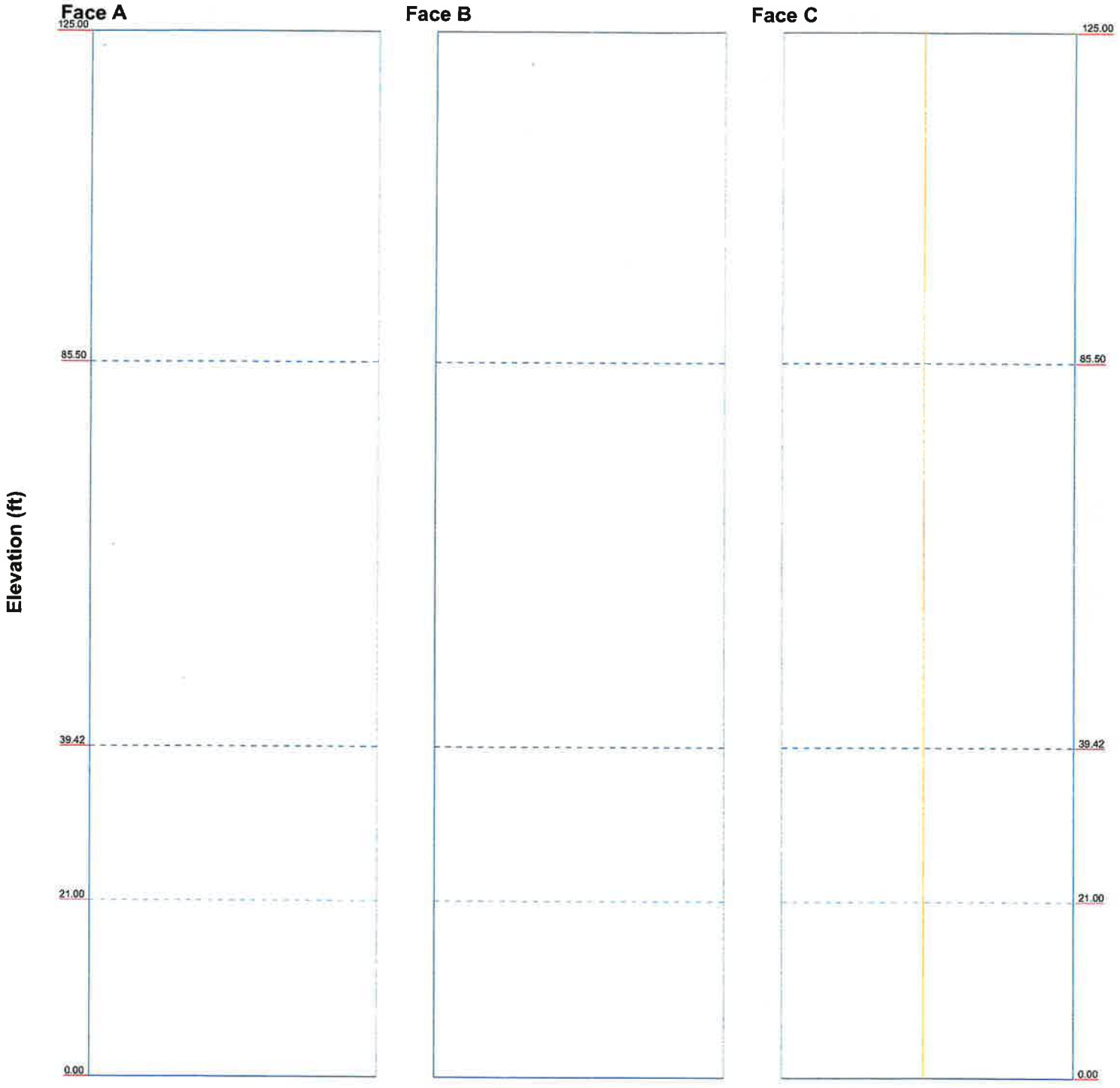
Job: 23CLVZ-0026			
Project: Quinebaug CT			
Client: Verizon Wireless	Drawn by: jboegel	App'd:	
Code: TIA-222-H	Date: 12/27/23	Scale: NTS	
Path:		Dwg No. E-7	

Stress Distribution Chart
0' - 125'

> 100% | 90%-100% | 75%-90% | 50%-75% | < 50% Overstress



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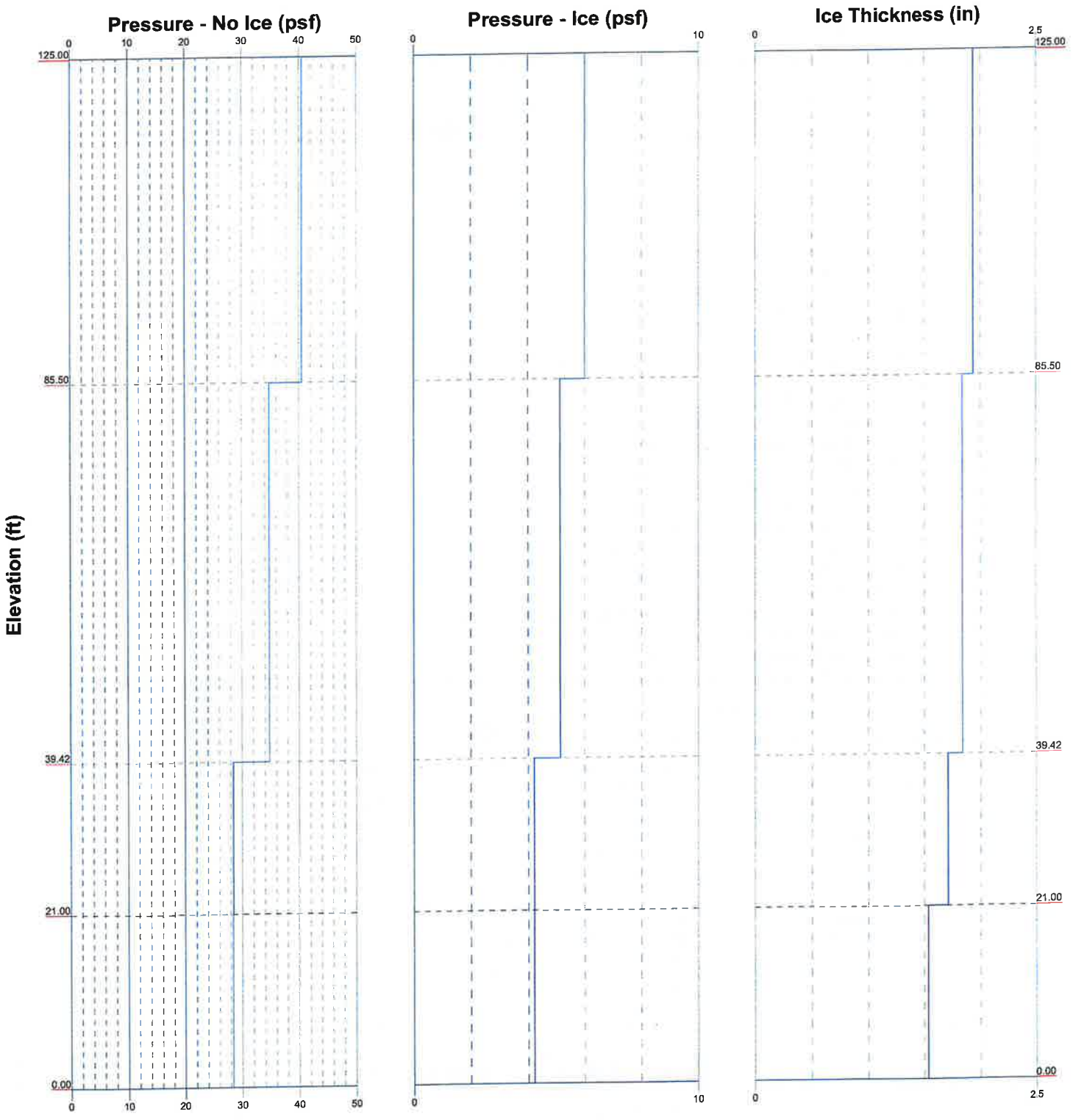
Job: *23CLVZ-0026*			
Project: *Quinebaug CT*			
Client: Verizon Wireless	Drawn by: jboegel	App'd:	
Code: TIA-222-H	Date: 12/27/23	Scale: NTS	
Path:		Dwg No. E-8	

Wind Pressures and Ice Thickness

TIA-222-H - 130 mph/50 mph 1.5000 in Ice Exposure B



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Job: 23CLVZ-0026			
Project: Quinebaug CT			
Client: Verizon Wireless	Drawn by: jboegel	App'd:	
Code: TIA-222-H	Date: 12/27/23	Scale: NTS	
Path:		Dwg No. E-9	

tnxTower	Job	Page
	23CLVZ-0026	1 of 23
Centerline Engineering Services, PA 750 W Center St, Suite 301 West Bridgewater, MA 02379 (781) 713-7425	Project Quinebaug CT	Date 13:24:19 12/27/23
	Client Verizon Wireless	Designed by jboegel

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 Windham County, Connecticut.
Tower base elevation above sea level: 367.60 ft.
Basic wind speed of 130 mph.
Risk Category III.
Exposure Category B.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.00 ft.
Nominal ice thickness of 1.5000 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: $K_{es}(F_w) = 1.0$, $K_{es}(t_i) = 1.0$.
Maximum demand-capacity ratio is: 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	125.00-85.50	39.50	4.50	16	21.0370	29.7250	0.1875	0.7500	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
L2	85.50-39.42	50.58	5.58	16	28.3602	39.6246	0.2813	1.1252	A572-65 (65 ksi)
L3	39.42-21.00	24.00	0.00	16	37.8193	42.9745	0.3125	1.2500	A572-65 (65 ksi)
L4	21.00-0.00	21.00		16	42.9745	47.5932	0.3393	1.3572	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in²	I in⁴	r in	C in	I/C in³	J in⁴	It/Q in²	w in	w/t
L1	21.4124	12.4706	684.8465	7.4224	10.7289	63.8321	1380.0624	6.1661	3.8132	20.337
	30.2706	17.6671	1947.2760	10.5153	15.1597	128.4504	3924.0362	8.7355	5.5422	29.558
L2	29.8825	25.1965	2509.6684	9.9961	14.4637	173.5148	5057.3363	12.4584	5.0839	18.073
	40.3458	35.3046	6903.7830	14.0062	20.2085	341.6269	13912.0977	17.4563	7.3255	26.042
L3	39.7211	37.3896	6644.8547	13.3524	19.2878	344.5099	13390.3206	18.4872	6.9042	22.093
	43.7552	42.5287	9778.6455	15.1877	21.9170	446.1673	19705.3516	21.0282	7.9301	25.376
L4	43.7499	46.1469	10597.2656	15.1781	21.9170	483.5182	21354.9867	22.8172	7.8767	23.215
	48.4591	51.1461	14427.8587	16.8224	24.2725	594.4109	29074.1727	25.2890	8.7958	25.923

Tower Elevation ft	Gusset Area (per face) ft²	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				1	1	1			
125.00-85.50									
L2 85.50-39.42				1	1	1			
L3 39.42-21.00				1	1	1			
L4 21.00-0.00				1	1	1			

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 ft²/ft	Weight plf
LCF78-50J (7/8 FOAM)	A	No	No	Inside Pole	123.00 - 6.00	3	No Ice	0.00	0.53
							1/2" Ice	0.00	0.53
							1" Ice	0.00	0.53
							2" Ice	0.00	0.53
LDF7-50A(1 5/8")	A	No	No	Inside Pole	123.00 - 6.00	12	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
							2" Ice	0.00	0.82
Fiber Cable	A	No	No	Inside Pole	123.00 - 0.00	1	No Ice	0.00	0.20
							1/2" Ice	0.00	0.20
							1" Ice	0.00	0.20
							2" Ice	0.00	0.20
DC Cable	A	No	No	Inside Pole	123.00 - 0.00	2	No Ice	0.00	0.30
							1/2" Ice	0.00	0.30
							1" Ice	0.00	0.30

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
LDF7-50A(1-5/8")	B	No	No	Inside Pole	115.00 - 6.00	12	2" Ice	0.00	0.30
							No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
							2" Ice	0.00	0.82
Hybrid Cable 6x12	B	No	No	Inside Pole	115.00 - 6.00	2	No Ice	0.00	1.70
							1/2" Ice	0.00	1.70
							1" Ice	0.00	1.70
							2" Ice	0.00	1.70
LDF7-50A(1-5/8")	B	No	No	Inside Pole	105.00 - 6.00	12	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
							2" Ice	0.00	0.82

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	125.00-85.50	A	0.000	0.000	0.000	0.000	0.459
		B	0.000	0.000	0.000	0.000	0.582
		C	0.000	0.000	0.000	0.000	0.000
L2	85.50-39.42	A	0.000	0.000	0.000	0.000	0.564
		B	0.000	0.000	0.000	0.000	1.064
		C	0.000	0.000	0.000	0.000	0.000
L3	39.42-21.00	A	0.000	0.000	0.000	0.000	0.225
		B	0.000	0.000	0.000	0.000	0.425
		C	0.000	0.000	0.000	0.000	0.000
L4	21.00-0.00	A	0.000	0.000	0.000	0.000	0.188
		B	0.000	0.000	0.000	0.000	0.346
		C	0.000	0.000	0.000	0.000	0.000

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	125.00-85.50	A	1.936	0.000	0.000	0.000	0.000	0.459
		B		0.000	0.000	0.000	0.000	0.582
		C		0.000	0.000	0.000	0.000	0.000
L2	85.50-39.42	A	1.837	0.000	0.000	0.000	0.000	0.564
		B		0.000	0.000	0.000	0.000	1.064
		C		0.000	0.000	0.000	0.000	0.000
L3	39.42-21.00	A	1.709	0.000	0.000	0.000	0.000	0.225
		B		0.000	0.000	0.000	0.000	0.425
		C		0.000	0.000	0.000	0.000	0.000
L4	21.00-0.00	A	1.536	0.000	0.000	0.000	0.000	0.188
		B		0.000	0.000	0.000	0.000	0.346
		C		0.000	0.000	0.000	0.000	0.000

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L1	125.00-85.50	0.0000	0.0000	0.0000	0.0000
L2	85.50-39.42	0.0000	0.0000	0.0000	0.0000
L3	39.42-21.00	0.0000	0.0000	0.0000	0.0000
L4	21.00-0.00	0.0000	0.0000	0.0000	0.0000

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

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
*** 123 ft ***											
20' 4-bay Dipole	A	From Face	2.00	0.00	10.00	0.0000	123.00	No Ice	4.00	4.00	0.060
								1/2" Ice	6.00	6.00	0.100
								1" Ice	8.00	8.00	0.140
								2" Ice	12.00	12.00	0.220
10' x 1" Omni	B	From Face	2.00	0.00	5.00	0.0000	123.00	No Ice	1.00	1.00	0.040
								1/2" Ice	2.02	2.02	0.049
								1" Ice	3.05	3.05	0.065
								2" Ice	5.15	5.15	0.116
10-ft 8-Bay Dipole	C	From Face	2.00	0.00	5.00	0.0000	123.00	No Ice	2.50	2.50	0.070
								1/2" Ice	3.53	3.53	0.090
								1" Ice	4.56	4.56	0.110
								2" Ice	6.62	6.62	0.150
***											
91" x 21" x 7" Panel	A	From Face	2.00	0.00	0.00	0.0000	123.00	No Ice	17.01	7.08	0.070
								1/2" Ice	17.61	7.64	0.161
								1" Ice	18.22	8.21	0.260
								2" Ice	19.47	9.37	0.483
91" x 21" x 7" Panel	B	From Face	2.00	0.00	0.00	0.0000	123.00	No Ice	17.01	7.08	0.070
								1/2" Ice	17.61	7.64	0.161
								1" Ice	18.22	8.21	0.260
								2" Ice	19.47	9.37	0.483
91" x 21" x 7" Panel	C	From Face	2.00	0.00	0.00	0.0000	123.00	No Ice	17.01	7.08	0.070
								1/2" Ice	17.61	7.64	0.161
								1" Ice	18.22	8.21	0.260
								2" Ice	19.47	9.37	0.483
91" x 21" x 7" Panel	A	From Face	2.00	-2.00	0.00	0.0000	123.00	No Ice	17.01	7.08	0.070
								1/2" Ice	17.61	7.64	0.161
								1" Ice	18.22	8.21	0.260
								2" Ice	19.47	9.37	0.483
91" x 21" x 7" Panel	B	From Face	2.00	-2.00	0.00	0.0000	123.00	No Ice	17.01	7.08	0.070
								1/2" Ice	17.61	7.64	0.161
								1" Ice	18.22	8.21	0.260
								2" Ice	19.47	9.37	0.483
91" x 21" x 7" Panel	C	From Face	2.00			0.0000	123.00	No Ice	17.01	7.08	0.070

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			-2.00				1/2" Ice	17.61	7.64	0.161
			0.00				1" Ice	18.22	8.21	0.260
							2" Ice	19.47	9.37	0.483
54.5" x 10.3" x 5.9" Panel	A	From Face	2.00	0.0000		123.00	No Ice	5.16	3.29	0.050
			2.00				1/2" Ice	5.51	3.64	0.083
			0.00				1" Ice	5.87	3.99	0.121
							2" Ice	6.61	4.71	0.211
54.5" x 10.3" x 5.9" Panel	B	From Face	2.00	0.0000		123.00	No Ice	5.16	3.29	0.050
			2.00				1/2" Ice	5.51	3.64	0.083
			0.00				1" Ice	5.87	3.99	0.121
							2" Ice	6.61	4.71	0.211
54.5" x 10.3" x 5.9" Panel	C	From Face	2.00	0.0000		123.00	No Ice	5.16	3.29	0.050
			2.00				1/2" Ice	5.51	3.64	0.083
			0.00				1" Ice	5.87	3.99	0.121
							2" Ice	6.61	4.71	0.211
(2) RRU Unit	A	From Face	2.00	0.0000		123.00	No Ice	1.71	1.29	0.050
			0.00				1/2" Ice	1.87	1.43	0.070
			0.00				1" Ice	2.03	1.57	0.090
							2" Ice	2.35	1.85	0.130
(2) RRU Unit	B	From Face	2.00	0.0000		123.00	No Ice	1.71	1.29	0.050
			0.00				1/2" Ice	1.87	1.43	0.070
			0.00				1" Ice	2.03	1.57	0.090
							2" Ice	2.35	1.85	0.130
(2) RRU Unit	C	From Face	2.00	0.0000		123.00	No Ice	1.71	1.29	0.050
			0.00				1/2" Ice	1.87	1.43	0.070
			0.00				1" Ice	2.03	1.57	0.090
							2" Ice	2.35	1.85	0.130
RRU Unit	A	From Face	2.00	0.0000		123.00	No Ice	1.71	1.29	0.050
			-2.00				1/2" Ice	1.87	1.43	0.070
			0.00				1" Ice	2.03	1.57	0.090
							2" Ice	2.35	1.85	0.130
RRU Unit	B	From Face	2.00	0.0000		123.00	No Ice	1.71	1.29	0.050
			-2.00				1/2" Ice	1.87	1.43	0.070
			0.00				1" Ice	2.03	1.57	0.090
							2" Ice	2.35	1.85	0.130
RRU Unit	C	From Face	2.00	0.0000		123.00	No Ice	1.71	1.29	0.050
			-2.00				1/2" Ice	1.87	1.43	0.070
			0.00				1" Ice	2.03	1.57	0.090
							2" Ice	2.35	1.85	0.130
(2) TMA	A	From Face	2.00	0.0000		123.00	No Ice	1.10	0.35	0.010
			0.00				1/2" Ice	1.24	0.44	0.020
			0.00				1" Ice	1.38	0.53	0.030
							2" Ice	1.66	0.71	0.050
(2) TMA	B	From Face	2.00	0.0000		123.00	No Ice	1.10	0.35	0.010
			0.00				1/2" Ice	1.24	0.44	0.020
			0.00				1" Ice	1.38	0.53	0.030
							2" Ice	1.66	0.71	0.050
(2) TMA	C	From Face	2.00	0.0000		123.00	No Ice	1.10	0.35	0.010
			0.00				1/2" Ice	1.24	0.44	0.020
			0.00				1" Ice	1.38	0.53	0.030
							2" Ice	1.66	0.71	0.050
Squid/ Junction Box	C	From Leg	0.00	0.0000		123.00	No Ice	3.36	2.19	0.030
			0.00				1/2" Ice	3.60	2.39	0.060
			0.00				1" Ice	3.84	2.59	0.090
							2" Ice	4.32	2.99	0.150
12 ft Platform w/ Handrail	C	None		0.0000		123.00	No Ice	30.10	30.10	1.589
							1/2" Ice	40.80	40.80	2.029

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
						1" Ice	51.50	51.50	2.470
						2" Ice	72.90	72.90	3.351
Kicker Kit	B	None		0.0000	123.00	No Ice	11.84	11.84	0.275
						1/2" Ice	16.96	16.96	0.296
						1" Ice	22.08	22.08	0.317
						2" Ice	32.32	32.32	0.360
***** 115 ft *****									
MT6407-77A	A	From Face	2.00 2.00 0.00	0.0000	115.00	No Ice	4.70	1.84	0.087
						1/2" Ice	4.99	2.07	0.116
						1" Ice	5.28	2.30	0.150
						2" Ice	5.90	2.78	0.228
MT6407-77A	B	From Face	2.00 2.00 0.00	0.0000	115.00	No Ice	4.70	1.84	0.087
						1/2" Ice	4.99	2.07	0.116
						1" Ice	5.28	2.30	0.150
						2" Ice	5.90	2.78	0.228
MT6407-77A	C	From Face	2.00 2.00 0.00	0.0000	115.00	No Ice	4.70	1.84	0.087
						1/2" Ice	4.99	2.07	0.116
						1" Ice	5.28	2.30	0.150
						2" Ice	5.90	2.78	0.228
(2) JAHH-65B-R3B	A	From Face	2.00 0.00 0.00	0.0000	115.00	No Ice	9.11	5.98	0.061
						1/2" Ice	9.58	6.44	0.119
						1" Ice	10.05	6.91	0.183
						2" Ice	11.02	7.86	0.331
(2) JAHH-65B-R3B	B	From Face	2.00 0.00 0.00	0.0000	115.00	No Ice	9.11	5.98	0.061
						1/2" Ice	9.58	6.44	0.119
						1" Ice	10.05	6.91	0.183
						2" Ice	11.02	7.86	0.331
(2) JAHH-65B-R3B	C	From Face	2.00 0.00 0.00	0.0000	115.00	No Ice	9.11	5.98	0.061
						1/2" Ice	9.58	6.44	0.119
						1" Ice	10.05	6.91	0.183
						2" Ice	11.02	7.86	0.331
LPA-80080/6CF	A	From Face	2.00 -2.00 0.00	0.0000	115.00	No Ice	4.33	8.62	0.021
						1/2" Ice	4.76	9.08	0.069
						1" Ice	5.21	9.54	0.123
						2" Ice	6.12	10.49	0.251
LPA-80080/6CF	B	From Face	2.00 -2.00 0.00	0.0000	115.00	No Ice	4.33	8.62	0.021
						1/2" Ice	4.76	9.08	0.069
						1" Ice	5.21	9.54	0.123
						2" Ice	6.12	10.49	0.251
LPA-80080/6CF	C	From Face	2.00 -2.00 0.00	0.0000	115.00	No Ice	4.33	8.62	0.021
						1/2" Ice	4.76	9.08	0.069
						1" Ice	5.21	9.54	0.123
						2" Ice	6.12	10.49	0.251
LPA-80080/6CF	A	From Face	2.00 3.00 0.00	0.0000	115.00	No Ice	4.33	8.62	0.021
						1/2" Ice	4.76	9.08	0.069
						1" Ice	5.21	9.54	0.123
						2" Ice	6.12	10.49	0.251
LPA-80080/6CF	B	From Face	2.00 3.00 0.00	0.0000	115.00	No Ice	4.33	8.62	0.021
						1/2" Ice	4.76	9.08	0.069
						1" Ice	5.21	9.54	0.123
						2" Ice	6.12	10.49	0.251
LPA-80080/6CF	C	From Face	2.00 3.00 0.00	0.0000	115.00	No Ice	4.33	8.62	0.021
						1/2" Ice	4.76	9.08	0.069
						1" Ice	5.21	9.54	0.123
						2" Ice	6.12	10.49	0.251
B2/B66A RRH-BR049 (RFV01U-D1A)	A	From Face	2.00 0.00	0.0000	115.00	No Ice	1.88	1.25	0.084
						1/2" Ice	2.05	1.39	0.103

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00				1" Ice	2.22	1.54	0.124
							2" Ice	2.60	1.86	0.175
B2/B66A RRH-BR049 (RFV01U-D1A)	B	From Face	2.00		0.0000	115.00	No Ice	1.88	1.25	0.084
			0.00				1/2" Ice	2.05	1.39	0.103
			0.00				1" Ice	2.22	1.54	0.124
							2" Ice	2.60	1.86	0.175
B2/B66A RRH-BR049 (RFV01U-D1A)	C	From Face	2.00		0.0000	115.00	No Ice	1.88	1.25	0.084
			0.00				1/2" Ice	2.05	1.39	0.103
			0.00				1" Ice	2.22	1.54	0.124
							2" Ice	2.60	1.86	0.175
B5/B13 RRH-BR04C (RFV01U-D2A)	A	From Face	2.00		0.0000	115.00	No Ice	1.88	1.01	0.070
			1.00				1/2" Ice	2.05	1.14	0.087
			0.00				1" Ice	2.22	1.28	0.106
							2" Ice	2.60	1.59	0.153
B5/B13 RRH-BR04C (RFV01U-D2A)	B	From Face	2.00		0.0000	115.00	No Ice	1.88	1.01	0.070
			1.00				1/2" Ice	2.05	1.14	0.087
			0.00				1" Ice	2.22	1.28	0.106
							2" Ice	2.60	1.59	0.153
B5/B13 RRH-BR04C (RFV01U-D2A)	C	From Face	2.00		0.0000	115.00	No Ice	1.88	1.01	0.070
			1.00				1/2" Ice	2.05	1.14	0.087
			0.00				1" Ice	2.22	1.28	0.106
							2" Ice	2.60	1.59	0.153
CBC78T-DS-43-2X	A	From Face	2.00		0.0000	115.00	No Ice	0.37	0.51	0.021
			0.00				1/2" Ice	0.45	0.60	0.027
			0.00				1" Ice	0.53	0.70	0.035
							2" Ice	0.72	0.93	0.057
CBC78T-DS-43-2X	B	From Face	2.00		0.0000	115.00	No Ice	0.37	0.51	0.021
			0.00				1/2" Ice	0.45	0.60	0.027
			0.00				1" Ice	0.53	0.70	0.035
							2" Ice	0.72	0.93	0.057
CBC78T-DS-43-2X	C	From Face	2.00		0.0000	115.00	No Ice	0.37	0.51	0.021
			0.00				1/2" Ice	0.45	0.60	0.027
			0.00				1" Ice	0.53	0.70	0.035
							2" Ice	0.72	0.93	0.057
6 OVP Junction Box	A	From Face	1.00		0.0000	115.00	No Ice	3.36	2.19	0.032
			0.00				1/2" Ice	3.60	2.60	0.061
			0.00				1" Ice	3.83	3.01	0.089
							2" Ice	4.30	3.83	0.146
6 OVP Junction Box	C	From Face	1.00		0.0000	115.00	No Ice	3.36	2.19	0.032
			0.00				1/2" Ice	3.60	2.60	0.061
			0.00				1" Ice	3.83	3.01	0.089
							2" Ice	4.30	3.83	0.146
12 ft Platform w/ Handrail	C	None			0.0000	115.00	No Ice	30.10	30.10	1.589
							1/2" Ice	40.80	40.80	2.029
							1" Ice	51.50	51.50	2.470
							2" Ice	72.90	72.90	3.351
Kicker Kit	C	None			0.0000	115.00	No Ice	11.84	11.84	0.275
							1/2" Ice	16.96	16.96	0.296
							1" Ice	22.08	22.08	0.317
							2" Ice	32.32	32.32	0.360
(2) KA-6030	B	From Face	1.00		0.0000	115.00	No Ice	0.77	0.28	0.030
			0.00				1/2" Ice	0.88	0.35	0.033
			0.00				1" Ice	1.00	0.43	0.041
							2" Ice	1.26	0.61	0.063
Site Pro 1 Swivel Mount	B	From Face	0.00		0.0000	115.00	No Ice	1.12	1.12	0.040
			0.00				1/2" Ice	1.69	1.69	0.085
			0.00				1" Ice	2.25	2.25	0.130

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice	3.37	3.37	0.220
*** 105 ft ***									
95.9" x 24" x 8.7" Panel	A	From Face	3.00 0.00 0.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	20.24 20.89 21.54 22.87	8.89 9.49 10.09 11.33	0.160 0.273 0.394 0.662
95.9" x 24" x 8.7" Panel	B	From Face	3.00 0.00 0.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	20.24 20.89 21.54 22.87	8.89 9.49 10.09 11.33	0.160 0.273 0.394 0.662
95.9" x 24" x 8.7" Panel	B	From Face	3.00 0.00 0.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	20.24 20.89 21.54 22.87	8.89 9.49 10.09 11.33	0.160 0.273 0.394 0.662
95.9" x 24" x 8.7" Panel	C	From Face	3.00 0.00 0.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	20.24 20.89 21.54 22.87	8.89 9.49 10.09 11.33	0.160 0.273 0.394 0.662
54.5" x 10.3" x 5.9" Panel	A	From Face	3.00 2.00 0.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.16 5.51 5.87 6.61	3.29 3.64 3.99 4.71	0.050 0.083 0.121 0.211
54.5" x 10.3" x 5.9" Panel	B	From Face	3.00 2.00 0.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.16 5.51 5.87 6.61	3.29 3.64 3.99 4.71	0.050 0.083 0.121 0.211
54.5" x 10.3" x 5.9" Panel	C	From Face	3.00 2.00 0.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.16 5.51 5.87 6.61	3.29 3.64 3.99 4.71	0.050 0.083 0.121 0.211
54.5" x 10.3" x 5.9" Panel	C	From Face	3.00 2.00 0.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.16 5.51 5.87 6.61	3.29 3.64 3.99 4.71	0.050 0.083 0.121 0.211
5 ft Panel w/ Mtg Pipe	A	From Face	3.00 -2.00 0.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	7.70 8.19 8.68 9.66	6.15 7.04 7.93 9.71	0.070 0.140 0.210 0.350
5 ft Panel w/ Mtg Pipe	A	From Face	3.00 -2.00 0.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	7.70 8.19 8.68 9.66	6.15 7.04 7.93 9.71	0.070 0.140 0.210 0.350
5 ft Panel w/ Mtg Pipe	B	From Face	3.00 -2.00 0.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	7.70 8.19 8.68 9.66	6.15 7.04 7.93 9.71	0.070 0.140 0.210 0.350
5 ft Panel w/ Mtg Pipe	C	From Face	3.00 -2.00 0.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	7.70 8.19 8.68 9.66	6.15 7.04 7.93 9.71	0.070 0.140 0.210 0.350
RRU Unit	A	From Face	2.00 0.00 0.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.71 1.87 2.03 2.35	1.29 1.43 1.57 1.85	0.050 0.070 0.090 0.130
RRU Unit	B	From Face	2.00 0.00 0.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice	1.71 1.87 2.03	1.29 1.43 1.57	0.050 0.070 0.090

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
							2" Ice	2.35	1.85	0.130
RRU Unit	B	From Face	2.00	0.00	0.0000	105.00	No Ice	1.71	1.29	0.050
							1/2" Ice	1.87	1.43	0.070
							1" Ice	2.03	1.57	0.090
							2" Ice	2.35	1.85	0.130
RRU Unit	C	From Face	2.00	0.00	0.0000	105.00	No Ice	1.71	1.29	0.050
							1/2" Ice	1.87	1.43	0.070
							1" Ice	2.03	1.57	0.090
							2" Ice	2.35	1.85	0.130
RRU Unit	A	From Face	2.00	1.00	0.0000	105.00	No Ice	1.71	1.29	0.050
							1/2" Ice	1.87	1.43	0.070
							1" Ice	2.03	1.57	0.090
							2" Ice	2.35	1.85	0.130
RRU Unit	A	From Face	2.00	1.00	0.0000	105.00	No Ice	1.71	1.29	0.050
							1/2" Ice	1.87	1.43	0.070
							1" Ice	2.03	1.57	0.090
							2" Ice	2.35	1.85	0.130
RRU Unit	B	From Face	2.00	1.00	0.0000	105.00	No Ice	1.71	1.29	0.050
							1/2" Ice	1.87	1.43	0.070
							1" Ice	2.03	1.57	0.090
							2" Ice	2.35	1.85	0.130
RRU Unit	C	From Face	2.00	1.00	0.0000	105.00	No Ice	1.71	1.29	0.050
							1/2" Ice	1.87	1.43	0.070
							1" Ice	2.03	1.57	0.090
							2" Ice	2.35	1.85	0.130
TMA	A	From Face	3.00	0.00	0.0000	105.00	No Ice	1.10	0.35	0.010
							1/2" Ice	1.24	0.44	0.020
							1" Ice	1.38	0.53	0.030
							2" Ice	1.66	0.71	0.050
TMA	B	From Face	3.00	0.00	0.0000	105.00	No Ice	1.10	0.35	0.010
							1/2" Ice	1.24	0.44	0.020
							1" Ice	1.38	0.53	0.030
							2" Ice	1.66	0.71	0.050
TMA	C	From Face	3.00	0.00	0.0000	105.00	No Ice	1.10	0.35	0.010
							1/2" Ice	1.24	0.44	0.020
							1" Ice	1.38	0.53	0.030
							2" Ice	1.66	0.71	0.050
TMA	A	From Face	3.00	0.00	0.0000	105.00	No Ice	1.10	0.35	0.010
							1/2" Ice	1.24	0.44	0.020
							1" Ice	1.38	0.53	0.030
							2" Ice	1.66	0.71	0.050
12 ft Quad Platform w/ Walkways	B	None			0.0000	105.00	No Ice	59.15	59.15	2.750
							1/2" Ice	71.12	71.12	3.424
							1" Ice	83.09	83.09	4.099
							2" Ice	107.03	107.03	5.448
Handrail	B	None			0.0000	105.00	No Ice	4.80	4.80	0.245
							1/2" Ice	6.70	6.70	0.294
							1" Ice	8.60	8.60	0.343
							2" Ice	12.40	12.40	0.441

Tower Pressures - No Ice

$G_H = 1.100$

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1 125.00-85.50	104.39	1	41	85.062	A	0.000	85.062	85.062	100.00	0.000	0.000
					B	0.000	85.062		100.00	0.000	0.000
					C	0.000	85.062		100.00	0.000	0.000
L2 85.50-39.42	61.93	0.862	35	134.838	A	0.000	134.838	134.838	100.00	0.000	0.000
					B	0.000	134.838		100.00	0.000	0.000
					C	0.000	134.838		100.00	0.000	0.000
L3 39.42-21.00	30.06	0.701	28	64.068	A	0.000	64.068	64.068	100.00	0.000	0.000
					B	0.000	64.068		100.00	0.000	0.000
					C	0.000	64.068		100.00	0.000	0.000
L4 21.00-0.00	10.32	0.7	28	80.683	A	0.000	80.683	80.683	100.00	0.000	0.000
					B	0.000	80.683		100.00	0.000	0.000
					C	0.000	80.683		100.00	0.000	0.000

Tower Pressure - With Ice

$G_H = 1.100$

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1 125.00-85.50	104.39	1	6	1.9355	97.804	A	0.000	97.804	97.804	100.00	0.000	0.000
						B	0.000	97.804		100.00	0.000	0.000
						C	0.000	97.804		100.00	0.000	0.000
L2 85.50-39.42	61.93	0.862	5	1.8371	149.703	A	0.000	149.703	149.703	100.00	0.000	0.000
						B	0.000	149.703		100.00	0.000	0.000
						C	0.000	149.703		100.00	0.000	0.000
L3 39.42-21.00	30.06	0.701	4	1.7090	69.708	A	0.000	69.708	69.708	100.00	0.000	0.000
						B	0.000	69.708		100.00	0.000	0.000
						C	0.000	69.708		100.00	0.000	0.000
L4 21.00-0.00	10.32	0.7	4	1.5357	86.058	A	0.000	86.058	86.058	100.00	0.000	0.000
						B	0.000	86.058		100.00	0.000	0.000
						C	0.000	86.058		100.00	0.000	0.000

Tower Pressure - Service

$G_H = 1.100$

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1 125.00-85.50	104.39	1	8	85.062	A	0.000	85.062	85.062	100.00	0.000	0.000
					B	0.000	85.062		100.00	0.000	0.000
					C	0.000	85.062		100.00	0.000	0.000
L2 85.50-39.42	61.93	0.862	7	134.838	A	0.000	134.838	134.838	100.00	0.000	0.000
					B	0.000	134.838		100.00	0.000	0.000
					C	0.000	134.838		100.00	0.000	0.000

Section Elevation ft	z ft	K_z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L3 39.42-21.00	30.06	0.701	5	64.068	A	0.000	64.068	64.068	100.00	0.000	0.000
					B	0.000	64.068		100.00	0.000	0.000
					C	0.000	64.068		100.00	0.000	0.000
L4 21.00-0.00	10.32	0.7	5	80.683	A	0.000	80.683	80.683	100.00	0.000	0.000
					B	0.000	80.683		100.00	0.000	0.000
					C	0.000	80.683		100.00	0.000	0.000

Tower Forces - No Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
L1 125.00-85.50	1.041	2.025	A	1	0.75	41	1	1	85.062	2.843	71.97	C
			B	1	0.75		1	1	85.062			
			C	1	0.75		1	1	85.062			
L2 85.50-39.42	1.627	5.207	A	1	0.75	35	1	1	134.838	3.863	83.84	C
			B	1	0.75		1	1	134.838			
			C	1	0.75		1	1	134.838			
L3 39.42-21.00	0.650	3.263	A	1	0.75	28	1	1	64.068	1.503	81.58	C
			B	1	0.75		1	1	64.068			
			C	1	0.75		1	1	64.068			
L4 21.00-0.00	0.534	3.476	A	1	0.75	28	1	1	80.683	1.890	89.99	C
			B	1	0.75		1	1	80.683			
			C	1	0.75		1	1	80.683			
Sum Weight:	3.853	13.971						OTM	600.67 kip-ft	10.099		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
L1 125.00-85.50	1.041	2.025	A	1	0.75	41	1	1	85.062	2.843	71.97	C
			B	1	0.75		1	1	85.062			
			C	1	0.75		1	1	85.062			
L2 85.50-39.42	1.627	5.207	A	1	0.75	35	1	1	134.838	3.863	83.84	C
			B	1	0.75		1	1	134.838			
			C	1	0.75		1	1	134.838			
L3 39.42-21.00	0.650	3.263	A	1	0.75	28	1	1	64.068	1.503	81.58	C
			B	1	0.75		1	1	64.068			
			C	1	0.75		1	1	64.068			
L4 21.00-0.00	0.534	3.476	A	1	0.75	28	1	1	80.683	1.890	89.99	C
			B	1	0.75		1	1	80.683			
			C	1	0.75		1	1	80.683			
Sum Weight:	3.853	13.971						OTM	600.67 kip-ft	10.099		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
L1	1.041	2.025	A	1	0.75	41	1	1	85.062	2.843	71.97	C
125.00-85.50			B	1	0.75		1	1	85.062			
			C	1	0.75		1	1	85.062			
L2	1.627	5.207	A	1	0.75	35	1	1	134.838	3.863	83.84	C
85.50-39.42			B	1	0.75		1	1	134.838			
			C	1	0.75		1	1	134.838			
L3	0.650	3.263	A	1	0.75	28	1	1	64.068	1.503	81.58	C
39.42-21.00			B	1	0.75		1	1	64.068			
			C	1	0.75		1	1	64.068			
L4 21.00-0.00	0.534	3.476	A	1	0.75	28	1	1	80.683	1.890	89.99	C
			B	1	0.75		1	1	80.683			
			C	1	0.75		1	1	80.683			
Sum Weight:	3.853	13.971						OTM	600.67 kip-ft	10.099		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
L1	1.041	4.616	A	1	1.2	6	1	1	97.804	0.774	19.59	C
125.00-85.50			B	1	1.2		1	1	97.804			
			C	1	1.2		1	1	97.804			
L2	1.627	9.022	A	1	1.2	5	1	1	148.947	1.010	21.92	C
85.50-39.42			B	1	1.2		1	1	148.947			
			C	1	1.2		1	1	148.947			
L3	0.650	4.931	A	1	1.2	4	1	1	69.315	0.385	20.89	C
39.42-21.00			B	1	1.2		1	1	69.315			
			C	1	1.2		1	1	69.315			
L4 21.00-0.00	0.534	5.349	A	1	1.2	4	1	1	86.058	0.477	22.72	C
			B	1	1.2		1	1	86.058			
			C	1	1.2		1	1	86.058			
Sum Weight:	3.853	23.919						OTM	159.80 kip-ft	2.646		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
L1	1.041	4.616	A	1	1.2	6	1	1	97.804	0.774	19.59	C
125.00-85.50			B	1	1.2		1	1	97.804			
			C	1	1.2		1	1	97.804			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
L2	1.627	9.022	A	1	1.2	5	1	1	148.947	1.010	21.92	C
85.50-39.42			B	1	1.2		1	1	148.947			
			C	1	1.2		1	1	148.947			
L3	0.650	4.931	A	1	1.2	4	1	1	69.315	0.385	20.89	C
39.42-21.00			B	1	1.2		1	1	69.315			
			C	1	1.2		1	1	69.315			
L4 21.00-0.00	0.534	5.349	A	1	1.2	4	1	1	86.058	0.477	22.72	C
			B	1	1.2		1	1	86.058			
			C	1	1.2		1	1	86.058			
Sum Weight:	3.853	23.919						OTM	159.80 kip-ft	2.646		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
L1	1.041	4.616	A	1	1.2	6	1	1	97.804	0.774	19.59	C
125.00-85.50			B	1	1.2		1	1	97.804			
			C	1	1.2		1	1	97.804			
L2	1.627	9.022	A	1	1.2	5	1	1	148.947	1.010	21.92	C
85.50-39.42			B	1	1.2		1	1	148.947			
			C	1	1.2		1	1	148.947			
L3	0.650	4.931	A	1	1.2	4	1	1	69.315	0.385	20.89	C
39.42-21.00			B	1	1.2		1	1	69.315			
			C	1	1.2		1	1	69.315			
L4 21.00-0.00	0.534	5.349	A	1	1.2	4	1	1	86.058	0.477	22.72	C
			B	1	1.2		1	1	86.058			
			C	1	1.2		1	1	86.058			
Sum Weight:	3.853	23.919						OTM	159.80 kip-ft	2.646		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
L1	1.041	2.025	A	1	0.75	8	1	1	85.062	0.542	13.72	C
125.00-85.50			B	1	0.75		1	1	85.062			
			C	1	0.75		1	1	85.062			
L2	1.627	5.207	A	1	0.75	7	1	1	134.838	0.736	15.98	C
85.50-39.42			B	1	0.75		1	1	134.838			
			C	1	0.75		1	1	134.838			
L3	0.650	3.263	A	1	0.75	5	1	1	64.068	0.286	15.55	C
39.42-21.00			B	1	0.75		1	1	64.068			
			C	1	0.75		1	1	64.068			
L4 21.00-0.00	0.534	3.476	A	1	0.75	5	1	1	80.683	0.360	17.15	C

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
			B	1	0.75		1	1	80.683			
			C	1	0.75		1	1	80.683			
Sum Weight:	3.853	13.971						OTM	114.48 kip-ft	1.925		

Tower Forces - Service - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
L1	1.041	2.025	A	1	0.75	8	1	1	85.062	0.542	13.72	C
125.00-85.50			B	1	0.75		1	1	85.062			
			C	1	0.75		1	1	85.062			
L2	1.627	5.207	A	1	0.75	7	1	1	134.838	0.736	15.98	C
85.50-39.42			B	1	0.75		1	1	134.838			
			C	1	0.75		1	1	134.838			
L3	0.650	3.263	A	1	0.75	5	1	1	64.068	0.286	15.55	C
39.42-21.00			B	1	0.75		1	1	64.068			
			C	1	0.75		1	1	64.068			
L4 21.00-0.00	0.534	3.476	A	1	0.75	5	1	1	80.683	0.360	17.15	C
			B	1	0.75		1	1	80.683			
			C	1	0.75		1	1	80.683			
Sum Weight:	3.853	13.971						OTM	114.48 kip-ft	1.925		

Tower Forces - Service - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
L1	1.041	2.025	A	1	0.75	8	1	1	85.062	0.542	13.72	C
125.00-85.50			B	1	0.75		1	1	85.062			
			C	1	0.75		1	1	85.062			
L2	1.627	5.207	A	1	0.75	7	1	1	134.838	0.736	15.98	C
85.50-39.42			B	1	0.75		1	1	134.838			
			C	1	0.75		1	1	134.838			
L3	0.650	3.263	A	1	0.75	5	1	1	64.068	0.286	15.55	C
39.42-21.00			B	1	0.75		1	1	64.068			
			C	1	0.75		1	1	64.068			
L4 21.00-0.00	0.534	3.476	A	1	0.75	5	1	1	80.683	0.360	17.15	C
			B	1	0.75		1	1	80.683			
			C	1	0.75		1	1	80.683			
Sum Weight:	3.853	13.971						OTM	114.48 kip-ft	1.925		

Force Totals

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Overturning Moments, M_x kip-ft	Sum of Overturning Moments, M_z kip-ft	Sum of Torques kip-ft
Leg Weight	13.971					
Bracing Weight	0.000					
Total Member Self-Weight	13.971			-0.33	-0.14	
Total Weight	28.829			-0.33	-0.14	
Wind 0 deg - No Ice		0.000	-29.777	-2850.20	-0.14	-0.05
Wind 30 deg - No Ice		14.982	-25.950	-2485.78	-1435.12	4.10
Wind 60 deg - No Ice		26.041	-15.035	-1440.93	-2495.32	-1.10
Wind 90 deg - No Ice		29.987	0.000	-0.33	-2872.49	-5.25
Wind 120 deg - No Ice		25.807	14.900	1425.80	-2470.28	0.24
Wind 150 deg - No Ice		14.847	25.716	2460.07	-1420.66	4.93
Wind 180 deg - No Ice		0.000	29.777	2849.53	-0.14	0.05
Wind 210 deg - No Ice		-14.982	25.950	2485.11	1434.83	-4.10
Wind 240 deg - No Ice		-26.041	15.035	1440.26	2495.04	1.10
Wind 270 deg - No Ice		-29.987	0.000	-0.33	2872.20	5.25
Wind 300 deg - No Ice		-25.807	-14.900	-1426.47	2469.99	-0.24
Wind 330 deg - No Ice		-14.847	-25.716	-2460.74	1420.37	-4.93
Member Ice	9.947					
Total Weight Ice	58.322			-1.25	0.02	
Wind 0 deg - Ice		0.000	-7.406	-707.63	0.02	-0.14
Wind 30 deg - Ice		3.719	-6.442	-616.09	-354.96	0.47
Wind 60 deg - Ice		6.456	-3.727	-357.08	-616.30	-0.26
Wind 90 deg - Ice		7.437	0.000	-1.25	-709.75	-0.84
Wind 120 deg - Ice		6.412	3.702	351.85	-611.56	0.02
Wind 150 deg - Ice		3.694	6.398	608.86	-352.23	0.78
Wind 180 deg - Ice		0.000	7.406	705.13	0.02	0.14
Wind 210 deg - Ice		-3.719	6.442	613.60	355.00	-0.47
Wind 240 deg - Ice		-6.456	3.727	354.58	616.33	0.26
Wind 270 deg - Ice		-7.437	0.000	-1.25	709.79	0.84
Wind 300 deg - Ice		-6.412	-3.702	-354.34	611.59	-0.02
Wind 330 deg - Ice		-3.694	-6.398	-611.35	352.26	-0.78
Total Weight	28.829			-0.33	-0.14	
Wind 0 deg - Service		0.000	-5.675	-543.50	-0.14	-0.01
Wind 30 deg - Service		2.856	-4.946	-474.05	-273.64	0.78
Wind 60 deg - Service		4.963	-2.866	-274.90	-475.71	-0.21
Wind 90 deg - Service		5.715	0.000	-0.33	-547.60	-1.00
Wind 120 deg - Service		4.919	2.840	271.48	-470.94	0.05
Wind 150 deg - Service		2.830	4.901	468.61	-270.89	0.94
Wind 180 deg - Service		0.000	5.675	542.84	-0.14	0.01
Wind 210 deg - Service		-2.856	4.946	473.38	273.35	-0.78
Wind 240 deg - Service		-4.963	2.866	274.23	475.42	0.21
Wind 270 deg - Service		-5.715	0.000	-0.33	547.31	1.00
Wind 300 deg - Service		-4.919	-2.840	-272.15	470.65	-0.05
Wind 330 deg - Service		-2.830	-4.901	-469.27	270.60	-0.94

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice

Comb. No.	Description
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	125 - 85.5	Pole	Max Tension	14	0.000	-0.00	0.00
			Max. Compression	26	-38.266	-0.01	1.45
			Max. Mx	8	-13.917	-563.32	0.10
			Max. My	2	-13.959	-0.18	559.79
			Max. Vy	8	24.010	-563.32	0.10

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	2	-23.789	-0.18	559.79
			Max. Torque	21			-5.21
L2	85.5 - 39.42	Pole	Max Tension	1	0.000	0.00	0.00
			Max. Compression	26	-49.920	-0.01	1.47
			Max. Mx	8	-22.699	-1719.44	0.34
			Max. My	2	-22.721	-0.19	1705.95
			Max. Vy	8	27.287	-1719.44	0.34
			Max. Vx	2	-27.068	-0.19	1705.95
			Max. Torque	21			-5.19
L3	39.42 - 21	Pole	Max Tension	1	0.000	0.00	0.00
			Max. Compression	26	-58.280	-0.01	1.47
			Max. Mx	8	-29.119	-2393.42	0.37
			Max. My	2	-29.129	-0.19	2374.70
			Max. Vy	8	28.783	-2393.42	0.37
			Max. Vx	2	-28.569	-0.19	2374.70
			Max. Torque	21			-5.16
L4	21 - 0	Pole	Max Tension	1	0.000	0.00	0.00
			Max. Compression	26	-64.966	-0.01	1.47
			Max. Mx	8	-34.578	-3010.28	0.35
			Max. My	2	-34.578	-0.19	2987.08
			Max. Vy	8	30.006	-3010.28	0.35
			Max. Vx	2	-29.795	-0.19	2987.08
			Max. Torque	21			-5.15

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	29	64.966	-6.456	3.727
	Max. H_x	20	34.594	29.987	0.000
	Max. H_z	2	34.594	0.000	29.777
	Max. M_x	2	2987.08	0.000	29.777
	Max. M_z	8	3010.28	-29.987	0.000
	Max. Torsion	9	5.14	-29.987	0.000
	Min. Vert	13	25.946	-14.847	-25.716
	Min. H_x	8	34.594	-29.987	0.000
	Min. H_z	14	34.594	0.000	-29.777
	Min. M_x	14	-2986.21	0.000	-29.777
	Min. M_z	20	-3009.91	29.987	0.000
	Min. Torsion	21	-5.15	29.987	0.000

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	28.829	0.000	0.000	-0.33	-0.14	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	34.594	-0.000	-29.777	-2987.08	-0.19	-0.05
0.9 Dead+1.0 Wind 0 deg - No Ice	25.946	0.000	-29.777	-2949.34	-0.14	-0.05
1.2 Dead+1.0 Wind 30 deg - No	34.594	14.982	-25.950	-2605.12	-1503.93	4.00

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
0.9 Dead+1.0 Wind 30 deg - No Ice	25.946	14.982	-25.950	-2572.17	-1484.94	4.00
1.2 Dead+1.0 Wind 60 deg - No Ice	34.594	26.041	-15.035	-1510.07	-2614.99	-1.08
0.9 Dead+1.0 Wind 60 deg - No Ice	25.946	26.041	-15.035	-1490.94	-2581.99	-1.08
1.2 Dead+1.0 Wind 90 deg - No Ice	34.594	29.987	-0.000	-0.35	-3010.28	-5.14
0.9 Dead+1.0 Wind 90 deg - No Ice	25.946	29.987	-0.000	-0.26	-2972.30	-5.14
1.2 Dead+1.0 Wind 120 deg - No Ice	34.594	25.807	14.900	1494.14	-2588.89	0.24
0.9 Dead+1.0 Wind 120 deg - No Ice	25.946	25.807	14.900	1475.42	-2556.21	0.24
1.2 Dead+1.0 Wind 150 deg - No Ice	34.594	14.847	25.716	2578.08	-1488.99	4.82
0.9 Dead+1.0 Wind 150 deg - No Ice	25.946	14.847	25.716	2545.70	-1470.15	4.83
1.2 Dead+1.0 Wind 180 deg - No Ice	34.594	-0.000	29.777	2986.21	-0.19	0.05
0.9 Dead+1.0 Wind 180 deg - No Ice	25.946	0.000	29.777	2948.70	-0.14	0.05
1.2 Dead+1.0 Wind 210 deg - No Ice	34.594	-14.982	25.950	2604.19	1503.67	-4.00
0.9 Dead+1.0 Wind 210 deg - No Ice	25.946	-14.982	25.950	2571.49	1484.75	-4.00
1.2 Dead+1.0 Wind 240 deg - No Ice	34.594	-26.041	15.035	1509.23	2614.60	1.08
0.9 Dead+1.0 Wind 240 deg - No Ice	25.946	-26.041	15.035	1490.32	2581.71	1.08
1.2 Dead+1.0 Wind 270 deg - No Ice	34.594	-29.987	-0.000	-0.35	3009.91	5.14
0.9 Dead+1.0 Wind 270 deg - No Ice	25.946	-29.987	-0.000	-0.26	2972.03	5.15
1.2 Dead+1.0 Wind 300 deg - No Ice	34.594	-25.807	-14.900	-1495.03	2588.50	-0.24
0.9 Dead+1.0 Wind 300 deg - No Ice	25.946	-25.807	-14.900	-1476.07	2555.93	-0.24
1.2 Dead+1.0 Wind 330 deg - No Ice	34.594	-14.847	-25.716	-2579.03	1488.47	-4.82
0.9 Dead+1.0 Wind 330 deg - No Ice	25.946	-14.847	-25.716	-2546.40	1469.77	-4.83
1.2 Dead+1.0 Ice+1.0 Temp	64.966	-0.000	-0.000	-1.47	-0.01	-0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	64.966	0.000	-7.406	-795.37	-0.01	-0.14
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	64.966	3.719	-6.442	-692.52	-398.89	0.46
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	64.966	6.456	-3.727	-401.47	-692.55	-0.27
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	64.966	7.437	-0.000	-1.63	-797.56	-0.84
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	64.966	6.412	3.702	395.12	-687.22	0.01
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	64.966	3.694	6.398	683.92	-395.83	0.79
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	64.966	0.000	7.406	792.10	-0.01	0.14
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	64.966	-3.719	6.442	689.24	398.88	-0.46
1.2 Dead+1.0 Wind 240	64.966	-6.456	3.727	398.20	692.52	0.27

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	64.966	-7.437	-0.000	-1.63	797.54	0.84
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	64.966	-6.412	-3.702	-398.40	687.20	-0.01
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	64.966	-3.694	-6.398	-687.20	395.79	-0.79
Dead+Wind 0 deg - Service	28.829	0.000	-5.675	-566.31	-0.16	-0.01
Dead+Wind 30 deg - Service	28.829	2.856	-4.946	-493.94	-285.12	0.78
Dead+Wind 60 deg - Service	28.829	4.963	-2.866	-286.45	-495.67	-0.21
Dead+Wind 90 deg - Service	28.829	5.715	-0.000	-0.36	-570.57	-1.00
Dead+Wind 120 deg - Service	28.829	4.919	2.840	282.85	-490.69	0.05
Dead+Wind 150 deg - Service	28.829	2.830	4.901	488.24	-282.25	0.94
Dead+Wind 180 deg - Service	28.829	0.000	5.675	565.59	-0.16	0.01
Dead+Wind 210 deg - Service	28.829	-2.856	4.946	493.22	284.81	-0.78
Dead+Wind 240 deg - Service	28.829	-4.963	2.866	285.72	495.36	0.21
Dead+Wind 270 deg - Service	28.829	-5.715	-0.000	-0.36	570.26	1.00
Dead+Wind 300 deg - Service	28.829	-4.919	-2.840	-283.57	490.38	-0.05
Dead+Wind 330 deg - Service	28.829	-2.830	-4.901	-488.97	281.94	-0.94

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.000	-28.829	0.000	0.000	28.829	0.000	0.000%
2	0.000	-34.594	-29.777	0.000	34.594	29.777	0.000%
3	0.000	-25.946	-29.777	0.000	25.946	29.777	0.000%
4	14.982	-34.594	-25.950	-14.982	34.594	25.950	0.000%
5	14.982	-25.946	-25.950	-14.982	25.946	25.950	0.000%
6	26.041	-34.594	-15.035	-26.041	34.594	15.035	0.000%
7	26.041	-25.946	-15.035	-26.041	25.946	15.035	0.000%
8	29.987	-34.594	0.000	-29.987	34.594	0.000	0.000%
9	29.987	-25.946	0.000	-29.987	25.946	0.000	0.000%
10	25.807	-34.594	14.900	-25.807	34.594	-14.900	0.000%
11	25.807	-25.946	14.900	-25.807	25.946	-14.900	0.000%
12	14.847	-34.594	25.716	-14.847	34.594	-25.716	0.000%
13	14.847	-25.946	25.716	-14.847	25.946	-25.716	0.000%
14	0.000	-34.594	29.777	0.000	34.594	-29.777	0.000%
15	0.000	-25.946	29.777	0.000	25.946	-29.777	0.000%
16	-14.982	-34.594	25.950	14.982	34.594	-25.950	0.000%
17	-14.982	-25.946	25.950	14.982	25.946	-25.950	0.000%
18	-26.041	-34.594	15.035	26.041	34.594	-15.035	0.000%
19	-26.041	-25.946	15.035	26.041	25.946	-15.035	0.000%
20	-29.987	-34.594	0.000	29.987	34.594	0.000	0.000%
21	-29.987	-25.946	0.000	29.987	25.946	0.000	0.000%
22	-25.807	-34.594	-14.900	25.807	34.594	14.900	0.000%
23	-25.807	-25.946	-14.900	25.807	25.946	14.900	0.000%
24	-14.847	-34.594	-25.716	14.847	34.594	25.716	0.000%
25	-14.847	-25.946	-25.716	14.847	25.946	25.716	0.000%
26	0.000	-64.966	0.000	0.000	64.966	0.000	0.000%
27	0.000	-64.966	-7.406	-0.000	64.966	7.406	0.000%
28	3.719	-64.966	-6.442	-3.719	64.966	6.442	0.000%
29	6.456	-64.966	-3.727	-6.456	64.966	3.727	0.000%
30	7.437	-64.966	0.000	-7.437	64.966	0.000	0.000%
31	6.412	-64.966	3.702	-6.412	64.966	-3.702	0.000%
32	3.694	-64.966	6.398	-3.694	64.966	-6.398	0.000%
33	0.000	-64.966	7.406	-0.000	64.966	-7.406	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
34	-3.719	-64.966	6.442	3.719	64.966	-6.442	0.000%
35	-6.456	-64.966	3.727	6.456	64.966	-3.727	0.000%
36	-7.437	-64.966	0.000	7.437	64.966	0.000	0.000%
37	-6.412	-64.966	-3.702	6.412	64.966	3.702	0.000%
38	-3.694	-64.966	-6.398	3.694	64.966	6.398	0.000%
39	0.000	-28.829	-5.675	0.000	28.829	5.675	0.000%
40	2.856	-28.829	-4.946	-2.856	28.829	4.946	0.000%
41	4.963	-28.829	-2.866	-4.963	28.829	2.866	0.000%
42	5.715	-28.829	0.000	-5.715	28.829	0.000	0.000%
43	4.919	-28.829	2.840	-4.919	28.829	-2.840	0.000%
44	2.830	-28.829	4.901	-2.830	28.829	-4.901	0.000%
45	0.000	-28.829	5.675	0.000	28.829	-5.675	0.000%
46	-2.856	-28.829	4.946	2.856	28.829	-4.946	0.000%
47	-4.963	-28.829	2.866	4.963	28.829	-2.866	0.000%
48	-5.715	-28.829	0.000	5.715	28.829	0.000	0.000%
49	-4.919	-28.829	-2.840	4.919	28.829	2.840	0.000%
50	-2.830	-28.829	-4.901	2.830	28.829	4.901	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00084352
3	Yes	4	0.00000001	0.00031376
4	Yes	6	0.00000001	0.00010907
5	Yes	5	0.00000001	0.00083301
6	Yes	6	0.00000001	0.00010346
7	Yes	5	0.00000001	0.00078828
8	Yes	5	0.00000001	0.00027811
9	Yes	5	0.00000001	0.00012045
10	Yes	6	0.00000001	0.00010079
11	Yes	5	0.00000001	0.00076814
12	Yes	6	0.00000001	0.00009184
13	Yes	5	0.00000001	0.00069886
14	Yes	4	0.00000001	0.00084317
15	Yes	4	0.00000001	0.00031371
16	Yes	6	0.00000001	0.00009414
17	Yes	5	0.00000001	0.00071593
18	Yes	6	0.00000001	0.00009930
19	Yes	5	0.00000001	0.00075581
20	Yes	5	0.00000001	0.00027813
21	Yes	5	0.00000001	0.00012047
22	Yes	6	0.00000001	0.00009968
23	Yes	5	0.00000001	0.00075940
24	Yes	6	0.00000001	0.00010987
25	Yes	5	0.00000001	0.00084018
26	Yes	4	0.00000001	0.00003071
27	Yes	6	0.00000001	0.00021292
28	Yes	6	0.00000001	0.00025054
29	Yes	6	0.00000001	0.00025059
30	Yes	6	0.00000001	0.00021377
31	Yes	6	0.00000001	0.00024567
32	Yes	6	0.00000001	0.00024331
33	Yes	6	0.00000001	0.00021121
34	Yes	6	0.00000001	0.00024623

35	Yes	6	0.00000001	0.00024743
36	Yes	6	0.00000001	0.00021379
37	Yes	6	0.00000001	0.00024731
38	Yes	6	0.00000001	0.00024931
39	Yes	4	0.00000001	0.00013158
40	Yes	4	0.00000001	0.00055291
41	Yes	4	0.00000001	0.00047027
42	Yes	4	0.00000001	0.00028488
43	Yes	4	0.00000001	0.00043822
44	Yes	4	0.00000001	0.00039520
45	Yes	4	0.00000001	0.00013124
46	Yes	4	0.00000001	0.00039896
47	Yes	4	0.00000001	0.00042232
48	Yes	4	0.00000001	0.00028456
49	Yes	4	0.00000001	0.00042724
50	Yes	4	0.00000001	0.00057032

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	125 - 85.5	20.732	41	1.4534	0.0124
L2	90 - 39.42	10.747	41	1.1600	0.0055
L3	45 - 21	2.571	41	0.5367	0.0016
L4	21 - 0	0.536	41	0.2468	0.0006

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
123.00	20' 4-bay Dipole	41	20.125	1.4396	0.0119	26721
115.00	MT6407-77A	41	17.711	1.3830	0.0101	13360
105.00	95.9" x 24" x 8.7" Panel	41	14.779	1.3055	0.0081	6680

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	125 - 85.5	109.089	6	7.6690	0.0641
L2	90 - 39.42	56.640	6	6.1230	0.0284
L3	45 - 21	13.563	6	2.8334	0.0081
L4	21 - 0	2.827	6	1.3026	0.0032

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
123.00	20' 4-bay Dipole	6	105.901	7.5960	0.0617	5244
115.00	MT6407-77A	6	93.225	7.2983	0.0524	2621
105.00	95.9" x 24" x 8.7" Panel	6	77.829	6.8898	0.0419	1307

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	125 - 85.5 (1)	TP29.725x21.037x0.1875	39.50	0.00	0.0	17.0751	-13.899	998.894	0.014
L2	85.5 - 39.42 (2)	TP39.6246x28.3602x0.2813	50.58	0.00	0.0	34.1895	-22.691	2000.080	0.011
L3	39.42 - 21 (3)	TP42.9745x37.8193x0.3125	24.00	0.00	0.0	42.5287	-29.115	2487.930	0.012
L4	21 - 0 (4)	TP47.5932x42.9745x0.3393	21.00	0.00	0.0	51.1461	-34.578	2992.040	0.012

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	125 - 85.5 (1)	TP29.725x21.037x0.1875	565.01	622.50	0.908	0.00	622.50	0.000
L2	85.5 - 39.42 (2)	TP39.6246x28.3602x0.2813	1725.03	1753.09	0.984	0.00	1753.09	0.000
L3	39.42 - 21 (3)	TP42.9745x37.8193x0.3125	2401.07	2433.82	0.987	0.00	2433.82	0.000
L4	21 - 0 (4)	TP47.5932x42.9745x0.3393	3019.68	3214.87	0.939	0.00	3214.87	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	125 - 85.5 (1)	TP29.725x21.037x0.1875	24.097	299.668	0.080	1.09	750.15	0.001
L2	85.5 - 39.42 (2)	TP39.6246x28.3602x0.2813	27.373	600.025	0.046	1.09	2004.65	0.001
L3	39.42 - 21 (3)	TP42.9745x37.8193x0.3125	28.868	746.378	0.039	1.08	2792.13	0.000
L4	21 - 0 (4)	TP47.5932x42.9745x0.3393	30.089	897.613	0.034	1.08	3719.32	0.000

Pole Interaction Design Data

tnxTower	Job	Page
	23CLVZ-0026	23 of 23
Centerline Engineering Services, PA 750 W Center St, Suite 301 West Bridgewater, MA 02379 (781) 713-7425	Project Quinebaug CT	Date 13:24:19 12/27/23
	Client Verizon Wireless	Designed by jboegel

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	125 - 85.5 (1)	0.014	0.908	0.000	0.080	0.001	0.928 ✔	1.000	✔
L2	85.5 - 39.42 (2)	0.011	0.984	0.000	0.046	0.001	0.997 ✔	1.000	✔
L3	39.42 - 21 (3)	0.012	0.987	0.000	0.039	0.000	1.000 ✔	1.000	✔
L4	21 - 0 (4)	0.012	0.939	0.000	0.034	0.000	0.952 ✔	1.000	✔

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	125 - 85.5	Pole	TP29.725x21.037x0.1875	1	-13.899	998.894	92.8	Pass
L2	85.5 - 39.42	Pole	TP39.6246x28.3602x0.2813	2	-22.691	2000.080	99.7	Pass
L3	39.42 - 21	Pole	TP42.9745x37.8193x0.3125	3	-29.115	2487.930	100.0	Pass
L4	21 - 0	Pole	TP47.5932x42.9745x0.3393	4	-34.578	2992.040	95.2	Pass
							Summary	
						Pole (L3)	100.0	Pass
						RATING =	**100.0**	**Pass**

CENTERLINE

Centerline Engineering Services, PA
750 W Center St, Suite 301
West Bridgewater, MA 02379
781-713-4725

Job:	23CLVZ-0026	Engineer:	GA
Project:	17123830	Date:	12/27/2023
Client:	Verizon Wireless	Sheet:	1 of 1

Square Base Plate and Anchor Rod Analysis (TIA-H)

Analysis Reactions and Information

Moment:	3020.00	ft-kips
Axial:	35.00	kips
Shear:	30.00	kips
Grout Considered:	N/A	
l_{ar}:	2	in
Eta Factor, η:	N/A	

Anchor Rod Information

Quantity:	12	
Diameter:	2.25	in
Bolt Grade:	A615-75	
Fy:	75	ksi
Fu:	100	ksi
Bolt Circle:	55.00	in

Tower Information

Diameter:	47.59	in
Thickness:	0.3393	in
Pole Grade:	A572-65	
Fy:	65	ksi
Fu:	80	ksi
# of Sides:	16-sided	

Base Plate Information

Diameter:	61.00	in
Thickness:	2.25	in
Plate Grade:	A572-60	
Fy:	60.00	ksi
Fu:	75.00	ksi

Capacity Results

Anchor Rod Results

Pu_c =	222.4	kips	ϕPn_c =	243.75	kips
Vu =	2.50	kips	ϕVn =	73.13	kips
Mu =	N/A	in-kips	ϕMn =	N/A	in-kips

Anchor Rod Stress Ratio: 87.0%

Good

Base Plate Results

Base Plate Stress:	49.29	ksi
Allowable Plate Stress:	54	ksi
Base Plate Stress Ratio:	91.3%	

Good

Colliers Engineering & Design CT, P.C.
1055 Washington Boulevard
Stamford, CT 06901
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Antenna Mount Analysis Report and PMI Requirements

Mount ReAnalysis

SMART Tool Project #: 10208978
Colliers Engineering & Design CT,P.C. Project #:23777256

September 5, 2023

Site Information	*Site ID:*	*5000246481-VZW / Quinebaug_CT*
	Site Name:	*Quinebaug_CT*
	Carrier Name:	*Verizon Wireless*
	Address:	*720 Quinebaug Road* *Quinebaug, Connecticut 06262* *Windham County*
	Latitude:	*42.022750°*
	Longitude:	*-71.949300°*
Structure Information	*Tower Type:*	*125-Ft Monopole*
	Mount Type:	*12.67-Ft Platform*

FUZE ID # 17123830

Analysis Results

Platform: **54.6% Pass***

***Antennas and equipment to be installed in compliance with PMI Requirements of this mount analysis.**

******Contractor PMI Requirements:***
Included at the end of this MA report
Available & Submitted via portal at https://pmi.vzwsmart.com

For additional questions and support, please reach out to:
pmisupport@colliersengineering.com

Report Prepared By: Derek Hartzell

STATE OF CONNECTICUT
DEJIAN XU
No. 33733
LICENSED PROFESSIONAL ENGINEER
09/05/2023

Executive Summary:

The objective of this report is to determine the capacity of the antenna support mount at the subject facility for the final wireless telecommunications configuration, per the applicable codes and standards. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

This analysis is inclusive of the mount structure only and does not address the structural capacity of the supporting structure. This mounting frame was not analyzed as an anchor attachment point for fall protection. All climbing activities are required to have a fall protection plan completed by a competent person.

Sources of Information:

Document Type	Remarks
Radio Frequency Data Sheets (RFDS)	*Verizon RFDS, Site ID:675025, dated March 1, 2021*
Previous Passing Modification Analysis and Drawings	*Maser Consulting Connecticut, Project# 21777031A, dated April 27, 2021*
Post Modification Inspection (PMI)	*Maser Consulting Connecticut, Project# 21777031A, dated November 16, 2021*
Filter Add Specification	*Per Verizon Wireless, filter addition on Beta*

Analysis Criteria:

Codes and Standards:	ANSI/TIA-222-H 2022 Connecticut State Building Code	
Wind Parameters:	Basic Wind Speed (Ultimate 3-sec. Gust), V_{ULT}:	120 mph
	Ice Wind Speed (3-sec. Gust):	50 mph
	Design Ice Thickness:	1.50 in
	Risk Category:	II
	Exposure Category:	B
	Topographic Category:	1
	Topographic Feature Considered:	N/A
	Topographic Method:	N/A
	Ground Elevation Factor, K_e:	0.987
Seismic Parameters:	S_S:	0.185 g
	S_1:	0.056 g
Maintenance Parameters:	Wind Speed (3-sec. Gust):	30 mph
	Maintenance Live Load, Lv:	250 lbs.
	Maintenance Live Load, Lm:	500 lbs.
Analysis Software:	RISA-3D (V17)	

Final Loading Configuration:

The following equipment has been considered for the analysis of the mount:

Mount Elevation (ft)	Equipment Elevation (ft)	Quantity	Manufacturer	Model	Status
112.50	115.00	3	Samsung	MT6407-77A	Retained
		3	Commscope	CBC78T-DS-43	
		3	Samsung	B2/B66A RRH-BR049	
		3	Samsung	B5/B13 RRH-BR04C	
		6	Commscope	JAHH-65B-R3B	
		6	Antel	LPA-80080/6CF___	
		2	Raycap	RRFDC-3315-PF-48	
		2	KAelus	KA-6030	Added

It is acceptable to install up to any three (3) of the OVP model numbers listed below as required at any location other than the mount face without affecting the structural capacity of the mount. If OVP units are installed on the mount face, a mount re-analysis may be required unless replacing an existing OVP.

Model Number	Ports	AKA
DB-B1-6C-12AB-0Z	6	OVP-6
RVZDC-6627-PF-48	12	OVP-12

Standard Conditions:

1. All engineering services are performed on the basis that the information provided to Colliers Engineering & Design and used in this analysis is current and correct. The existing equipment loading has been applied at locations determined from the supplied documentation. Any deviation from the loading locations specified in this report shall be communicated to Colliers Engineering & Design to verify deviation will not adversely impact the analysis.

2. Mounts are assumed to have been properly fabricated, installed and maintained in good condition, twist free and plumb in accordance with its original design and manufacturer's specifications.

   Obvious safety and structural issues/deficiencies noticed at the time of the mount mapping and reported in the Mount Mapping Report are assumed to be corrected and documented as part of the PMI process and are not considered in the mount analysis.

   The mount analysis and the mount mapping are not a condition assessment of the mount. Proper maintenance and condition assessments are still required post analysis.

3. For mount analyses completed from other data sources (including new replacement mounts) and not specifically mapped in accordance with the NSTD-446 Standard, the mounts are assumed to have been properly fabricated, installed and maintained in good condition, twist free and plumb in accordance with its original design and manufacturer's specifications.

4. 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.

5. The mount was checked up to, and including, the bolts that fasten it to the mount collar/attachment and threaded rod connections in collar members if applicable. Local deformation and interaction between the mount collar/attachment and the supporting tower structure are outside the scope of this analysis.

6. All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. Colliers Engineering & Design is not responsible for the conclusion, opinions, and recommendations made by others based on the information supplied.

7. Structural Steel Grades have been assumed as follows, if applicable, unless otherwise noted in this analysis:
   - Channel, Solid Round, Angle, Plate — ASTM A36 (Gr. 36)
   - HSS (Rectangular) — ASTM 500 (Gr. B-46)
   - Pipe — ASTM A53 (Gr. B-35)
   - Threaded Rod — F1554 (Gr. 36)
   - Bolts — ASTM A325

Discrepancies between in-field conditions and the assumptions listed above may render this analysis invalid unless explicitly approved by Colliers Engineering & Design.

Analysis Results:

Component	Utilization %	Pass/Fail
Face Horizontal	*16.0 %*	*Pass*
Standoff Horizontal	*14.0 %*	*Pass*
Platform Crossmember	*13.6 %*	*Pass*
Mount Pipe	*54.6 %*	*Pass*
Corner Plate	*21.8 %*	*Pass*
Grating Support	*19.5 %*	*Pass*
Cross Arm Plate	*24.3 %*	*Pass*
MOD Support Rail	*17.6 %*	*Pass*
MOD Support Rail Corner Angle	*27.7 %*	*Pass*
MOD Kicker	*10.6 %*	*Pass*
Connection	*12.1%*	*Pass*

Structure Rating – *(Controlling Utilization of all Components)*	**54.6%**

Mount Steel (EPA)a per ANSI/TIA-222-H Section 2.6.11.2:

Ice Thickness (In)	Mount Pipes Excluded		Mount Pipes Included	
	Front (EPA)a (Sq. Ft.)	Side (EPA)a (Sq. Ft.)	Front (EPA)a (Sq. Ft.)	Side (EPA)a (Sq. Ft.)
0	31.1	31.1	44.0	44.0
0.5	40.4	40.4	58.7	58.7
1	48.8	48.8	72.4	72.4

Notes:
- (EPA)a values listed above may be used in the absence of more precise information
- (EPA)a values in the table above include 3 sector(s).
- Ka factors included in (EPA)a calculations

Requirements:

The existing mount is **SUFFICIENT** for the final loading configuration shown in attachment 2 and does not require modifications. Additional requirements are noted below.

Contractor shall install (2) proposed filters each on Beta sector on a new Site Pro 1 Dual Swivel Mount Kit (Part #: RRUDSM or EOR approved equivalent) in the location shown in the placement diagram.

If required, ANSI/ASSP rigging plan review services compliant with the requirements of ANSI/TIA 322 are available for a Construction Class IV site or other. Separate review fees will apply.

Attachments:

1. **Contractor Required Post Installation Inspection (PMI) Report Deliverables**
2. Antenna Placement Diagrams
3. Mount Photos
4. Mount Mapping Report (for reference only)
5. Analysis Calculations

Mount Desktop – Post Modification Inspection (PMI) Report Requirements

Documents & Photos Required from Contractor – Passing Mount Analysis

Passing Mount Analysis requires a PMI due to a modification in loading.

Electronic pdf version of this can be downloaded at https://pmi.vzwsmart.com.

For additional questions and support, please reach out to pmisupport@colliersengineering.com

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MDG #: 5000246481 SMART Project #: 10208978 Fuze Project ID: 17123830

Purpose – to provide SMART Tool structural vendor the proper documentation in order to complete the required Mount Desktop review of the Post Modification Inspection Report.

- Contractor is responsible for making certain the photos provided as noted below provide confirmation that the installation was completed in accordance with this Passing Mount Analysis.
- Contractor shall relay any data that can impact the performance of the mount, this includes safety issues.

Base Requirements:

- If installation will cause damage to the structure, the climbing facility, or safety climb if present or any installed system, SMART Tool vendor to be notified prior to install. Any special photos outside of the standard requirements will be indicated on the drawings.
- Provide "as built mount drawings" showing contractor's name, contact information, preparer's signature, and date. Any deviations from the drawings (Proposed modification) shall be shown. NOTE: If loading is different than what is conveyed in the passing mount analysis (MA) contact the SMART Tool vendor immediately.
- Each photo should be time and date stamped
- Photos should be high resolution.
- Contractor shall ensure that the safety climb wire rope is supported and not adversely impacted by the install of the modification components. This may involve the install of wire rope guides, or other items to protect the wire rope. If there is conflict, contact the SMART Tool engineer for recommendations.
- The PMI can be accessed at the following portal: ***https://pmi.vzwsmart.com***

Photo Requirements:

- *Photos taken at ground level*
  - Photo of Gate Signs showing the tower owner, site name, and number.
  - Overall tower structure after installation.
  - Photos of the mount after installation; if the mounts are at different rad elevations, pictures must be provided for all elevations that equipment was installed.
- *Photos taken at Mount Elevation*
  - Photos showing the safety climb wire rope above and below the mount prior to installation.
  - Photos showing the climbing facility and safety climb if present.
  - Photos showing each individual sector after installation. Each entire sector shall be in one photo to show the interconnection of members.

- These photos shall also certify that the placement and geometry of the equipment on the mount is as depicted in the antenna placement diagram in this form.
- Photos that show the model number of each antenna and piece of equipment installed per sector.

Antenna & equipment placement and Geometry Confirmation:

- The contractor shall certify that the antenna & equipment placement and geometry is in accordance with the sketch and table as included in the mount analysis and noted below.

☐ The contractor certifies that the photos support and the equipment on the mount is as depicted on the sketch and table included in this form and with the mount analysis provided.

OR

☐ The contractor notes that the equipment on the mount is not in accordance with the sketch and has noted the differences below and provided photo documentation of any alterations.

Special Instructions / Validation as required from the MA or any other information the contractor deems necessary to share that was identified:

Issue:

Contractor shall install (2) proposed filters each on Beta sector on a new Site Pro 1 Dual Swivel Mount Kit (Part #: RRUDSM or EOR approved equivalent) in the location shown in the placement diagram.

Response:

Special Instruction Confirmation:

☐ The contractor has read and acknowledges the above special instructions.

☐ All hardware listed in the Special Instructions above (if applicable) has been properly installed, and the existing hardware was inspected.

☐ The material utilized was as specified in the SMART Tool engineering vendor Special Instructions above (if applicable) and included in the material certification folder is a packing list or invoice for these materials.

OR

☐ The material utilized was approved by a SMART Tool engineering vendor as an "equivalent" and this approval is included as part of the contractor submission.

Comments:

Contractor certifies that the climbing facility / safety climb was not damaged prior to starting work:

☐ Yes ☐ No

Contractor certifies no new damage created during the current installation:

☐ Yes ☐ No

Contractor to certify the condition of the safety climb and verify no damage when leaving the site:

☐ Safety Climb in Good Condition ☐ Safety Climb Damaged

Certifying Individual:

Company:	
Employee Name:	
Contact Phone:	
Email:	
Date:	

Structure: 5000246481-VZW - Quinebaug_CT

Sector: A

Structure Type: Monopole

Mount Elev: 112.50

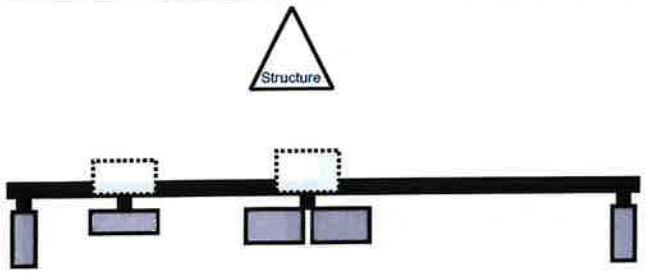
10208978

9/5/2023 1

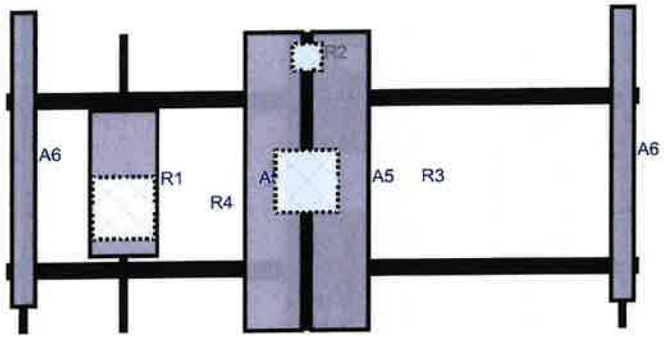
Page: 1

Colliers Engineering & Design

Plan View



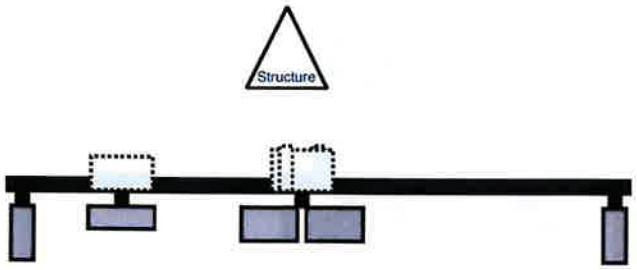
Front View - Looking at Structure



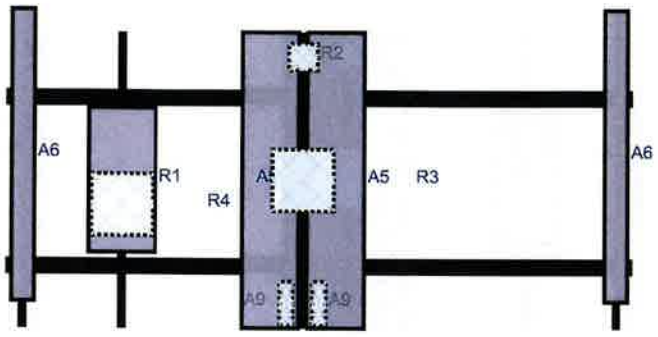
4 3 2 1

Ref#	Model	Height (in)	Width (in)	H Dist Frm L.	Pipe #	Pipe Pos V	Ant Pos	C. Ant Frm T.	Ant H Off	Status	Validation
A6	LPA-80080/6CF ___	70.9	5.5	148	1	a	Front	30	0	Retained	11/1/2021
A5	JAHH-65B-R3B	72	13.8	72	2	a	Front	36	8	Retained	11/1/2021
A5	JAHH-65B-R3B	72	13.8	72	2	b	Front	36	-8	Retained	11/1/2021
R2	CBC78T-DS-43	6.4	6.9	72	2	a	Behind	6	0	Retained	11/1/2021
R3	B2/B66A RRH-BR049 (RFV01U-D1A)	15	15	72	2	a	Behind	36	0	Retained	11/1/2021
R1	MT6407-77A	35.1	16.1	28	3	a	Front	36	0	Retained	11/1/2021
R4	B5/B13 RRH-BR04C (RFV01U-D2A)	15	15	28	3	a	Behind	42	0	Retained	11/1/2021
A6	LPA-80080/6CF ___	70.9	5.5	4	4	a	Front	30	0	Retained	11/1/2021
M101	RRFDC-3315-PF-48	19.1	15.7		Member					Retained	11/1/2021
M105	RRFDC-3315-PF-48	19.1	15.7		Member					Retained	11/1/2021

Plan View



Front View - Looking at Structure



4 3 2 1

Ref#	Model	Height (in)	Width (in)	H Dist Frm L.	Pipe #	Pipe Pos V	Ant Pos	C. Ant Frm T.	Ant H Off	Status	Validation
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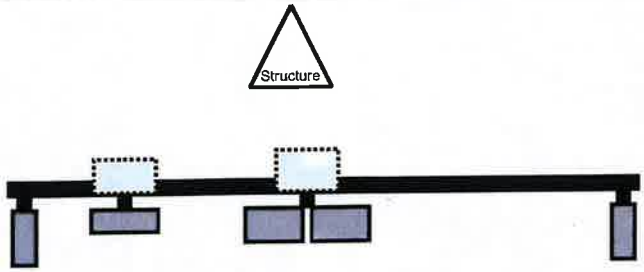
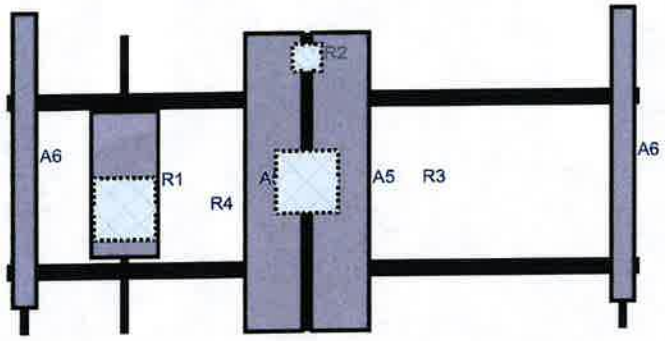
A5	JAHH-65B-R3B	72	13.8	72	2	a	Front	36	8	Retained	11/1/2021
A5	JAHH-65B-R3B	72	13.8	72	2	b	Front	36	-8	Retained	11/1/2021
R2	CBC78T-DS-43	6.4	6.9	72	2	a	Behind	6	0	Retained	11/1/2021
R3	B2/B66A RRH-BR049 (RFV01U-D1A)	15	15	72	2	a	Behind	36	0	Retained	11/1/2021
A9	KA-6030	10.6	3.2	72	2	a	Behind	66	-4	Added	
A9	KA-6030	10.6	3.2	72	2	b	Behind	66	4	Added	
R1	MT6407-77A	35.1	16.1	28	3	a	Front	36	0	Retained	11/1/2021
R4	B5/B13 RRH-BR04C (RFV01U-D2A)	15	15	28	3	a	Behind	42	0	Retained	11/1/2021
A6	LPA-80080/6CF ___	70.9	5.5	4	4	a	Front	30	0	Retained	11/1/2021

Plan View



Front View - Looking at Structure



4 3 2 1

Ref#	Model	Height (in)	Width (in)	H Dist Frm L.	Pipe #	Pipe Pos V	Ant Pos	C. Ant Frm T.	Ant H Off	Status	Validation
A6	LPA-80080/6CF ___	70.9	5.5	148	1	a	Front	30	0	Retained	11/1/2021
A5	JAHH-65B-R3B	72	13.8	72	2	a	Front	36	8	Retained	11/1/2021
A5	JAHH-65B-R3B	72	13.8	72	2	b	Front	36	-8	Retained	11/1/2021
R2	CBC78T-DS-43	6.4	6.9	72	2	a	Behind	6	0	Retained	11/1/2021
R3	B2/B66A RRH-BR049 (RFV01U-D1A)	15	15	72	2	a	Behind	36	0	Retained	11/1/2021
R1	MT6407-77A	35.1	16.1	28	3	a	Front	36	0	Retained	11/1/2021
R4	B5/B13 RRH-BR04C (RFV01U-D2A)	15	15	28	3	a	Behind	42	0	Retained	11/1/2021
A6	LPA-80080/6CF ___	70.9	5.5	4	4	a	Front	30	0	Retained	11/1/2021

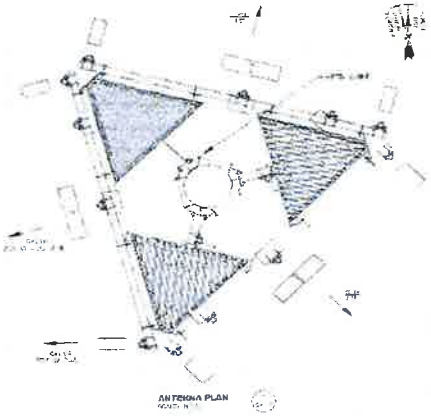

Nov 1, 2021 at 4:16:05 PM

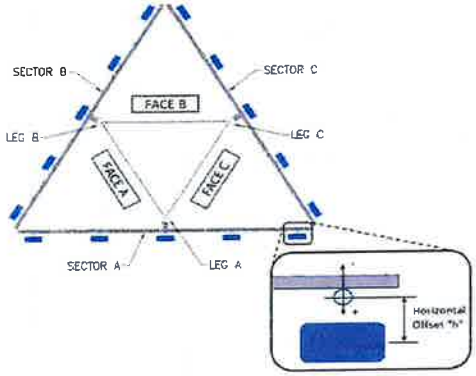
V3.0 Updated on 8-31-2020

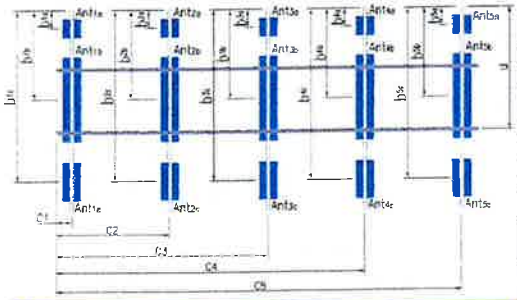
Antenna Mount Mapping Form (PATENT PENDING)

FCC #

Tower Owner:	Quinebaug Valley Emer Comm	Mapping Date:	02.12.21
Site Name:	QUINEBAUG CT	Tower Type:	Monopole
Site Number or ID:	468550	Tower Height (Ft.):	125
Mapping Contractor:	HUDSUN DESIGN GROUP, LLC	Mount Elevation (Ft.):	115.5







Antenna Layout (Looking Out From Tower)

Mount Pipe Configuration and Geometries [Unit = Inches]

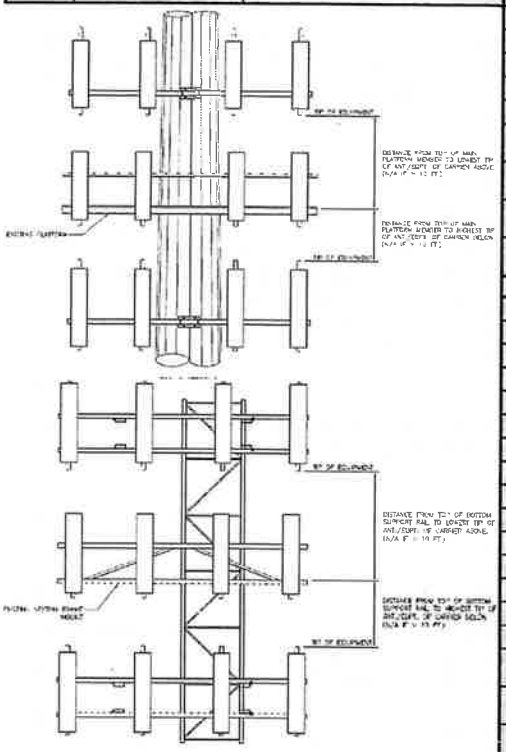
Sector / Position	Mount Pipe Size & Length	Vertical Offset Dimension "d"	Horizontal Offset "C1, C2, C3, etc."	Sector / Position	Mount Pipe Size & Length	Vertical Offset Dimension "d"	Horizontal Offset "C1, C2, C3, etc."
A1	PIPE 2"Ø x .125 x 72" LONG	57.00	4.00	C1	PIPE 2"Ø x .125 x 72" LONG	57.00	4.00
A2	PIPE 2"Ø x .125 x 72" LONG	57.00	80.00	C2	PIPE 2"Ø x .125 x 72" LONG	49.00	80.00
A3	PIPE 2"Ø x .125 x 72" LONG	57.00	124.00	C3	PIPE 2"Ø x .125 x 72" LONG	57.00	124.00
A4	PIPE 2"Ø x .125 x 72" LONG	57.00	148.00	C4	PIPE 2"Ø x .125 x 72" LONG	57.00	148.00
A5				C5			
A6				C6			
B1	PIPE 2"Ø x .125 x 72" LONG	57.00	4.00	D1			
B2	PIPE 2"Ø x .125 x 72" LONG	57.00	80.00	D2			
B3	PIPE 2"Ø x .125 x 72" LONG	57.00	124.00	D3			
B4	PIPE 2"Ø x .125 x 72" LONG	57.00	148.00	D4			
B5				D5			
B6				D6			

Distance between bottom rail and mount CL elevation (dim d). Unit is inches. See 'Mount Elev Ref' tab for details. :	0.00
Distance from top of bottom support rail to lowest tip of ant./eqpt. of Carrier above. (N/A if > 10 ft.) :	6
Distance from top of bottom support rail to highest tip of ant./eqpt. of Carrier below. (N/A if > 10 ft.) :	
Please enter additional infomation or comments below.	
Tower Face Width at Mount Elev. (ft.):	
Tower Leg Size or Pole Shaft Diameter at Mount Elev. (in.):	23

	Enter antenna model. If not labeled, enter "Unknown".						Mounting Locations [Units are inches and degrees]			Photos of antennas
Ants. Items	Antenna Models if Known	Width (in.)	Depth (in.)	Height (in.)	Coax Size and Qty	Antenna Center-line (Ft.)	Vertical Distances "b_{1a}, b_{2a}, b_{3a}, b_{1b}..." (Inches)	Horiz. Offset "h" (Use "-" If Ant. is behind)	Antenna Azimuth (Degrees)	Photo Numbers
Sector A										
Ant_{1a}										
Ant_{1b}	LPA-80080-6CF	6.00	13.00	71.00		117.75	30.00	14.00	15.00	10
Ant_{1c}										
Ant_{2a}	B13 RRH	12.00	7.50	20.50		117.5	33.00	-6.00		11
Ant_{2b}	(2) JAHH-65B-R3B	13.50	8.50	72.00		117	39.00	14.00	15.00	11
Ant_{2c}										
Ant_{3a}	B66a RRH	12.00	7.00	25.50		118.583	20.00	-6.00		12
Ant_{3b}										
Ant_{3c}										
Ant_{4a}										
Ant_{4b}	LPA-80080-6CF	6.00	13.00	71.00		117.75	30.00	14.00	15.00	12
Ant_{4c}										
Ant_{5a}										
Ant_{5b}										
Ant_{5c}										
Ant on Standoff	RRFDC-3315-PF-48	15.00	10.00	28.00			54.00			16
Ant on Standoff										
Ant on Tower										
Ant on Tower										

Mount Azimuth (Degree) for Each Sector				Tower Leg Azimuth (Degree) for Each Sector	
Sector A:	15.00	Deg	Leg A:		Deg
Sector B:	135.00	Deg	Leg B:		Deg
Sector C:	255.00	Deg	Leg C:		Deg
Sector D:		Deg	Leg D:		Deg

Climbing Facility Information		
Location:	355.00 Deg	
Climbing Facility	Corrosion Type:	Good condition.
	Access:	Climbing path was unobstructed.
	Condition:	Good condition.



Sector B										
Ant_{1a}										
Ant_{1b}	LPA-80080-6CF	6.00	13.00	71.00		117.75	30.00	14.00	135.00	14
Ant_{1c}										
Ant_{2a}	B13 RRH	12.00	7.50	20.50		117.5	33.00	-6.00		15
Ant_{2b}	(2) JAHH-65B-R3B	13.50	8.50	72.00		117	39.00	14.00	135.00	15
Ant_{2c}										
Ant_{3a}	B66a RRH	12.00	7.00	25.50		118.583	20.00	-6.00		16
Ant_{3b}										
Ant_{3c}										
Ant_{4a}										
Ant_{4b}	LPA-80080-6CF	6.00	13.00	71.00		117.75	30.00	14.00	135.00	16
Ant_{4c}										
Ant_{5a}										
Ant_{5b}										
Ant_{5c}										
Ant on Standoff	RRFDC-3315-PF-48	15.00	10.00	28.00			54.00			38
Ant on Standoff										
Ant on Tower										
Ant on Tower										
Sector C										
Ant_{1a}										
Ant_{1b}	LPA-80080-6CF	6.00	13.00	71.00		117.75	30.00	14.00	270.00	17
Ant_{1c}										
Ant_{2a}	B13 RRH	12.00	7.50	20.50		116.833	33.00	-6.00		18
Ant_{2b}	(2) JAHH-65B-R3B	13.50	8.50	72.00		116.333	39.00	14.00	255.00	18
Ant_{2c}										
Ant_{3a}	B66a RRH	12.00	7.00	25.50		118.583	20.00	-6.00		19
Ant_{3b}										
Ant_{3c}										
Ant_{4a}										
Ant_{4b}	LPA-80080-6CF	6.00	13.00	71.00		117.333	35.00	14.00	255.00	20
Ant_{4c}										
Ant_{5a}										
Ant_{5b}										
Ant_{5c}										
Ant on Standoff										
Ant on Standoff										
Ant on Tower										
Ant on Tower										
Sector D										
Ant_{1a}										
Ant_{1b}										
Ant_{1c}										
Ant_{2a}										
Ant_{2b}										
Ant_{2c}										
Ant_{3a}										
Ant_{3b}										
Ant_{3c}										
Ant_{4a}										
Ant_{4b}										
Ant_{4c}										
Ant_{5a}										
Ant_{5b}										
Ant_{5c}										
Ant on Standoff										
Ant on Standoff										
Ant on Tower										
Ant on Tower										

Observed Safety and Structural Issues During the Mount Mapping		
Issue #	Description of Issue	Photo #

1		
2	(12) 1-5/8" COAX CABLES & (2) 1-1/4" HYBRID CABLES.	28 (GRD)
3		
4		
5		
6		
7		
8		

Mapping Notes
1. Please report any visible structural or safety issues observed on the antenna mounts (Damaged members, loose connections, tilting mounts, safety climb issues, etc.)
2. If the thickness of the existing pipes or tubing can't be obtained from a general tool (such as Caliper), please use an ultrasonic measurement tool (thickness gauge) to measure the thickness.
3. Please create all required detail sketches of the mounts and insert them into the "Sketches" tab.
4. Please measure and enter the bolt sizes and types under the Members Box in the spreadsheet of the mount type.
5. Take and label the photos of the tower, mounts, connections, antennas and all measurements. Minimum 50 photos are required.
6. Please measure and report the size and length of all existing antenna mounting pipes.
7. Please measure and report the antenna information for all sectors.
8. Don't delete or rearrange any sheet or contents of any sheet from this mapping form.

Standard Conditions
1. Obvious safety and structural issues/deficiencies noticed at the time of the mount mapping are to be reported in this mapping. However, this mount mapping is not a condition assessment of the mount.

V3.0 Updated on 8-31-2020

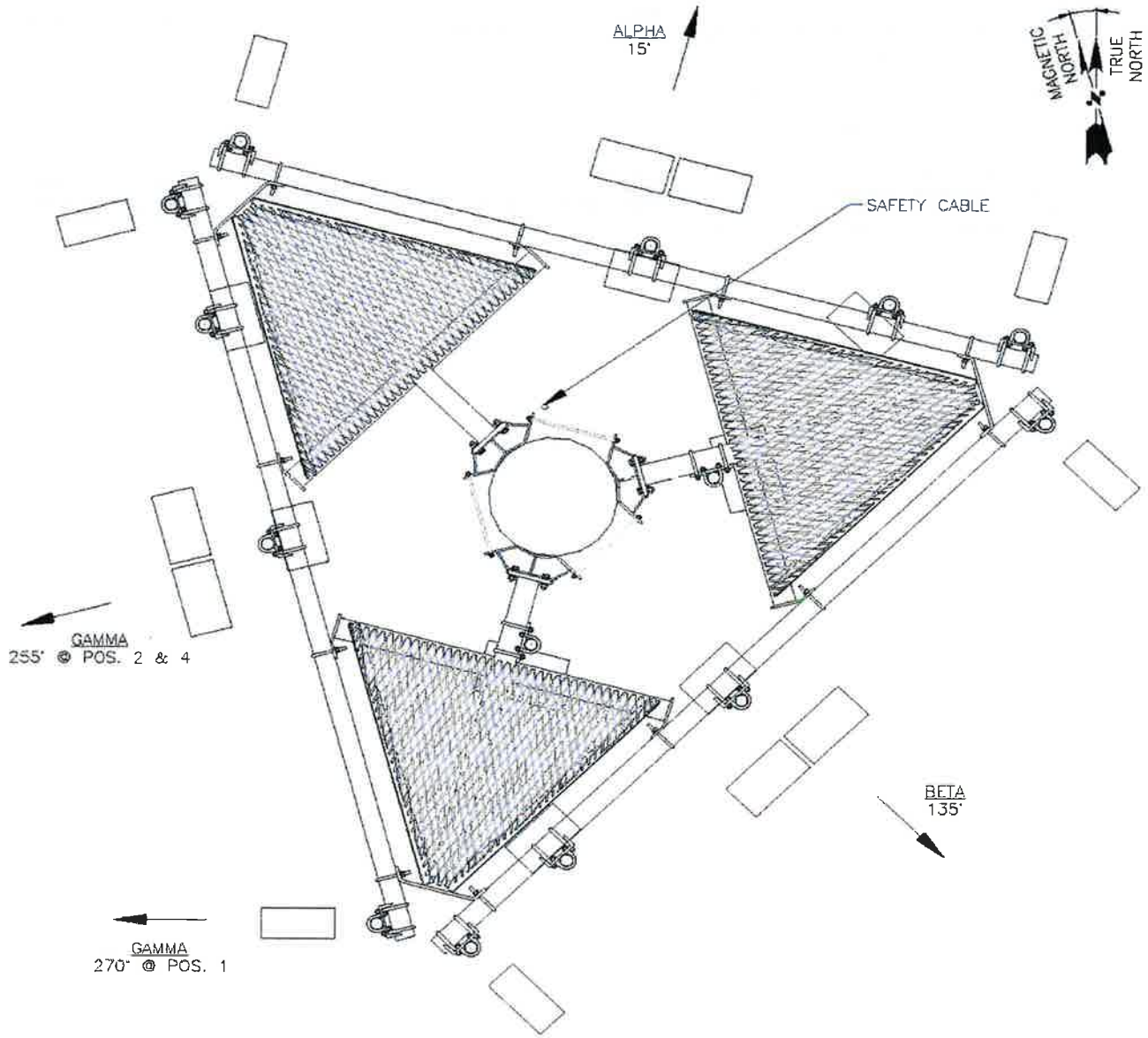
MASER CONSULTING P.A.

Antenna Mount Mapping Form (PATENT PENDING)

FCC #

Tower Owner:	Quinebaug Valley Emer Comm	**Mapping Date:**	02.12.21
Site Name:	QUINEBAUG CT	**Tower Type:**	Monopole
Site Number or ID:	468550	**Tower Height (Ft.):**	125
Mapping Contractor:	HUDSUN DESIGN GROUP, LLC.	**Mount Elevation (Ft.):**	115.5

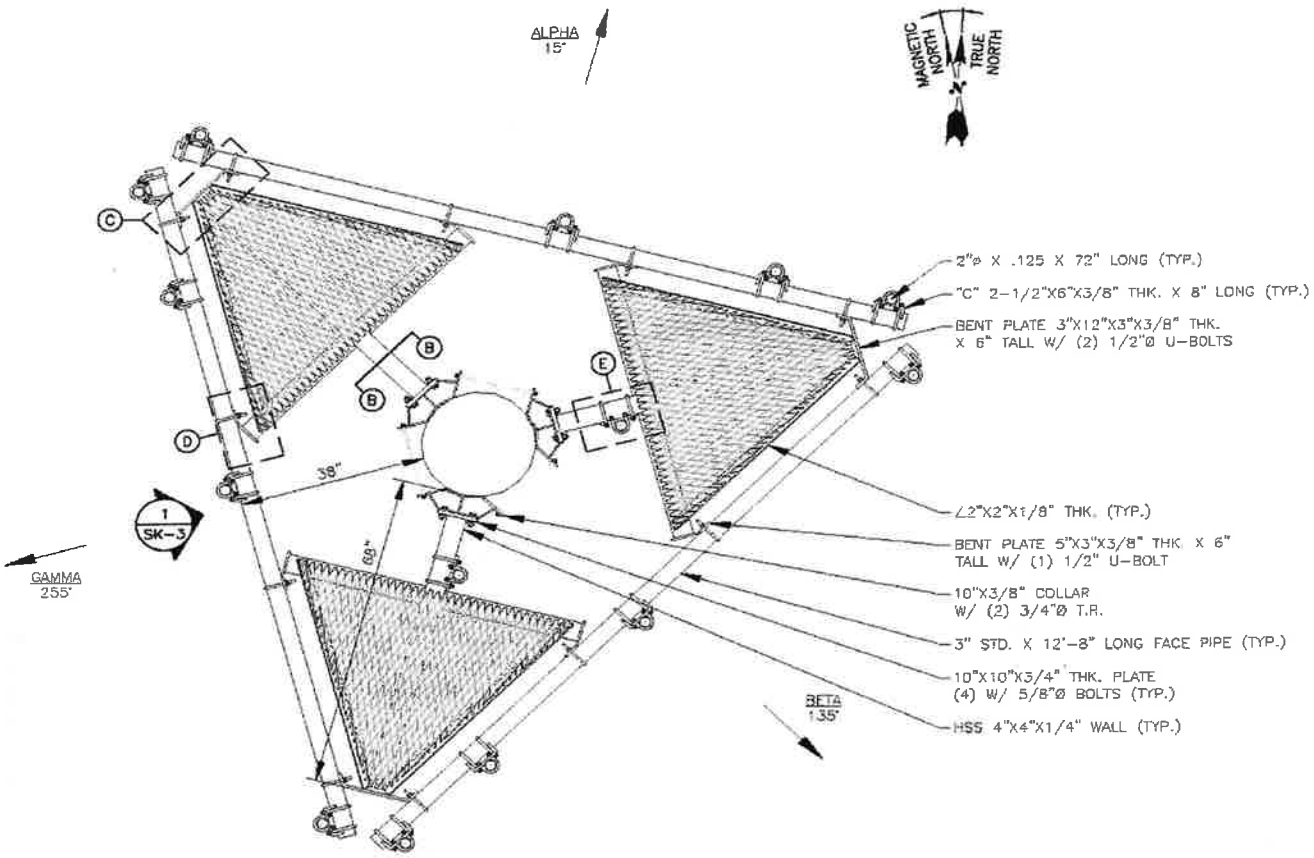
Please Insert Sketches of the Antenna Mount



ANTENNA PLAN (1 / SK–1)

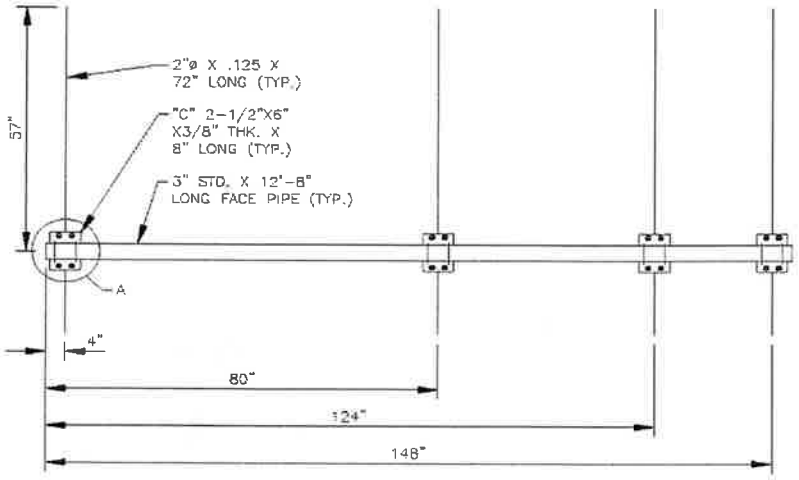
SCALE: N.T.S

Please Insert Sketches of the Antenna Mount, cont'd

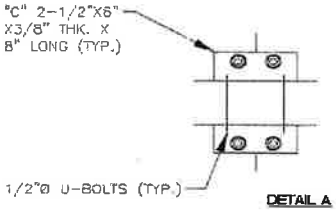


MOUNT PLAN (1 / SK-2)
SCALE: N.T.S

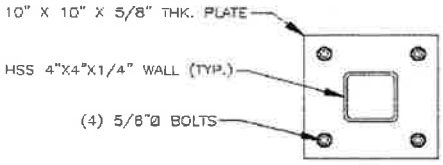
Please Insert Sketches of the Antenna Mount, cont'd



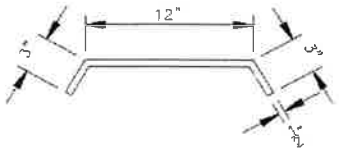
FACE ELEVATION (1 / SK-3)
SCALE: N.T.S



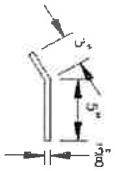
DETAIL A



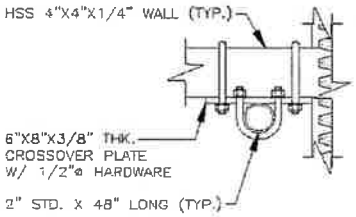
DETAIL B-B



DETAIL C

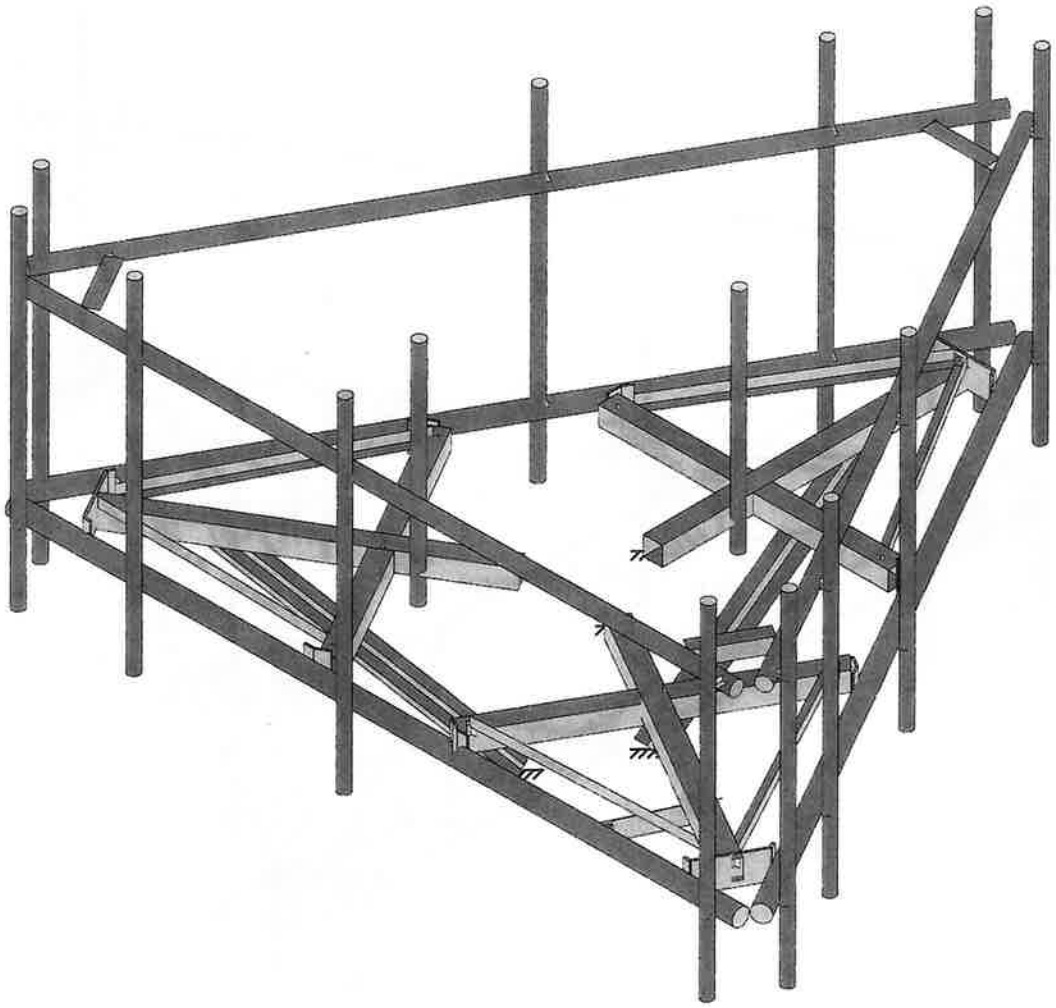


DETAIL D

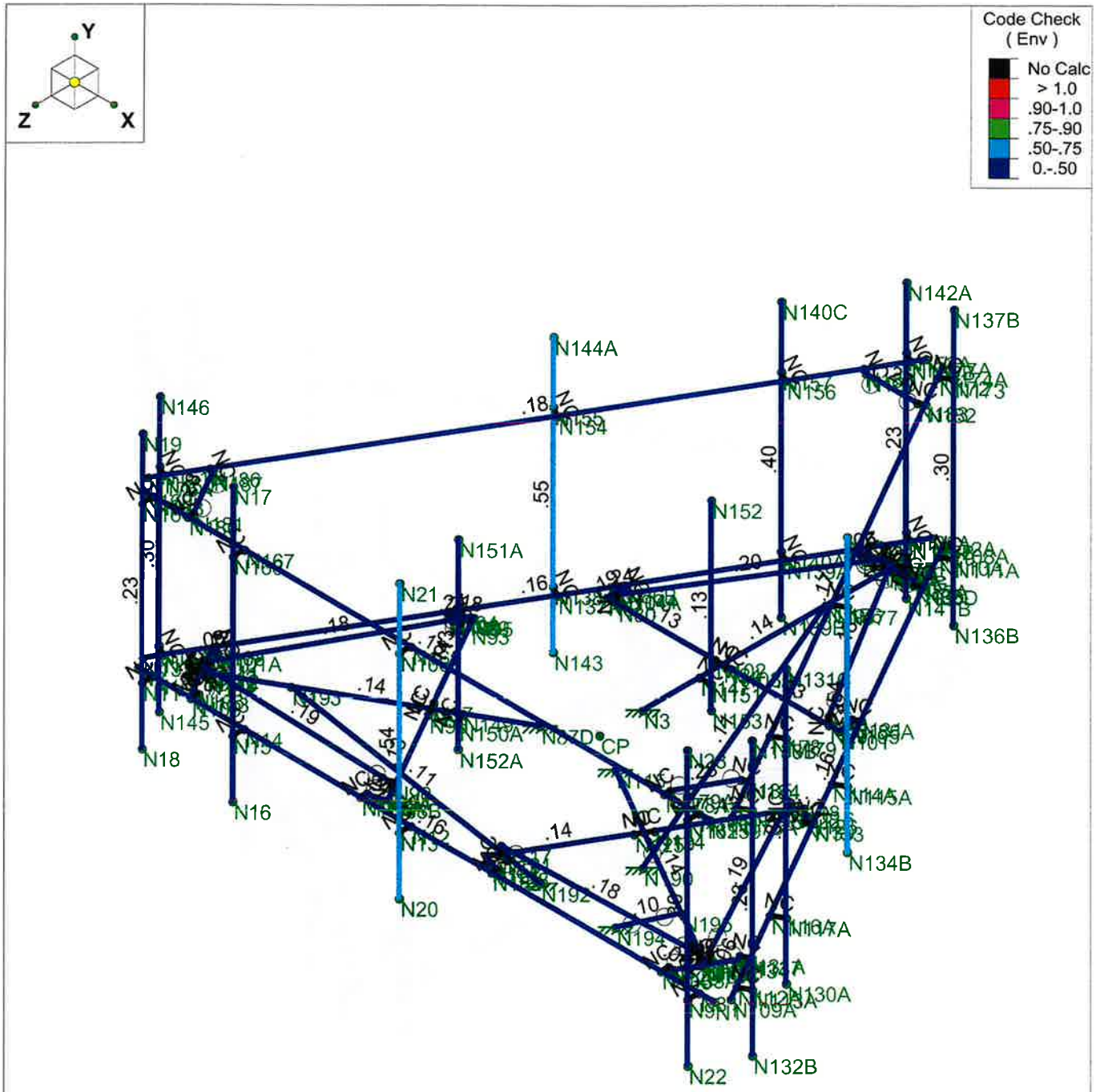


DETAIL E

DETAILS (2 / SK-3)
SCALE: N.T.S

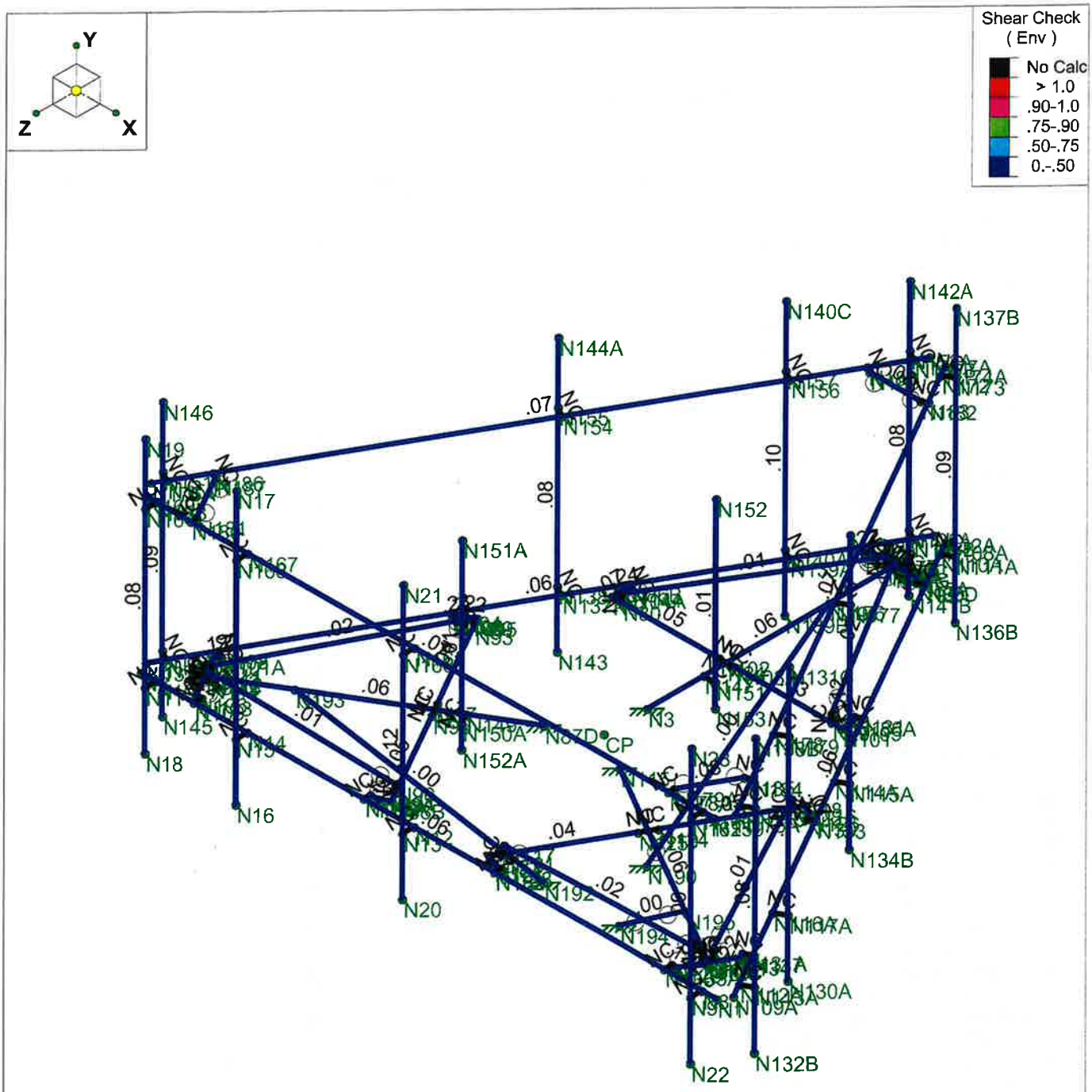


		SK - 1
		Sept 1, 2023 at 11:59 AM
		5000246481-VZW_MT_LO_H.r3d



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

		SK - 2
		Sept 1, 2023 at 12:43 PM
		5000246481-VZW_MT_LO_H.r3d



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

		SK - 3
		Sept 1, 2023 at 12:46 PM
		5000246481-VZW_MT_LO_H.r3d

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	Antenna D	None					135			
2	Antenna Di	None					135			
3	Antenna Wo (0 Deg)	None					135			
4	Antenna Wo (30 Deg)	None					135			
5	Antenna Wo (60 Deg)	None					135			
6	Antenna Wo (90 Deg)	None					135			
7	Antenna Wo (120 Deg)	None					135			
8	Antenna Wo (150 Deg)	None					135			
9	Antenna Wo (180 Deg)	None					135			
10	Antenna Wo (210 Deg)	None					135			
11	Antenna Wo (240 Deg)	None					135			
12	Antenna Wo (270 Deg)	None					135			
13	Antenna Wo (300 Deg)	None					135			
14	Antenna Wo (330 Deg)	None					135			
15	Antenna Wi (0 Deg)	None					135			
16	Antenna Wi (30 Deg)	None					135			
17	Antenna Wi (60 Deg)	None					135			
18	Antenna Wi (90 Deg)	None					135			
19	Antenna Wi (120 Deg)	None					135			
20	Antenna Wi (150 Deg)	None					135			
21	Antenna Wi (180 Deg)	None					135			
22	Antenna Wi (210 Deg)	None					135			
23	Antenna Wi (240 Deg)	None					135			
24	Antenna Wi (270 Deg)	None					135			
25	Antenna Wi (300 Deg)	None					135			
26	Antenna Wi (330 Deg)	None					135			
27	Antenna Wm (0 Deg)	None					135			
28	Antenna Wm (30 Deg)	None					135			
29	Antenna Wm (60 Deg)	None					135			
30	Antenna Wm (90 Deg)	None					135			
31	Antenna Wm (120 Deg)	None					135			
32	Antenna Wm (150 Deg)	None					135			
33	Antenna Wm (180 Deg)	None					135			
34	Antenna Wm (210 Deg)	None					135			
35	Antenna Wm (240 Deg)	None					135			
36	Antenna Wm (270 Deg)	None					135			
37	Antenna Wm (300 Deg)	None					135			
38	Antenna Wm (330 Deg)	None					135			
39	Structure D	None		-1					3	
40	Structure Di	None						62	3	
41	Structure Wo (0 Deg)	None						124		
42	Structure Wo (30 Deg)	None						124		
43	Structure Wo (60 Deg)	None						124		
44	Structure Wo (90 Deg)	None						124		
45	Structure Wo (120 D...	None						124		
46	Structure Wo (150 D...	None						124		
47	Structure Wo (180 D...	None						124		
48	Structure Wo (210 D...	None						124		
49	Structure Wo (240 D...	None						124		
50	Structure Wo (270 D...	None						124		
51	Structure Wo (300 D...	None						124		
52	Structure Wo (330 D...	None						124		
53	Structure Wi (0 Deg)	None						124		
54	Structure Wi (30 Deg)	None						124		
55	Structure Wi (60 Deg)	None						124		
56	Structure Wi (90 Deg)	None						124		

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
57	Structure Wi (120 De..	None						124		
58	Structure Wi (150 De..	None						124		
59	Structure Wi (180 De..	None						124		
60	Structure Wi (210 De..	None						124		
61	Structure Wi (240 De..	None						124		
62	Structure Wi (270 De..	None						124		
63	Structure Wi (300 De..	None						124		
64	Structure Wi (330 De..	None						124		
65	Structure Wm (0 Deg)	None						124		
66	Structure Wm (30 De...	None						124		
67	Structure Wm (60 De...	None						124		
68	Structure Wm (90 De...	None						124		
69	Structure Wm (120 D...	None						124		
70	Structure Wm (150 D...	None						124		
71	Structure Wm (180 D...	None						124		
72	Structure Wm (210 D...	None						124		
73	Structure Wm (240 D...	None						124		
74	Structure Wm (270 D...	None						124		
75	Structure Wm (300 D...	None						124		
76	Structure Wm (330 D...	None						124		
77	Lm1	None					1			
78	Lm2	None					1			
79	Lv1	None					1			
80	Lv2	None					1			
81	Antenna Ev	None					135			
82	Antenna Eh (0 Deg)	None					90			
83	Antenna Eh (90 Deg)	None					90			
84	Structure Ev	ELY							3	
85	Structure Eh (0 Deg)	ELZ			-.03				3	
86	Structure Eh (90 Deg)	ELX	.03						3	
87	BLC 39 Transient Are..	None						30		
88	BLC 40 Transient Are..	None						30		
89	BLC 84 Transient Are..	None								
90	BLC 85 Transient Are..	None						30		
91	BLC 86 Transient Are..	None						30		

Load Combinations

	Description	So..	P...	S...	BLCFa...		BLCFa...		BLCFa...		BLCFa...		BLCFa...		BLCFa...		BLCFa...		BLCFa...		BLCFa...	
1	1.2D+1.0Wo (0 Deg)	Yes	Y		1	1.2	39	1.2	3	1	41	1										
2	1.2D+1.0Wo (30 Deg)	Yes	Y		1	1.2	39	1.2	4	1	42	1										
3	1.2D+1.0Wo (60 Deg)	Yes	Y		1	1.2	39	1.2	5	1	43	1										
4	1.2D+1.0Wo (90 Deg)	Yes	Y		1	1.2	39	1.2	6	1	44	1										
5	1.2D+1.0Wo (120 Deg)	Yes	Y		1	1.2	39	1.2	7	1	45	1										
6	1.2D+1.0Wo (150 Deg)	Yes	Y		1	1.2	39	1.2	8	1	46	1										
7	1.2D+1.0Wo (180 Deg)	Yes	Y		1	1.2	39	1.2	9	1	47	1										
8	1.2D+1.0Wo (210 Deg)	Yes	Y		1	1.2	39	1.2	10	1	48	1										
9	1.2D+1.0Wo (240 Deg)	Yes	Y		1	1.2	39	1.2	11	1	49	1										
10	1.2D+1.0Wo (270 Deg)	Yes	Y		1	1.2	39	1.2	12	1	50	1										
11	1.2D+1.0Wo (300 Deg)	Yes	Y		1	1.2	39	1.2	13	1	51	1										
12	1.2D+1.0Wo (330 Deg)	Yes	Y		1	1.2	39	1.2	14	1	52	1										
13	1.2D + 1.0Di + 1.0Wi (0 ...	Yes	Y		1	1.2	39	1.2	2	1	40	1	15	1	53	1						
14	1.2D + 1.0Di + 1.0Wi (30...	Yes	Y		1	1.2	39	1.2	2	1	40	1	16	1	54	1						
15	1.2D + 1.0Di + 1.0Wi (60...	Yes	Y		1	1.2	39	1.2	2	1	40	1	17	1	55	1						
16	1.2D + 1.0Di + 1.0Wi (90...	Yes	Y		1	1.2	39	1.2	2	1	40	1	18	1	56	1						
17	1.2D + 1.0Di + 1.0Wi (12...	Yes	Y		1	1.2	39	1.2	2	1	40	1	19	1	57	1						

Load Combinations (Continued)

	Description	So..	P...	S...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...
18	1.2D + 1.0Di + 1.0Wi (15..	Yes	Y		1	1.2	39	1.2	2	1	40	1	20	1	58	1						
19	1.2D + 1.0Di + 1.0Wi (18..	Yes	Y		1	1.2	39	1.2	2	1	40	1	21	1	59	1						
20	1.2D + 1.0Di + 1.0Wi (21..	Yes	Y		1	1.2	39	1.2	2	1	40	1	22	1	60	1						
21	1.2D + 1.0Di + 1.0Wi (24..	Yes	Y		1	1.2	39	1.2	2	1	40	1	23	1	61	1						
22	1.2D + 1.0Di + 1.0Wi (27..	Yes	Y		1	1.2	39	1.2	2	1	40	1	24	1	62	1						
23	1.2D + 1.0Di + 1.0Wi (30..	Yes	Y		1	1.2	39	1.2	2	1	40	1	25	1	63	1						
24	1.2D + 1.0Di + 1.0Wi (33..	Yes	Y		1	1.2	39	1.2	2	1	40	1	26	1	64	1						
25	1.2D + 1.5Lm1 + 1.0Wm ..	Yes	Y		1	1.2	39	1.2	77	1.5	27	1	65	1								
26	1.2D + 1.5Lm1 + 1.0Wm ..	Yes	Y		1	1.2	39	1.2	77	1.5	28	1	66	1								
27	1.2D + 1.5Lm1 + 1.0Wm ..	Yes	Y		1	1.2	39	1.2	77	1.5	29	1	67	1								
28	1.2D + 1.5Lm1 + 1.0Wm ..	Yes	Y		1	1.2	39	1.2	77	1.5	30	1	68	1								
29	1.2D + 1.5Lm1 + 1.0Wm ..	Yes	Y		1	1.2	39	1.2	77	1.5	31	1	69	1								
30	1.2D + 1.5Lm1 + 1.0Wm ..	Yes	Y		1	1.2	39	1.2	77	1.5	32	1	70	1								
31	1.2D + 1.5Lm1 + 1.0Wm ..	Yes	Y		1	1.2	39	1.2	77	1.5	33	1	71	1								
32	1.2D + 1.5Lm1 + 1.0Wm ..	Yes	Y		1	1.2	39	1.2	77	1.5	34	1	72	1								
33	1.2D + 1.5Lm1 + 1.0Wm ..	Yes	Y		1	1.2	39	1.2	77	1.5	35	1	73	1								
34	1.2D + 1.5Lm1 + 1.0Wm ..	Yes	Y		1	1.2	39	1.2	77	1.5	36	1	74	1								
35	1.2D + 1.5Lm1 + 1.0Wm ..	Yes	Y		1	1.2	39	1.2	77	1.5	37	1	75	1								
36	1.2D + 1.5Lm1 + 1.0Wm ..	Yes	Y		1	1.2	39	1.2	77	1.5	38	1	76	1								
37	1.2D + 1.5Lm2 + 1.0Wm ..	Yes	Y		1	1.2	39	1.2	78	1.5	27	1	65	1								
38	1.2D + 1.5Lm2 + 1.0Wm ..	Yes	Y		1	1.2	39	1.2	78	1.5	28	1	66	1								
39	1.2D + 1.5Lm2 + 1.0Wm ..	Yes	Y		1	1.2	39	1.2	78	1.5	29	1	67	1								
40	1.2D + 1.5Lm2 + 1.0Wm ..	Yes	Y		1	1.2	39	1.2	78	1.5	30	1	68	1								
41	1.2D + 1.5Lm2 + 1.0Wm ..	Yes	Y		1	1.2	39	1.2	78	1.5	31	1	69	1								
42	1.2D + 1.5Lm2 + 1.0Wm ..	Yes	Y		1	1.2	39	1.2	78	1.5	32	1	70	1								
43	1.2D + 1.5Lm2 + 1.0Wm ..	Yes	Y		1	1.2	39	1.2	78	1.5	33	1	71	1								
44	1.2D + 1.5Lm2 + 1.0Wm ..	Yes	Y		1	1.2	39	1.2	78	1.5	34	1	72	1								
45	1.2D + 1.5Lm2 + 1.0Wm ..	Yes	Y		1	1.2	39	1.2	78	1.5	35	1	73	1								
46	1.2D + 1.5Lm2 + 1.0Wm ..	Yes	Y		1	1.2	39	1.2	78	1.5	36	1	74	1								
47	1.2D + 1.5Lm2 + 1.0Wm ..	Yes	Y		1	1.2	39	1.2	78	1.5	37	1	75	1								
48	1.2D + 1.5Lm2 + 1.0Wm ..	Yes	Y		1	1.2	39	1.2	78	1.5	38	1	76	1								
49	1.2D + 1.5Lv1	Yes	Y		1	1.2	39	1.2	79	1.5												
50	1.2D + 1.5Lv2	Yes	Y		1	1.2	39	1.2	80	1.5												
51	1.4D	Yes	Y		1	1.4	39	1.4														
52	1.2D + 1.0Ev + 1.0Eh (0 ...	Yes	Y		1	1.2	39	1.2	81	1	ELY	1	82	1	83		ELZ	1	ELX			
53	1.2D + 1.0Ev + 1.0Eh (3...	Yes	Y		1	1.2	39	1.2	81	1	ELY	1	82	.866	83	.5	ELZ	.866	ELX	.5		
54	1.2D + 1.0Ev + 1.0Eh (6...	Yes	Y		1	1.2	39	1.2	81	1	ELY	1	82	.5	83	.866	ELZ	.5	ELX	.866		
55	1.2D + 1.0Ev + 1.0Eh (9...	Yes	Y		1	1.2	39	1.2	81	1	ELY	1	82		83	1	ELZ		ELX	1		
56	1.2D + 1.0Ev + 1.0Eh (1...	Yes	Y		1	1.2	39	1.2	81	1	ELY	1	82	-.5	83	.866	ELZ	-.5	ELX	.866		
57	1.2D + 1.0Ev + 1.0Eh (1...	Yes	Y		1	1.2	39	1.2	81	1	ELY	1	82	-.866	83	.5	ELZ	-.866	ELX	.5		
58	1.2D + 1.0Ev + 1.0Eh (1...	Yes	Y		1	1.2	39	1.2	81	1	ELY	1	82	-1	83		ELZ	-1	ELX			
59	1.2D + 1.0Ev + 1.0Eh (2...	Yes	Y		1	1.2	39	1.2	81	1	ELY	1	82	-.866	83	-.5	ELZ	-.866	ELX	-.5		
60	1.2D + 1.0Ev + 1.0Eh (2...	Yes	Y		1	1.2	39	1.2	81	1	ELY	1	82	-.5	83	-.866	ELZ	-.5	ELX	-.866		
61	1.2D + 1.0Ev + 1.0Eh (2...	Yes	Y		1	1.2	39	1.2	81	1	ELY	1	82		83	-1	ELZ		ELX	-1		
62	1.2D + 1.0Ev + 1.0Eh (3...	Yes	Y		1	1.2	39	1.2	81	1	ELY	1	82	.5	83	-.866	ELZ	.5	ELX	-.866		
63	1.2D + 1.0Ev + 1.0Eh (3...	Yes	Y		1	1.2	39	1.2	81	1	ELY	1	82	.866	83	-.5	ELZ	.866	ELX	-.5		
64	0.9D - 1.0Ev + 1.0Eh (0 ...	Yes	Y		1	.9	39	.9	81	-1	ELY	-1	82	1	83		ELZ	1	ELX			
65	0.9D - 1.0Ev + 1.0Eh (30..	Yes	Y		1	.9	39	.9	81	-1	ELY	-1	82	.866	83	.5	ELZ	.866	ELX	.5		
66	0.9D - 1.0Ev + 1.0Eh (60..	Yes	Y		1	.9	39	.9	81	-1	ELY	-1	82	.5	83	.866	ELZ	.5	ELX	.866		
67	0.9D - 1.0Ev + 1.0Eh (90..	Yes	Y		1	.9	39	.9	81	-1	ELY	-1	82		83	1	ELZ		ELX	1		
68	0.9D - 1.0Ev + 1.0Eh (12..	Yes	Y		1	.9	39	.9	81	-1	ELY	-1	82	-.5	83	.866	ELZ	-.5	ELX	.866		
69	0.9D - 1.0Ev + 1.0Eh (15..	Yes	Y		1	.9	39	.9	81	-1	ELY	-1	82	-.866	83	.5	ELZ	-.866	ELX	.5		
70	0.9D - 1.0Ev + 1.0Eh (18..	Yes	Y		1	.9	39	.9	81	-1	ELY	-1	82	-1	83		ELZ	-1	ELX			
71	0.9D - 1.0Ev + 1.0Eh (21..	Yes	Y		1	.9	39	.9	81	-1	ELY	-1	82	-.866	83	-.5	ELZ	-.866	ELX	-.5		
72	0.9D - 1.0Ev + 1.0Eh (24..	Yes	Y		1	.9	39	.9	81	-1	ELY	-1	82	-.5	83	-.866	ELZ	-.5	ELX	-.866		
73	0.9D - 1.0Ev + 1.0Eh (27..	Yes	Y		1	.9	39	.9	81	-1	ELY	-1	82		83	-1	ELZ		ELX	-1		
74	0.9D - 1.0Ev + 1.0Eh (30..	Yes	Y		1	.9	39	.9	81	-1	ELY	-1	82	.5	83	-.866	ELZ	.5	ELX	-.866		

Load Combinations (Continued)

	Description	So..	P...	S...	BLCFa...		BLCFa...		BLCFa...		BLCFa...		BLCFa...		BLCFa...		BLCFa...		BLCFa...		BLCFa...	
75	0.9D - 1.0Ev + 1.0Eh (33..	Yes	Y		1	.9	39	.9	81	-1	ELY	-1	82	.866	83	-.5	ELZ	.866	ELX	-.5		

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	N1	6.333333	0	3.810523	0	
2	N2	-6.333333	0	3.810523	0	
3	N3	-0.	0	-0.958333	0	
4	N5	-2.541667	0	-2.708333	0	
5	N6	2.315104	0.166667	-2.708333	0	
6	N7	-2.315104	0.166667	-2.708333	0	
7	N8	6	0	3.810523	0	
8	N9	6	0	4.060523	0	
9	N10	-6	0	3.810523	0	
10	N11	-6	0	4.060523	0	
11	N12	-0.333333	0	3.810523	0	
12	N13	-0.333333	0	4.060523	0	
13	N14	-4	0	3.810523	0	
14	N15	-4	0	4.060523	0	
15	N16	-4	-1.25	4.060523	0	
16	N17	-4	4.75	4.060523	0	
17	N18	-6	-1.25	4.060523	0	
18	N19	-6	4.75	4.060523	0	
19	N20	-0.333333	-1.25	4.060523	0	
20	N21	-0.333333	4.75	4.060523	0	
21	N22	6	-1.25	4.060523	0	
22	N23	6	4.75	4.060523	0	
23	N24	-0.	0	-2.708333	0	
24	N27	-0.	0	-6.395833	0	
25	CP	0	0	0	0	
26	N29	2.315104	0	-2.708333	0	
27	N30	-2.315104	0	-2.708333	0	
28	N101	2.541667	0	-2.708333	0	
29	N102	-0.166667	0	-2.708333	0	
30	N103A	0.166667	0	-2.708333	0	
31	N104A	-2.541667	0	-2.927083	0	
32	N105	2.541667	0	-2.927083	0	
33	N131	2.458333	0	-3.071421	0	
34	N135	0.571615	0	-6.298857	0	
35	N144	-2.458333	0	-3.071421	0	
36	N148	-0.571615	0	-6.298857	0	
37	N86A	2.584629	0	-3.144338	0	
38	N86B	-2.584629	0	-3.144338	0	
39	N86C	-0.515625	0	-6.395833	0	
40	N87A	0.515625	0	-6.395833	0	
41	N86D	0.715429	0	-6.381888	0	
42	N86E	-0.715429	0	-6.381888	0	
43	N88A	-0.	0	-6.3125	0	
44	N87C	0.083321	0.166667	-6.3125	0	
45	N86G	0.083321	0	-6.3125	0	
46	N87B	-0.083321	0.166667	-6.3125	0	
47	N88C	-0.083321	0	-6.3125	0	
48	N87D	-0.829941	0	0.479167	0	
49	N88B	-1.074652	0	3.555315	0	
50	N89	-3.503038	0.166667	-0.650772	0	
51	N90	-1.187933	0.166667	3.359106	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
52	N91	-2.345485	0	1.354167	0	
53	N92	-5.538954	0	3.197917	0	
54	N93	-3.503038	0	-0.650772	0	
55	N94	-1.187933	0	3.359106	0	
56	N95	-3.616319	0	-0.846981	0	
57	N96	-2.262152	0	1.498504	0	
58	N97	-2.428819	0	1.209829	0	
59	N98	-1.264095	0	3.66469	0	
60	N99	-3.805762	0	-0.737606	0	
61	N100	-3.889095	0	-0.593269	0	
62	N101A	-5.740777	0	2.654396	0	
63	N102A	-1.430762	0	3.66469	0	
64	N103	-5.169162	0	3.644461	0	
65	N104	-4.015391	0	-0.666185	0	
66	N105A	-1.430762	0	3.810523	0	
67	N106	-5.281142	0	3.644461	0	
68	N107	-5.796767	0	2.751372	0	
69	N108	-5.884591	0	2.571364	0	
70	N109	-5.169162	0	3.810523	0	
71	N110	-5.466785	0	3.15625	0	
72	N111	-5.508446	0.166667	3.084092	0	
73	N112	-5.508446	0	3.084092	0	
74	N113	-5.425125	0.166667	3.228408	0	
75	N114	-5.425125	0	3.228408	0	
76	N115	0.829941	0	0.479167	0	
77	N116	3.616319	0	-0.846981	0	
78	N117	1.187933	0.166667	3.359106	0	
79	N118	3.503038	0.166667	-0.650772	0	
80	N119	2.345485	0	1.354167	0	
81	N120	5.538954	0	3.197917	0	
82	N121	1.187933	0	3.359106	0	
83	N122	3.503038	0	-0.650772	0	
84	N123	1.074652	0	3.555315	0	
85	N124	2.428819	0	1.209829	0	
86	N125	2.262152	0	1.498504	0	
87	N126	3.805762	0	-0.737606	0	
88	N127	1.264095	0	3.66469	0	
89	N128	1.430762	0	3.66469	0	
90	N129	5.169162	0	3.644461	0	
91	N130	3.889095	0	-0.593269	0	
92	N131A	5.740777	0	2.654396	0	
93	N132	1.430762	0	3.810523	0	
94	N133	4.015391	0	-0.666186	0	
95	N134	5.796767	0	2.751372	0	
96	N135A	5.281142	0	3.644461	0	
97	N136	5.169162	0	3.810523	0	
98	N137	5.884591	0	2.571364	0	
99	N138	5.466785	0	3.15625	0	
100	N139	5.425125	0.166667	3.228408	0	
101	N140	5.425125	0	3.228408	0	
102	N141	5.508446	0.166667	3.084092	0	
103	N142	5.508446	0	3.084092	0	
104	N108A	0.133343	0	-7.390089	0	
105	N109A	6.466677	0	3.579566	0	
106	N110A	0.30001	0	-7.101414	0	
107	N111A	0.516516	0	-7.226414	0	
108	N112A	6.30001	0	3.290891	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
109	N113A	6.516516	0	3.165891	0	
110	N114A	3.466677	0	-1.616586	0	
111	N115A	3.683183	0	-1.741587	0	
112	N116A	5.30001	0	1.55884	0	
113	N117A	5.516516	0	1.43384	0	
114	N131B	-6.466677	0	3.579566	0	
115	N132A	-0.133343	0	-7.390089	0	
116	N133A	-6.30001	0	3.290891	0	
117	N134A	-6.516516	0	3.165891	0	
118	N135B	-0.30001	0	-7.101414	0	
119	N136A	-0.516516	0	-7.226414	0	
120	N137A	-3.133343	0	-2.193937	0	
121	N138A	-3.34985	0	-2.318937	0	
122	N139A	-1.30001	0	-5.369363	0	
123	N140A	-1.516516	0	-5.494363	0	
124	N149	-1.912473	0	1.104167	0	
125	N150A	-1.787473	0	1.320673	0	
126	N151A	-1.787473	3.5	1.320673	0	
127	N152A	-1.787473	-.5	1.320673	0	
128	N130A	5.516516	-1.25	1.43384	0	
129	N131C	5.516516	4.75	1.43384	0	
130	N132B	6.516516	-1.25	3.165891	0	
131	N133B	6.516516	4.75	3.165891	0	
132	N134B	3.683183	-1.25	-1.741587	0	
133	N135C	3.683183	4.75	-1.741587	0	
134	N136B	0.516516	-1.25	-7.226414	0	
135	N137B	0.516516	4.75	-7.226414	0	
136	N139B	-1.516516	-1.25	-5.494363	0	
137	N140C	-1.516516	4.75	-5.494363	0	
138	N141B	-0.516516	-1.25	-7.226414	0	
139	N142A	-0.516516	4.75	-7.226414	0	
140	N143	-3.34985	-1.25	-2.318937	0	
141	N144A	-3.34985	4.75	-2.318937	0	
142	N145	-6.516516	-1.25	3.165891	0	
143	N146	-6.516516	4.75	3.165891	0	
144	N147	-0.	0	-2.208333	0	
145	N151	0.25	0	-2.208333	0	
146	N152	0.25	3.5	-2.208333	0	
147	N153	0.25	-.5	-2.208333	0	
148	N150	-6.30001	3.417	3.290891	0	
149	N151B	-6.516516	3.417	3.165891	0	
150	N152B	-0.30001	3.417	-7.101414	0	
151	N153A	-0.516516	3.417	-7.226414	0	
152	N154	-3.133343	3.417	-2.193937	0	
153	N155	-3.34985	3.417	-2.318937	0	
154	N156	-1.30001	3.417	-5.369363	0	
155	N157	-1.516516	3.417	-5.494363	0	
156	N159	6.25	3.417	3.810523	0	
157	N160	-6.25	3.417	3.810523	0	
158	N161	6	3.417	3.810523	0	
159	N162	6	3.417	4.060523	0	
160	N163	-6	3.417	3.810523	0	
161	N164	-6	3.417	4.060523	0	
162	N165	-0.333333	3.417	3.810523	0	
163	N166	-0.333333	3.417	4.060523	0	
164	N167	-4	3.417	3.810523	0	
165	N168	-4	3.417	4.060523	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
166	N172	0.30001	3.417	-7.101414	0	
167	N173	0.516516	3.417	-7.226414	0	
168	N174	6.30001	3.417	3.290891	0	
169	N175	6.516516	3.417	3.165891	0	
170	N176	3.466677	3.417	-1.616586	0	
171	N177	3.683183	3.417	-1.741587	0	
172	N178	5.30001	3.417	1.55884	0	
173	N179	5.516516	3.417	1.43384	0	
174	N174A	0.17501	3.417	-7.31792	0	
175	N175A	6.42501	3.417	3.507397	0	
176	N176A	-6.42501	3.417	3.507397	0	
177	N177A	-0.17501	3.417	-7.31792	0	
178	N178A	5.25	3.417	3.810523	0	
179	N179A	5.25	3.417	3.685523	0	
180	N180	-5.25	3.417	3.810523	0	
181	N181	-5.25	3.417	3.685523	0	
182	N182	0.67501	3.417	-6.451895	0	
183	N183	0.566757	3.417	-6.389395	0	
184	N184	5.92501	3.417	2.641372	0	
185	N185	5.816757	3.417	2.703872	0	
186	N186	-5.92501	3.417	2.641372	0	
187	N187	-5.816757	3.417	2.703872	0	
188	N188	-0.67501	3.417	-6.451895	0	
189	N189	-0.566757	3.417	-6.389395	0	
190	N190	-0.	-3	-0.958333	0	
191	N191	-0.	0	-4.958333	0	
192	N192	-0.829941	-3	0.479167	0	
193	N193	-4.294043	0	2.479167	0	
194	N194	0.829941	-3	0.479167	0	
195	N195	4.294043	0	2.479167	0	

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design Li...	Material	Design R...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Face Horizontal	PIPE_3.0	Beam	Pipe	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
2	Standoff Horizontal	HSS4X4...	Beam	SquareT...	A500 Gr.B Rect	Typical	3.37	7.8	7.8	12.8
3	Corner Plate	PL1/2X6	Beam	BAR	A36 Gr.36	Typical	3	.063	9	.237
4	Platform Crossmember	HSS4X4...	Beam	SquareT...	A500 Gr.B Rect	Typical	3.37	7.8	7.8	12.8
5	Grating Support	L2x2x2	Beam	Single A...	A36 Gr.36	Typical	.491	.189	.189	.003
6	Mount Pipe	PIPE_2.0	Column	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
7	Cross Arm Plate	PL3/8x6	Column	RECT	A36 Gr.36	Typical	2.25	.026	6.75	.101
8	MOD Support Rail	PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
9	MOD Support Rail Cor...	L3X3X4	Beam	Single A...	A36 Gr.36	Typical	1.44	1.23	1.23	.031
10	MOD Kicker	LL3x3x3x6	Column	Double A...	A36 Gr.36	Typical	2.18	4.97	1.9	.027

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	Q235	29000	11154	.3	.65	.49	35	1.5	58	1.2

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N1	N2			Face Horizontal	Beam	Pipe	A53 Gr.B	Typical
2	M4	N3	N27			Standoff Horiz...	Beam	SquareTube	A500 Gr.B...	Typical
3	M10	N101	N103A			Platform Cross...	Beam	SquareTube	A500 Gr.B...	Typical
4	M19	N8	N9			RIGID	None	None	RIGID	Typical
5	M20	N10	N11			RIGID	None	None	RIGID	Typical
6	M21	N12	N13			RIGID	None	None	RIGID	Typical
7	M22	N14	N15			RIGID	None	None	RIGID	Typical
8	MP3A	N17	N16			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
9	MP4A	N19	N18			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
10	MP2A	N21	N20			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
11	MP1A	N23	N22			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
12	M43	N102	N5			Platform Cross...	Beam	SquareTube	A500 Gr.B...	Typical
13	M46	N86C	N87A			Corner Plate	Beam	BAR	A36 Gr.36	Typical
14	M35A	N7	N30			RIGID	None	None	RIGID	Typical
15	M36A	N6	N29			RIGID	None	None	RIGID	Typical
16	M51B	N87C	N6			Grating Support	Beam	Single Angle	A36 Gr.36	Typical
17	M52B	N7	N87B			Grating Support	Beam	Single Angle	A36 Gr.36	Typical
18	M52	N87B	N88C			RIGID	None	None	RIGID	Typical
19	M58	N102	N24			RIGID	None	None	RIGID	Typical
20	M59	N24	N103A			RIGID	None	None	RIGID	Typical
21	M76	N101	N105			Cross Arm Plate	Column	RECT	A36 Gr.36	Typical
22	M77	N105	N131			Cross Arm Plate	Column	RECT	A36 Gr.36	Typical
23	M79	N131	N86A			RIGID	None	None	RIGID	Typical
24	M80	N87A	N135			Corner Plate	Beam	BAR	A36 Gr.36	Typical
25	M83	N135	N86D			RIGID	None	None	RIGID	Typical
26	M84	N5	N104A			Cross Arm Plate	Column	RECT	A36 Gr.36	Typical
27	M85	N104A	N144			Cross Arm Plate	Column	RECT	A36 Gr.36	Typical
28	M88	N144	N86B			RIGID	None	None	RIGID	Typical
29	M91	N86C	N148			Corner Plate	Beam	BAR	A36 Gr.36	Typical
30	M92	N148	N86E			RIGID	None	None	RIGID	Typical
31	M50	N88C	N88A			RIGID	None	None	RIGID	Typical
32	M51	N88A	N86G			RIGID	None	None	RIGID	Typical
33	M51A	N87C	N86G			RIGID	None	None	RIGID	Typical
34	M52A	N87D	N92			Standoff Horiz...	Beam	SquareTube	A500 Gr.B...	Typical
35	M53	N95	N97			Platform Cross...	Beam	SquareTube	A500 Gr.B...	Typical
36	M54	N96	N88B			Platform Cross...	Beam	SquareTube	A500 Gr.B...	Typical
37	M55	N106	N107			Corner Plate	Beam	BAR	A36 Gr.36	Typical
38	M56	N90	N94			RIGID	None	None	RIGID	Typical
39	M57	N89	N93			RIGID	None	None	RIGID	Typical
40	M58A	N111	N89			Grating Support	Beam	Single Angle	A36 Gr.36	Typical
41	M59A	N90	N113			Grating Support	Beam	Single Angle	A36 Gr.36	Typical
42	M60	N113	N114			RIGID	None	None	RIGID	Typical
43	M61	N96	N91			RIGID	None	None	RIGID	Typical
44	M62	N91	N97			RIGID	None	None	RIGID	Typical
45	M63	N95	N99			Cross Arm Plate	Column	RECT	A36 Gr.36	Typical
46	M64	N99	N100			Cross Arm Plate	Column	RECT	A36 Gr.36	Typical
47	M65	N100	N104			RIGID	None	None	RIGID	Typical
48	M66	N107	N101A			Corner Plate	Beam	BAR	A36 Gr.36	Typical
49	M67	N101A	N108			RIGID	None	None	RIGID	Typical
50	M68	N88B	N98			Cross Arm Plate	Column	RECT	A36 Gr.36	Typical
51	M69	N98	N102A			Cross Arm Plate	Column	RECT	A36 Gr.36	Typical
52	M70	N102A	N105A			RIGID	None	None	RIGID	Typical
53	M71	N106	N103			Corner Plate	Beam	BAR	A36 Gr.36	Typical
54	M72	N103	N109			RIGID	None	None	RIGID	Typical
55	M73	N114	N110			RIGID	None	None	RIGID	Typical
56	M74	N110	N112			RIGID	None	None	RIGID	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
57	M75	N111	N112			RIGID	None	None	RIGID	Typical
58	M76A	N115	N120			Standoff Horiz...	Beam	SquareTube	A500 Gr.B..	Typical
59	M77A	N123	N125			Platform Cross...	Beam	SquareTube	A500 Gr.B..	Typical
60	M78	N124	N116			Platform Cross...	Beam	SquareTube	A500 Gr.B..	Typical
61	M79A	N134	N135A			Corner Plate	Beam	BAR	A36 Gr.36	Typical
62	M80A	N118	N122			RIGID	None	None	RIGID	Typical
63	M81	N117	N121			RIGID	None	None	RIGID	Typical
64	M82	N139	N117			Grating Support	Beam	Single Angle	A36 Gr.36	Typical
65	M83A	N118	N141			Grating Support	Beam	Single Angle	A36 Gr.36	Typical
66	M84A	N141	N142			RIGID	None	None	RIGID	Typical
67	M85A	N124	N119			RIGID	None	None	RIGID	Typical
68	M86	N119	N125			RIGID	None	None	RIGID	Typical
69	M87	N123	N127			Cross Arm Plate	Column	RECT	A36 Gr.36	Typical
70	M88A	N127	N128			Cross Arm Plate	Column	RECT	A36 Gr.36	Typical
71	M89	N128	N132			RIGID	None	None	RIGID	Typical
72	M90	N135A	N129			Corner Plate	Beam	BAR	A36 Gr.36	Typical
73	M91A	N129	N136			RIGID	None	None	RIGID	Typical
74	M92A	N116	N126			Cross Arm Plate	Column	RECT	A36 Gr.36	Typical
75	M93	N126	N130			Cross Arm Plate	Column	RECT	A36 Gr.36	Typical
76	M94	N130	N133			RIGID	None	None	RIGID	Typical
77	M95	N134	N131A			Corner Plate	Beam	BAR	A36 Gr.36	Typical
78	M96	N131A	N137			RIGID	None	None	RIGID	Typical
79	M97	N142	N138			RIGID	None	None	RIGID	Typical
80	M98	N138	N140			RIGID	None	None	RIGID	Typical
81	M99	N139	N140			RIGID	None	None	RIGID	Typical
82	M82A	N108A	N109A			Face Horizontal	Beam	Pipe	A53 Gr.B	Typical
83	M83B	N110A	N111A			RIGID	None	None	RIGID	Typical
84	M84B	N112A	N113A			RIGID	None	None	RIGID	Typical
85	M85B	N114A	N115A			RIGID	None	None	RIGID	Typical
86	M86A	N116A	N117A			RIGID	None	None	RIGID	Typical
87	M91B	N131B	N132A			Face Horizontal	Beam	Pipe	A53 Gr.B	Typical
88	M92B	N133A	N134A			RIGID	None	None	RIGID	Typical
89	M93A	N135B	N136A			RIGID	None	None	RIGID	Typical
90	M94A	N137A	N138A			RIGID	None	None	RIGID	Typical
91	M95A	N139A	N140A			RIGID	None	None	RIGID	Typical
92	M100	N149	N150A			RIGID	None	None	RIGID	Typical
93	M101	N151A	N152A			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
94	MP3C	N131C	N130A			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
95	MP4C	N133B	N132B			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
96	MP2C	N135C	N134B			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
97	MP1C	N137B	N136B			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
98	MP3B	N140C	N139B			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
99	MP4B	N142A	N141B			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
100	MP2B	N144A	N143			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
101	MP1B	N146	N145			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
102	M104	N147	N151			RIGID	None	None	RIGID	Typical
103	M105	N152	N153			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
104	M105A	N150	N151B			RIGID	None	None	RIGID	Typical
105	M106	N152B	N153A			RIGID	None	None	RIGID	Typical
106	M107	N154	N155			RIGID	None	None	RIGID	Typical
107	M108	N156	N157			RIGID	None	None	RIGID	Typical
108	M109	N159	N160			MOD Support ...	Beam	Pipe	A53 Gr.B	Typical
109	M110	N161	N162			RIGID	None	None	RIGID	Typical
110	M111	N163	N164			RIGID	None	None	RIGID	Typical
111	M112	N165	N166			RIGID	None	None	RIGID	Typical
112	M113	N167	N168			RIGID	None	None	RIGID	Typical
113	M115	N172	N173			RIGID	None	None	RIGID	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
114	M116	N174	N175			RIGID	None	None	RIGID	Typical
115	M117	N176	N177			RIGID	None	None	RIGID	Typical
116	M118	N178	N179			RIGID	None	None	RIGID	Typical
117	M117A	N174A	N175A			MOD Support ...	Beam	Pipe	A53 Gr.B	Typical
118	M118A	N176A	N177A			MOD Support ...	Beam	Pipe	A53 Gr.B	Typical
119	M119	N178A	N179A			RIGID	None	None	RIGID	Typical
120	M120	N180	N181			RIGID	None	None	RIGID	Typical
121	M121	N182	N183			RIGID	None	None	RIGID	Typical
122	M122	N184	N185			RIGID	None	None	RIGID	Typical
123	M123	N186	N187			RIGID	None	None	RIGID	Typical
124	M124	N188	N189			RIGID	None	None	RIGID	Typical
125	M125	N179A	N185		180	MOD Support ...	Beam	Single Angle	A36 Gr.36	Typical
126	M126	N183	N189		180	MOD Support ...	Beam	Single Angle	A36 Gr.36	Typical
127	M127	N187	N181		180	MOD Support ...	Beam	Single Angle	A36 Gr.36	Typical
128	M128	N190	N191			MOD Kicker	Column	Double Angle (...	A36 Gr.36	Typical
129	M129	N192	N193			MOD Kicker	Column	Double Angle (...	A36 Gr.36	Typical
130	M130	N194	N195			MOD Kicker	Column	Double Angle (...	A36 Gr.36	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
1	M1						Yes	Default			None
2	M4						Yes				None
3	M10						Yes	Default			None
4	M19						Yes	** NA **			None
5	M20						Yes	** NA **			None
6	M21						Yes	** NA **			None
7	M22						Yes	** NA **			None
8	MP3A						Yes	** NA **			None
9	MP4A						Yes	** NA **			None
10	MP2A						Yes	** NA **			None
11	MP1A						Yes	** NA **			None
12	M43						Yes	Default			None
13	M46						Yes	Default			None
14	M35A						Yes	** NA **			None
15	M36A						Yes	** NA **			None
16	M51B	OOOOOX	OOOOOX				Yes	Default			None
17	M52B	OOOOOX	OOOOOX				Yes	Default			None
18	M52						Yes	** NA **			None
19	M58						Yes	** NA **			None
20	M59						Yes	** NA **			None
21	M76						Yes	** NA **			None
22	M77						Yes	** NA **			None
23	M79		BenPIN				Yes	** NA **			None
24	M80						Yes				None
25	M83		BenPIN				Yes	** NA **			None
26	M84						Yes	** NA **			None
27	M85						Yes	** NA **			None
28	M88		BenPIN				Yes	** NA **			None
29	M91						Yes				None
30	M92		BenPIN				Yes	** NA **			None
31	M50						Yes	** NA **			None
32	M51						Yes	** NA **			None
33	M51A						Yes	** NA **			None
34	M52A						Yes	Default			None
35	M53						Yes	Default			None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
36	M54						Yes	Default			None
37	M55						Yes	Default			None
38	M56						Yes	** NA **			None
39	M57						Yes	** NA **			None
40	M58A	OOOOOX	OOOOOX				Yes	Default			None
41	M59A	OOOOOX	OOOOOX				Yes	Default			None
42	M60						Yes	** NA **			None
43	M61						Yes	** NA **			None
44	M62						Yes	** NA **			None
45	M63						Yes	** NA **			None
46	M64						Yes	** NA **			None
47	M65		BenPIN				Yes	** NA **			None
48	M66						Yes				None
49	M67		BenPIN				Yes	** NA **			None
50	M68						Yes	** NA **			None
51	M69						Yes	** NA **			None
52	M70		BenPIN				Yes	** NA **			None
53	M71						Yes				None
54	M72		BenPIN				Yes	** NA **			None
55	M73						Yes	** NA **			None
56	M74						Yes	** NA **			None
57	M75						Yes	** NA **			None
58	M76A						Yes				None
59	M77A						Yes	Default			None
60	M78						Yes	Default			None
61	M79A						Yes	Default			None
62	M80A						Yes	** NA **			None
63	M81						Yes	** NA **			None
64	M82	OOOOOX	OOOOOX				Yes	Default			None
65	M83A	OOOOOX	OOOOOX				Yes	Default			None
66	M84A						Yes	** NA **			None
67	M85A						Yes	** NA **			None
68	M86						Yes	** NA **			None
69	M87						Yes	** NA **			None
70	M88A						Yes	** NA **			None
71	M89		BenPIN				Yes	** NA **			None
72	M90						Yes				None
73	M91A		BenPIN				Yes	** NA **			None
74	M92A						Yes	** NA **			None
75	M93						Yes	** NA **			None
76	M94		BenPIN				Yes	** NA **			None
77	M95						Yes				None
78	M96		BenPIN				Yes	** NA **			None
79	M97						Yes	** NA **			None
80	M98						Yes	** NA **			None
81	M99						Yes	** NA **			None
82	M82A						Yes	Default			None
83	M83B						Yes	** NA **			None
84	M84B						Yes	** NA **			None
85	M85B						Yes	** NA **			None
86	M86A						Yes	** NA **			None
87	M91B						Yes	Default			None
88	M92B						Yes	** NA **			None
89	M93A						Yes	** NA **			None
90	M94A						Yes	** NA **			None
91	M95A						Yes	** NA **			None
92	M100						Yes	** NA **			None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
93	M101						Yes	** NA **			None
94	MP3C						Yes	** NA **			None
95	MP4C						Yes	** NA **			None
96	MP2C						Yes	** NA **			None
97	MP1C						Yes	** NA **			None
98	MP3B						Yes	** NA **			None
99	MP4B						Yes	** NA **			None
100	MP2B						Yes	** NA **			None
101	MP1B						Yes	** NA **			None
102	M104						Yes	** NA **			None
103	M105						Yes	** NA **			None
104	M105A						Yes	** NA **			None
105	M106						Yes	** NA **			None
106	M107						Yes	** NA **			None
107	M108						Yes	** NA **			None
108	M109						Yes	Default			None
109	M110						Yes	** NA **			None
110	M111						Yes	** NA **			None
111	M112						Yes	** NA **			None
112	M113						Yes	** NA **			None
113	M115						Yes	** NA **			None
114	M116						Yes	** NA **			None
115	M117						Yes	** NA **			None
116	M118						Yes	** NA **			None
117	M117A						Yes	Default			None
118	M118A						Yes	Default			None
119	M119	OOOOOX					Yes	** NA **			None
120	M120	OOOOOX					Yes	** NA **			None
121	M121	OOOOOX					Yes	** NA **			None
122	M122	OOOOOX					Yes	** NA **			None
123	M123	OOOOOX					Yes	** NA **			None
124	M124	OOOOOX					Yes	** NA **			None
125	M125						Yes	Default			None
126	M126						Yes	Default			None
127	M127						Yes	Default			None
128	M128	BenPIN	BenPIN				Yes	** NA **			None
129	M129	BenPIN	BenPIN				Yes	** NA **			None
130	M130	BenPIN	BenPIN				Yes	** NA **			None

Member Area Loads (BLC 39 : Structure D)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[ksf]
1	N111	N113	N90	N89	Y	Two Way	-.005
2	N7	N87B	N87C	N6	Y	Two Way	-.005
3	N117	N118	N141	N139	Y	Two Way	-.005

Member Area Loads (BLC 40 : Structure Di)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[ksf]
1	N113	N111	N89	N90	Y	Two Way	-.013
2	N7	N87B	N87C	N6	Y	Two Way	-.013
3	N117	N118	N141	N139	Y	Two Way	-.013

Member Area Loads (BLC 84 : Structure Ev)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[ksf]
1	N111	N113	N90	N89	Y	Two Way	0

Member Area Loads (BLC 84 : Structure Ev) (Continued)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[ksf]
2	N7	N87B	N87C	N6	Y	Two Way	0
3	N117	N118	N141	N139	Y	Two Way	0

Member Area Loads (BLC 85 : Structure Eh (0 Deg))

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[ksf]
1	N111	N113	N90	N89	Z	Two Way	-.000156
2	N7	N87B	N87C	N6	Z	Two Way	-.000156
3	N117	N118	N141	N139	Z	Two Way	-.000156

Member Area Loads (BLC 86 : Structure Eh (90 Deg))

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[ksf]
1	N111	N113	N90	N89	X	Two Way	.000156
2	N7	N87B	N87C	N6	X	Two Way	.000156
3	N117	N118	N141	N139	X	Two Way	.000156

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	N3	max	727.707	10	767.903	8	5335.723	1	.81	20	1.088	4	.199	1
2		min	-731.102	4	-233.371	2	-3179.861	7	-.205	2	-1.102	10	-.433	7
3	N87D	max	4562.704	9	753.337	4	1619.469	3	.282	9	1.102	12	.1	11
4		min	-2702.118	3	-217.049	10	-2679.62	9	-.847	27	-1.105	6	-.553	17
5	N115	max	2590.351	11	650.097	12	1435.756	11	.225	8	.927	8	.811	12
6		min	-4424.61	5	-238.359	6	-2505.128	5	-.57	26	-.933	2	-.298	6
7	N190	max	35.237	10	2983.424	13	538.989	7	0	75	0	4	0	10
8		min	-34.972	4	-399.411	7	-3885.954	13	0	1	0	10	0	4
9	N192	max	460.574	3	2977.672	21	1939.17	21	0	6	0	48	0	48
10		min	-3358.668	21	-394.045	3	-265.934	3	0	48	0	6	0	6
11	N194	max	3320.434	17	2944.573	17	1917.056	17	0	8	0	8	0	8
12		min	-428.966	11	-366.638	11	-247.613	11	0	2	0	2	0	2
13	Totals:	max	4810.684	10	9593.746	13	4865.624	1						
14		min	-4810.685	4	2556.489	70	-4865.623	7						

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

	Member	Shape	Code Check	Loc[..	LC	Shea...	Loc[..	Dir	LC	phi*Pn...	phi*Pnt...	phi*Mn...	phi*Mn...	Cb	Eqn
1	M1	PIPE 3.0	.160	10.2...	4	.063	5.014		6	27623...	65205	5.749	5.749	1...	H1-1b
2	M4	HSS4X4X4	.140	3.965	13	.062	4.021	y	14	12327...	139518	16.181	16.181	1...	H1-1b
3	M10	HSS4X4X4	.134	2.375	13	.035	2.375	y	22	13626...	139518	16.181	16.181	1...	H1-1b
4	MP3A	PIPE 2.0	.391	4.75	10	.099	4.75		2	20866...	32130	1.872	1.872	1...	H1-1b
5	MP4A	PIPE 2.0	.227	4.75	10	.083	1.375		7	20866...	32130	1.872	1.872	1...	H1-1b
6	MP2A	PIPE 2.0	.543	4.75	4	.116	4.75		4	20866...	32130	1.872	1.872	1...	H1-1b
7	MP1A	PIPE 2.0	.303	4.75	4	.094	4.438		2	20866...	32130	1.872	1.872	1...	H1-1b
8	M43	HSS4X4X4	.129	0	24	.049	0	y	20	13626...	139518	16.181	16.181	1...	H1-1b
9	M46	PL1/2X6	.211	.516	1	.128	.516	y	4	66009...	97200	1.012	12.15	1...	H1-1b
10	M51B	L2x2x2	.182	0	2	.016	4.239	y	18	6525.6...	15908.4	.403	.679	1...	H2-1
11	M52B	L2x2x2	.195	0	12	.014	0	y	20	6525.6...	15908.4	.403	.685	1...	H2-1
12	M76	PL3/8x6	.173	0	7	.213	0	y	21	70677...	72900	.57	9.113	1...	H1-1b
13	M77	PL3/8x6	.237	.167	7	.225	0	y	24	71601...	72900	.57	9.113	1...	H1-1b
14	M80	PL1/2X6	.065	.112	1	.120	0	y	24	96757...	97200	1.012	12.15	1...	H1-1b
15	M84	PL3/8x6	.188	0	10	.068	0	y	8	70677...	72900	.57	9.113	1...	H1-1b
16	M85	PL3/8x6	.241	.167	7	.239	0	y	21	71601...	72900	.57	9.113	2...	H1-1b
17	M91	PL1/2X6	.063	.112	7	.218	0	y	14	96757...	97200	1.012	12.15	1...	H1-1b
18	M52A	HSS4X4X4	.140	3.965	21	.062	4.021	y	22	12327...	139518	16.181	16.181	1...	H1-1b
19	M53	HSS4X4X4	.136	2.375	21	.035	2.375	y	18	13626...	139518	16.181	16.181	1...	H1-1b

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

	Member	Shape	Code Check	Loc[..	LC	Shea...	Loc[..	Dir	LC	phi*Pn...	phi*Pnt..	phi*Mn...	phi*Mn...	Cb	Eqn
20	M54	HSS4X4X4	.126	0	20	.048	0	y	16	13626...	139518	16.181	16.181	1...	H1-1b
21	M55	PL1/2X6	.214	.516	9	.126	0	y	5	66009...	97200	1.012	12.15	1...	H1-1b
22	M58A	L2x2x2	.184	0	10	.016	4.239	y	14	6525.6..	15908.4	.403	.685	1...	H2-1
23	M59A	L2x2x2	.192	0	8	.015	0	y	22	6525.6..	15908.4	.403	.679	1...	H2-1
24	M63	PL3/8x6	.176	0	3	.215	0	y	17	70677...	72900	.57	9.113	1...	H1-1b
25	M64	PL3/8x6	.243	.167	3	.229	0	y	20	71601...	72900	.57	9.113	1...	H1-1b
26	M66	PL1/2X6	.065	.112	9	.121	0	y	20	96757...	97200	1.012	12.15	1...	H1-1b
27	M68	PL3/8x6	.175	0	6	.114	0	y	46	70677...	72900	.57	9.113	1...	H1-1b
28	M69	PL3/8x6	.235	.167	3	.233	0	y	17	71601...	72900	.57	9.113	2...	H1-1b
29	M71	PL1/2X6	.063	.112	3	.217	0	y	22	96757...	97200	1.012	12.15	1...	H1-1b
30	M76A	HSS4X4X4	.139	3.965	17	.062	4.021	y	18	12327...	139518	16.181	16.181	1...	H1-1b
31	M77A	HSS4X4X4	.135	2.375	17	.035	2.375	y	15	13626...	139518	16.181	16.181	1...	H1-1b
32	M78	HSS4X4X4	.128	0	16	.048	0	y	24	13626...	139518	16.181	16.181	1...	H1-1b
33	M79A	PL1/2X6	.211	.516	5	.128	.516	y	8	66009...	97200	1.012	12.15	1...	H1-1b
34	M82	L2x2x2	.178	0	6	.015	4.239	y	22	6525.6..	15908.4	.403	.681	1...	H2-1
35	M83A	L2x2x2	.189	0	4	.015	0	y	18	6525.6..	15908.4	.403	.679	1...	H2-1
36	M87	PL3/8x6	.174	0	11	.210	0	y	13	70677...	72900	.57	9.113	1...	H1-1b
37	M88A	PL3/8x6	.233	.167	11	.227	0	y	16	71601...	72900	.57	9.113	1...	H1-1b
38	M90	PL1/2X6	.064	.112	5	.124	0	y	50	96757...	97200	1.012	12.15	1...	H1-1b
39	M92A	PL3/8x6	.168	0	2	.072	0	y	36	70677...	72900	.57	9.113	1...	H1-1b
40	M93	PL3/8x6	.231	.167	11	.236	0	y	14	71601...	72900	.57	9.113	2...	H1-1b
41	M95	PL1/2X6	.062	.112	11	.217	0	y	18	96757...	97200	1.012	12.15	1...	H1-1b
42	M82A	PIPE_3.0	.159	10.2..	12	.062	5.014		2	27623...	65205	5.749	5.749	1...	H1-1b
43	M91B	PIPE_3.0	.158	10.2..	8	.060	5.014		10	27623...	65205	5.749	5.749	1...	H1-1b
44	M101	PIPE_2.0	.128	3.5	7	.011	3.5		7	26521...	32130	1.872	1.872	1...	H1-1b
45	MP3C	PIPE_2.0	.395	4.75	6	.099	4.75		4	20866...	32130	1.872	1.872	1...	H1-1b
46	MP4C	PIPE_2.0	.229	4.75	6	.082	1.375		8	20866...	32130	1.872	1.872	1...	H1-1b
47	MP2C	PIPE_2.0	.540	4.75	12	.115	4.75		12	20866...	32130	1.872	1.872	1...	H1-1b
48	MP1C	PIPE_2.0	.301	4.75	6	.092	1.375		4	20866...	32130	1.872	1.872	1...	H1-1b
49	MP3B	PIPE_2.0	.396	4.75	2	.098	4.75		6	20866...	32130	1.872	1.872	1...	H1-1b
50	MP4B	PIPE_2.0	.229	4.75	2	.082	1.375		4	20866...	32130	1.872	1.872	1...	H1-1b
51	MP2B	PIPE_2.0	.546	4.75	8	.080	4.75		8	20866...	32130	1.872	1.872	1...	H1-1b
52	MP1B	PIPE_2.0	.304	4.75	8	.093	4.438		6	20866...	32130	1.872	1.872	1...	H1-1b
53	M105	PIPE_2.0	.128	3.5	1	.011	3.5		1	26521...	32130	1.872	1.872	1...	H1-1b
54	M109	PIPE_2.5	.175	10.1..	4	.073	6.641		2	14558...	50715	3.596	3.596	1...	H1-1b
55	M117A	PIPE_2.5	.174	10.1..	12	.072	6.641		10	14558...	50715	3.596	3.596	1...	H1-1b
56	M118A	PIPE_2.5	.176	.26	8	.073	6.641		6	14558...	50715	3.596	3.596	1...	H1-1b
57	M125	L3X3X4	.277	0	3	.076	.012	z	8	45346...	46656	1.688	3.756	2...	H2-1
58	M126	L3X3X4	.270	0	11	.075	.083	z	4	45346...	46656	1.688	3.756	2...	H2-1
59	M127	L3X3X4	.275	0	7	.074	0	z	12	45346...	46656	1.688	3.756	2...	H2-1
60	M128	LL3x3x3x6	.106	0	13	.004	0	y	16	46390...	70632	6.362	3.751	1	H1-1b*
61	M129	LL3x3x3x6	.105	0	21	.004	0	y	24	46390...	70632	6.362	3.751	1	H1-1b*
62	M130	LL3x3x3x6	.104	0	17	.004	5	y	20	46390...	70632	6.362	3.751	1	H1-1b*

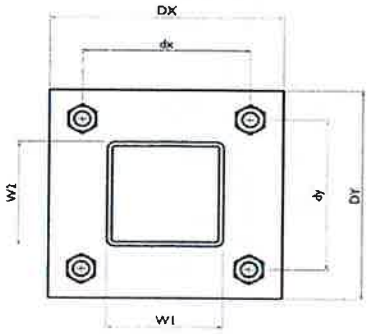
VzW SMART Tool© Vendor

Client:	Verizon Wireless	Date:	9/01/2023
Site Name:	Quinebaug		
MDG #:	5000246481		
Fuze ID #:	17123830	Page:	1

Version 1.01

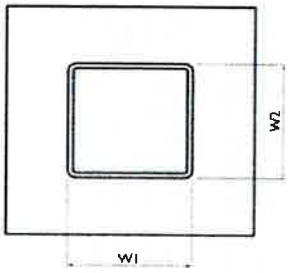
I. Mount-to-Tower Connection Check

Custom Orientation Required	No
Tower Connection Bolt Checks	Yes
Bolt Orientation	Parallel



Bolt Quantity per Reaction:	4
d_x (in) *(Delta X of typ. bolt config. sketch)*:	7
d_y (in) *(Delta Y of typ. bolt config. sketch)*:	7
Bolt Type:	A325N
Bolt Diameter (in):	0.625
Required Tensile Strength / bolt (kips):	1.8
Required Shear Strength / bolt (kips):	0.2
Tensile Capacity / bolt (kips):	20.7
Shear Capacity / bolt (kips):	12.4
Bolt Overall Utilization:	8.7%

Tower Connection Baseplate Checks	Yes



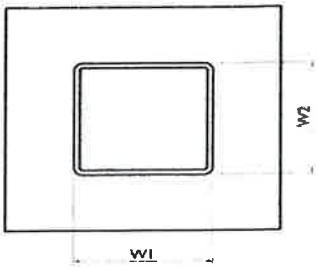
Connecting Standoff Member Shape:	Rect Tube
Weld Stiffener Configuration:	No Stiffeners
Plate Width, D_x (in):	10
Plate Height, D_y (in):	10
W1(in):	4
W2 (in):	4
Member Thickness (in):	0.25
Stiffener location a_1 (in):	
Stiffener location b_1 (in):	
Stiffener location a_2 (in):	
Stiffener location b_2 (in):	
F_y (ksi, plate):	36
Plate Thickness (in):	0.75
Length of Yield Line, L_y (in):	7.75
Bolt Eccentricity, e (in):	2.35
M_u (kip-in):	4.23
Phi*M_n (kip-in):	35.31
Plate Bending Utilization:	12.0%

VzW SMART Tool© Vendor

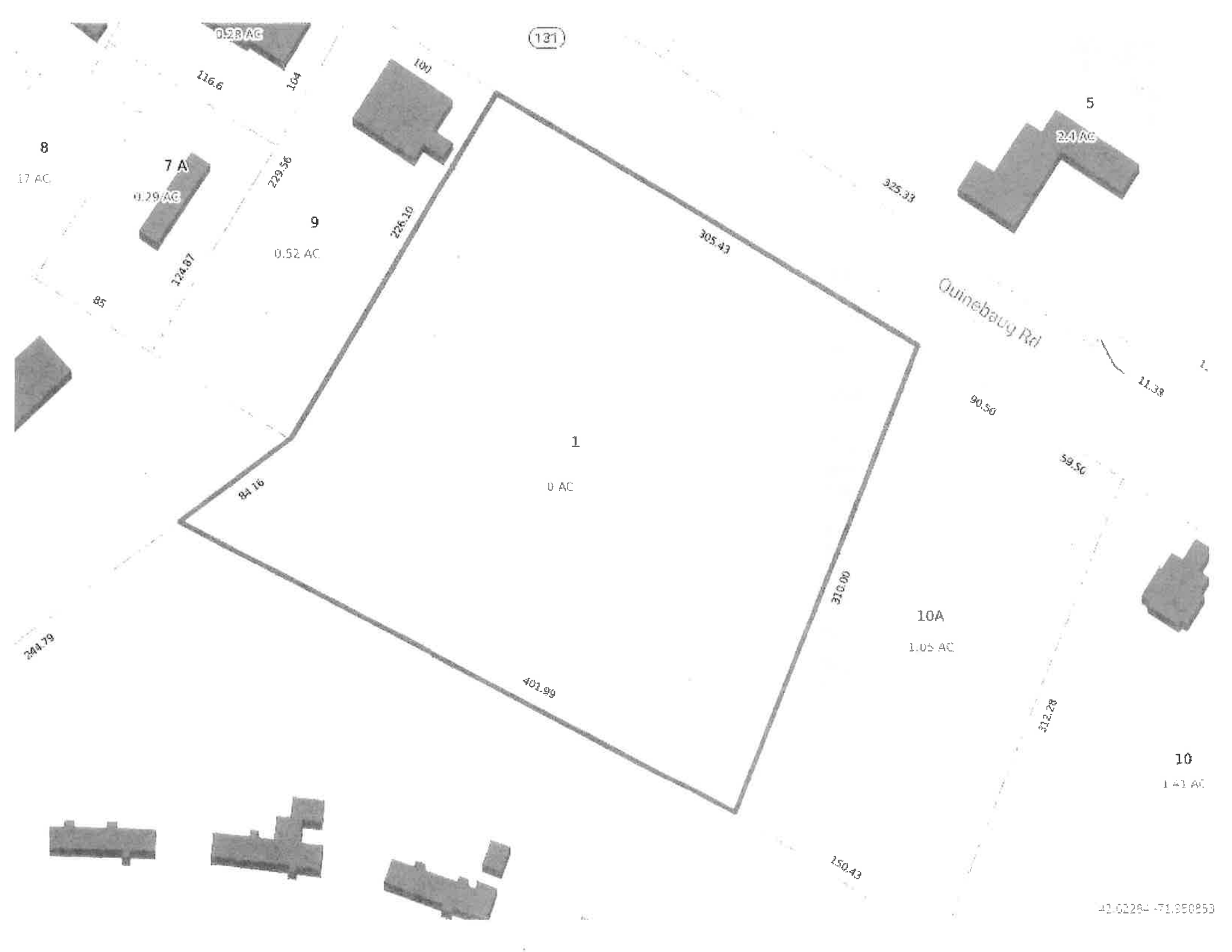
Client:	Verizon Wireless	Date:	9/01/2023
Site Name:	Quinebaug		
PSLC #:	5000246481		
Fuze ID #:	17123830	Page:	2
			Version 1.01

Tower Connection Weld Checks

	Yes
Weld Shape:	Rectangle
Weld Stiffener Configuration:	None
Stiffener Notch Length, n (in):	
Weld Size (1/16 in):	4
W1 (in):	4
W2 (in):	4
Weld Total Length (in):	16.00
Z_x (in^3/in):	21.33
Z_y (in^3/in):	21.33
J_p (in^4/in):	85.33
c_x (in)	2.25
c_y (in)	2.25
Required combined strength (kip/in):	0.68
Weld Capacity (kip/in):	5.57
Weld Utilization:	**12.1%**



ATTACHMENT 4


0.28 AC
131
116.6
104
100
8
17 AC
7 A
0.29 AC
229.56
9
0.52 AC
226.10
305.43
325.33
5
2.4 AC
Quinebaug Rd
11.33
90.50
59.50
85
124.87
1
0 AC
84.16
310.00
10A
1.05 AC
244.79
401.99
312.28
10
1.41 AC
150.43
42.02284 -71.850853

THOMPSON,CT

720 QUINEBAUG RD

Location
720 QUINEBAUG RD
Mblu
3/ 81/ 1/ /
Acct#
004936
Owner
QUINEBAUG VOLUNTEER FIRE DEPT
Assessment
$727,600
Appraisal
$1,039,500
PID
144
Building Count
1

Current Value

Appraisal

Valuation Year	Improvements	Land	Total
2019	$904,800	$134,700	$1,039,500

Assessment

Valuation Year	Improvements	Land	Total
2019	$633,400	$94,200	$727,600

Owner of Record

Owner QUINEBAUG VOLUNTEER FIRE DEPT

Co-Owner

Address P O BOX 144
QUINEBAUG, CT 06262

Sale Price $0

Certificate

Book & Page 0368/0336

Sale Date 12/19/1997

Ownership History

Ownership History

Owner	Sale Price	Certificate	Book & Page	Sale Date
QUINEBAUG VOLUNTEER FIRE DEPT	$0		0368/0336	12/19/1997

Building Information

Building 1 : Section 1

Year Built: 2005

Living Area: 4,500

Replacement Cost: $844,388

Building Percent Good: 80

Replacement Cost Less Depreciation: $675,500

Building Attributes

Field	Description
STYLE	Fire Station
MODEL	Ind/Comm
Grade	Good +10

ATTACHMENT 5

Verizon/Quinebaug

UNITED STATES POSTAL SERVICE®

Certificate of Mailing — Firm

Name and Address of Sender	TOTAL NO. of Pieces Listed by Sender	TOTAL NO. of Pieces Received at Post Office™	Affix Stamp Here *Postmark with Date of Receipt.*
Kenneth C. Baldwin, Esq. Robinson & Cole LLP 280 Trumbull Street Hartford, CT 06103		3	neopost 01/04/2024 US POSTAGE $003.19 ZIP 06103 041L12203937 JAN - 4 2024 USPS
	Postmaster, per *(name of receiving employee)*		

USPS® Tracking Number / Firm-specific Identifier	Address (Name, Street, City, State, and ZIP Code™)	Postage	Fee	Special Handling	Parcel Airlift
1.	Amy St. Onge, First Selectman Thompson Town Hall 815 Riverside Drive, P.O. Box 899 North Grosvenordale, CT 06255				
2.	Tyra Penn Gesek, Director of Planning and Development Thompson Town Hall 815 Riverside Drive, P.O. Box 899 North Grosvenordale, CT 06255				
3.	Quinebaug Volunteer Fire Department P.O. Box 144 720 Quinebaug Road Thompson CT 06262				
4.					
5.					
6.					

See Reverse for Instructions