Robinson+Cole

KENNETH C. BALDWIN

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Also admitted in Massachusetts
and New York

June 17, 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**
32 Valley Street (a/k/a 225 North Main Street), Bristol, Connecticut

Dear Attorney Bachman:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains an existing wireless telecommunications facility at the above-referenced property address (the "Property"). The facility consists of antennas and remote radio heads attached to a tower located on the roof of the building at the Property and associated equipment inside the building. Cellco's use of the rooftop tower was approved by the Council in July of 1992. A copy of the Council's 1992 Exempt Modification approval is included in Attachment 1.

Cellco's proposed modification involve the installation of two (2) interference mitigation filters ("Filters") on its existing antenna mounting assembly. The specification sheet for the new Filters 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 Bristol's Chief Elected Official and Land Use Officer and the owner of the Property.

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 modifications will not result in an increase in the height of the existing tower. The Filters will be installed on Cellco's existing antenna mounting structure.

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 Cellco's 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, and antenna mounting structure 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:
Jeffrey Caggiano, Bristol Mayor
Robert Flanagan, Bristol City Planner
Carpenter Realty Company, Property Owner
Aleksey Tyurin, Verizon Wireless

ATTACHMENT 1

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL
136 Main Street, Suite 401
New Britain, Connecticut 06051
Phone: 827-7682

July 16, 1992

David S. Malko
Manager, Engineering and
Regulatory Service
Bell Atlantic Metro Mobile
20 Alexander Drive
P.O. Box 5029
Wallingford, CT 06492

RE; Bell Atlantic Metro Mobile notice of intent to modify an existing tower structure on top of an existing building at 32 Valley Street Street, Bristol, Connecticut.

Dear Mr. Malko:

At a public meeting held on July 15, 1992, the Connecticut Siting Council (Council) ruled that the proposed facility would not cause a significant change or alteration in the physical and environmental characteristics of the site by the placement of six cellular antennas on an existing non-facility 30-foot high tower structure, and acknowledged your notice of intent to modify this existing non-facility tower and associated equipment located on the roof of an existing building at 32 Valley Street, Bristol, Connecticut, pursuant to section 16-50j-73 of the Regulations of State Agencies (RSA).

The proposed modifications are to be implemented as specified in your notice dated June 26, 1992. As proposed, the modifications are in compliance with the exemption criteria specified in RSA 16-50j-72 as changes to an existing non-facility site that do not increase the tower height, do not extend the boundaries of the tower site, do not increase noise levels at the tower site boundary by six decibels or more, do not add radio frequency sending or receiving capability which increases total frequency electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State of Connecticut, Department of Environmental Protection pursuant to section 22a-162 of the Connecticut General Statutes, and has received all municipal zoning approvals and building permits.

The Council is pleased to note that the use of an existing tower serves the Council's long-term goal of protecting the public interest by avoiding proliferation of additional tower structures.

Please notify the Council upon completion of construction.

Very truly yours,

Mortimer A. Gelston
Chairman

MAG/TEF/cp

cc: William T. Stortz, Mayor, City of Bristol

6248E

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

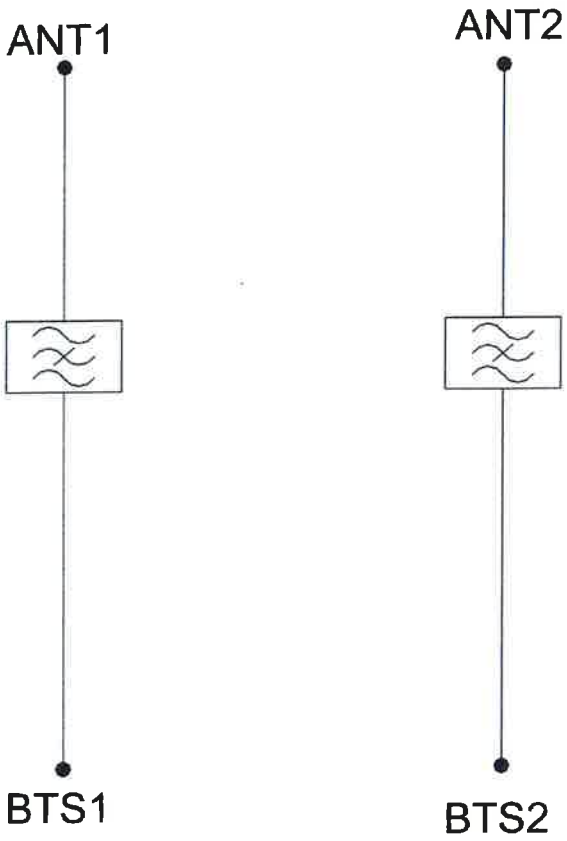
MECHANICAL	
Dimensions H x D x W	269 x 277 x 80mm | 10.60 x 10.90 x 3.15in (Excluding brackets and connectors)
Weight	8.0 kg | 17.6 lbs (no bracket)
Finish	Powder coated, light grey (RAL7035)
Connectors	RF: 4.3-10 (F) x 4
Mounting	Optional pole/wall bracket supplied with two metal clamps 45-178mm diameter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

ORDERING INFORMATION

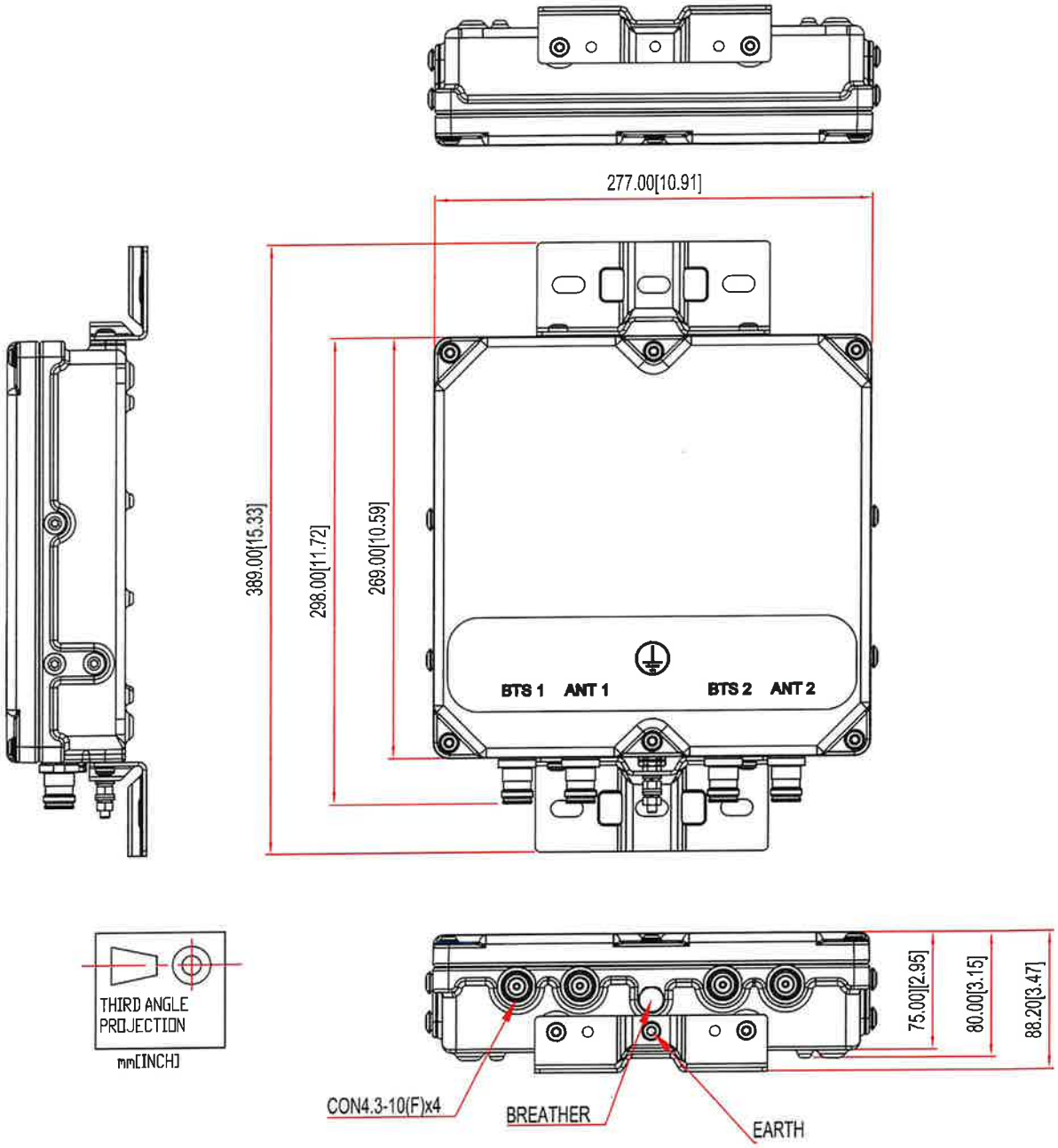
PART NUMBER	CONFIGURATION	OPTIONAL FEATURES	CONNECTORS
KA-6030-2032	TWIN, 2 in / 2 out	DC/AISG PASS	4.3-10 (F)

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

ELECTRICAL BLOCK DIAGRAM



MECHANICAL BLOCK DIAGRAM



ATTACHMENT 3

CENTERLINE

Structural Analysis Report

Location Code: 467662
Site Name: BRISTOL CT
FUZE Project ID: 17123820
Project Name: RF Filter Add
Address: 32 Valley Street
Bristol, CT 06443

Client:

verizon

20 ALEXANDER DRIVE
WALLINGFORD, CT 06492

Date: 04/01/2024

Sufficient Capacity – 52.8%

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 40 ft. self support on top of a 70.67 ft. rooftop to determine its capacity to support the existing and proposed equipment listed in this report.

Existing & Proposed Equipment:

Carrier	Mounting Level (ft)	Center Line Elevation (ft)	Number of Appurtenances	Antenna Manufacturer	Appurtenance Model	Feed Lines (in)
Verizon Wireless	107.67	107.67	6	Commscope	JAHH-65B-R3B	(6) 1-5/8" Coax (2) HCS 6x12
			3	Commscope	BSAMNT-SBS-2-3	
			3	Samsung	64T64R	
			3	Site Pro1	PSA3 Standoff	
	105.0	105.0	2	Raycap	Dist. Box	
	103.0	103.0	3	Samsung	AWS/PCS RRH	
			3	Samsung	700/850 RRH	
			3	Commscope	CBC78T-DS-43-2X	
			2	**Kaelus**	**KA-6030**	
			2	-	Horizontal Mount	
			1	**-**	**Mount Modifications**	
	97.67	97.67	6	Antel	LPA-80080-4CF	

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

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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)	120 mph
Wind Speed with Ice	50 mph
Ice Thickness	1.50 in.
Exposure Category	B
Topographic Category	1
Risk Category	II
Site Soil Class (Assumed)	D – Stiff Soil
Seismic Design Category	B
Spectral Response Acceleration Parameter at a Short Periods, S_S	0.188 g
Spectral Response Acceleration Parameter at a Period of 1 Second, S_1	0.054 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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Conclusion:

Tower Section Capacity (Summary)

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
T1	110.67 - 100.67	Leg	Pipe 2.5 Std (2.875"ODx0.203")	3	-2.77	57.19	4.8	Pass
T2	100.67 - 90.67	Leg	Pipe 2.5 Std (2.875"ODx0.203")	21	-6.90	57.19	12.1	Pass
T3	90.67 - 70.67	Leg	Pipe 2.5 Std (2.875"ODx0.203")	39	-19.60	57.19	34.3	Pass
T1	110.67 - 100.67	Diagonal	L1 1/2x1 1/2x1/8	10	-1.06	2.82	37.4	Pass
T2	100.67 - 90.67	Diagonal	L1 1/2x1 1/2x1/8	28	-1.48	2.82	52.4	Pass
T3	90.67 - 70.67	Diagonal	L2x2x3/16	46	-2.00	9.93	20.1 31.9 (b)	Pass
T1	110.67 - 100.67	Top Girt	L1 1/2x1 1/2x1/8	5	-0.07	0.94	7.4	Pass
T2	100.67 - 90.67	Top Girt	L1 1/2x1 1/2x1/8	23	-0.12	0.94	12.6	Pass
T3	90.67 - 70.67	Top Girt	L1 1/2x1 1/2x1/8	41	-0.34	0.94	35.9	Pass
							Summary	
						Leg (T3)	34.3	Pass
						Diagonal (T2)	52.4	Pass
						Top Girt (T3)	35.9	Pass
						Bolt Checks	46.9	Pass
						RATING =	**52.4**	**Pass**

Structure Rating (Max From All Components) =	**52.4%**

Recommendations:

The existing tower has sufficient capacity to support the existing and proposed loading for the final loading configuration.

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CENTERLINE

Reference Documents:

- Structural Analysis Report by KM Consulting Engineers, Inc., dated October 12, 2021
- Lease Exhibit by Centerline, dated March 04, 2024
- Mount Modification Report by Colliers Engineering & Design, dated December 15, 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 KM Consulting Engineers, Inc., dated October 12, 2021 and the Lease Exhibit by Centerline, dated March 04, 2024.
- Rooftop platform and rooftop structure are not within the scope of work and have not been checked.

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CENTERLINE

Design Calculations

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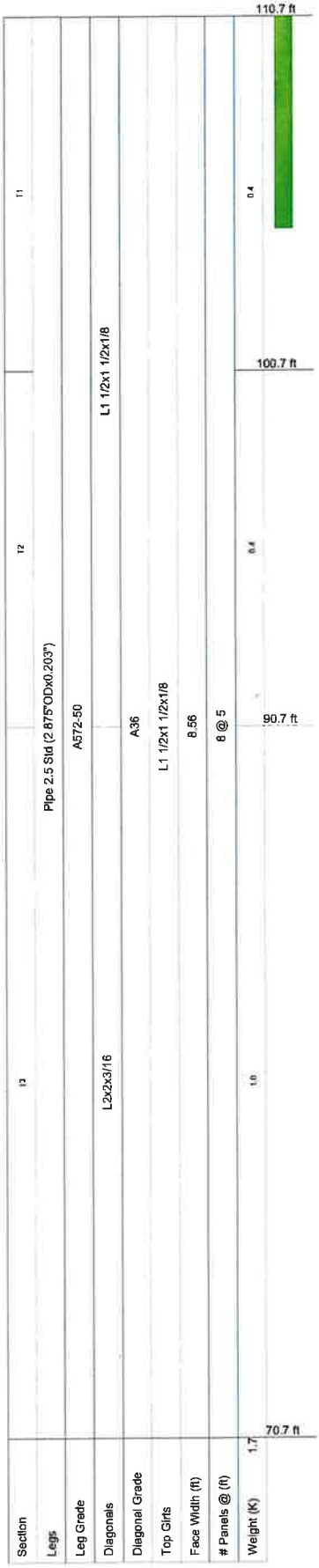


DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
(2) JAHH-65B-R3B w/ Mount Pipe_BSAMNT-SBS-2-3	107.67	AWS/PCS RRH	103
		AWS/PCS RRH	103
(2) JAHH-65B-R3B w/ Mount Pipe_BSAMNT-SBS-2-3	107.67	700/850 RRH	103
		700/850 RRH	103
(2) JAHH-65B-R3B w/ Mount Pipe_BSAMNT-SBS-2-3	107.67	700/850 RRH	103
		CBC78T-DS-43-2X	103
64T64R w/ Pipe Mount	107.67	CBC78T-DS-43-2X	103
64T64R w/ Pipe Mount	107.67	CBC78T-DS-43-2X	103
64T64R w/ Pipe Mount	107.67	(2) KA-6030	103
PSA3 Standoff	107.67	(2) Horizontal Mount	103
PSA3 Standoff	107.67	(2) Proposed Horizontal Mount	103
PSA3 Standoff	107.67	(2) Horizontal Mount	103
Raycap Dist. Box	105	(2) LPA-80080/4CF	97.67
Raycap Dist. Box	105	(2) LPA-80080/4CF	97.67
AWS/PCS RRH	103	(2) LPA-80080/4CF	97.67

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

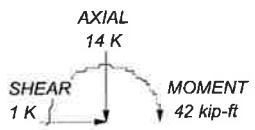
TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 120 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 52.4%

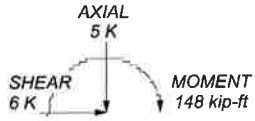
ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 22 K
SHEAR: 3 K

UPLIFT: -18 K
SHEAR: 3 K



TORQUE 1 kip-ft
50 mph WIND - 1.5000 in ICE



TORQUE 2 kip-ft
REACTIONS - 120 mph WIND

Centerline Engineering Services, PA
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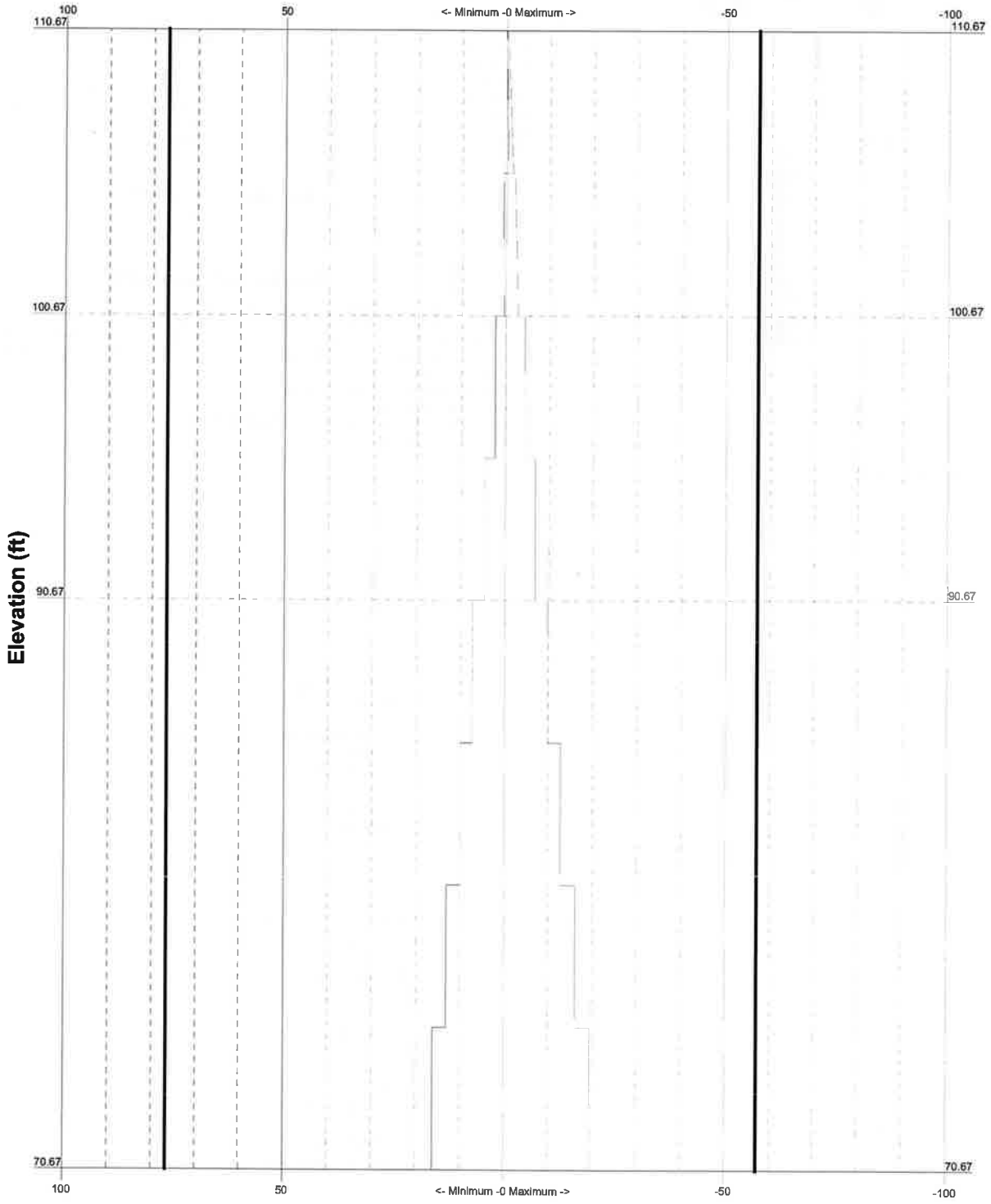
Phone: (781) 713-4725
FAX:

Job: **Bristol CT**		
Project: **23CLVZ-0019**		
Client: Verizon Wireless	Drawn by: jll	App'd:
Code: TIA-222-H	Date: 04/02/24	Scale: NTS
Path:		Dwg No. E-1

TIA-222-H - 120 mph/50 mph 1.5000 in Ice Exposure B

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



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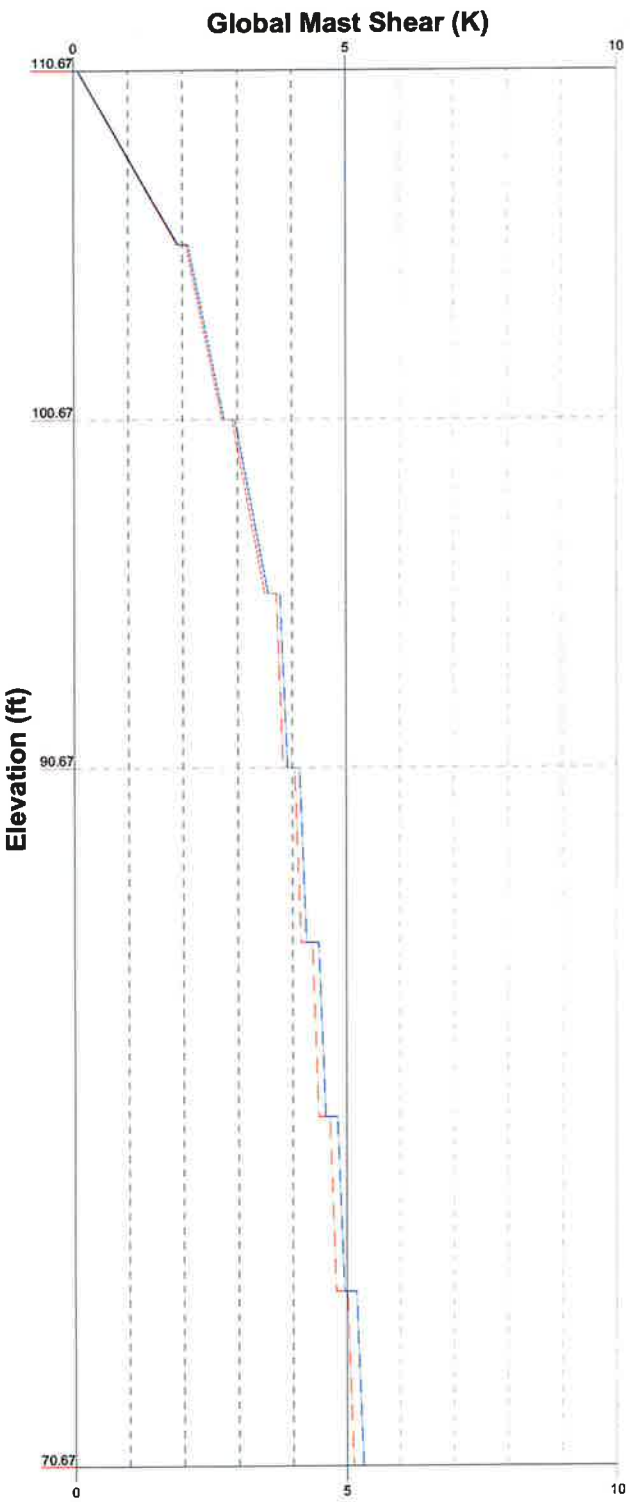
Phone: (781) 713-4725
FAX:

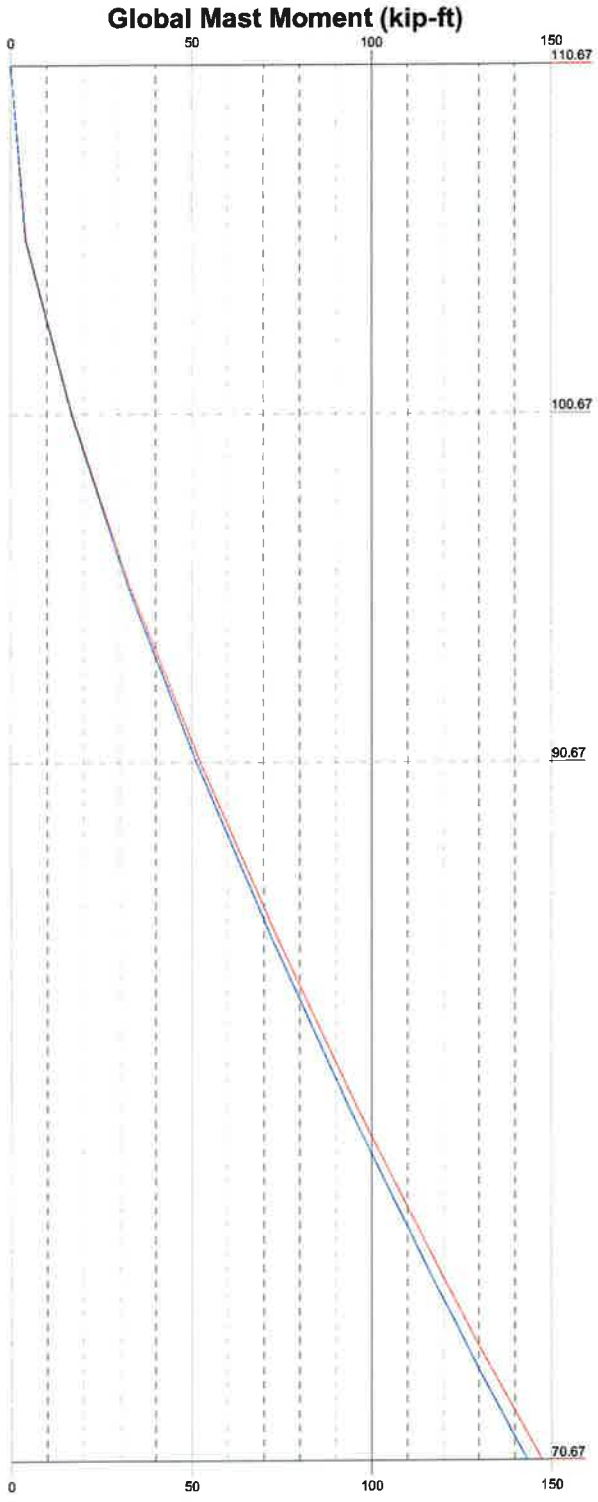
Job: ***Bristol CT***			
Project: ***23CLVZ-0019***			
Client: Verizon Wireless	Drawn by: jll		App'd:
Code: TIA-222-H	Date: 04/02/24		Scale: NTS
Path:			Dwg No. E-3

TIA-222-H - 120 mph/50 mph 1.5000 in Ice Exposure B

Maximum Values

Vx Vz Mx Mz





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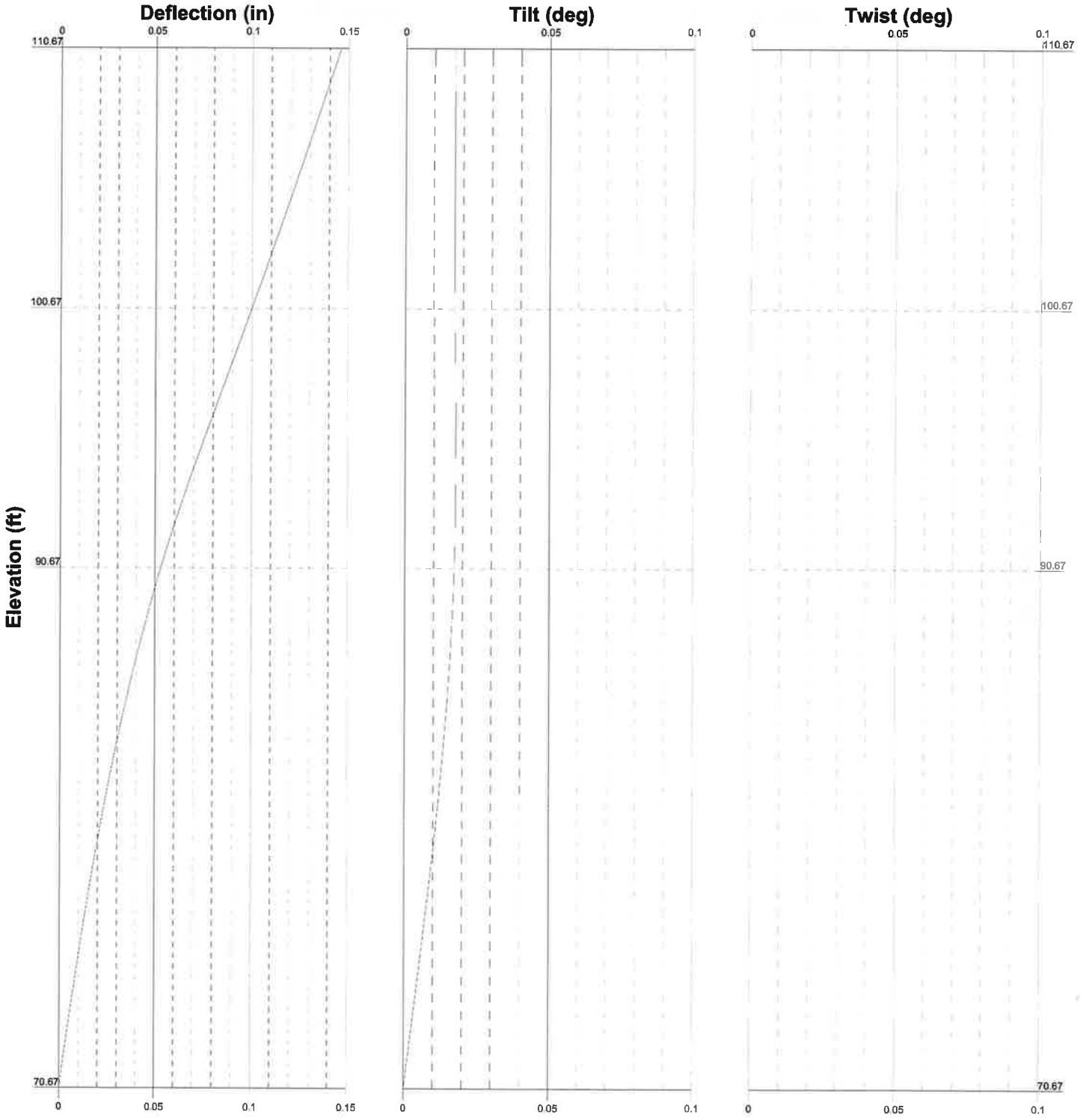
FAX:

Job: **Bristol CT**			
Project: ***23CLVZ-0019***			
Client: Verizon Wireless	Drawn by: jll	App'd:	
Code: TIA-222-H	Date: 04/02/24	Scale: NTS	
Path:		Dwg No. E-4	

TIA-222-H - Service - 60 mph

Maximum Values



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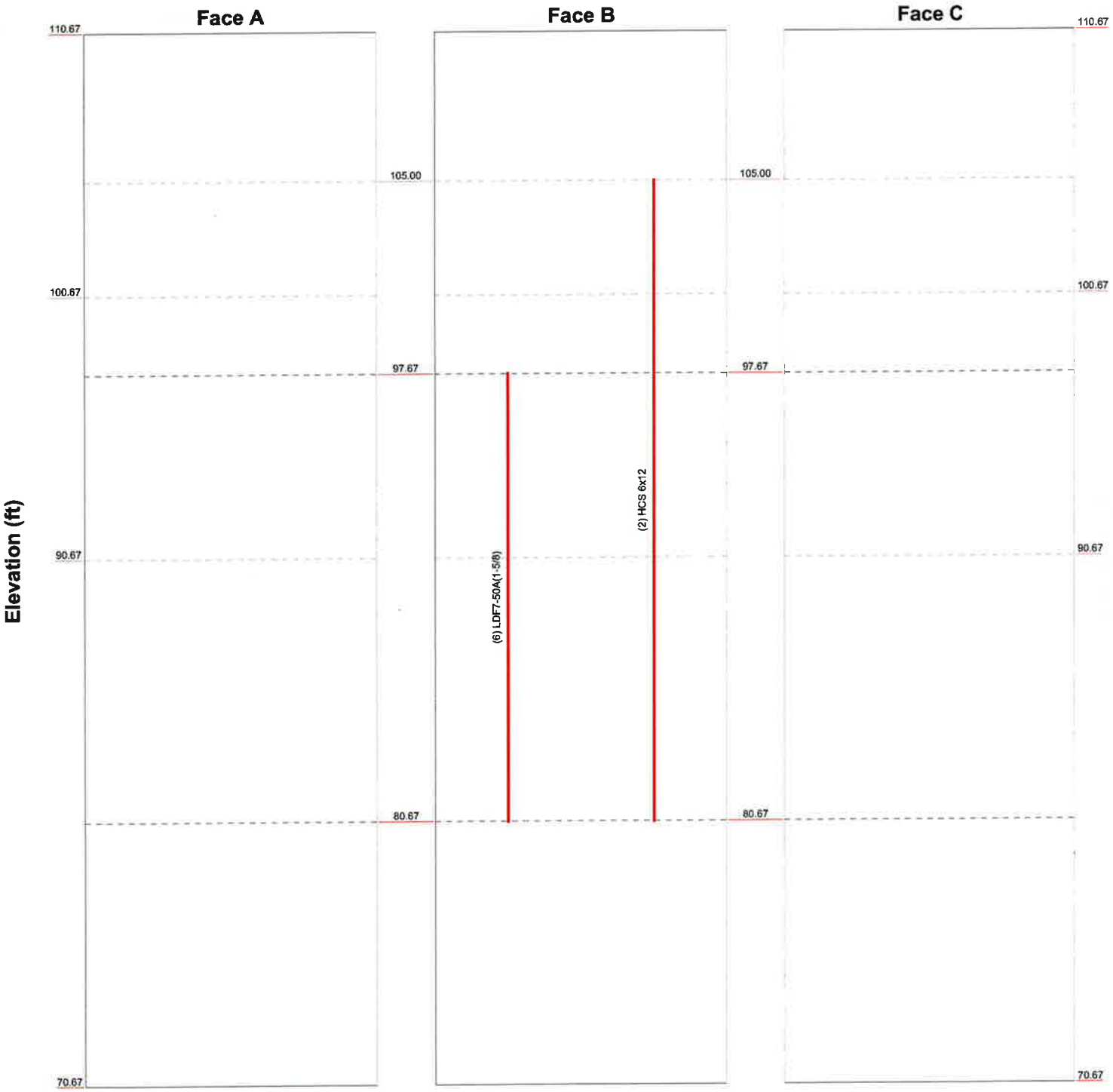
Phone: (781) 713-4725
FAX:

Job: **Bristol CT**			
Project: **23CLVZ-0019**			
Client: Verizon Wireless	Drawn by: jll		App'd:
Code: TIA-222-H	Date: 04/02/24		Scale: NTS
Path:			Dwg No. E-5

Feed Line Distribution Chart
70'8-1/32" - 110'8-1/32"

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



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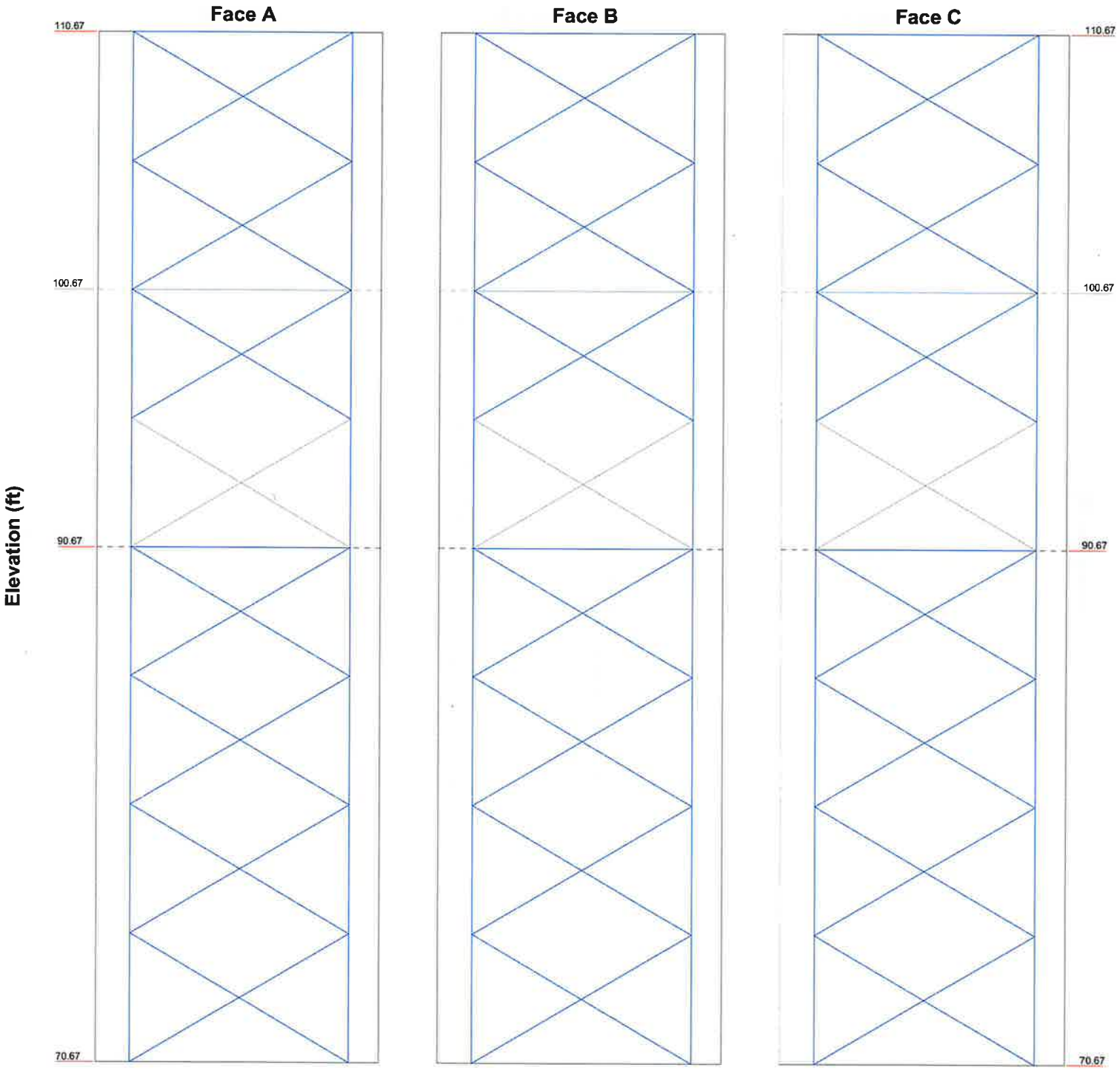
Phone: (781) 713-4725
FAX:

Job: ***Bristol CT***			
Project: ***23CLVZ-0019***			
Client: Verizon Wireless	Drawn by: jH	App'd:	
Code: TIA-222-H	Date: 04/02/24	Scale: NTS	
Path:		Dwg No. E-7	

Stress Distribution Chart
70'8-1/32" - 110'8-1/32"

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



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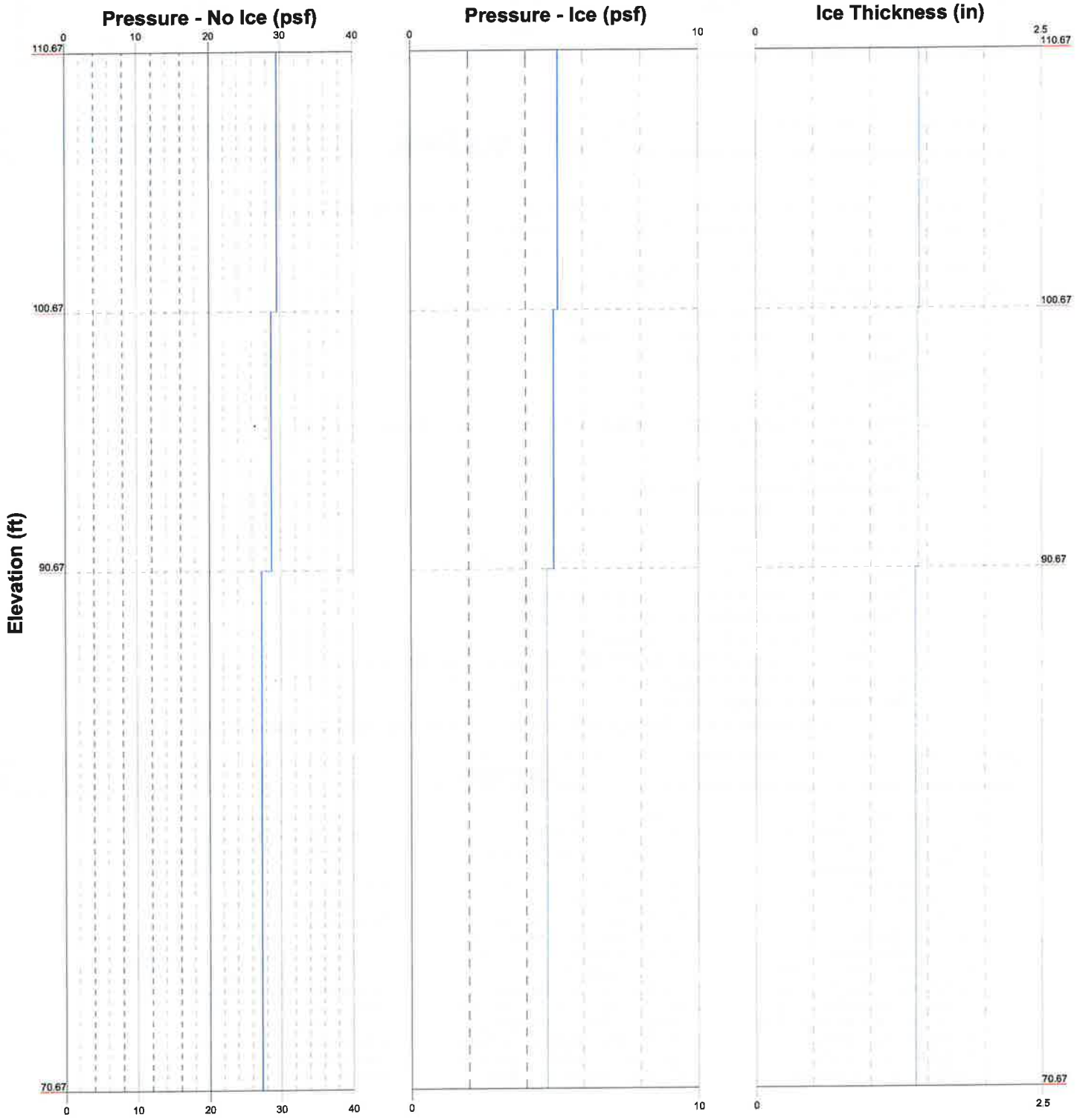
FAX:

Job: **Bristol CT**			
Project: **23CLVZ-0019**			
Client: Verizon Wireless	Drawn by: jll	App'd:	
Code: TIA-222-H	Date: 04/02/24	Scale: NTS	
Path:		Dwg No. E-8	

Wind Pressures and Ice Thickness

TIA-222-H - 120 mph/50 mph 1.5000 in Ice Exposure B



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West Bridgewater, MA 02379
Phone: (781) 713-4725
FAX:

Job: **Bristol CT**		
Project: **23CLVZ-0019**		
Client: Verizon Wireless	Drawn by: jll	App'd:
Code: TIA-222-H	Date: 04/02/24	Scale: NTS
Path:		Dwg No E-9

tnxTower	Job	Page
	Bristol CT	1 of 17
Centerline Engineering Services, PA 750 W Center St, Suite 301 West Bridgewater, MA 02379 Phone: (781) 713-4725 FAX:	Project 23CLVZ-0019	Date 17:09:13 04/02/24
	Client Verizon Wireless	Designed by jll

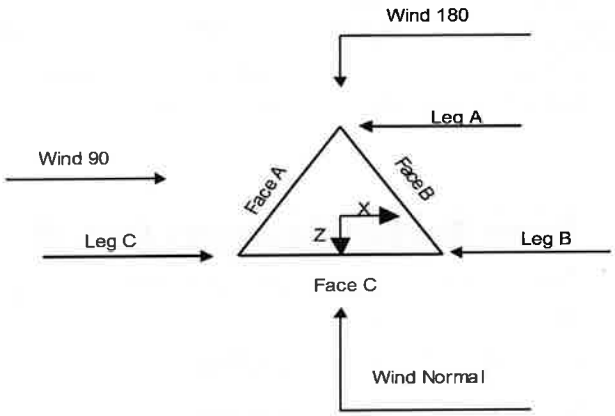
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 110.67 ft above the ground line.
The base of the tower is set at an elevation of 70.67 ft above the ground line.
The face width of the tower is 8.56 ft at the top and 8.56 ft at the base.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

Tower is located in Hartford County, Connecticut.
Tower base elevation above sea level: 389.39 ft.
Basic wind speed of 120 mph.
Risk Category II.
Exposure Category B.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.00 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.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.
Tower analysis based on target reliabilities in accordance with Annex S.
Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
Maximum demand-capacity ratio is: 1.
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



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	110.67-100.67			8.56	1	10.00
T2	100.67-90.67			8.56	1	10.00
T3	90.67-70.67			8.56	1	20.00

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T1	110.67-100.67	5.00	X Brace	No	Yes	0.0000	0.0000
T2	100.67-90.67	5.00	X Brace	No	Yes	0.0000	0.0000
T3	90.67-70.67	5.00	X Brace	No	Yes	0.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 110.67-100.67	Pipe	Pipe 2.5 Std (2.875"ODx0.203")	A572-50 (50 ksi)	Equal Angle	L1 1/2x1 1/2x1/8	A36 (36 ksi)
T2 100.67-90.67	Pipe	Pipe 2.5 Std (2.875"ODx0.203")	A572-50 (50 ksi)	Equal Angle	L1 1/2x1 1/2x1/8	A36 (36 ksi)
T3 90.67-70.67	Pipe	Pipe 2.5 Std (2.875"ODx0.203")	A572-50 (50 ksi)	Equal Angle	L2x2x3/16	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 110.67-100.67	Equal Angle	L1 1/2x1 1/2x1/8	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T2 100.67-90.67	Equal Angle	L1 1/2x1 1/2x1/8	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T3 90.67-70.67	Equal Angle	L1 1/2x1 1/2x1/8	A36 (36 ksi)	Solid Round		A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T1 110.67-100.67	Solid Round		A572-50 (50 ksi)	Equal Angle	L2x2x1/8	A36 (36 ksi)
T2 100.67-90.67	Solid Round		A572-50 (50 ksi)	Equal Angle	L2x2x1/8	A36 (36 ksi)
T3 90.67-70.67	Solid Round		A572-50 (50 ksi)	Equal Angle	L2x2x1/8	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

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
T1 110.67-100.67	0.00	0.2500	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T2 100.67-90.67	0.00	0.2500	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T3 90.67-70.67	0.00	0.2500	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1 110.67-100.67	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T2 100.67-90.67	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T3 90.67-70.67	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1

[1]*Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.*

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 110.67-100.67	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 100.67-90.67	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 90.67-70.67	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 110.67-100.67	0.0000	0.75 (1)	0.0000	0.75 (1)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (1)	0.0000	0.75 (1)
	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)
T2 100.67-90.67	0.0000	0.75 (1)	0.0000	0.75 (1)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (1)	0.0000	0.75 (1)
	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T3 90.67-70.67	0.0000	0.75 (1)	0.0000	0.75 (1)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (1)	0.0000	0.75 (1)
	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 110.67-100.67	Flange	0.6250 A325N	4	0.5000 A325N	1	0.3750 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T2 100.67-90.67	Flange	0.6250 A325N	4	0.5000 A325N	1	0.3750 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T3 90.67-70.67	Flange	0.6250 A325N	4	0.5000 A325N	1	0.3750 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
LDF7-50A(1-5/8)	B	No	No	Ar (CaAa)	97.67 - 80.67	0.0000	-0.28	6	3	0.5000	1.9800		0.82
HCS 6x12	B	No	No	Ar (CaAa)	105.00 - 80.67	0.0000	-0.35	2	2	0.5000	1.5400		1.70

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
T1	110.67-100.67	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	1.334	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.00
T2	100.67-90.67	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	11.396	0.000	0.07
		C	0.000	0.000	0.000	0.000	0.00
T3	90.67-70.67	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	14.960	0.000	0.08
		C	0.000	0.000	0.000	0.000	0.00

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
T1	110.67-100.67	A	1.432	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	4.225	0.000	0.05
		C		0.000	0.000	0.000	0.000	0.00
T2	100.67-90.67	A	1.418	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	20.383	0.000	0.28
		C		0.000	0.000	0.000	0.000	0.00
T3	90.67-70.67	A	1.394	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	24.790	0.000	0.34
		C		0.000	0.000	0.000	0.000	0.00

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	110.67-100.67	0.2199	-1.6161	0.3052	-2.1229
T2	100.67-90.67	1.6672	-8.0980	1.7188	-8.1605
T3	90.67-70.67	1.0534	-5.0402	1.1380	-5.2375

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	2	HCS 6x12	100.67 - 105.00	0.6000	0.6000
T2	1	LDF7-50A(1-5/8)	90.67 - 97.67	0.6000	0.6000
T2	2	HCS 6x12	90.67 - 100.67	0.6000	0.6000
T3	1	LDF7-50A(1-5/8)	80.67 - 90.67	0.6000	0.6000
T3	2	HCS 6x12	80.67 - 90.67	0.6000	0.6000

tnxTower	Job: Bristol CT	Page: 7 of 17
Centerline Engineering Services, PA 750 W Center St, Suite 301 West Bridgewater, MA 02379 Phone: (781) 713-4725 FAX:	Project: 23CLVZ-0019	Date: 17:09:13 04/02/24
	Client: Verizon Wireless	Designed by: jll

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
(2) JAHH-65B-R3B w/ Mount Pipe & BSAMNT-SBS-2-3	A	From Leg	1.00 0.00 0.00	30.0000	107.67	No Ice 1/2" Ice 1" Ice 2" Ice	9.51 9.92 10.46 11.55	7.86 8.83 9.73 11.56	0.09 0.16 0.25 0.45
(2) JAHH-65B-R3B w/ Mount Pipe & BSAMNT-SBS-2-3	B	From Leg	1.00 0.00 0.00	30.0000	107.67	No Ice 1/2" Ice 1" Ice 2" Ice	9.51 9.92 10.46 11.55	7.86 8.83 9.73 11.56	0.09 0.16 0.25 0.45
(2) JAHH-65B-R3B w/ Mount Pipe & BSAMNT-SBS-2-3	C	From Leg	1.00 0.00 0.00	30.0000	107.67	No Ice 1/2" Ice 1" Ice 2" Ice	9.51 9.92 10.46 11.55	7.86 8.83 9.73 11.56	0.09 0.16 0.25 0.45
64T64R w/ Pipe Mount	A	From Leg	1.00 -3.00 0.00	0.0000	107.67	No Ice 1/2" Ice 1" Ice 2" Ice	5.35 5.92 6.42 7.45	2.73 3.41 3.97 5.14	0.10 0.14 0.19 0.30
64T64R w/ Pipe Mount	B	From Leg	1.00 -3.00 0.00	0.0000	107.67	No Ice 1/2" Ice 1" Ice 2" Ice	5.35 5.92 6.42 7.45	2.73 3.41 3.97 5.14	0.10 0.14 0.19 0.30
64T64R w/ Pipe Mount	C	From Leg	1.00 -3.00 0.00	0.0000	107.67	No Ice 1/2" Ice 1" Ice 2" Ice	5.35 5.92 6.42 7.45	2.73 3.41 3.97 5.14	0.10 0.14 0.19 0.30
PSA3 Standoff	A	From Leg	1.00 -1.50 0.00	0.0000	107.67	No Ice 1/2" Ice 1" Ice 2" Ice	6.23 8.24 10.25 14.27	7.12 9.23 11.34 15.56	0.17 0.20 0.24 0.31
PSA3 Standoff	B	From Leg	1.00 -1.50 0.00	0.0000	107.67	No Ice 1/2" Ice 1" Ice 2" Ice	6.23 8.24 10.25 14.27	7.12 9.23 11.34 15.56	0.17 0.20 0.24 0.31
PSA3 Standoff	C	From Leg	1.00 -1.50 0.00	0.0000	107.67	No Ice 1/2" Ice 1" Ice 2" Ice	6.23 8.24 10.25 14.27	7.12 9.23 11.34 15.56	0.17 0.20 0.24 0.31
Raycap Dist. Box	A	From Leg	0.00 0.00 0.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.09 2.35 2.61 3.13	1.37 1.58 1.79 2.21	0.02 0.03 0.03 0.04
Raycap Dist. Box	B	From Leg	0.00 0.00 0.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.09 2.35 2.61 3.13	1.37 1.58 1.79 2.21	0.02 0.03 0.03 0.04
AWS/PCS RRH	A	From Face	1.00 0.00 0.00	0.0000	103.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.88 2.04 2.22 2.60	1.25 1.39 1.54 1.86	0.08 0.10 0.12 0.18
AWS/PCS RRH	B	From Face	1.00 0.00 0.00	0.0000	103.00	No Ice 1/2" Ice 1" Ice	1.88 2.04 2.22	1.25 1.39 1.54	0.08 0.10 0.12

tnxTower	Job: Bristol CT	Page: 8 of 17
Centerline Engineering Services, PA 750 W Center St, Suite 301 West Bridgewater, MA 02379 Phone: (781) 713-4725 FAX:	Project: 23CLVZ-0019	Date: 17:09:13 04/02/24
	Client: Verizon Wireless	Designed by: jll

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	2.60	1.86	0.18
AWS/PCS RRH	C	From Face	1.00	0.00	0.0000	103.00	No Ice	1.88	1.25	0.08
							1/2" Ice	2.04	1.39	0.10
							1" Ice	2.22	1.54	0.12
							2" Ice	2.60	1.86	0.18
700/850 RRH	A	From Face	1.00	0.00	0.0000	103.00	No Ice	1.88	1.01	0.07
							1/2" Ice	2.04	1.15	0.09
							1" Ice	2.22	1.28	0.11
							2" Ice	2.60	1.58	0.15
700/850 RRH	B	From Face	1.00	0.00	0.0000	103.00	No Ice	1.88	1.01	0.07
							1/2" Ice	2.04	1.15	0.09
							1" Ice	2.22	1.28	0.11
							2" Ice	2.60	1.58	0.15
700/850 RRH	C	From Face	1.00	0.00	0.0000	103.00	No Ice	1.88	1.01	0.07
							1/2" Ice	2.04	1.15	0.09
							1" Ice	2.22	1.28	0.11
							2" Ice	2.60	1.58	0.15
CBC78T-DS-43-2X	A	From Face	1.00	0.00	0.0000	103.00	No Ice	0.37	0.51	0.02
							1/2" Ice	0.45	0.60	0.03
							1" Ice	0.53	0.70	0.04
							2" Ice	0.72	0.93	0.06
CBC78T-DS-43-2X	B	From Face	1.00	0.00	0.0000	103.00	No Ice	0.37	0.51	0.02
							1/2" Ice	0.45	0.60	0.03
							1" Ice	0.53	0.70	0.04
							2" Ice	0.72	0.93	0.06
CBC78T-DS-43-2X	C	From Face	1.00	0.00	0.0000	103.00	No Ice	0.37	0.51	0.02
							1/2" Ice	0.45	0.60	0.03
							1" Ice	0.53	0.70	0.04
							2" Ice	0.72	0.93	0.06
(2) KA-6030	B	From Face	1.00	0.00	0.0000	103.00	No Ice	0.77	0.28	0.03
							1/2" Ice	0.88	0.35	0.03
							1" Ice	1.00	0.43	0.04
							2" Ice	1.26	0.61	0.06
(2) Horizontal Mount	A	From Face	0.50	0.00	0.0000	103.00	No Ice	2.21	0.60	0.03
							1/2" Ice	3.07	0.81	0.05
							1" Ice	3.94	1.02	0.06
							2" Ice	5.68	1.44	0.10
(2) Proposed Horizontal Mount	B	From Face	0.50	0.00	0.0000	103.00	No Ice	3.54	1.23	0.06
							1/2" Ice	4.94	1.66	0.10
							1" Ice	6.35	2.10	0.14
							2" Ice	9.15	2.98	0.21
(2) Horizontal Mount	C	From Face	0.50	0.00	0.0000	103.00	No Ice	2.21	0.60	0.03
							1/2" Ice	3.07	0.81	0.05
							1" Ice	3.94	1.02	0.06
							2" Ice	5.68	1.44	0.10
(2) LPA-80080/4CF	A	From Leg	0.50	0.00	0.0000	97.67	No Ice	2.62	5.40	0.01
							1/2" Ice	2.92	5.73	0.05
							1" Ice	3.23	6.06	0.08
							2" Ice	3.85	6.75	0.17
(2) LPA-80080/4CF	B	From Leg	0.50	0.00	0.0000	97.67	No Ice	2.62	5.40	0.01
							1/2" Ice	2.92	5.73	0.05
							1" Ice	3.23	6.06	0.08
							2" Ice	3.85	6.75	0.17
(2) LPA-80080/4CF	C	From Leg	0.50	0.00	0.0000	97.67	No Ice	2.62	5.40	0.01
							1/2" Ice	2.92	5.73	0.05
							1" Ice	3.23	6.06	0.08
							2" Ice	3.85	6.75	0.17

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
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
T1	110.67 - 100.67	Leg	Max Tension	7	0.70	-0.30	0.18
			Max. Compression	27	-2.77	0.00	0.02
			Max. Mx	20	-0.70	-0.51	-0.01
			Max. My	3	-0.40	0.01	-0.52
			Max. Vy	8	0.44	-0.35	0.01
			Max. Vx	2	-0.44	0.01	0.34
		Diagonal	Max Tension	25	1.03	0.00	0.00
			Max. Compression	24	-1.06	0.00	0.00
			Max. Mx	35	0.08	0.02	-0.00
			Max. My	12	-1.05	0.00	0.00
			Max. Vy	35	-0.02	0.02	-0.00
			Max. Vx	12	-0.00	0.00	0.00
		Top Girt	Max Tension	15	0.04	0.00	0.00
			Max. Compression	18	-0.07	0.00	0.00
			Max. Mx	26	-0.05	-0.07	0.00
			Max. Vy	26	0.03	0.00	0.00
T2	100.67 - 90.67	Leg	Max Tension	7	4.68	-0.07	0.05
			Max. Compression	2	-6.90	0.00	0.04
			Max. Mx	20	-1.12	-0.16	0.00
			Max. My	2	-4.46	0.00	-0.14
			Max. Vy	8	0.14	-0.10	-0.01
			Max. Vx	14	0.12	-0.00	-0.09
		Diagonal	Max Tension	24	1.47	0.00	0.00
			Max. Compression	24	-1.48	0.00	0.00
			Max. Mx	27	0.41	0.02	-0.00
			Max. My	8	-1.41	0.00	0.00
			Max. Vy	27	-0.02	0.02	-0.00
			Max. Vx	8	-0.00	0.00	0.00
		Top Girt	Max Tension	14	0.11	0.00	0.00
			Max. Compression	11	-0.09	0.00	0.00
			Max. Mx	26	0.05	-0.07	0.00
			Max. Vy	26	-0.03	0.00	0.00
T3	90.67 - 70.67	Leg	Max Tension	7	16.23	-0.03	0.02
			Max. Compression	2	-19.60	0.00	0.00
			Max. Mx	29	-7.30	-0.10	-0.04
			Max. My	27	-10.06	-0.00	0.11
			Max. Vy	8	0.04	-0.08	-0.01
			Max. Vx	33	-0.04	0.00	-0.10
		Diagonal	Max Tension	24	1.98	0.00	0.00
			Max. Compression	24	-2.00	0.00	0.00
			Max. Mx	28	0.02	0.04	0.00
			Max. My	8	1.83	0.01	0.00
			Max. Vy	28	-0.03	0.04	0.00
			Max. Vx	8	-0.00	0.01	0.00
		Top Girt	Max Tension	29	0.33	0.00	0.00
			Max. Compression	2	-0.04	0.00	0.00
			Max. Mx	26	0.32	-0.07	0.00
			Max. Vy	26	0.03	0.00	0.00

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	18	21.50	2.50	-1.52
	Max. H_x	18	21.50	2.50	-1.52
	Max. H_z	5	-15.55	-1.84	1.48
	Min. Vert	7	-17.97	-2.28	1.39
	Min. H_x	7	-17.97	-2.28	1.39
	Min. H_z	16	18.16	1.90	-1.52
Leg B	Max. Vert	10	21.40	-2.45	-1.50
	Max. H_x	23	-17.58	2.23	1.37
	Max. H_z	25	-15.14	1.77	1.49
	Min. Vert	23	-17.58	2.23	1.37
	Min. H_x	10	21.40	-2.45	-1.50
	Min. H_z	12	18.03	-1.83	-1.53
Leg A	Max. Vert	2	21.52	0.05	2.87
	Max. H_x	20	1.78	0.87	0.04
	Max. H_z	2	21.52	0.05	2.87
	Min. Vert	15	-17.49	-0.05	-2.62
	Min. H_x	9	1.33	-0.87	0.03
	Min. H_z	15	-17.49	-0.05	-2.62

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	4.10	0.00	0.00	-0.85	-0.58	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	4.92	0.00	-5.43	-147.39	-0.69	0.69
0.9 Dead+1.0 Wind 0 deg - No Ice	3.69	0.00	-5.43	-147.13	-0.52	0.69
1.2 Dead+1.0 Wind 30 deg - No Ice	4.92	2.62	-4.53	-124.58	-72.03	0.23
0.9 Dead+1.0 Wind 30 deg - No Ice	3.69	2.62	-4.53	-124.33	-71.86	0.23
1.2 Dead+1.0 Wind 60 deg - No Ice	4.92	4.48	-2.59	-71.77	-123.24	-0.99
0.9 Dead+1.0 Wind 60 deg - No Ice	3.69	4.48	-2.59	-71.52	-123.06	-0.99
1.2 Dead+1.0 Wind 90 deg - No Ice	4.92	5.23	0.00	-1.02	-143.37	-1.59
0.9 Dead+1.0 Wind 90 deg - No Ice	3.69	5.23	0.00	-0.77	-143.20	-1.59
1.2 Dead+1.0 Wind 120 deg - No Ice	4.92	4.70	2.71	72.16	-127.45	-1.01
0.9 Dead+1.0 Wind 120 deg - No Ice	3.69	4.70	2.71	72.42	-127.27	-1.01
1.2 Dead+1.0 Wind 150 deg - No Ice	4.92	2.56	4.43	120.41	-70.80	-0.53
0.9 Dead+1.0 Wind 150 deg - No Ice	3.69	2.56	4.43	120.67	-70.63	-0.53
1.2 Dead+1.0 Wind 180 deg - No Ice	4.92	0.00	5.08	138.49	-0.69	-0.69
0.9 Dead+1.0 Wind 180 deg - No Ice	3.69	0.00	5.08	138.74	-0.52	-0.69
1.2 Dead+1.0 Wind 210 deg - No Ice	4.92	-2.62	4.53	122.54	70.65	-0.23
0.9 Dead+1.0 Wind 210 deg - No Ice	3.69	-2.62	4.53	122.80	70.82	-0.23

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
1.2 Dead+1.0 Wind 240 deg - No Ice	4.92	-4.78	2.76	73.16	127.79	0.99
0.9 Dead+1.0 Wind 240 deg - No Ice	3.69	-4.78	2.76	73.41	127.96	0.99
1.2 Dead+1.0 Wind 270 deg - No Ice	4.92	-5.23	0.00	-1.02	141.99	1.59
0.9 Dead+1.0 Wind 270 deg - No Ice	3.69	-5.23	0.00	-0.77	142.16	1.59
1.2 Dead+1.0 Wind 300 deg - No Ice	4.92	-4.40	-2.54	-70.78	120.13	1.01
0.9 Dead+1.0 Wind 300 deg - No Ice	3.69	-4.40	-2.54	-70.52	120.30	1.01
1.2 Dead+1.0 Wind 330 deg - No Ice	4.92	-2.56	-4.43	-122.45	69.42	0.53
0.9 Dead+1.0 Wind 330 deg - No Ice	3.69	-2.56	-4.43	-122.20	69.59	0.53
1.2 Dead+1.0 Ice+1.0 Temp	13.71	0.00	0.00	-3.11	-1.67	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	13.71	0.00	-1.45	-41.90	-1.67	0.15
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	13.71	0.72	-1.24	-36.47	-20.93	0.08
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	13.71	1.24	-0.72	-22.37	-35.02	-0.27
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	13.71	1.44	0.00	-3.11	-40.19	-0.51
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	13.71	1.26	0.73	16.28	-35.27	-0.37
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	13.71	0.70	1.22	29.66	-20.60	-0.16
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	13.71	0.00	1.40	34.72	-1.67	-0.15
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	13.71	-0.72	1.24	30.25	17.59	-0.08
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	13.71	-1.28	0.74	16.62	32.51	0.27
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	13.71	-1.44	0.00	-3.11	36.85	0.51
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	13.71	-1.22	-0.70	-22.03	31.09	0.37
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	13.71	-0.70	-1.22	-35.89	17.25	0.16
Dead+Wind 0 deg - Service	4.10	0.00	-1.43	-39.37	-0.58	0.18
Dead+Wind 30 deg - Service	4.10	0.69	-1.19	-33.37	-19.35	0.06
Dead+Wind 60 deg - Service	4.10	1.18	-0.68	-19.47	-32.83	-0.26
Dead+Wind 90 deg - Service	4.10	1.38	0.00	-0.85	-38.12	-0.42
Dead+Wind 120 deg - Service	4.10	1.24	0.71	18.41	-33.93	-0.27
Dead+Wind 150 deg - Service	4.10	0.67	1.17	31.10	-19.03	-0.14
Dead+Wind 180 deg - Service	4.10	0.00	1.34	35.86	-0.58	-0.18
Dead+Wind 210 deg - Service	4.10	-0.69	1.19	31.67	18.20	-0.06
Dead+Wind 240 deg - Service	4.10	-1.26	0.73	18.67	33.23	0.26
Dead+Wind 270 deg - Service	4.10	-1.38	0.00	-0.85	36.97	0.42
Dead+Wind 300 deg - Service	4.10	-1.16	-0.67	-19.21	31.22	0.27
Dead+Wind 330 deg - Service	4.10	-0.67	-1.17	-32.81	17.87	0.14

Solution Summary

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
1	0.00	-4.10	0.00	0.00	4.10	0.00	0.000%
2	0.00	-4.92	-5.43	0.00	4.92	5.43	0.000%
3	0.00	-3.69	-5.43	0.00	3.69	5.43	0.000%
4	2.62	-4.92	-4.53	-2.62	4.92	4.53	0.000%
5	2.62	-3.69	-4.53	-2.62	3.69	4.53	0.000%
6	4.48	-4.92	-2.59	-4.48	4.92	2.59	0.000%
7	4.48	-3.69	-2.59	-4.48	3.69	2.59	0.000%
8	5.23	-4.92	0.00	-5.23	4.92	0.00	0.000%
9	5.23	-3.69	0.00	-5.23	3.69	0.00	0.000%
10	4.70	-4.92	2.71	-4.70	4.92	-2.71	0.000%
11	4.70	-3.69	2.71	-4.70	3.69	-2.71	0.000%
12	2.56	-4.92	4.43	-2.56	4.92	-4.43	0.000%
13	2.56	-3.69	4.43	-2.56	3.69	-4.43	0.000%
14	0.00	-4.92	5.08	0.00	4.92	-5.08	0.000%
15	0.00	-3.69	5.08	0.00	3.69	-5.08	0.000%
16	-2.62	-4.92	4.53	2.62	4.92	-4.53	0.000%
17	-2.62	-3.69	4.53	2.62	3.69	-4.53	0.000%
18	-4.78	-4.92	2.76	4.78	4.92	-2.76	0.000%
19	-4.78	-3.69	2.76	4.78	3.69	-2.76	0.000%
20	-5.23	-4.92	0.00	5.23	4.92	0.00	0.000%
21	-5.23	-3.69	0.00	5.23	3.69	0.00	0.000%
22	-4.40	-4.92	-2.54	4.40	4.92	2.54	0.000%
23	-4.40	-3.69	-2.54	4.40	3.69	2.54	0.000%
24	-2.56	-4.92	-4.43	2.56	4.92	4.43	0.000%
25	-2.56	-3.69	-4.43	2.56	3.69	4.43	0.000%
26	0.00	-13.71	0.00	0.00	13.71	0.00	0.000%
27	0.00	-13.71	-1.45	0.00	13.71	1.45	0.000%
28	0.72	-13.71	-1.24	-0.72	13.71	1.24	0.000%
29	1.24	-13.71	-0.72	-1.24	13.71	0.72	0.000%
30	1.44	-13.71	0.00	-1.44	13.71	0.00	0.000%
31	1.26	-13.71	0.73	-1.26	13.71	-0.73	0.000%
32	0.70	-13.71	1.22	-0.70	13.71	-1.22	0.000%
33	0.00	-13.71	1.40	0.00	13.71	-1.40	0.000%
34	-0.72	-13.71	1.24	0.72	13.71	-1.24	0.000%
35	-1.28	-13.71	0.74	1.28	13.71	-0.74	0.000%
36	-1.44	-13.71	0.00	1.44	13.71	0.00	0.000%
37	-1.22	-13.71	-0.70	1.22	13.71	0.70	0.000%
38	-0.70	-13.71	-1.22	0.70	13.71	1.22	0.000%
39	0.00	-4.10	-1.43	0.00	4.10	1.43	0.000%
40	0.69	-4.10	-1.19	-0.69	4.10	1.19	0.000%
41	1.18	-4.10	-0.68	-1.18	4.10	0.68	0.000%
42	1.38	-4.10	0.00	-1.38	4.10	0.00	0.000%
43	1.24	-4.10	0.71	-1.24	4.10	-0.71	0.000%
44	0.67	-4.10	1.17	-0.67	4.10	-1.17	0.000%
45	0.00	-4.10	1.34	0.00	4.10	-1.34	0.000%
46	-0.69	-4.10	1.19	0.69	4.10	-1.19	0.000%
47	-1.26	-4.10	0.73	1.26	4.10	-0.73	0.000%
48	-1.38	-4.10	0.00	1.38	4.10	0.00	0.000%
49	-1.16	-4.10	-0.67	1.16	4.10	0.67	0.000%
50	-0.67	-4.10	-1.17	0.67	4.10	1.17	0.000%

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	110.67 - 100.67	0.146	39	0.0198	0.0020
T2	100.67 - 90.67	0.100	39	0.0194	0.0021
T3	90.67 - 70.67	0.053	39	0.0165	0.0014

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
107.67	(2) JAHH-65B-R3B w/ Mount Pipe & BSAMNT-SBS-2-3	39	0.132	0.0198	0.0021	268262
105.00	Raycap Dist. Box	39	0.120	0.0198	0.0022	236933
103.00	AWS/PCS RRH	39	0.111	0.0196	0.0022	188659
97.67	(2) LPA-80080/4CF	39	0.085	0.0189	0.0020	974071

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	110.67 - 100.67	0.545	2	0.0738	0.0077
T2	100.67 - 90.67	0.375	19	0.0722	0.0081
T3	90.67 - 70.67	0.198	19	0.0617	0.0053

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
107.67	(2) JAHH-65B-R3B w/ Mount Pipe & BSAMNT-SBS-2-3	2	0.496	0.0737	0.0081	71904
105.00	Raycap Dist. Box	2	0.451	0.0735	0.0083	63509
103.00	AWS/PCS RRH	2	0.416	0.0731	0.0083	50656
97.67	(2) LPA-80080/4CF	19	0.320	0.0704	0.0075	322391

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	110.67	Leg	A325N	0.6250	4	0.23	20.34	0.011 ✔	1	Bolt Tension
		Diagonal	A325N	0.5000	1	1.03	3.13	0.331 ✔	1	Member Block Shear

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
T2	100.67	Top Girt	A325N	0.3750	1	0.07	4.97	0.014 ✔	1	Bolt Shear
		Leg	A325N	0.6250	4	1.17	20.34	0.058 ✔	1	Bolt Tension
		Diagonal	A325N	0.5000	1	1.47	3.13	0.469 ✔	1	Member Block Shear
T3	90.67	Top Girt	A325N	0.3750	1	0.12	3.04	0.039 ✔	1	Member Bearing
		Leg	A325N	0.6250	4	4.06	20.34	0.199 ✔	1	Bolt Tension
		Diagonal	A325N	0.5000	1	1.98	6.20	0.319 ✔	1	Member Bearing
		Top Girt	A325N	0.3750	1	0.34	3.04	0.111 ✔	1	Member Bearing

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	110.67 - 100.67	Pipe 2.5 Std (2.875"ODx0.203")	10.00	5.00	63.3 K=1.00	1.7040	-2.77	57.19	0.048 [1] ✔
T2	100.67 - 90.67	Pipe 2.5 Std (2.875"ODx0.203")	10.00	5.00	63.3 K=1.00	1.7040	-6.90	57.19	0.121 [1] ✔
T3	90.67 - 70.67	Pipe 2.5 Std (2.875"ODx0.203")	20.00	5.00	63.3 K=1.00	1.7040	-19.60	57.19	0.343 [1] ✔

[1] P_u / ϕP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	110.67 - 100.67	L1 1/2x1 1/2x1/8	9.91	4.71	191.0 K=1.00	0.3594	-1.06	2.82	0.374 [1] ✔
T2	100.67 - 90.67	L1 1/2x1 1/2x1/8	9.91	4.71	191.0 K=1.00	0.3594	-1.48	2.82	0.524 [1] ✔
T3	90.67 - 70.67	L2x2x3/16	9.91	4.71	143.6 K=1.00	0.7150	-2.00	9.93	0.201 [1] ✔

[1] P_u / ϕP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	110.67 - 100.67	L1 1/2x1 1/2x1/8	8.56	8.14	329.9 K=1.00	0.3594	-0.07	0.94	0.074 [1] ✔
T2	100.67 - 90.67	KL/R > 200 (C) - 5 L1 1/2x1 1/2x1/8	8.56	8.14	329.9 K=1.00	0.3594	-0.12	0.94	0.126 [1] ✔
T3	90.67 - 70.67	KL/R > 200 (C) - 23 L1 1/2x1 1/2x1/8 KL/R > 200 (C) - 41	8.56	8.14	329.9 K=1.00	0.3594	-0.34	0.94	0.359 [1] ✔

[1] P_u / ϕP_n controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	110.67 - 100.67	Pipe 2.5 Std (2.875"ODx0.203")	10.00	5.00	63.3	1.7040	0.70	76.68	0.009 [1] ✔
T2	100.67 - 90.67	Pipe 2.5 Std (2.875"ODx0.203")	10.00	5.00	63.3	1.7040	4.68	76.68	0.061 [1] ✔
T3	90.67 - 70.67	Pipe 2.5 Std (2.875"ODx0.203")	20.00	5.00	63.3	1.7040	16.23	76.68	0.212 [1] ✔

[1] P_u / ϕP_n controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	110.67 - 100.67	L1 1/2x1 1/2x1/8	9.91	4.71	124.3	0.2109	1.03	9.18	0.113 [1] ✔
T2	100.67 - 90.67	L1 1/2x1 1/2x1/8	9.91	4.71	124.3	0.2109	1.47	9.18	0.160 [1] ✔
T3	90.67 - 70.67	L2x2x3/16	9.91	4.71	93.7	0.4484	1.98	19.50	0.101 [1] ✔

[1] P_u / ϕP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	110.67 - 100.67	L1 1/2x1 1/2x1/8	8.56	8.14	214.6	0.2227	0.04	9.69	0.004 [1] ✔
T2	100.67 - 90.67	L1 1/2x1 1/2x1/8	8.56	8.14	214.6	0.2227	0.12	9.69	0.012 [1] ✔
T3	90.67 - 70.67	L1 1/2x1 1/2x1/8	8.56	8.14	214.6	0.2227	0.34	9.69	0.035 [1] ✔

[1] P_u / ϕP_n controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	110.67 - 100.67	Leg	Pipe 2.5 Std (2.875"ODx0.203")	3	-2.77	57.19	4.8	Pass
T2	100.67 - 90.67	Leg	Pipe 2.5 Std (2.875"ODx0.203")	21	-6.90	57.19	12.1	Pass
T3	90.67 - 70.67	Leg	Pipe 2.5 Std (2.875"ODx0.203")	39	-19.60	57.19	34.3	Pass
T1	110.67 - 100.67	Diagonal	L1 1/2x1 1/2x1/8	10	-1.06	2.82	37.4	Pass
T2	100.67 - 90.67	Diagonal	L1 1/2x1 1/2x1/8	28	-1.48	2.82	52.4	Pass
T3	90.67 - 70.67	Diagonal	L2x2x3/16	46	-2.00	9.93	20.1	Pass
T1	110.67 - 100.67	Top Girt	L1 1/2x1 1/2x1/8	5	-0.07	0.94	31.9 (b) 7.4	Pass
T2	100.67 - 90.67	Top Girt	L1 1/2x1 1/2x1/8	23	-0.12	0.94	12.6	Pass
T3	90.67 - 70.67	Top Girt	L1 1/2x1 1/2x1/8	41	-0.34	0.94	35.9	Pass
							Summary	
						Leg (T3)	34.3	Pass
						Diagonal (T2)	52.4	Pass
						Top Girt (T3)	35.9	Pass
						Bolt Checks	46.9	Pass
						RATING =	**52.4**	**Pass**

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Post-Modification Antenna Mount Analysis Report and PMI Requirements

Mount Fix

SMART Tool Project #: 10211663
Colliers Engineering & Design Project #: 23777162 (Rev. 1)

May 13, 2024

Site Information	*Site ID:*	*5000103444-VZW / BRISTOL CT*
	Site Name:	*BRISTOL CT*
	Carrier Name:	*Verizon Wireless*
	Address:	*32 Valley Street* *Bristol, Connecticut 06010* *Hartford County*
	Latitude:	*41.676209°*
	Longitude:	*-72.947604°*
Structure Information	*Tower Type:*	*50-Ft Self Support on Roof*
	Mount Type:	*10.00-Ft Face Mount (Beta Sector)*
	FUZE ID # 17226438	

Analysis Results

Face Mount (Beta Sector): **15.9% Pass w/ Modifications***

***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: Frank Centone

Executive Summary:

The objective of this report is to summarize the analysis results of the antenna support mount including the proposed modifications at the subject facility for the final wireless telecommunications configuration, per the applicable codes and standards.

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 Sheet (RFDS)	*Verizon RFDS, Site ID: 323492, dated February 24, 2022*
As Built Mount Analysis Report	*KM Consulting Engineers, Inc., Project #: 190109.02, dated February 24, 2022*
Mount Mapping Report	*Onsight Services, Site ID: 5000103444, dated July 29, 2023*
Filter Add Scope	*Provided by Verizon Wireless*
Previous Mount Analysis	*Colliers Engineering & Design, Project #: 23777162, dated October 11, 2023*
Mount Modification Drawings	*Colliers Engineering & Design, Project #: 23777162 (Rev. 1), dated May 13, 2024*

Analysis Criteria:

Codes and Standards:	ANSI/TIA-222-H 2022 Connecticut State Building Code (CSBC), Effective October 1, 2022	
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:	0.988
Seismic Parameters:	S_S:	0.188 g
	S_1:	0.054 g
Maintenance Parameters:	Wind Speed (3-sec. Gust):	30 mph
	Maintenance Load, Lv:	N/A
	Maintenance Load, Lm:	N/A
Analysis Software:	RISA-3D (V17)	

Final Loading Configuration:

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

Mount Elevation (ft)	Equipment Elevation (ft)	Quantity	Manufacturer	Model	Status
107.67	107.67	3	Samsung	MT6407-77A*	Retained
		6	Commscope	JAHH-65B-R3B*	
	105.00	2	Raycap	RRFDC-3315-PF-48*	
103.00	103.00	3	Samsung	B2/B66A RRH-BR049	
		3	Samsung	B5/B13 RRH-BR04C	
		3	Commscope	CBC78T-DS-43-2X*	
		2	KAelus	KA-6030	Added
97.67	97.67	2	Antel	LPA-80063-4CF-EDIN-4*	Retained
		4	Antel	LPA-80080-4CF*	

* Equipment is flush mounted directly to the Self Support tower or on a different mount. They are not mounted on the face mounts and are not included in this mount analysis.

The recent mount mapping reported existing OVP units. 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

8. Any mount modifications listed under Sources of Information are assumed to have been installed per the design specifications.

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
Connection Check	9.3 %	Pass
MOD Face Horizontal	15.9 %	Pass
Pipe	8.6 %	Pass

Structure Rating – *(Controlling Utilization of all Components)*	**15.9%**

Mount Connection Envelope Reactions:

Connection Description	Elev. AGL (Ft)	Node Label	Envelope Wind Reactions				Envelope Wind + Ice Reactions			
			Axial (Lbs)	Lateral (Lbs)	Moment (K-Ft)	Torsion (K-Ft)	Axial (Lbs)	Lateral (Lbs)	Moment (K-Ft)	Torsion (K-Ft)
Top Mount to Tower Connection (Beta Leg)	103.7	N5	74	567	0.130	0.000	161	352	0.266	0.000
Bottom Mount to Tower Connection (Beta Leg)	102.2	N6	74	576	0.130	0.000	160	354	0.266	0.000
Top Mount to Tower Connection (Alpha Leg)	103.7	N7	95	566	0.141	0.000	177	346	0.275	0.000
Bottom Mount to Tower Connection (Alpha Leg)	102.2	N8	95	575	0.141	0.000	176	348	0.275	0.000

Notes:
- Axial loads act along the axis of the tower leg
- Lateral reactions act perpendicular to the tower leg
- Moment loads introduce bending moment to the tower leg
- Torsion loads introduce twisting moment to the tower leg
- Batch solutions by individual load cases are included at the end of this document

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	4.8	0.0	5.8	1.1
0.5	6.8	0.0	8.3	1.6
1	8.8	0.0	10.7	2.0

Notes:
- (EPA)a values listed above may be used in the absence of more precise information
- (EPA)a values in the table above include 1 sector(s).
- Ka factors included in (EPA)a calculations

Requirements:

The existing mounts will be **SUFFICIENT** for the final loading configuration (attachment 2) after the modifications detailed in attachment 3 are successfully completed.

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

Attachments:

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

Mount Desktop – Post Modification Inspection (PMI) Report Requirements

Documents & Photos Required from Contractor – Mount Modification

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 #: 5000103444 SMART Project #: 10211663 Fuze Project ID: 17226438

Purpose – to upload the proper documentation to the SMART Tool in order to allow the SMART Tool engineering vendor 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 modification was completed in accordance with the modification drawings.
- Contractor shall relay any data that can impact the performance of the mount or the mount modification, this includes safety issues.

Base Requirements:

- If installation of the modification 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 drawings" showing contractor's name, 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 post-modification passing mount analysis (MA) contact the SMART Tool vendor immediately.
- Each photo shall be time and date stamped.
- Photos should be high resolution.
- Contractor shall ensure that the safety climb wire rope is 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 of the modifications.
  - Photos of the mount after installation of the modifications; if the mounts are at different rad elevations, pictures must be provided for all elevations that the modifications were installed

- *Photos taken at Mount Elevation*
  - Photos showing the safety climb wire rope above and below the mount prior to modification.
  - Photos showing the climbing facility and safety climb if present.

- Photos showing each individual sector after installation of modifications. Each entire sector must 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.
- Photos of each installed modification per the modification drawings; pictures shall also include connection hardware (U-bolts, bolts, nuts, all-threaded rods, etc.)
- Photos showing the distances (relative distance between collars) of the installed modifications from the appropriate reference locations shown in the modification drawings.
- Photos showing the installed modifications onto the tower (i.e. ring/collar mounts, tie-backs, V-bracing kits, etc.); if the existing mount elevation needs to be changed according to the modification drawings, an elevation measurement shall be provided before the elevation change.

Material Certification:

- Materials utilized must be as per specification on the drawings or the equivalent as validated by the SMART Tool vendor.
  - If the materials are as specified on the drawings
    - The contractor shall provide the packing list, or the materials certifications for the materials utilized to perform the mount modification
    - Commscope, Metrosite, Perfect Vision, Sabre, and Site Pro have all agreed to support Verizon vendors with the necessary material certifications
  - If seeking permission to use an equivalent
    - It is required that the SMART Tool engineering vendor approval of such is included in the contractor submission package. There may be an additional charge for approval if the equivalent submission doesn't meet specifications as prescribed in the drawings.

☐ All hardware has been properly installed, and the existing hardware was inspected.

☐ The material utilized was as specified on the SMART Tool engineering vendor Mount Modification Drawings 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.

Antenna & Equipment Placement and Geometry Confirmation:

☐ 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.

Comments:

Was the mount modification completed in conjunction with the equipment change / installation?

☐ Yes ☐ No

Special Instructions / Validation as required from the MA or Mod Drawings:

Issue:

Contractor shall install the proposed KA-6030 filters to the top and bottom proposed face horizontals (spanning between beta and gamma sectors), 15" from the left end of the face horizontal pipe (as seen looking out from tower face). Refer to Placement Diagrams.

Response:

Special Instruction Confirmation:

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

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:

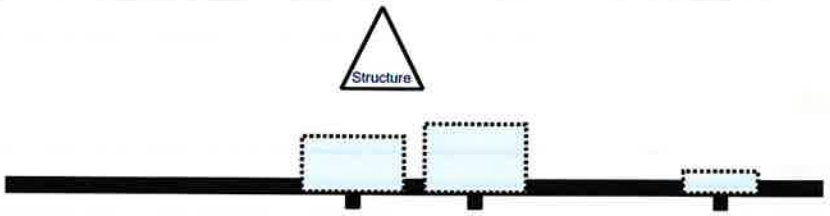
☐ Safety Climb in Good Condition ☐ Safety Climb Damaged

Comments:

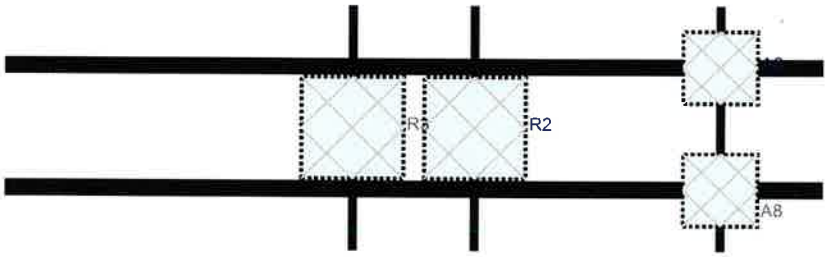
Certifying Individual:

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

Plan View



Front View - Looking at Structure



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
A8	KA-6030	10.6	10.9	105	1	a	Behind	9	0	Added	
A8	KA-6030	10.6	10.9	105	1	b	Behind	27	0	Added	
R2	B2/B66A RRH-BR049	15	15	69	2	a	Behind	18	0	Retained	07/29/2023
R3	B5/B13 RRH-BR04C	15	15	51	3	a	Behind	18	0	Retained	07/29/2023

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MOUNT MODIFICATION DRAWINGS
PROPOSED 10.00' FACE MOUNT (BETA SECTOR)

TOWER OWNER: N/A
TOWER OWNER SITE NUMBER: N/A

CARRIER SITE NAME: BRISTOL CT
CARRIER SITE NUMBER: 5000103444
FUZE ID: 17226438

32 VALLEY STREET
BRISTOL, CT 06010
HARTFORD COUNTY

LATITUDE: 41.676209° N
LONGITUDE: 72.947604° W

DESIGN CRITERIA

WIND LOADS

BASIC WIND SPEED (3 SECOND GUST), V = 120 MPH
EXPOSURE CATEGORY B
TOPOGRAPHIC CATEGORY: 1
TOPOGRAPHIC CONSIDERED: N/A
TOPOGRAPHIC METHOD: N/A
MEAN BASE ELEVATION (AMSL) = 320.26'

ICE LOADS

ICE WIND SPEED (3 SECOND GUST), V = 50 MPH
ICE THICKNESS = 1.50 IN

SEISMIC LOADS

SEISMIC DESIGN CATEGORY B
SHORT TERM MCER GROUND MOTION, S_S = .187
LONG TERM MCER GROUND MOTION, S_1 = .054

PROJECT INFORMATION

APPLICANT/LESSEE

COMPANY: VERIZON WIRELESS

CLIENT REPRESENTATIVE

COMPANY: VERIZON WIRELESS

PROJECT MANAGER

COMPANY: COLLIERS ENGINEERING & DESIGN
CONTACT: PETER ALBANO
PHONE: 856.797.0412
E-MAIL: PETER.ALBANO@COLLIERSENG.COM

CONTRACTOR PMI REQUIREMENTS

PMI LOCATION: HTTPS://PMI.VZWSMART.COM
SMART TOOL PROJECT #: 10211663
VZW MDG #: 5000103444
ANALYSIS DATE: 05/13/24

PMI REQUIREMENTS EMBEDDED WITHIN MOUNT MODIFICATION REPORT

SHEET INDEX

SHEET	DESCRIPTION
ST-1	TITLE SHEET
SBOM-1	BILL OF MATERIALS
SGN-1	GENERAL NOTES
SCF-1	CLIMBING FACILITY DETAIL
SS-1	MODIFICATION DETAILS
SS-2	MOUNT PHOTOS
	SPECIFICATION SHEETS

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SCALE	JOB NUMBER
AS SHOWN	23777162

REV	DATE	DESCRIPTION	BY	CHK
1	05/13/24	PRELIMINARY CONSTRUCTION	MAT	PMA
0	5/17/24	FINAL CONSTRUCTION	MAT	MA

COLLIERS ENGINEERING & DESIGN CT, P.C.
CT. PEC.0001111

SITE NAME:

BRISTOL CT
5000103444
32 VALLEY STREET
BRISTOL, CT 06010
HARTFORD COUNTY

Colliers Engineering & Design
841 Laurel Oak Road, Suite 100
Voorhees, NJ 08043
Phone: 856.797.0412
www.colliersengineering.com

SHEET TITLE
TITLE SHEET

SHEET NUMBER
ST-1

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

BILL OF MATERIALS

SECTION 1 - VZWSMART KITS

QUANTITY	MANUFACTURER	PART NUMBER	DESCRIPTION	NOTES	UNIT WEIGHT (LBS.)	WEIGHT (LBS.)
2	VZWSMART	VZWSMART-P40-238X120	120" LONG, PIPE 2 SCH40 (2.375"OD X 0.154" THK)		37	74
8		VZWSMART-MSK1	CROSSOVER PLATE		14	112

SECTION 2 - OTHER REQUIRED PARTS

QUANTITY	MANUFACTURER	PART NUMBER	DESCRIPTION	NOTES	UNIT WEIGHT (LBS.)	WEIGHT (LBS.)
2	-	-	36" LONG, PIPE 2 SCH40 (2.375"OD X 0.154" THK)	GALVANIZED.	11	22

SECTION 3 - REQUIRED SAFETY CLIMB PARTS

QUANTITY	MANUFACTURER	PART NUMBER	DESCRIPTION	NOTES	UNIT WEIGHT (LBS.)	WEIGHT (LBS.)
					TOTAL:	208

NOTES:

1. THE MANUFACTURERS LISTED ARE THE APPROVED VENDORS FOR THE VZW MOUNT KITS. EACH MANUFACTURER WILL BE AWARE OF WHICH KITS HAVE BEEN THROUGH THE VZW APPROVAL PROCESS AND THEY ARE IN TURN APPROVED TO SELL. PLEASE NOTE THAT THE MATERIAL UTILIZED ON THE MOUNT MODIFICATIONS WILL BE REVIEWED AS A PART OF THE DESKTOP PMI COMPLETED BY THE SMART TOOL VENDOR. IT WILL BE REQUIRED THAT THE VZW KITS SPECIFIED ARE UTILIZED IN THE MODIFICATIONS.
2. ALL MATERIALS REQUIRED FOR THE DESIGNED MODIFICATIONS BUT NOT LISTED IN THIS SHEET ARE ASSUMED TO BE PROVIDED BY THE CONTRACTOR.

VZWSMART KITS - APPROVED VENDORS

COMMSCOPE	
CONTACT	SALVADOR ANGUIANO
PHONE	(817) 304-7492
EMAIL	SALVADOR.ANGUIANO@COMMSCOPE.COM
WEBSITE	WWW.COMMSCOPE.COM

METROSITE FABRICATORS, LLC	
CONTACT	KENT RAMEY
PHONE	(706) 335-7045 (O), (706) 982-9788 (M)
EMAIL	KENT@METROSITELLC.COM
WEBSITE	METROSITEFABRICATORS.COM

PERFECTVISION	
CONTACT	WIRELESS SALES
PHONE	(844) 887-6723
EMAIL	WWW.PERFECT-VISION.COM
WEBSITE	WIRELESSSALES@PERFECT-VISION.COM

SABRE INDUSTRIES, INC.	
CONTACT	ANGIE WELCH
PHONE	(866) 478-6937
EMAIL	AKWELCH@SABREINDUSTRIES.COM
WEBSITE	WWW.SABRESITESOLUTIONS.COM

SITE PRO 1	
CONTACT	PAULA BOSWELL
PHONE	(972) 236-9843
EMAIL	PAULA.BOSWELL@VALMONT.COM
WEBSITE	WWW.SITEPRO1.COM

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REV	DATE	DESCRIPTION	DRAWN BY	CHECKED BY
1	09/09/21	PER COLLIERS COMMENTS	MC	MW
0	12/03/20	FOR REVIEW AND CONSTRUCTION	MC	BH

COLLIERS ENGINEERING & DESIGN CT, P.C.
C.T. PC.0000111

SITE NAME:

BRISTOL CT
5000103444

32 VALLEY STREET
BRISTOL, CT 06010
HARTFORD COUNTY

Colliers Engineering & Design

BILL OF MATERIALS

SBOM-1

GENERAL NOTES

1. THESE MODIFICATIONS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE GOVERNING PROVISIONS OF THE TELECOMMUNICATIONS INDUSTRY STANDARD TIA-222-H. MATERIALS AND SERVICES PROVIDED BY THE CONTRACTOR SHALL CONFORM TO THE ABOVE MENTIONED CODES.
2. CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PREVENT DAMAGE TO EXISTING STRUCTURES. ANY DAMAGE TO EXISTING STRUCTURES AS A RESULT OF THE CONTRACTOR'S WORK OR FROM DAMAGE DUE TO OTHER CAUSES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
3. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS BEFORE BEGINNING WORK, ORDERING MATERIAL, AND PREPARING OF SHOP DRAWINGS. ANY DISCREPANCIES BETWEEN FIELD CONDITIONS AND THE CONTRACT DOCUMENTS SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER. IF THE CONTRACTOR DISCOVERS ANY EXISTING CONDITIONS THAT ARE NOT REPRESENTED ON THESE DRAWINGS, OR ANY CONDITIONS THAT WOULD INTERFERE WITH THE INSTALLATION OF THE MODIFICATIONS, NOTIFY THE ENGINEER IMMEDIATELY.
4. IT IS ASSUMED THAT ANY STRUCTURAL MODIFICATION WORK SPECIFIED ON THESE PLANS WILL BE ACCOMPLISHED BY KNOWLEDGEABLE WORKMEN WITH TOWER CONSTRUCTION EXPERIENCE.
5. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION METHODS, MEANS, TECHNIQUES, SEQUENCES, AND PROCEDURES.
6. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN AND SHALL MEET ANSI/TIA-322 (LATEST EDITION), OSHA, AND GENERAL INDUSTRY STANDARDS. ALL RIGGING PLANS SHALL ADHERE TO ANSI/TIA-322 (LATEST EDITION) INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION.
7. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PROGRAMS IN ACCORDANCE WITH APPLICABLE SAFETY CODES.
8. WORK SHALL ONLY BE PERFORMED DURING CALM DRY DAYS (WINDS LESS THAN 30-MPH). THE STRUCTURE SHOWN ON THE DRAWINGS IS STRUCTURALLY SOUND ONLY IN THE COMPLETED FORM. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STRENGTH AND STABILITY OF THE STRUCTURE DURING ERECTION. CONTRACTOR SHALL PROVIDE TEMPORARY SUPPORT, SHORING, BRACING AND ANY OTHER STRUCTURAL SYSTEMS AS REQUIRED TO RESIST ALL FORCES THAT MAY OCCUR DURING HANDLING AND ERECTION UNTIL THE STRUCTURE IS FULLY COMPLETED. TEMPORARY SUPPORTS, BRACING AND OTHER STRUCTURAL SYSTEMS REQUIRED DURING CONSTRUCTION SHALL REMAIN THE CONTRACTOR'S PROPERTY AFTER THEIR USE.
9. ALL INSTALLATIONS PERFORMED ON THIS STRUCTURE SHALL BE COMPLETED IN ACCORDANCE WITH THE GOVERNING PROVISIONS OF THE STANDARD FOR INSTALLATION, ALTERATION AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS, ANSI/TIA-322.
10. CONTRACTOR SHALL SECURE SITE BACK TO EXISTING CONDITION UNDER SUPERVISION OF OWNER. ALL FENCE, STONE, GEOFABRIC, GROUNDING, AND SURROUNDING GRADE SHALL BE REPLACED AND REPAIRED AS REQUIRED TO ACHIEVE OWNER APPROVAL. POSITIVE DRAINAGE AWAY FROM TOWER SITE SHALL BE MAINTAINED.
11. CONNECTIONS BETWEEN ITEMS SUPPORTED BY THE STRUCTURE AND THE STRUCTURE NOT SPECIFICALLY DETAILED IN THE CONTRACT DOCUMENTS ARE THE RESPONSIBILITY OF THE CONTRACTOR. SUCH CONNECTIONS SHALL BE DESIGNED, COORDINATED AND INSPECTED BY A PROFESSIONAL STRUCTURAL ENGINEER LICENSED IN THE STATE OF THE PROJECT. SUBMIT SIGNED AND SEALED CALCULATIONS DURING SHOP DRAWING REVIEW.
12. DO NOT SCALE DRAWINGS.
13. DO NOT USE THESE DRAWINGS FOR ANY OTHER SITE.
14. ALL MATERIAL UTILIZED FOR THIS PROJECT MUST BE NEW AND FREE OF ANY DEFECTS. ANY MATERIAL SUBSTITUTIONS, INCLUDING BUT NOT LIMITED TO ALTERED SIZE AND/OR STRENGTHS, MUST BE APPROVED BY THE OWNER AND ENGINEER IN WRITING.
15. THE MOUNT UNDER NO CIRCUMSTANCES SHOULD BE USED AS A TIE OFF POINT.

STRUCTURAL STEEL

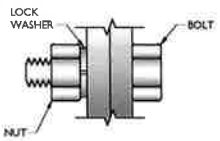
1. DESIGN, DETAILING, FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING PUBLICATIONS EXCEPT AS SPECIFICALLY INDICATED IN THE CONTRACT DOCUMENTS.
   a. AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL OF STEEL CONSTRUCTION (15TH EDITION)
   b. SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS
   c. AISC CODE OF STANDARD PRACTICE
2. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING UNLESS OTHERWISE SHOWN:

CHANNELS, ANGLES, PLATES, ETC.	ASTM A36 (GR 36)
STEEL PIPE	ASTM A53 (GR 35)
BOLTS	ASTM A325
NUTS	ASTM A563
LOCK WASHERS	LOCKING STRUCTURAL GRADE

3. ALL SUBSTITUTIONS PROPOSED BY THE CONTRACTOR SHALL BE APPROVED IN WRITING BY THE ENGINEER. CONTRACTOR SHALL PROVIDE DOCUMENTATION TO ENGINEER FOR VERIFYING THE SUBSTITUTE IS SUITABLE FOR USE AND MEETS ORIGINAL DESIGN CRITERIA. DIFFERENCES FROM THE ORIGINAL DESIGN, INCLUDING MAINTENANCE, REPAIR AND REPLACEMENT, SHALL BE NOTED. ESTIMATES OF COSTS/CREDITS ASSOCIATED WITH THE SUBSTITUTION (INCLUDING RE-DESIGN COSTS AND COSTS TO SUB-CONTRACTORS) SHALL BE PROVIDED TO THE ENGINEER. CONTRACTOR SHALL PROVIDE ADDITIONAL DOCUMENTATION AND/OR SPECIFICATIONS TO THE ENGINEER AS REQUESTED.
4. PROVIDE STRUCTURAL STEEL SHOP DRAWINGS TO ENGINEER FOR APPROVAL PRIOR TO FABRICATION.
   a. SUBMIT SHOP DRAWINGS TO
      PETER.ALBANO@COLLIERSENG.COM
   b. PROVIDE COLLIERS ENGINEERING & DESIGN PROJECT # AND COLLIERS ENGINEERING & DESIGN PROJECT ENGINEER CONTACT IN THE BODY OF THE EMAIL.
5. DRILL NO HOLES IN ANY NEW OR EXISTING STRUCTURAL STEEL MEMBERS OTHER THAN THOSE SHOWN ON STRUCTURAL DRAWINGS WITHOUT THE APPROVAL OF THE ENGINEER OF RECORD.
6. GALVANIZED ASTM A325 BOLTS SHALL NOT BE REUSED.
7. ALL NEW STEEL SHALL BE HOT BE DIPPED GALVANIZED FOR FULL WEATHER PROTECTION. IN ADDITION ALL NEW STEEL SHALL BE PAINTED TO MATCH EXISTING STEEL. CONTRACTOR SHALL OBTAIN WRITTEN PERMISSION TO PROTECT STEEL BY ANY OTHER MEANS.
8. ALL BOLT ASSEMBLIES FOR STRUCTURAL MEMBERS REPRESENTED IN THIS DRAWING REQUIRE LOCKING DEVICES TO BE INSTALLED IN ACCORDANCE WITH TIA-222-H SECTION 4.9.2 REQUIREMENTS.
9. WHERE CONNECTIONS ARE NOT FULLY DETAILED ON THESE DRAWINGS, FABRICATOR SHALL DESIGN CONNECTIONS TO RESIST LOADS AND FORCES WHERE SHOWN ON DRAWINGS AND AS OUTLINED IN SPECIFICATIONS.
10. FOR MEMBERS BEING REPLACED, PROVIDE NEW BOLTS AND MATCH EXISTING SIZE AND GRADE. MAINTAIN AISC REQUIREMENTS FOR MINIMUM BOLT DISTANCE AND SPACING.
11. ALL PROPOSED AND/OR REPLACED BOLTS SHALL BE OF SUFFICIENT LENGTH SUCH THAT THE END OF THE BOLT IS AT LEAST FLUSH WITH THE FACE OF THE NUT. IT IS NOT PERMITTED FOR THE BOLT END TO BE BELOW THE FACE OF THE NUT AFTER TIGHTENING IS COMPLETED.
12. GALVANIZED ASTM A325 BOLTS SHALL NOT BE REUSED.
13. ALL NEW STEEL SHALL BE HOT BE DIPPED GALVANIZED FOR FULL WEATHER PROTECTION. CONTRACTOR SHALL OBTAIN WRITTEN PERMISSION TO PROTECT STEEL BY ANY OTHER MEANS.
14. ALL EXISTING PAINTED/GALVANIZED SURFACES DAMAGED DURING REHAB INCLUDING AREAS UNDER STIFFENER PLATES SHALL BE WIRE BRUSHED CLEAN, REPAIRED BY COLD GALVANIZING (ZINC COTE, OR EOR APPROVED EQUAL), AND REPAINTED TO MATCH THE EXISTING FINISH (IF APPLICABLE).
15. ALL HOLES IN STEEL MEMBERS SHALL BE SIZED 1/16" LARGER THAN THE BOLT DIAMETER. STANDARD HOLES SHALL BE USED UNLESS NOTED OTHERWISE.

BOLT SCHEDULE (IN.)				
BOLT DIAMETER	**STANDARD HOLE**	**SHORT SLOT**	**MIN. EDGE DISTANCE**	**SPACING**
1/2	9/16	9/16 x 11/16	7/8	1 1/2
5/8	11/16	11/16 x 7/8	1 1/8	1 7/8
3/4	13/16	13/16 x 1	1 1/4	2 1/4
7/8	15/16	15/16 x 1 1/8	1 1/2	2 5/8
1	1 1/16	1 1/16 x 1 5/16	1 3/4	3

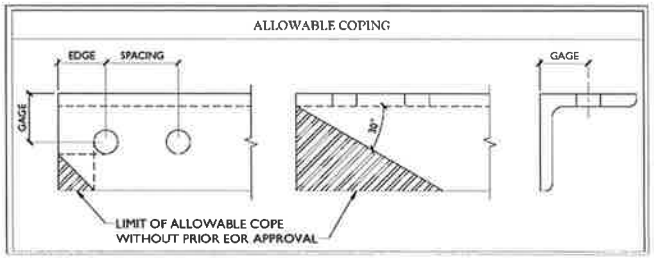
WORKABLE GAGES (IN.)	
LEG	**GAGE**
4	2 1/2
3 1/2	2
3	1 3/4
2 1/2	1 3/8
2	1 1/8



TYP. BOLT ASSEMBLY

NOTES:

1. ALL DIMENSIONS REPRESENTED IN THE ABOVE TABLES ARE AISC MINIMUM REQUIREMENTS. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS IN FIELD AND NOTIFY ENGINEER IF DISTANCES ARE LESS THAN THOSE PROVIDED.
2. THE DIMENSIONS PROVIDED ARE MINIMUM REQUIREMENTS. ACTUAL DIMENSIONS OF PROPOSED MEMBERS WITHIN THESE DRAWINGS MAY VARY FROM THE AISC MINIMUM REQUIREMENTS.
3. SHORT SLOT HOLES SHALL ONLY BE USED WHEN DEPICTED IN THE DRAWINGS.
4. MATCH EXISTING GAGES WHEN APPLICABLE, UNLESS MINIMUM EDGE DISTANCES ARE COMPROMISED.



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811 PROTECT YOURSELF! FOR STATE SPECIFIC DIRECT FINDER NUMBERS VISIT WWW.CALL811.COM

1	09/15/21	PRELIMINARY CONSTRUCTION	EMC	PWA
0	12/04/20	PRELIMINARY CONSTRUCTION	EMC	PWA
REV	DATE	DESCRIPTION	DRAWN BY	CHECKED BY

SITE NAME:

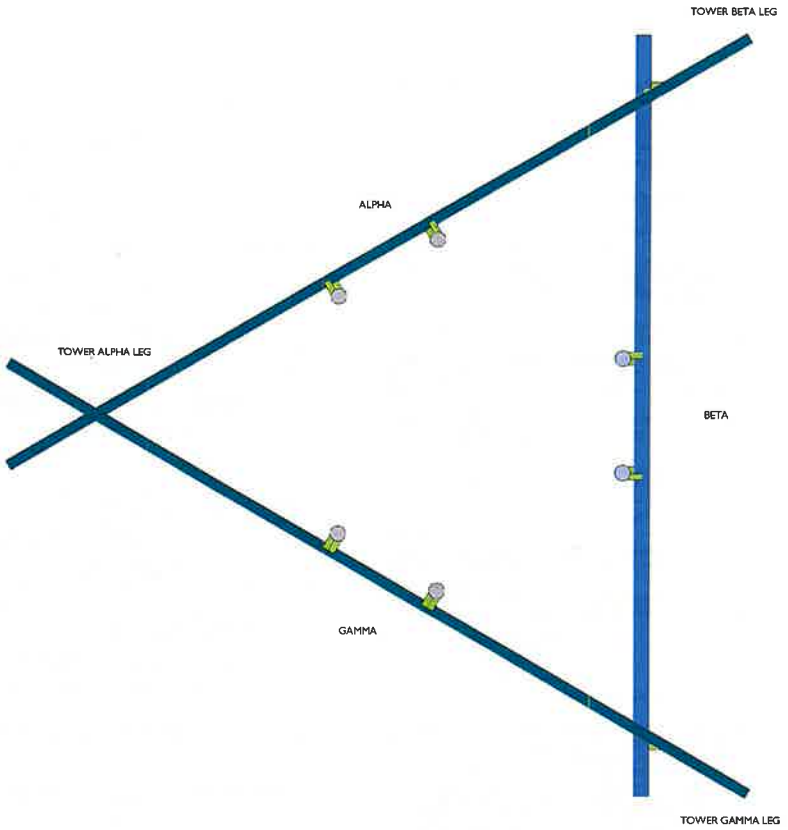
BRISTOL CT
5000103444
32 VALLEY STREET
BRISTOL, CT 06010
HARTFORD COUNTY

Colliers Engineering & Design
141 LAUREL ROAD
EAST LYME, CT 06333
PHONE: (860) 739-0412

GENERAL NOTES

SGN-1

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.



1 CLIMBING FACILITY LOCATION
SCALE: N.T.S.

NOTE:

NO EXISTING CLIMBING FACILITY.

STRUCTURAL NOTES:

1. PER THE MOUNT MAPPING COMPLETED BY ONSIGHT SERVICES ON 7/29/2023, THE SAFETY CLIMB AND CLIMBING FACILITIES UP TO THE VERIZON MOUNT ELEVATION (103'-0") ARE IN GOOD CONDITION. COLLIERS ENGINEERING & DESIGN DOES NOT WARRANT THIS INFORMATION.

2. INSTALL SHALL NOT CAUSE HARM TO THE STRUCTURE, CLIMBING FACILITY, SAFETY CLIMB, OR ANY SYSTEM INSTALLED ON THE STRUCTURE. TIMELY NOTICE AND DOCUMENTATION SHALL BE PROVIDED BY CONTRACTORS TO THE EOR (OF STRUCTURAL DESIGN) IF AN OBSTRUCTION WAS REQUIRED TO MEET THE RF SYSTEM DESIGN REQUIREMENTS AND PERFORMANCES.

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SCALE	JOB NUMBER
AS SHOWN	23777152

REV	DATE	DESCRIPTION	DRAWN BY	CHECKED BY
1	10/05/23	CONSTRUCTION	SH	MW
0	10/05/23	CONSTRUCTION	SH	BS

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

SITE NAME:

BRISTOL CT
5000103444

32 VALLEY STREET
BRISTOL, CT 06010
HARTFORD COUNTY

Colliers Engineering & Design
MT. LAUREL
2000 Midlantic Drive
Suite 100
Mt. Laurel, NJ 08054
Phone: 856.797.0412
COLLIERS ENGINEERING & DESIGN, INC. DOING BUSINESS AS WILLIAM GANGEMI PE

CLIMBING FACILITY DETAIL

SCF-1

LEGEND:

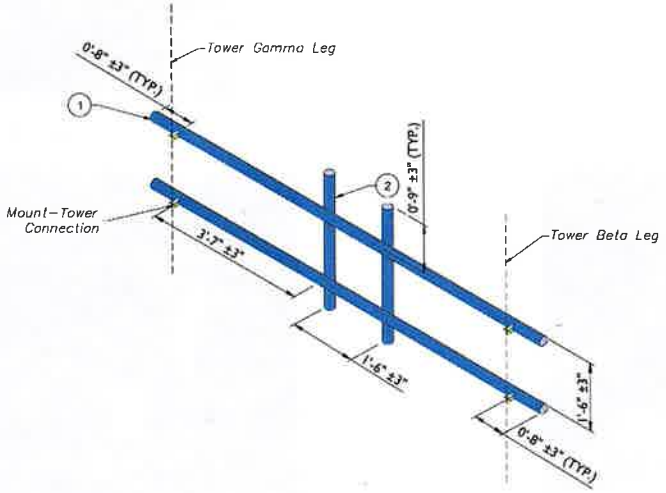
- PROPOSED
- EXISTING
- EXISTING

MOUNT MODIFICATION SCHEDULE

NO.	ELEVATION	QUANTITY	DESCRIPTION	NOTES
1	103'-0"	2	PROPOSED 120" LONG, PIPE 2 SCH40 (PART #: VZWSMART-P40-23BX120)	CONTRACTOR SHALL REPLACE EXISTING UNISTRUT HORIZONTALS THAT SPAN BETWEEN THE BETA AND GAMMA TOWER LEGS. CONNECT PROPOSED PIPE TO TOWER LEGS WITH PROPOSED CROSSOVER PLATES (VZWSMART-MSK1). PROPOSED FACE HORIZONTALS SHALL BE ATTACHED TO THE INTERIOR SIDE OF TOWER FACE, AND SHALL BE ADJUSTED VERTICALLY AS NEEDED IN ORDER TO ACHIEVE INSTALLATION AS SHOWN.
2		2	36" LONG, PIPE 2 SCH40 (2.375"OD X 0.154" THK)	CONNECT NEW MOUNT PIPE TO PROPOSED HORIZONTALS WITH CROSSOVER PLATES (PART # VZWSMART-MSK1).

GENERAL NOTES:

A. CONTRACTOR SHALL VERIFY THAT NEW & EXISTING STEEL IS FREE OF CORROSION. VISIBLE MINOR CORROSION SHALL BE WIRE BRUSHED CLEAN AND TREATED WITH COLD GALVANIZATION. REPORT ANY SIGNIFICANT CORROSION TO EOR
B. THREADED ROD FROM PROPOSED KITS SHALL BE TRIMMED TO EXTEND NO MORE THAN 3" BEYOND THE LOCK NUT. TREAT ALL CUT ENDS WITH (2) COATS OF COLD GALVANIZATION (ZINC KOTE, OR EOR APPROVED EQUAL).
C. MOUNT MEMBERS NOT SHOWN FOR CLARITY U.N.O.



1 PROPOSED ISOMETRIC VIEW (BETA ONLY)

SCALE: N.T.S.

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PROPERTY DESCRIPTION

AS SHOWN

REV	DATE	DESCRIPTION	DRAWN BY	CHECKED BY
1	09/15/21	PRELIMINARY CONSTRUCTION	MH	RMS
0	10/05/21	PRELIMINARY CONSTRUCTION	AH	EA

COLLIERS ENGINEERING & DESIGN (CT), P.C.

SITE NAME:

BRISTOL CT
5000103444

32 VALLEY STREET
BRISTOL, CT 06010
HARTFORD COUNTY

MT. LAUREL

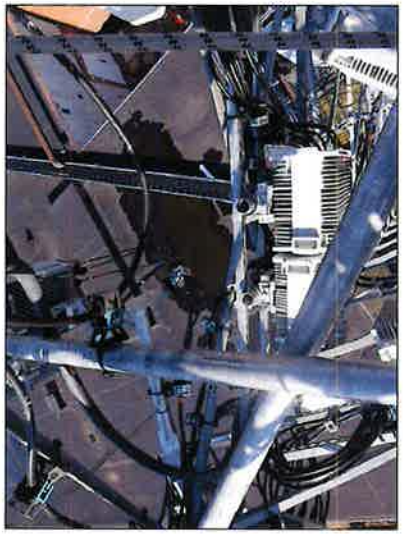
Colliers Engineering & Design

MODIFICATION DETAILS

SS-1

MOUNT PHOTO 1

MOUNT PHOTO 2



MOUNT PHOTO 3

MOUNT PHOTO 4

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811 Know what's below. Call before you dig.

AS SHOWN

REV	DATE	DESCRIPTION	DRAWN BY	CHECKED BY
1		CONSTRUCTION		
0		CONSTRUCTION		

COLLIERS ENGINEERING & DESIGN CT, P.C.
CT PC.0001311

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

SITE NAME:

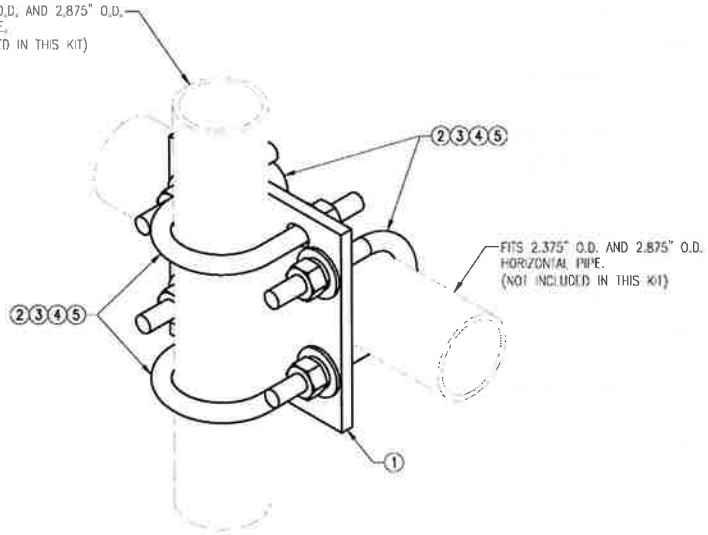
BRISTOL CT
5000103444

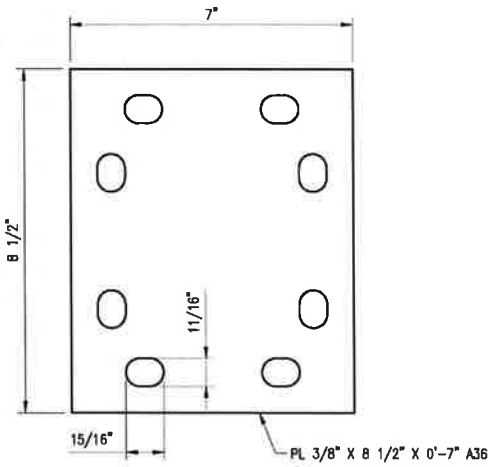
32 VALLEY STREET
BRISTOL, CT 06010
HARTFORD COUNTY

MT. LAUREL

MOUNT PHOTOS

SS-2





PL375-857

VZWSMART-MSK1 (CROSSOVER PLATE)					
ITEM NO.	QTY.	PART NO.	DESCRIPTION	SHEET #	WT
1	1	PL375-857	PL 3/8" X 8 1/2" X 0'-7" A36	MSK1-F1	6
2	4	MS02-625-300-500	RU-BOLT 5/8" X 3" I.W. X 5" I.L. A36 (OR EQUIV.)	RBC-1	5
3	8	FW-625	5/8" HDG USS FLAT WASHER	----	1
4	8	LW-625	5/8" HDG LOCK WASHER	----	0
5	8	NUT-625	5/8" HDG HEX NUT	----	1
				GALVANIZED WT	14

NOTES:
1. HOT-DIPPED GALVANIZED PER ASTM A123.

VzW SMART Tool© Vendor

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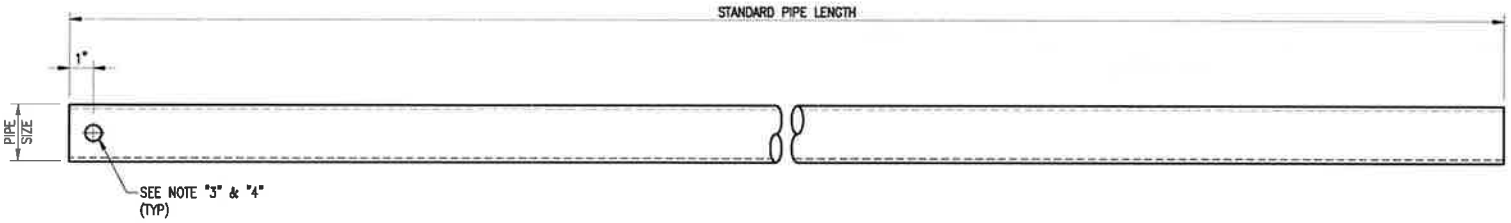
FOR REFERENCE ONLY

DRAWN BY: HLR | CHECKED BY: HMA

REV	DESCRIPTION	BY	DATE
1	FIRST ISSUE	HLR	05/08/20

SHEET TITLE:
VZWSMART-MSK1
CROSSOVER PLATE

SHEET NUMBER: VZWSMART-MSK1 | REV #: 0



VZWSMART Standard Pipe		
VZWSMART Number	Size	Length
P40-238X048	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	48"
P40-238X072	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	72"
P40-238X096	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	96"
P40-238X120	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	120"
P40-238X126	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	126"
P40-238X150	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	150"
P40-238X174	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	174"
P40-278X048	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	48"
P40-278X072	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	72"
P40-278X096	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	96"
P40-278X120	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	120"
P40-278X126	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	126"
P40-278X150	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	150"
P40-278X174	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	174"
P40-312X048	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	48"
P40-312X072	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	72"
P40-312X126	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	126"
P40-312X150	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	150"
P40-312X174	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	174"

NOTE:
APPROVED SMART KIT VENDORS ARE ALLOWED TO SUBSTITUTE AT THEIR DISCRETION PIPES LISTED ON THIS PAGE FOR CUSTOM LENGTH COMPONENTS OF MATCHING SIZE. SUBSTITUTIONS SHALL MEET THE ORIGINAL STRUCTURAL INTENT.

NOTES:
1. ALL PIPE GRADE A53-B OR BETTER.
2. HOT-DIPPED GALVANIZED PER ASTM A123.
3. ALL HOLES ARE 11/16" DIA. U.N.O
4. HOLES MAY OR MAY NOT BE PRESENT, DEPEND UPON MANUFACTURE DISCRETION.
5. ALL FIELD CUT AND DRILLED SURFACES SHALL BE REPAIRED WITH A MINIMUM OF TWO COATS OF ZINGA OR ZINC COTE PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.

VzW SMART Tool© Vendor

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DRAWN BY: BT | CHECKED BY: HMA/KW

REV	DESCRIPTION	BY	DATE
1	FIRST ISSUE	BT	08/04/21

SHEET TITLE:
VZWSMART STANDARD PIPE

SHEET NUMBER: VZWSMART-PIPE

REV #: 0

V4.1 Updated on 12-17-2021

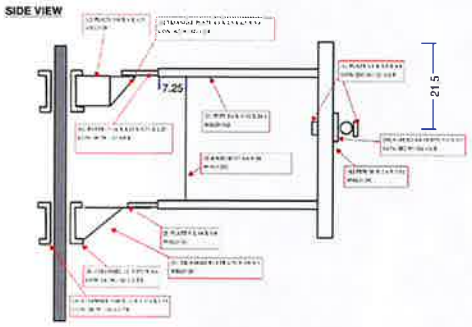
Colliers Engineering & Design

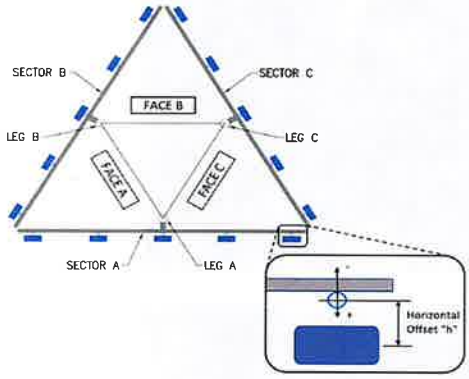
Antenna Mount Mapping Form (PATENT PENDING)

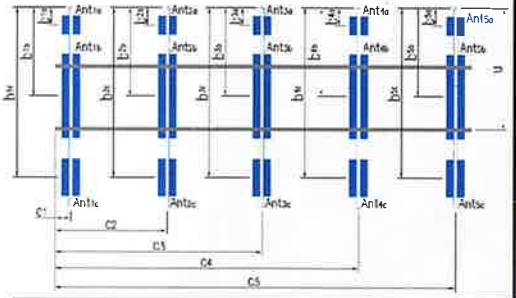
FCC #

Tower Owner:	UNKNOWN	**Mapping Date:**	7/29/2023
Site Name:	BRISTON CT	**Tower Type:**	Self Support
Site Number or ID:	5000103444	**Tower Height (Ft.):**	50
Mapping Contractor:	ONSIGHT SERVICES	**Mount Elevation (Ft.):**	44.5

SIDE VIEW







Antenna Layout (Looking Out From Tower)

Mount Pipe Configuration and Geometries [Unit = Inches]

Sector / Position	Mount Pipe Size & Length	Vertical Offset Dimension "v_a"	Horizontal Offset "C1, C2, C3, etc."	Sector / Position	Mount Pipe Size & Length	Vertical Offset Dimension "v_a"	Horizontal Offset "C1, C2, C3, etc."
A1	2.4 X 5/32 X 50	40.00	0.00	C1	2.4 X 5/32 X 50	40.00	0.00
A2				C2			
A3				C3			
A4				C4			
A5				C5			
A6				C6			
B1	2.4 X 5/32 X 50	40.00	0.00	D1			
B2				D2			
B3				D3			
B4				D4			
B5				D5			
B6				D6			

Distance from top of bottom support rail to lowest tip of ant./eqpt. of Carrier above. (N/A if > 10 ft.) :	
Distance from top of bottom support rail to highest tip of ant./eqpt. of Carrier below. (N/A if > 10 ft.) :	

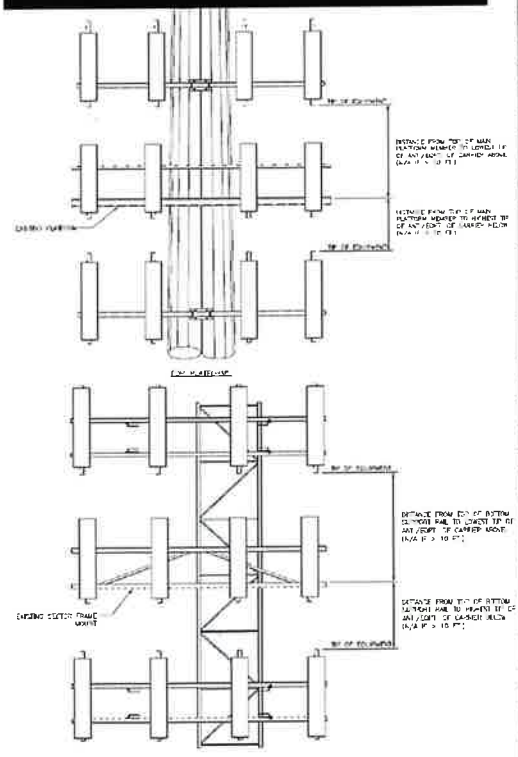
Please enter additional infomation or comments below.

Tower Face Width at Mount Elev. (ft.):	8.6	Tower Leg Size or Pole Shaft Diameter at Mount Elev. (in.):	2.9

	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}	SAMSUNG VZ CBAND	15.50	5.50	34.00		44.5	17.00	9.50	0.00	245
Ant_{1b}										
Ant_{1c}										
Ant_{2a}	COMMSCOPE JAHH-6	14.00	8.50	72.00		44.5		12.50	0.00	106
Ant_{2b}	COMMSCOPE JAHH-6	14.00	8.50	72.00		44.5		12.50	0.00	106
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	SAMSUNG	15.00	8.00	15.50		41.5				109
Ant on Tower	SAMSUNG RFV01U-D	15.00	10.00	15.00		41.5				109
Ant on Tower	RAYCAP RRFDC-3315-PF-48					46.5				108

Mount Azimuth (Degree) for Each Sector				Tower Leg Azimuth (Degree) for Each Sector	
Sector A:	0.00	Deg	Leg A:	90.00	Deg
Sector B:	120.00	Deg	Leg B:	210.00	Deg
Sector C:	280.00	Deg	Leg C:	330.00	Deg
Sector D:		Deg	Leg D:		Deg

Climbing Facility Information			
Location:	N/A	Deg	N/A
Climbing Facility	Corrosion Type:		N/A
	Access:		N/A
	Condition:		N/A



Sector B										
Ant_{1a}	SAMSUNG VZ CBAND	15.50	5.50	34.00			17.00	9.50	120.00	112
Ant_{1b}										
Ant_{1c}										
Ant_{2a}	COMMSCOPE JAHH-6	14.00	8.50	72.00				12.50	120.00	113
Ant_{2b}	COMMSCOPE JAHH-6	14.00	8.50	72.00				12.50	120.00	113
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	SAMSUNG	15.00	8.00	15.50		41.5				115
Ant on Tower	SAMSUNG RFV01U-D	15.00	10.00	15.00		41.5				115
Ant on Tower										
Sector C										
Ant_{1a}	SAMSUNG VZ CBAND	15.50	5.50	34.00			17.00	9.50	280.00	118
Ant_{1b}										
Ant_{1c}										
Ant_{2a}	COMMSCOPE JAHH-6	14.00	8.50	72.00				12.50	280.00	120
Ant_{2b}	COMMSCOPE JAHH-6	14.00	8.50	72.00				12.50	280.00	120
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	SAMSUNG	15.00	8.00	15.50		41.5				121
Ant on Tower	SAMSUNG RFV01U-D	15.00	10.00	15.00		41.5				121
Ant on Tower	RAYCAP RRFDC-3315-PF-48					46.5				119
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	ANTENNA / MOUNT / TOWER HEIGHT GIVEN FROM ROOF. ROOF HEIGHT FROM SIDEWALK IS 73FT	302 - 307
2	MUST CLIMB TOWER FACE, NO PEGS / CLIMBING FACILITY	25
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.

V4.1 Updated on 12-17-2021

SMART Tool© Vendor

Antenna Mount Mapping Form (PATENT PENDING)

FCC #

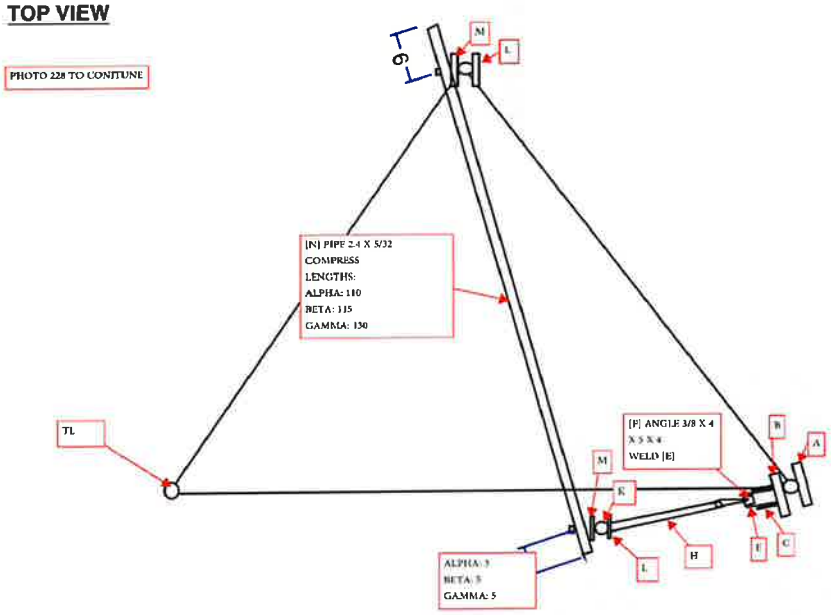
Tower Owner:	UNKNOWN	Mapping Date:	7/29/2023
Site Name:	BRISTON CT	Tower Type:	Self Support
Site Number or ID:	5000103444	Tower Height (FL):	50
Mapping Contractor:	ONSIGHT SERVICES	Mount Elevation (Ft.):	44.5

Please Insert Sketches of the Antenna Mount

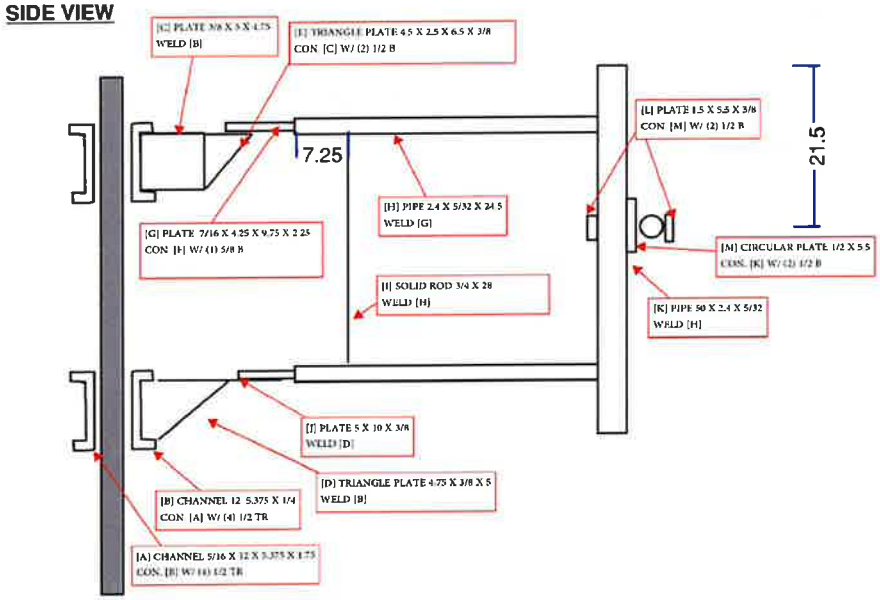
Site :

All measurements / offsets given in inches

TOP VIEW

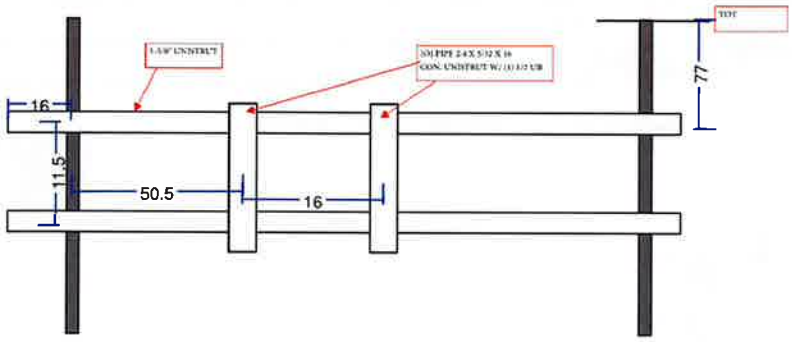


SIDE VIEW

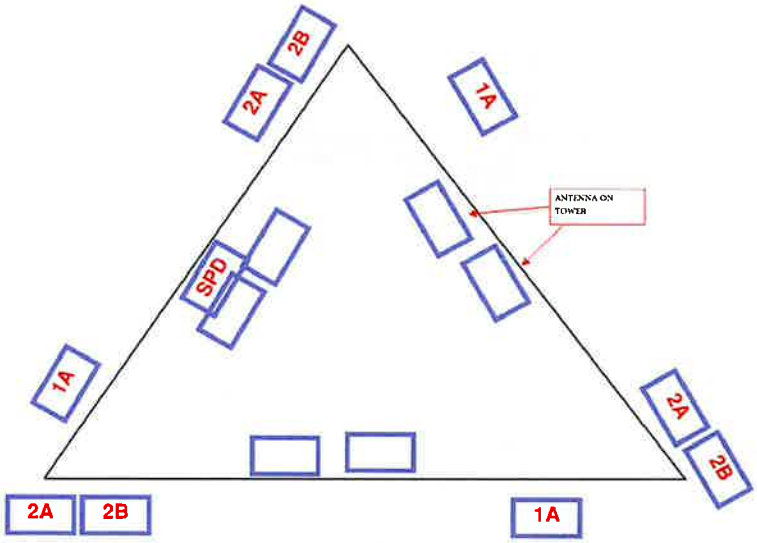


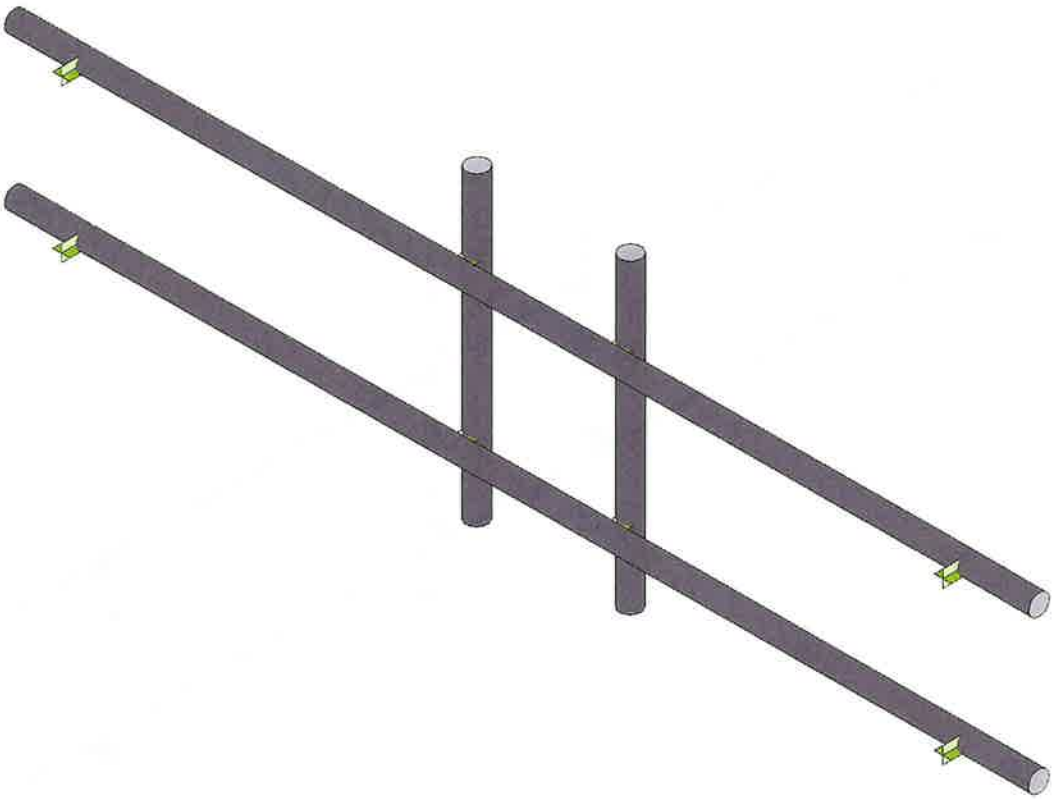
Please Insert Sketches of the Antenna Mount, cont'd

RADIO MOUNT



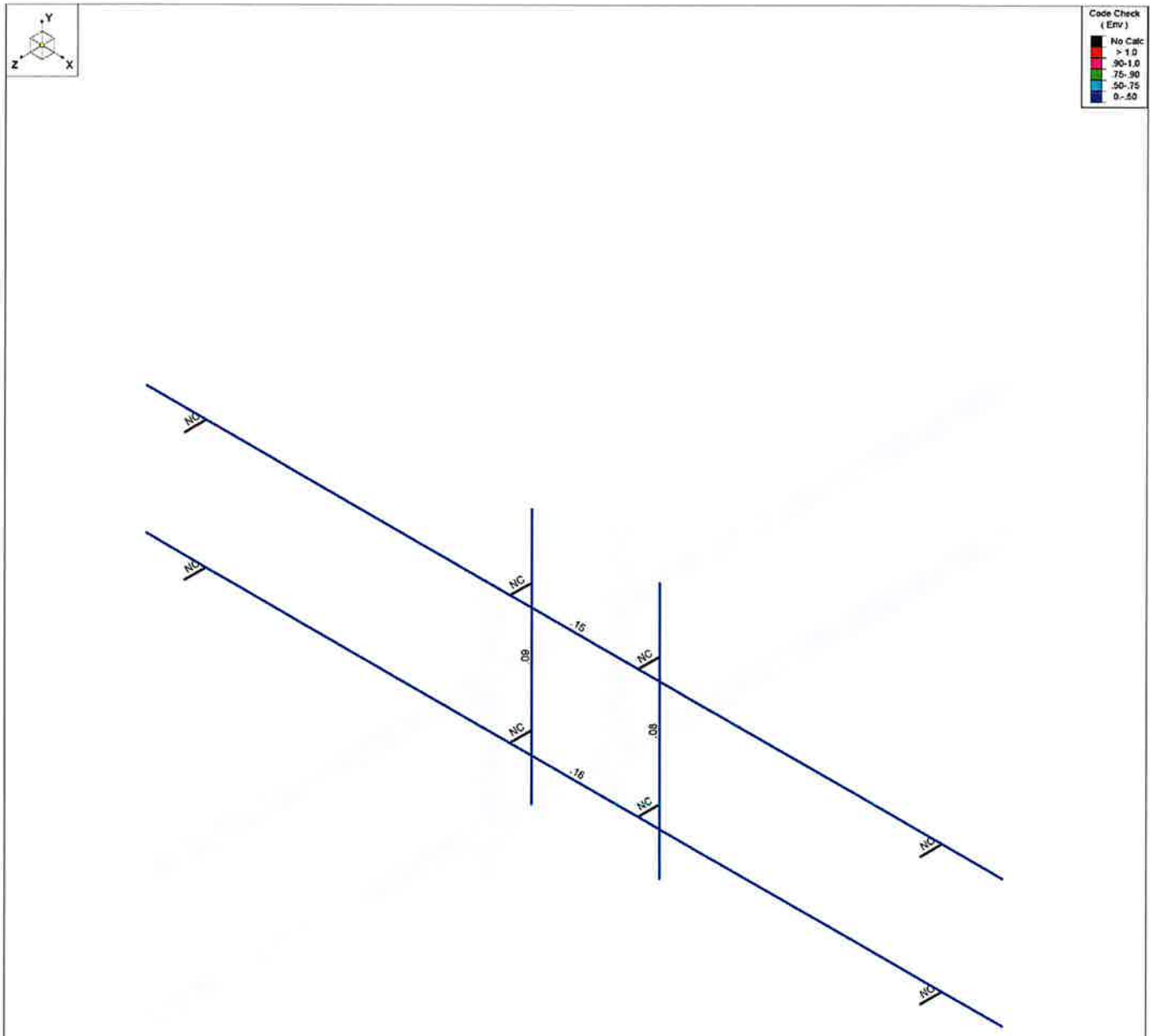
AZIMUTH





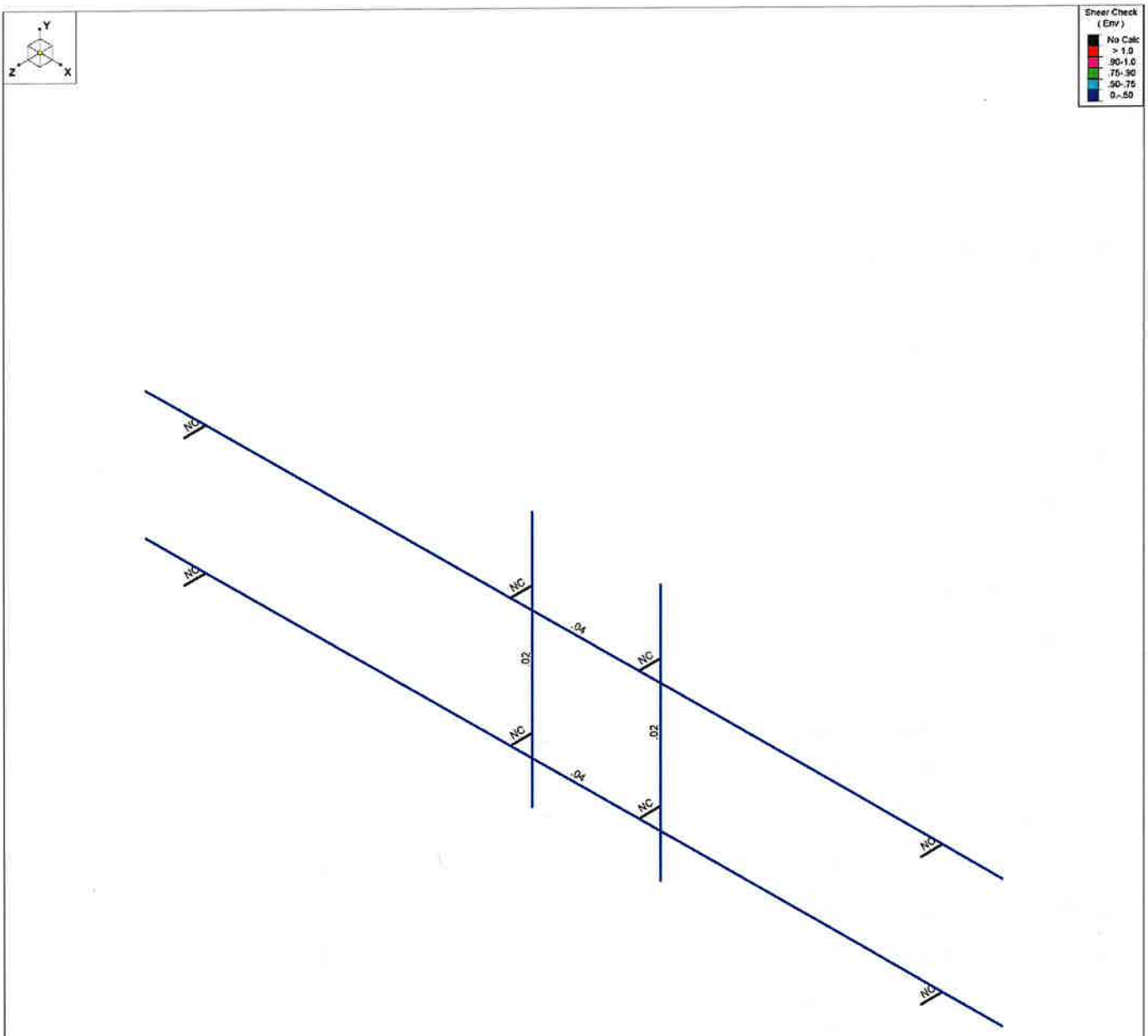
Envelope Only Solution

		SK - 1
		Dec 14, 2023 at 12:33 PM
		5000103444-VZW_MT_LOT_A_H.r3d



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

		SK - 2
		Dec 14, 2023 at 12:33 PM
		5000103444-VZW_MT_LOT_A_H.r3d



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

		SK - 3
		Dec 14, 2023 at 12:33 PM
		5000103444-VZW_MT_LOT_A_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					12			
2	Antenna Di	None					12			
3	Antenna Wo (0 Deg)	None					12			
4	Antenna Wo (30 Deg)	None					12			
5	Antenna Wo (60 Deg)	None					12			
6	Antenna Wo (90 Deg)	None					12			
7	Antenna Wo (120 Deg)	None					12			
8	Antenna Wo (150 Deg)	None					12			
9	Antenna Wo (180 Deg)	None					12			
10	Antenna Wo (210 Deg)	None					12			
11	Antenna Wo (240 Deg)	None					12			
12	Antenna Wo (270 Deg)	None					12			
13	Antenna Wo (300 Deg)	None					12			
14	Antenna Wo (330 Deg)	None					12			
15	Antenna Wi (0 Deg)	None					12			
16	Antenna Wi (30 Deg)	None					12			
17	Antenna Wi (60 Deg)	None					12			
18	Antenna Wi (90 Deg)	None					12			
19	Antenna Wi (120 Deg)	None					12			
20	Antenna Wi (150 Deg)	None					12			
21	Antenna Wi (180 Deg)	None					12			
22	Antenna Wi (210 Deg)	None					12			
23	Antenna Wi (240 Deg)	None					12			
24	Antenna Wi (270 Deg)	None					12			
25	Antenna Wi (300 Deg)	None					12			
26	Antenna Wi (330 Deg)	None					12			
27	Antenna Wm (0 Deg)	None					12			
28	Antenna Wm (30 Deg)	None					12			
29	Antenna Wm (60 Deg)	None					12			
30	Antenna Wm (90 Deg)	None					12			
31	Antenna Wm (120 Deg)	None					12			
32	Antenna Wm (150 Deg)	None					12			
33	Antenna Wm (180 Deg)	None					12			
34	Antenna Wm (210 Deg)	None					12			
35	Antenna Wm (240 Deg)	None					12			
36	Antenna Wm (270 Deg)	None					12			
37	Antenna Wm (300 Deg)	None					12			
38	Antenna Wm (330 Deg)	None					12			
39	Structure D	None		-1						
40	Structure Di	None						4		
41	Structure Wo (0 Deg)	None						8		
42	Structure Wo (30 Deg)	None						8		
43	Structure Wo (60 Deg)	None						8		
44	Structure Wo (90 Deg)	None						8		
45	Structure Wo (120 D...	None						8		
46	Structure Wo (150 D...	None						8		
47	Structure Wo (180 D...	None						8		
48	Structure Wo (210 D...	None						8		
49	Structure Wo (240 D...	None						8		
50	Structure Wo (270 D...	None						8		
51	Structure Wo (300 D...	None						8		
52	Structure Wo (330 D...	None						8		
53	Structure Wi (0 Deg)	None						8		

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
54	Structure Wi (30 Deg)	None						8		
55	Structure Wi (60 Deg)	None						8		
56	Structure Wi (90 Deg)	None						8		
57	Structure Wi (120 De...	None						8		
58	Structure Wi (150 De...	None						8		
59	Structure Wi (180 De...	None						8		
60	Structure Wi (210 De...	None						8		
61	Structure Wi (240 De...	None						8		
62	Structure Wi (270 De...	None						8		
63	Structure Wi (300 De...	None						8		
64	Structure Wi (330 De...	None						8		
65	Structure Wm (0 Deg)	None						8		
66	Structure Wm (30 De...	None						8		
67	Structure Wm (60 De...	None						8		
68	Structure Wm (90 De...	None						8		
69	Structure Wm (120 D...	None						8		
70	Structure Wm (150 D...	None						8		
71	Structure Wm (180 D...	None						8		
72	Structure Wm (210 D...	None						8		
73	Structure Wm (240 D...	None						8		
74	Structure Wm (270 D...	None						8		
75	Structure Wm (300 D...	None						8		
76	Structure Wm (330 D...	None						8		
77	Lm1	None					1			
78	Lm2	None					1			
79	Lv1	None					1			
80	Lv2	None					1			
81	Antenna Ev	None					12			
82	Antenna Eh (0 Deg)	None					8			
83	Antenna Eh (90 Deg)	None					8			
84	Structure Ev	ELY		-.022						
85	Structure Eh (0 Deg)	ELZ			-.056					
86	Structure Eh (90 Deg)	ELX	.056							

Load Combinations

	Description	Sol...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
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 Deg)	Yes	Y		1	1.2	39	1.2	2	1	40	1	15	1	53	1										
14	1.2D + 1.0Di + 1.0Wi (30 Deg)	Yes	Y		1	1.2	39	1.2	2	1	40	1	16	1	54	1										
15	1.2D + 1.0Di + 1.0Wi (60 Deg)	Yes	Y		1	1.2	39	1.2	2	1	40	1	17	1	55	1										
16	1.2D + 1.0Di + 1.0Wi (90 Deg)	Yes	Y		1	1.2	39	1.2	2	1	40	1	18	1	56	1										
17	1.2D + 1.0Di + 1.0Wi (120 Deg)	Yes	Y		1	1.2	39	1.2	2	1	40	1	19	1	57	1										
18	1.2D + 1.0Di + 1.0Wi (150 Deg)	Yes	Y		1	1.2	39	1.2	2	1	40	1	20	1	58	1										
19	1.2D + 1.0Di + 1.0Wi (180 Deg)	Yes	Y		1	1.2	39	1.2	2	1	40	1	21	1	59	1										

Load Combinations (Continued)

	Description	Sol...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
20	1.2D + 1.0Di + 1.0Wi (210 Deg)	Yes	Y		1	1.2	39	1.2	2	1	40	1	22	1	60	1								
21	1.2D + 1.0Di + 1.0Wi (240 Deg)	Yes	Y		1	1.2	39	1.2	2	1	40	1	23	1	61	1								
22	1.2D + 1.0Di + 1.0Wi (270 Deg)	Yes	Y		1	1.2	39	1.2	2	1	40	1	24	1	62	1								
23	1.2D + 1.0Di + 1.0Wi (300 Deg)	Yes	Y		1	1.2	39	1.2	2	1	40	1	25	1	63	1								
24	1.2D + 1.0Di + 1.0Wi (330 Deg)	Yes	Y		1	1.2	39	1.2	2	1	40	1	26	1	64	1								
25	1.2D + 1.5Lm1 + 1.0Wm (0 Deg)	Yes	Y		1	1.2	39	1.2	77	1.5	27	1	65	1										
26	1.2D + 1.5Lm1 + 1.0Wm (30 Deg)	Yes	Y		1	1.2	39	1.2	77	1.5	28	1	66	1										
27	1.2D + 1.5Lm1 + 1.0Wm (60 Deg)	Yes	Y		1	1.2	39	1.2	77	1.5	29	1	67	1										
28	1.2D + 1.5Lm1 + 1.0Wm (90 Deg)	Yes	Y		1	1.2	39	1.2	77	1.5	30	1	68	1										
29	1.2D + 1.5Lm1 + 1.0Wm (120 D...	Yes	Y		1	1.2	39	1.2	77	1.5	31	1	69	1										
30	1.2D + 1.5Lm1 + 1.0Wm (150 D...	Yes	Y		1	1.2	39	1.2	77	1.5	32	1	70	1										
31	1.2D + 1.5Lm1 + 1.0Wm (180 D...	Yes	Y		1	1.2	39	1.2	77	1.5	33	1	71	1										
32	1.2D + 1.5Lm1 + 1.0Wm (210 D...	Yes	Y		1	1.2	39	1.2	77	1.5	34	1	72	1										
33	1.2D + 1.5Lm1 + 1.0Wm (240 D...	Yes	Y		1	1.2	39	1.2	77	1.5	35	1	73	1										
34	1.2D + 1.5Lm1 + 1.0Wm (270 D...	Yes	Y		1	1.2	39	1.2	77	1.5	36	1	74	1										
35	1.2D + 1.5Lm1 + 1.0Wm (300 D...	Yes	Y		1	1.2	39	1.2	77	1.5	37	1	75	1										
36	1.2D + 1.5Lm1 + 1.0Wm (330 D...	Yes	Y		1	1.2	39	1.2	77	1.5	38	1	76	1										
37	1.2D + 1.5Lm2 + 1.0Wm (0 Deg)	Yes	Y		1	1.2	39	1.2	78	1.5	27	1	65	1										
38	1.2D + 1.5Lm2 + 1.0Wm (30 Deg)	Yes	Y		1	1.2	39	1.2	78	1.5	28	1	66	1										
39	1.2D + 1.5Lm2 + 1.0Wm (60 Deg)	Yes	Y		1	1.2	39	1.2	78	1.5	29	1	67	1										
40	1.2D + 1.5Lm2 + 1.0Wm (90 Deg)	Yes	Y		1	1.2	39	1.2	78	1.5	30	1	68	1										
41	1.2D + 1.5Lm2 + 1.0Wm (120 D...	Yes	Y		1	1.2	39	1.2	78	1.5	31	1	69	1										
42	1.2D + 1.5Lm2 + 1.0Wm (150 D...	Yes	Y		1	1.2	39	1.2	78	1.5	32	1	70	1										
43	1.2D + 1.5Lm2 + 1.0Wm (180 D...	Yes	Y		1	1.2	39	1.2	78	1.5	33	1	71	1										
44	1.2D + 1.5Lm2 + 1.0Wm (210 D...	Yes	Y		1	1.2	39	1.2	78	1.5	34	1	72	1										
45	1.2D + 1.5Lm2 + 1.0Wm (240 D...	Yes	Y		1	1.2	39	1.2	78	1.5	35	1	73	1										
46	1.2D + 1.5Lm2 + 1.0Wm (270 D...	Yes	Y		1	1.2	39	1.2	78	1.5	36	1	74	1										
47	1.2D + 1.5Lm2 + 1.0Wm (300 D...	Yes	Y		1	1.2	39	1.2	78	1.5	37	1	75	1										
48	1.2D + 1.5Lm2 + 1.0Wm (330 D...	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 Deg)	Yes	Y		1	1.2	39	1.2	81	1	E...	1	82	1	83		E...	1	E...					
53	1.2D + 1.0Ev + 1.0Eh (30 Deg)	Yes	Y		1	1.2	39	1.2	81	1	E...	1	82	.866	83	.5	E...	.866	E...	.5				
54	1.2D + 1.0Ev + 1.0Eh (60 Deg)	Yes	Y		1	1.2	39	1.2	81	1	E...	1	82	.5	83	.866	E...	.5	E...	.866				
55	1.2D + 1.0Ev + 1.0Eh (90 Deg)	Yes	Y		1	1.2	39	1.2	81	1	E...	1	82		83	1	E...		E...	1				
56	1.2D + 1.0Ev + 1.0Eh (120 Deg)	Yes	Y		1	1.2	39	1.2	81	1	E...	1	82	-.5	83	.866	E...	-.5	E...	.866				
57	1.2D + 1.0Ev + 1.0Eh (150 Deg)	Yes	Y		1	1.2	39	1.2	81	1	E...	1	82	-.8...	83	.5	E...	-.8...	E...	.5				
58	1.2D + 1.0Ev + 1.0Eh (180 Deg)	Yes	Y		1	1.2	39	1.2	81	1	E...	1	82	-1	83		E...	-1	E...					
59	1.2D + 1.0Ev + 1.0Eh (210 Deg)	Yes	Y		1	1.2	39	1.2	81	1	E...	1	82	-.8...	83	-.5	E...	-.8...	E...	-.5				
60	1.2D + 1.0Ev + 1.0Eh (240 Deg)	Yes	Y		1	1.2	39	1.2	81	1	E...	1	82	-.5	83	-.8...	E...	-.5	E...	-.8...				
61	1.2D + 1.0Ev + 1.0Eh (270 Deg)	Yes	Y		1	1.2	39	1.2	81	1	E...	1	82		83	-1	E...		E...	-1				
62	1.2D + 1.0Ev + 1.0Eh (300 Deg)	Yes	Y		1	1.2	39	1.2	81	1	E...	1	82	.5	83	-.8...	E...	.5	E...	-.8...				
63	1.2D + 1.0Ev + 1.0Eh (330 Deg)	Yes	Y		1	1.2	39	1.2	81	1	E...	1	82	.866	83	-.5	E...	.866	E...	-.5				
64	0.9D - 1.0Ev + 1.0Eh (0 Deg)	Yes	Y		1	.9	39	.9	81	-1	E...	-1	82	1	83		E...	1	E...					
65	0.9D - 1.0Ev + 1.0Eh (30 Deg)	Yes	Y		1	.9	39	.9	81	-1	E...	-1	82	.866	83	.5	E...	.866	E...	.5				
66	0.9D - 1.0Ev + 1.0Eh (60 Deg)	Yes	Y		1	.9	39	.9	81	-1	E...	-1	82	.5	83	.866	E...	.5	E...	.866				
67	0.9D - 1.0Ev + 1.0Eh (90 Deg)	Yes	Y		1	.9	39	.9	81	-1	E...	-1	82		83	1	E...		E...	1				
68	0.9D - 1.0Ev + 1.0Eh (120 Deg)	Yes	Y		1	.9	39	.9	81	-1	E...	-1	82	-.5	83	.866	E...	-.5	E...	.866				
69	0.9D - 1.0Ev + 1.0Eh (150 Deg)	Yes	Y		1	.9	39	.9	81	-1	E...	-1	82	-.8...	83	.5	E...	-.8...	E...	.5				
70	0.9D - 1.0Ev + 1.0Eh (180 Deg)	Yes	Y		1	.9	39	.9	81	-1	E...	-1	82	-1	83		E...	-1	E...					
71	0.9D - 1.0Ev + 1.0Eh (210 Deg)	Yes	Y		1	.9	39	.9	81	-1	E...	-1	82	-.8...	83	-.5	E...	-.8...	E...	-.5				
72	0.9D - 1.0Ev + 1.0Eh (240 Deg)	Yes	Y		1	.9	39	.9	81	-1	E...	-1	82	-.5	83	-.8...	E...	-.5	E...	-.8...				
73	0.9D - 1.0Ev + 1.0Eh (270 Deg)	Yes	Y		1	.9	39	.9	81	-1	E...	-1	82		83	-1	E...		E...	-1				
74	0.9D - 1.0Ev + 1.0Eh (300 Deg)	Yes	Y		1	.9	39	.9	81	-1	E...	-1	82	.5	83	-.8...	E...	.5	E...	-.8...				
75	0.9D - 1.0Ev + 1.0Eh (330 Deg)	Yes	Y		1	.9	39	.9	81	-1	E...	-1	82	.866	83	-.5	E...	.866	E...	-.5				

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design R...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Pipe	PIPE_2.0	Column	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
2	TES Unistrut	L2.5x2x3	Column	Pipe	A53 Gr.B	Typical	.818	.292	.511	.01
3	MOD Face Horizontal	PIPE_2.0	Beam	Wide Flange	A53 Gr.B	Typical	1.02	.627	.627	1.25

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1...	Density[k/ft^3]	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

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	F1	N1	N2		180	MOD Face Ho...	Beam	Wide Flange	A53 Gr.B	Typical
2	F2	N3	N4		180	MOD Face Ho...	Beam	Wide Flange	A53 Gr.B	Typical
3	M7	N15	N19			RIGID	None	None	RIGID	Typical
4	M8	N16	N20			RIGID	None	None	RIGID	Typical
5	M9	N13	N17			RIGID	None	None	RIGID	Typical
6	M10	N14	N18			RIGID	None	None	RIGID	Typical
7	MP3A	N22	N24			Pipe	Column	Pipe	A53 Gr.B	Typical
8	MP2A	N21	N23			Pipe	Column	Pipe	A53 Gr.B	Typical
9	M9A	N5	N21A			RIGID	None	None	RIGID	Typical
10	M10A	N6	N22A			RIGID	None	None	RIGID	Typical
11	M11	N7	N23A			RIGID	None	None	RIGID	Typical
12	M12	N8	N24A			RIGID	None	None	RIGID	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	F1						Yes				None
2	F2						Yes				None
3	M7						Yes	** NA **			None
4	M8						Yes	** NA **			None
5	M9						Yes	** NA **			None
6	M10						Yes	** NA **			None
7	MP3A						Yes	** NA **			None
8	MP2A						Yes	** NA **			None
9	M9A						Yes	** NA **			None
10	M10A						Yes	** NA **			None
11	M11						Yes	** NA **			None
12	M12						Yes	** NA **			None

Member Point Loads (BLC 1 : Antenna D)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	MP2A	Y	-84.4	18
2	MP2A	My	.042	18
3	MP2A	Mz	0	18
4	MP3A	Y	-70.3	18

Member Point Loads (BLC 1 : Antenna D) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
5	MP3A	My	.035	18
6	MP3A	Mz	0	18
7	F2	Y	-17.6	105
8	F2	My	0	105
9	F2	Mz	0	105
10	F1	Y	-17.6	105
11	F1	My	0	105
12	F1	Mz	0	105

Member Point Loads (BLC 2 : Antenna Di)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	MP2A	Y	-69.712	18
2	MP2A	My	.035	18
3	MP2A	Mz	0	18
4	MP3A	Y	-62.924	18
5	MP3A	My	.031	18
6	MP3A	Mz	0	18
7	F2	Y	6.6	105
8	F2	My	0	105
9	F2	Mz	0	105
10	F1	Y	6.6	105
11	F1	My	0	105
12	F1	Mz	0	105

Member Point Loads (BLC 3 : Antenna Wo (0 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	MP2A	X	0	18
2	MP2A	Z	-48.745	18
3	MP2A	Mx	0	18
4	MP3A	X	0	18
5	MP3A	Z	-48.745	18
6	MP3A	Mx	0	18
7	F2	X	0	105
8	F2	Z	-30.19	105
9	F2	Mx	0	105
10	F1	X	0	105
11	F1	Z	-30.19	105
12	F1	Mx	0	105

Member Point Loads (BLC 4 : Antenna Wo (30 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	MP2A	X	22.368	18
2	MP2A	Z	-38.742	18
3	MP2A	Mx	.011	18
4	MP3A	X	21.621	18
5	MP3A	Z	-37.448	18
6	MP3A	Mx	.011	18
7	F2	X	12.466	105
8	F2	Z	-21.592	105
9	F2	Mx	0	105
10	F1	X	12.466	105
11	F1	Z	-21.592	105
12	F1	Mx	0	105

Member Point Loads (BLC 5 : Antenna Wo (60 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	MP2A	X	31.797	18
2	MP2A	Z	-18.358	18
3	MP2A	Mx	.016	18
4	MP3A	X	27.916	18
5	MP3A	Z	-16.117	18
6	MP3A	Mx	.014	18
7	F2	X	12.484	105
8	F2	Z	-7.208	105
9	F2	Mx	0	105
10	F1	X	12.484	105
11	F1	Z	-7.208	105
12	F1	Mx	0	105

Member Point Loads (BLC 6 : Antenna Wo (90 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	MP2A	X	32.706	18
2	MP2A	Z	0	18
3	MP2A	Mx	.016	18
4	MP3A	X	26.731	18
5	MP3A	Z	0	18
6	MP3A	Mx	.013	18
7	F2	X	9.157	105
8	F2	Z	0	105
9	F2	Mx	0	105
10	F1	X	9.157	105
11	F1	Z	0	105
12	F1	Mx	0	105

Member Point Loads (BLC 7 : Antenna Wo (120 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	MP2A	X	31.797	18
2	MP2A	Z	18.358	18
3	MP2A	Mx	.016	18
4	MP3A	X	27.916	18
5	MP3A	Z	16.117	18
6	MP3A	Mx	.014	18
7	F2	X	12.484	105
8	F2	Z	7.208	105
9	F2	Mx	0	105
10	F1	X	12.484	105
11	F1	Z	7.208	105
12	F1	Mx	0	105

Member Point Loads (BLC 8 : Antenna Wo (150 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	MP2A	X	22.368	18
2	MP2A	Z	38.742	18
3	MP2A	Mx	.011	18
4	MP3A	X	21.621	18
5	MP3A	Z	37.448	18
6	MP3A	Mx	.011	18
7	F2	X	12.466	105
8	F2	Z	21.592	105
9	F2	Mx	0	105
10	F1	X	12.466	105

Member Point Loads (BLC 8 : Antenna Wo (150 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
11	F1	Z	21.592	105
12	F1	Mx	0	105

Member Point Loads (BLC 9 : Antenna Wo (180 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	MP2A	X	0	18
2	MP2A	Z	48.745	18
3	MP2A	Mx	0	18
4	MP3A	X	0	18
5	MP3A	Z	48.745	18
6	MP3A	Mx	0	18
7	F2	X	0	105
8	F2	Z	30.19	105
9	F2	Mx	0	105
10	F1	X	0	105
11	F1	Z	30.19	105
12	F1	Mx	0	105

Member Point Loads (BLC 10 : Antenna Wo (210 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	MP2A	X	-22.368	18
2	MP2A	Z	38.742	18
3	MP2A	Mx	-.011	18
4	MP3A	X	-21.621	18
5	MP3A	Z	37.448	18
6	MP3A	Mx	-.011	18
7	F2	X	-12.466	105
8	F2	Z	21.592	105
9	F2	Mx	0	105
10	F1	X	-12.466	105
11	F1	Z	21.592	105
12	F1	Mx	0	105

Member Point Loads (BLC 11 : Antenna Wo (240 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	MP2A	X	-31.797	18
2	MP2A	Z	18.358	18
3	MP2A	Mx	-.016	18
4	MP3A	X	-27.916	18
5	MP3A	Z	16.117	18
6	MP3A	Mx	-.014	18
7	F2	X	-12.484	105
8	F2	Z	7.208	105
9	F2	Mx	0	105
10	F1	X	-12.484	105
11	F1	Z	7.208	105
12	F1	Mx	0	105

Member Point Loads (BLC 12 : Antenna Wo (270 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	MP2A	X	-32.706	18
2	MP2A	Z	0	18
3	MP2A	Mx	-.016	18
4	MP3A	X	-26.731	18
5	MP3A	Z	0	18

Member Point Loads (BLC 12 : Antenna Wo (270 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
6	MP3A	Mx	-.013	18
7	F2	X	-9.157	105
8	F2	Z	0	105
9	F2	Mx	0	105
10	F1	X	-9.157	105
11	F1	Z	0	105
12	F1	Mx	0	105

Member Point Loads (BLC 13 : Antenna Wo (300 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	MP2A	X	-31.797	18
2	MP2A	Z	-18.358	18
3	MP2A	Mx	-.016	18
4	MP3A	X	-27.916	18
5	MP3A	Z	-16.117	18
6	MP3A	Mx	-.014	18
7	F2	X	-12.484	105
8	F2	Z	-7.208	105
9	F2	Mx	0	105
10	F1	X	-12.484	105
11	F1	Z	-7.208	105
12	F1	Mx	0	105

Member Point Loads (BLC 14 : Antenna Wo (330 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	MP2A	X	-22.368	18
2	MP2A	Z	-38.742	18
3	MP2A	Mx	-.011	18
4	MP3A	X	-21.621	18
5	MP3A	Z	-37.448	18
6	MP3A	Mx	-.011	18
7	F2	X	-12.466	105
8	F2	Z	-21.592	105
9	F2	Mx	0	105
10	F1	X	-12.466	105
11	F1	Z	-21.592	105
12	F1	Mx	0	105

Member Point Loads (BLC 15 : Antenna Wi (0 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	MP2A	X	0	18
2	MP2A	Z	-13.228	18
3	MP2A	Mx	0	18
4	MP3A	X	0	18
5	MP3A	Z	-13.228	18
6	MP3A	Mx	0	18
7	F2	X	0	105
8	F2	Z	-7.486	105
9	F2	Mx	0	105
10	F1	X	0	105
11	F1	Z	-7.486	105
12	F1	Mx	0	105

Member Point Loads (BLC 16 : Antenna Wi (30 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]

Member Point Loads (BLC 16 : Antenna Wi (30 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	MP2A	X	6.132	18
2	MP2A	Z	-10.62	18
3	MP2A	Mx	.003	18
4	MP3A	X	5.948	18
5	MP3A	Z	-10.303	18
6	MP3A	Mx	.003	18
7	F2	X	3.193	105
8	F2	Z	-5.53	105
9	F2	Mx	0	105
10	F1	X	3.193	105
11	F1	Z	-5.53	105
12	F1	Mx	0	105

Member Point Loads (BLC 17 : Antenna Wi (60 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	MP2A	X	8.949	18
2	MP2A	Z	-5.166	18
3	MP2A	Mx	.004	18
4	MP3A	X	7.996	18
5	MP3A	Z	-4.616	18
6	MP3A	Mx	.004	18
7	F2	X	3.623	105
8	F2	Z	-2.092	105
9	F2	Mx	0	105
10	F1	X	3.623	105
11	F1	Z	-2.092	105
12	F1	Mx	0	105

Member Point Loads (BLC 18 : Antenna Wi (90 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	MP2A	X	9.368	18
2	MP2A	Z	0	18
3	MP2A	Mx	.005	18
4	MP3A	X	7.901	18
5	MP3A	Z	0	18
6	MP3A	Mx	.004	18
7	F2	X	3.083	105
8	F2	Z	0	105
9	F2	Mx	0	105
10	F1	X	3.083	105
11	F1	Z	0	105
12	F1	Mx	0	105

Member Point Loads (BLC 19 : Antenna Wi (120 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	MP2A	X	8.949	18
2	MP2A	Z	5.166	18
3	MP2A	Mx	.004	18
4	MP3A	X	7.996	18
5	MP3A	Z	4.616	18
6	MP3A	Mx	.004	18
7	F2	X	3.623	105
8	F2	Z	2.092	105
9	F2	Mx	0	105
10	F1	X	3.623	105

Member Point Loads (BLC 19 : Antenna Wi (120 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
11	F1	Z	2.092	105
12	F1	Mx	0	105

Member Point Loads (BLC 20 : Antenna Wi (150 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	MP2A	X	6.132	18
2	MP2A	Z	10.62	18
3	MP2A	Mx	.003	18
4	MP3A	X	5.948	18
5	MP3A	Z	10.303	18
6	MP3A	Mx	.003	18
7	F2	X	3.193	105
8	F2	Z	5.53	105
9	F2	Mx	0	105
10	F1	X	3.193	105
11	F1	Z	5.53	105
12	F1	Mx	0	105

Member Point Loads (BLC 21 : Antenna Wi (180 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	MP2A	X	0	18
2	MP2A	Z	13.228	18
3	MP2A	Mx	0	18
4	MP3A	X	0	18
5	MP3A	Z	13.228	18
6	MP3A	Mx	0	18
7	F2	X	0	105
8	F2	Z	7.486	105
9	F2	Mx	0	105
10	F1	X	0	105
11	F1	Z	7.486	105
12	F1	Mx	0	105

Member Point Loads (BLC 22 : Antenna Wi (210 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	MP2A	X	-6.132	18
2	MP2A	Z	10.62	18
3	MP2A	Mx	-.003	18
4	MP3A	X	-5.948	18
5	MP3A	Z	10.303	18
6	MP3A	Mx	-.003	18
7	F2	X	-3.193	105
8	F2	Z	5.53	105
9	F2	Mx	0	105
10	F1	X	-3.193	105
11	F1	Z	5.53	105
12	F1	Mx	0	105

Member Point Loads (BLC 23 : Antenna Wi (240 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	MP2A	X	-8.949	18
2	MP2A	Z	5.166	18
3	MP2A	Mx	-.004	18
4	MP3A	X	-7.996	18
5	MP3A	Z	4.616	18

Member Point Loads (BLC 23 : Antenna Wi (240 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
6	MP3A	Mx	-.004	18
7	F2	X	-3.623	105
8	F2	Z	2.092	105
9	F2	Mx	0	105
10	F1	X	-3.623	105
11	F1	Z	2.092	105
12	F1	Mx	0	105

Member Point Loads (BLC 24 : Antenna Wi (270 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	MP2A	X	-9.368	18
2	MP2A	Z	0	18
3	MP2A	Mx	-.005	18
4	MP3A	X	-7.901	18
5	MP3A	Z	0	18
6	MP3A	Mx	-.004	18
7	F2	X	-3.083	105
8	F2	Z	0	105
9	F2	Mx	0	105
10	F1	X	-3.083	105
11	F1	Z	0	105
12	F1	Mx	0	105

Member Point Loads (BLC 25 : Antenna Wi (300 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	MP2A	X	-8.949	18
2	MP2A	Z	-5.166	18
3	MP2A	Mx	-.004	18
4	MP3A	X	-7.996	18
5	MP3A	Z	-4.616	18
6	MP3A	Mx	-.004	18
7	F2	X	-3.623	105
8	F2	Z	-2.092	105
9	F2	Mx	0	105
10	F1	X	-3.623	105
11	F1	Z	-2.092	105
12	F1	Mx	0	105

Member Point Loads (BLC 26 : Antenna Wi (330 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	MP2A	X	-6.132	18
2	MP2A	Z	-10.62	18
3	MP2A	Mx	-.003	18
4	MP3A	X	-5.948	18
5	MP3A	Z	-10.303	18
6	MP3A	Mx	-.003	18
7	F2	X	-3.193	105
8	F2	Z	-5.53	105
9	F2	Mx	0	105
10	F1	X	-3.193	105
11	F1	Z	-5.53	105
12	F1	Mx	0	105

Member Point Loads (BLC 27 : Antenna Wm (0 Deg))

Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]

Member Point Loads (BLC 27 : Antenna Wm (0 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	MP2A	X	0	18
2	MP2A	Z	-3.047	18
3	MP2A	Mx	0	18
4	MP3A	X	0	18
5	MP3A	Z	-3.047	18
6	MP3A	Mx	0	18
7	F2	X	0	105
8	F2	Z	-1.887	105
9	F2	Mx	0	105
10	F1	X	0	105
11	F1	Z	-1.887	105
12	F1	Mx	0	105

Member Point Loads (BLC 28 : Antenna Wm (30 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	MP2A	X	1.398	18
2	MP2A	Z	-2.421	18
3	MP2A	Mx	.000699	18
4	MP3A	X	1.351	18
5	MP3A	Z	-2.341	18
6	MP3A	Mx	.000676	18
7	F2	X	.779	105
8	F2	Z	-1.349	105
9	F2	Mx	0	105
10	F1	X	.779	105
11	F1	Z	-1.349	105
12	F1	Mx	0	105

Member Point Loads (BLC 29 : Antenna Wm (60 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	MP2A	X	1.987	18
2	MP2A	Z	-1.147	18
3	MP2A	Mx	.000994	18
4	MP3A	X	1.745	18
5	MP3A	Z	-1.007	18
6	MP3A	Mx	.000872	18
7	F2	X	.78	105
8	F2	Z	-.45	105
9	F2	Mx	0	105
10	F1	X	.78	105
11	F1	Z	-.45	105
12	F1	Mx	0	105

Member Point Loads (BLC 30 : Antenna Wm (90 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	MP2A	X	2.044	18
2	MP2A	Z	0	18
3	MP2A	Mx	.001	18
4	MP3A	X	1.671	18
5	MP3A	Z	0	18
6	MP3A	Mx	.000836	18
7	F2	X	.572	105
8	F2	Z	0	105
9	F2	Mx	0	105
10	F1	X	.572	105

Member Point Loads (BLC 30 : Antenna Wm (90 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
11	F1	Z	0	105
12	F1	Mx	0	105

Member Point Loads (BLC 31 : Antenna Wm (120 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	MP2A	X	1.987	18
2	MP2A	Z	1.147	18
3	MP2A	Mx	.000994	18
4	MP3A	X	1.745	18
5	MP3A	Z	1.007	18
6	MP3A	Mx	.000872	18
7	F2	X	.78	105
8	F2	Z	.45	105
9	F2	Mx	0	105
10	F1	X	.78	105
11	F1	Z	.45	105
12	F1	Mx	0	105

Member Point Loads (BLC 32 : Antenna Wm (150 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	MP2A	X	1.398	18
2	MP2A	Z	2.421	18
3	MP2A	Mx	.000699	18
4	MP3A	X	1.351	18
5	MP3A	Z	2.341	18
6	MP3A	Mx	.000676	18
7	F2	X	.779	105
8	F2	Z	1.349	105
9	F2	Mx	0	105
10	F1	X	.779	105
11	F1	Z	1.349	105
12	F1	Mx	0	105

Member Point Loads (BLC 33 : Antenna Wm (180 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	MP2A	X	0	18
2	MP2A	Z	3.047	18
3	MP2A	Mx	0	18
4	MP3A	X	0	18
5	MP3A	Z	3.047	18
6	MP3A	Mx	0	18
7	F2	X	0	105
8	F2	Z	1.887	105
9	F2	Mx	0	105
10	F1	X	0	105
11	F1	Z	1.887	105
12	F1	Mx	0	105

Member Point Loads (BLC 34 : Antenna Wm (210 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	MP2A	X	-1.398	18
2	MP2A	Z	2.421	18
3	MP2A	Mx	-.000699	18
4	MP3A	X	-1.351	18
5	MP3A	Z	2.341	18

Member Point Loads (BLC 34 : Antenna Wm (210 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
6	MP3A	Mx	-.000676	18
7	F2	X	-.779	105
8	F2	Z	1.349	105
9	F2	Mx	0	105
10	F1	X	-.779	105
11	F1	Z	1.349	105
12	F1	Mx	0	105

Member Point Loads (BLC 35 : Antenna Wm (240 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	MP2A	X	-1.987	18
2	MP2A	Z	1.147	18
3	MP2A	Mx	-.000994	18
4	MP3A	X	-1.745	18
5	MP3A	Z	1.007	18
6	MP3A	Mx	-.000872	18
7	F2	X	-.78	105
8	F2	Z	.45	105
9	F2	Mx	0	105
10	F1	X	-.78	105
11	F1	Z	.45	105
12	F1	Mx	0	105

Member Point Loads (BLC 36 : Antenna Wm (270 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	MP2A	X	-2.044	18
2	MP2A	Z	0	18
3	MP2A	Mx	-.001	18
4	MP3A	X	-1.671	18
5	MP3A	Z	0	18
6	MP3A	Mx	-.000836	18
7	F2	X	-.572	105
8	F2	Z	0	105
9	F2	Mx	0	105
10	F1	X	-.572	105
11	F1	Z	0	105
12	F1	Mx	0	105

Member Point Loads (BLC 37 : Antenna Wm (300 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	MP2A	X	-1.987	18
2	MP2A	Z	-1.147	18
3	MP2A	Mx	-.000994	18
4	MP3A	X	-1.745	18
5	MP3A	Z	-1.007	18
6	MP3A	Mx	-.000872	18
7	F2	X	-.78	105
8	F2	Z	-.45	105
9	F2	Mx	0	105
10	F1	X	-.78	105
11	F1	Z	-.45	105
12	F1	Mx	0	105

Member Point Loads (BLC 38 : Antenna Wm (330 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]

Member Point Loads (BLC 38 : Antenna Wm (330 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	MP2A	X	-1.398	18
2	MP2A	Z	-2.421	18
3	MP2A	Mx	-.000699	18
4	MP3A	X	-1.351	18
5	MP3A	Z	-2.341	18
6	MP3A	Mx	-.000676	18
7	F2	X	-.779	105
8	F2	Z	-1.349	105
9	F2	Mx	0	105
10	F1	X	-.779	105
11	F1	Z	-1.349	105
12	F1	Mx	0	105

Member Point Loads (BLC 77 : Lm1)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	MP2A	Y	0	0

Member Point Loads (BLC 78 : Lm2)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	MP2A	Y	0	0

Member Point Loads (BLC 79 : Lv1)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	F2	Y	0	%50

Member Point Loads (BLC 80 : Lv2)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	F2	Y	0	%100

Member Point Loads (BLC 81 : Antenna Ev)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	MP2A	Y	-1.894	18
2	MP2A	My	.000947	18
3	MP2A	Mz	0	18
4	MP3A	Y	-1.578	18
5	MP3A	My	.000789	18
6	MP3A	Mz	0	18
7	F2	Y	-.395	105
8	F2	My	0	105
9	F2	Mz	0	105
10	F1	Y	-.395	105
11	F1	My	0	105
12	F1	Mz	0	105

Member Point Loads (BLC 82 : Antenna Eh (0 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	MP2A	Z	-4.735	18
2	MP2A	Mx	0	18
3	MP3A	Z	-3.944	18
4	MP3A	Mx	0	18
5	F2	Z	-.987	105
6	F2	Mx	0	105
7	F1	Z	-.987	105
8	F1	Mx	0	105

Member Point Loads (BLC 83 : Antenna Eh (90 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	MP2A	X	4.735	18
2	MP2A	Mx	.002	18
3	MP3A	X	3.944	18
4	MP3A	Mx	.002	18
5	F2	X	.987	105
6	F2	Mx	0	105
7	F1	X	.987	105
8	F1	Mx	0	105

Member Area Loads

Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[ksf]
No Data to Print ...						

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	N5	max	351.417	7	161.102	14	88.669	1	.084	19	0	75	.252	18
2		min	-560.414	1	53.651	72	-57.204	7	.031	64	0	1	.089	73
3	N6	max	569.087	7	160.477	20	56.943	1	.083	13	0	75	.253	19
4		min	-344.679	1	53.565	66	-88.409	7	.031	70	0	1	.089	66
5	N7	max	554.455	1	176.578	23	114.802	1	.088	19	0	75	-.096	68
6		min	-357.393	7	69.209	68	-83.739	7	.035	64	0	1	-.261	20
7	N8	max	350.638	1	175.968	17	83.48	1	.088	13	0	75	-.096	74
8		min	-563.111	7	69.127	74	-114.541	7	.035	70	0	1	-.261	19
9	Totals:	max	148.759	9	673.527	13	343.894	1						
10		min	-148.759	3	245.842	70	-343.894	7						

Joint Reactions (By Combination)

	LC	Joint Label	X [lb]	Y [lb]	Z [lb]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	1	N5	-560.414	73.747	88.669	.041	0	.121
2	1	N6	-344.679	73.034	56.943	.044	0	.12
3	1	N7	554.455	95.048	114.802	.047	0	-.132
4	1	N8	350.638	94.342	83.48	.05	0	-.131
5	1	Totals:	0	336.171	343.894			
6	1	COG (in):	X: 73.708	Y: -9	Z: -1.88			
7	2	N5	-480.239	74.02	72.68	.042	0	.122
8	2	N6	-264.25	72.795	41.005	.044	0	.12
9	2	N7	402.628	94.634	82.847	.047	0	-.131
10	2	N8	198.599	94.722	51.601	.05	0	-.131
11	2	Totals:	-143.262	336.171	248.134			
12	2	COG (in):	X: 73.708	Y: -9	Z: -1.88			
13	3	N5	-275.682	73.974	39.246	.042	0	.122
14	3	N6	-59.259	72.847	7.684	.043	0	.12
15	3	N7	195.315	94.371	35.04	.048	0	-.131
16	3	N8	-9.133	94.978	3.915	.049	0	-.132
17	3	Totals:	-148.759	336.171	85.886			
18	3	COG (in):	X: 73.708	Y: -9	Z: -1.88			
19	4	N5	-137.24	73.855	20.53	.043	0	.122
20	4	N6	79.465	72.962	-10.955	.043	0	.121
21	4	N7	74.055	94.255	10.738	.049	0	-.131
22	4	N8	-130.676	95.099	-20.313	.049	0	-.132
23	4	Totals:	-114.397	336.171	0			
24	4	COG (in):	X: 73.708	Y: -9	Z: -1.88			

Joint Reactions (By Combination) (Continued)

	LC	Joint Label	X [lb]	Y [lb]	Z [lb]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
25	5	N5	-14.671	73.807	2.695	.043	0	.122
26	5	N6	202.323	73.015	-28.715	.042	0	.121
27	5	N7	-65.701	94.164	-14.445	.049	0	-.131
28	5	N8	-270.711	95.185	-45.42	.048	0	-.133
29	5	Totals:	-148.759	336.171	-85.886			
30	5	COG (in):	X: 73.708	Y: -9	Z: -1.88			
31	6	N5	196.848	73.61	-32.666	.044	0	.122
32	6	N6	414.284	73.206	-63.953	.042	0	.122
33	6	N7	-274.472	94.2	-60.329	.05	0	-.131
34	6	N8	-479.921	95.154	-91.186	.048	0	-.133
35	6	Totals:	-143.262	336.171	-248.134			
36	6	COG (in):	X: 73.708	Y: -9	Z: -1.88			
37	7	N5	351.417	73.204	-57.204	.044	0	.121
38	7	N6	569.087	73.578	-88.409	.041	0	.122
39	7	N7	-357.393	94.503	-83.739	.05	0	-.132
40	7	N8	-563.111	94.886	-114.541	.047	0	-.133
41	7	Totals:	0	336.171	-343.894			
42	7	COG (in):	X: 73.708	Y: -9	Z: -1.88			
43	8	N5	268.025	72.929	-41.181	.044	0	.121
44	8	N6	485.43	73.818	-72.44	.042	0	.123
45	8	N7	-202.348	94.916	-51.816	.05	0	-.132
46	8	N8	-407.845	94.508	-82.697	.048	0	-.132
47	8	Totals:	143.262	336.171	-248.134			
48	8	COG (in):	X: 73.708	Y: -9	Z: -1.88			
49	9	N5	59.983	72.973	-7.762	.043	0	.121
50	9	N6	276.942	73.768	-39.137	.042	0	.122
51	9	N7	8.45	95.177	-3.992	.049	0	-.132
52	9	N8	-196.615	94.253	-34.995	.048	0	-.132
53	9	Totals:	148.759	336.171	-85.886			
54	9	COG (in):	X: 73.708	Y: -9	Z: -1.88			
55	10	N5	-79.108	73.092	10.94	.043	0	.121
56	10	N6	137.567	73.654	-20.513	.043	0	.122
57	10	N7	130.359	95.293	20.326	.049	0	-.132
58	10	N8	-74.422	94.132	-10.752	.048	0	-.131
59	10	Totals:	114.397	336.171	0			
60	10	COG (in):	X: 73.708	Y: -9	Z: -1.88			
61	11	N5	-201.075	73.14	28.76	.042	0	.121
62	11	N6	15.312	73.601	-2.768	.043	0	.121
63	11	N7	269.513	95.384	45.524	.048	0	-.132
64	11	N8	65.009	94.046	14.37	.049	0	-.131
65	11	Totals:	148.759	336.171	85.886			
66	11	COG (in):	X: 73.708	Y: -9	Z: -1.88			
67	12	N5	-409.154	73.338	64.101	.042	0	.121
68	12	N6	-193.196	73.408	32.453	.044	0	.121
69	12	N7	474.844	95.35	91.424	.047	0	-.132
70	12	N8	270.768	94.074	60.155	.049	0	-.13
71	12	Totals:	143.262	336.171	248.134			
72	12	COG (in):	X: 73.708	Y: -9	Z: -1.88			
73	13	N5	-347.328	161.021	54.755	.083	0	.252
74	13	N6	35.857	160.278	-1.925	.083	0	.252
75	13	N7	340.267	176.476	61.145	.087	0	-.26
76	13	N8	-28.797	175.752	4.745	.088	0	-.26
77	13	Totals:	0	673.527	118.72			
78	13	COG (in):	X: 69.858	Y: -9	Z: -1.753			
79	14	N5	-318.991	161.102	48.579	.083	0	.252
80	14	N6	64.356	160.221	-8.069	.083	0	.252
81	14	N7	287.285	176.36	50.583	.087	0	-.26

Joint Reactions (By Combination) (Continued)

	LC	Joint Label	X [lb]	Y [lb]	Z [lb]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
82	14	N8	-81.912	175.844	-5.77	.088	0	-.26
83	14	Totals:	-49.262	673.527	85.322			
84	14	COG (in):	X: 69.858	Y: -9	Z: -1.753			
85	15	N5	-247.778	161.096	36.272	.083	0	.252
86	15	N6	135.84	160.23	-20.307	.083	0	.252
87	15	N7	215.531	176.288	34.687	.087	0	-.26
88	15	N8	-153.928	175.913	-21.593	.088	0	-.261
89	15	Totals:	-50.335	673.527	29.06			
90	15	COG (in):	X: 69.858	Y: -9	Z: -1.753			
91	16	N5	-200.936	161.065	29.782	.083	0	.252
92	16	N6	182.851	160.257	-26.752	.083	0	.252
93	16	N7	174.897	176.256	26.603	.088	0	-.26
94	16	N8	-194.734	175.948	-29.633	.088	0	-.261
95	16	Totals:	-37.922	673.527	0			
96	16	COG (in):	X: 69.858	Y: -9	Z: -1.753			
97	17	N5	-160.079	161.05	23.569	.083	0	.252
98	17	N6	223.882	160.276	-32.921	.083	0	.252
99	17	N7	127.83	176.232	18.242	.088	0	-.26
100	17	N8	-241.969	175.968	-37.949	.087	0	-.261
101	17	Totals:	-50.335	673.527	-29.06			
102	17	COG (in):	X: 69.858	Y: -9	Z: -1.753			
103	18	N5	-87.762	160.994	10.65	.084	0	.252
104	18	N6	296.469	160.329	-45.766	.083	0	.252
105	18	N7	56.05	176.246	2.957	.088	0	-.261
106	18	N8	-314.019	175.958	-53.163	.087	0	-.261
107	18	Totals:	-49.262	673.527	-85.322			
108	18	COG (in):	X: 69.858	Y: -9	Z: -1.753			
109	19	N5	-34.527	160.879	1.77	.084	0	.252
110	19	N6	349.845	160.42	-54.598	.083	0	.253
111	19	N7	27.459	176.335	-4.902	.088	0	-.261
112	19	N8	-342.777	175.893	-60.989	.087	0	-.261
113	19	Totals:	0	673.527	-118.72			
114	19	COG (in):	X: 69.858	Y: -9	Z: -1.753			
115	20	N5	-63.249	160.798	7.95	.083	0	.252
116	20	N6	320.958	160.477	-48.451	.083	0	.253
117	20	N7	80.826	176.451	5.657	.088	0	-.261
118	20	N8	-289.274	175.801	-50.478	.087	0	-.261
119	20	Totals:	49.262	673.527	-85.322			
120	20	COG (in):	X: 69.858	Y: -9	Z: -1.753			
121	21	N5	-134.87	160.804	20.255	.083	0	.252
122	21	N6	249.065	160.468	-36.215	.083	0	.252
123	21	N7	152.988	176.523	21.554	.088	0	-.261
124	21	N8	-216.847	175.733	-34.654	.087	0	-.261
125	21	Totals:	50.335	673.527	-29.06			
126	21	COG (in):	X: 69.858	Y: -9	Z: -1.753			
127	22	N5	-181.785	160.834	26.743	.083	0	.252
128	22	N6	201.98	160.441	-29.772	.083	0	.252
129	22	N7	193.695	176.555	29.64	.088	0	-.261
130	22	N8	-175.969	175.697	-26.612	.087	0	-.26
131	22	Totals:	37.922	673.527	0			
132	22	COG (in):	X: 69.858	Y: -9	Z: -1.753			
133	23	N5	-222.573	160.849	32.955	.083	0	.252
134	23	N6	161.018	160.422	-23.604	.083	0	.252
135	23	N7	240.693	176.578	38.003	.088	0	-.261
136	23	N8	-128.803	175.677	-18.294	.088	0	-.26
137	23	Totals:	50.335	673.527	29.06			
138	23	COG (in):	X: 69.858	Y: -9	Z: -1.753			

Joint Reactions (By Combination) (Continued)

	LC	Joint Label	X [lb]	Y [lb]	Z [lb]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
139	24	N5	-294.486	160.906	45.871	.083	0	.252
140	24	N6	88.838	160.369	-10.761	.083	0	.252
141	24	N7	312.069	176.564	53.289	.087	0	-.26
142	24	N8	-57.159	175.687	-3.077	.088	0	-.26
143	24	Totals:	49.262	673.527	85.322			
144	24	COG (in):	X: 69.858	Y: -9	Z: -1.753			
145	25	N5	-136.655	73.49	20.294	.043	0	.121
146	25	N6	79.975	73.291	-11.192	.043	0	.121
147	25	N7	130.688	94.791	21.737	.048	0	-.132
148	25	N8	-74.008	94.599	-9.344	.049	0	-.132
149	25	Totals:	0	336.171	21.494			
150	25	COG (in):	X: 73.708	Y: -9	Z: -1.88			
151	26	N5	-131.549	73.508	19.293	.043	0	.121
152	26	N6	85.097	73.276	-12.189	.043	0	.121
153	26	N7	121.105	94.765	19.74	.048	0	-.132
154	26	N8	-83.605	94.622	-11.336	.049	0	-.132
155	26	Totals:	-8.953	336.171	15.507			
156	26	COG (in):	X: 73.708	Y: -9	Z: -1.88			
157	27	N5	-118.663	73.505	17.204	.043	0	.121
158	27	N6	98.011	73.279	-14.271	.043	0	.121
159	27	N7	108.046	94.749	16.751	.049	0	-.132
160	27	N8	-96.691	94.638	-14.317	.049	0	-.132
161	27	Totals:	-9.297	336.171	5.366			
162	27	COG (in):	X: 73.708	Y: -9	Z: -1.88			
163	28	N5	-109.993	73.497	16.035	.043	0	.121
164	28	N6	106.698	73.286	-15.436	.043	0	.121
165	28	N7	100.45	94.741	15.233	.049	0	-.132
166	28	N8	-104.305	94.646	-15.832	.049	0	-.132
167	28	Totals:	-7.149	336.171	0			
168	28	COG (in):	X: 73.708	Y: -9	Z: -1.88			
169	29	N5	-102.352	73.494	14.921	.043	0	.121
170	29	N6	114.357	73.289	-16.545	.043	0	.121
171	29	N7	91.735	94.736	13.659	.049	0	-.132
172	29	N8	-113.037	94.651	-17.4	.048	0	-.132
173	29	Totals:	-9.297	336.171	-5.366			
174	29	COG (in):	X: 73.708	Y: -9	Z: -1.88			
175	30	N5	-89.233	73.482	12.711	.043	0	.121
176	30	N6	127.504	73.302	-18.747	.043	0	.121
177	30	N7	78.787	94.738	10.79	.049	0	-.132
178	30	N8	-126.012	94.649	-20.262	.048	0	-.132
179	30	Totals:	-8.953	336.171	-15.507			
180	30	COG (in):	X: 73.708	Y: -9	Z: -1.88			
181	31	N5	-79.669	73.456	11.176	.043	0	.121
182	31	N6	137.081	73.325	-20.277	.043	0	.121
183	31	N7	73.702	94.757	9.327	.049	0	-.132
184	31	N8	-131.114	94.633	-21.721	.048	0	-.132
185	31	Totals:	0	336.171	-21.494			
186	31	COG (in):	X: 73.708	Y: -9	Z: -1.88			
187	32	N5	-84.787	73.439	12.177	.043	0	.121
188	32	N6	131.947	73.34	-19.279	.043	0	.121
189	32	N7	83.298	94.783	11.324	.049	0	-.132
190	32	N8	-121.504	94.609	-19.729	.048	0	-.132
191	32	Totals:	8.953	336.171	-15.507			
192	32	COG (in):	X: 73.708	Y: -9	Z: -1.88			
193	33	N5	-97.687	73.442	14.266	.043	0	.121
194	33	N6	119.019	73.337	-17.197	.043	0	.121
195	33	N7	96.37	94.799	14.313	.049	0	-.132

Joint Reactions (By Combination) (Continued)

	LC	Joint Label	X [lb]	Y [lb]	Z [lb]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
196	33	N8	-108.405	94.593	-16.748	.048	0	-.132
197	33	Totals:	9.297	336.171	-5.366			
198	33	COG (in):	X: 73.708	Y: -9	Z: -1.88			
199	34	N5	-106.36	73.45	15.435	.043	0	.121
200	34	N6	110.329	73.329	-16.033	.043	0	.121
201	34	N7	103.969	94.806	15.832	.049	0	-.132
202	34	N8	-100.789	94.585	-15.234	.049	0	-.132
203	34	Totals:	7.149	336.171	0			
204	34	COG (in):	X: 73.708	Y: -9	Z: -1.88			
205	35	N5	-113.998	73.453	16.549	.043	0	.121
206	35	N6	102.673	73.326	-14.924	.043	0	.121
207	35	N7	112.681	94.812	17.406	.049	0	-.132
208	35	N8	-92.059	94.58	-13.665	.049	0	-.132
209	35	Totals:	9.297	336.171	5.366			
210	35	COG (in):	X: 73.708	Y: -9	Z: -1.88			
211	36	N5	-127.104	73.465	18.759	.043	0	.121
212	36	N6	89.54	73.314	-12.722	.043	0	.121
213	36	N7	125.616	94.81	20.274	.048	0	-.132
214	36	N8	-79.097	94.582	-10.804	.049	0	-.132
215	36	Totals:	8.953	336.171	15.507			
216	36	COG (in):	X: 73.708	Y: -9	Z: -1.88			
217	37	N5	-136.655	73.49	20.294	.043	0	.121
218	37	N6	79.975	73.291	-11.192	.043	0	.121
219	37	N7	130.688	94.791	21.737	.048	0	-.132
220	37	N8	-74.008	94.599	-9.344	.049	0	-.132
221	37	Totals:	0	336.171	21.494			
222	37	COG (in):	X: 73.708	Y: -9	Z: -1.88			
223	38	N5	-131.549	73.508	19.293	.043	0	.121
224	38	N6	85.097	73.276	-12.189	.043	0	.121
225	38	N7	121.105	94.765	19.74	.048	0	-.132
226	38	N8	-83.605	94.622	-11.336	.049	0	-.132
227	38	Totals:	-8.953	336.171	15.507			
228	38	COG (in):	X: 73.708	Y: -9	Z: -1.88			
229	39	N5	-118.663	73.505	17.204	.043	0	.121
230	39	N6	98.011	73.279	-14.271	.043	0	.121
231	39	N7	108.046	94.749	16.751	.049	0	-.132
232	39	N8	-96.691	94.638	-14.317	.049	0	-.132
233	39	Totals:	-9.297	336.171	5.366			
234	39	COG (in):	X: 73.708	Y: -9	Z: -1.88			
235	40	N5	-109.993	73.497	16.035	.043	0	.121
236	40	N6	106.698	73.286	-15.436	.043	0	.121
237	40	N7	100.45	94.741	15.233	.049	0	-.132
238	40	N8	-104.305	94.646	-15.832	.049	0	-.132
239	40	Totals:	-7.149	336.171	0			
240	40	COG (in):	X: 73.708	Y: -9	Z: -1.88			
241	41	N5	-102.352	73.494	14.921	.043	0	.121
242	41	N6	114.357	73.289	-16.545	.043	0	.121
243	41	N7	91.735	94.736	13.659	.049	0	-.132
244	41	N8	-113.037	94.651	-17.4	.048	0	-.132
245	41	Totals:	-9.297	336.171	-5.366			
246	41	COG (in):	X: 73.708	Y: -9	Z: -1.88			
247	42	N5	-89.233	73.482	12.711	.043	0	.121
248	42	N6	127.504	73.302	-18.747	.043	0	.121
249	42	N7	78.787	94.738	10.79	.049	0	-.132
250	42	N8	-126.012	94.649	-20.262	.048	0	-.132
251	42	Totals:	-8.953	336.171	-15.507			
252	42	COG (in):	X: 73.708	Y: -9	Z: -1.88			

Joint Reactions (By Combination) (Continued)

	LC	Joint Label	X [lb]	Y [lb]	Z [lb]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
253	43	N5	-79.669	73.456	11.176	.043	0	.121
254	43	N6	137.081	73.325	-20.277	.043	0	.121
255	43	N7	73.702	94.757	9.327	.049	0	-.132
256	43	N8	-131.114	94.633	-21.721	.048	0	-.132
257	43	Totals:	0	336.171	-21.494			
258	43	COG (in):	X: 73.708	Y: -9	Z: -1.88			
259	44	N5	-84.787	73.439	12.177	.043	0	.121
260	44	N6	131.947	73.34	-19.279	.043	0	.121
261	44	N7	83.298	94.783	11.324	.049	0	-.132
262	44	N8	-121.504	94.609	-19.729	.048	0	-.132
263	44	Totals:	8.953	336.171	-15.507			
264	44	COG (in):	X: 73.708	Y: -9	Z: -1.88			
265	45	N5	-97.687	73.442	14.266	.043	0	.121
266	45	N6	119.019	73.337	-17.197	.043	0	.121
267	45	N7	96.37	94.799	14.313	.049	0	-.132
268	45	N8	-108.405	94.593	-16.748	.048	0	-.132
269	45	Totals:	9.297	336.171	-5.366			
270	45	COG (in):	X: 73.708	Y: -9	Z: -1.88			
271	46	N5	-106.36	73.45	15.435	.043	0	.121
272	46	N6	110.329	73.329	-16.033	.043	0	.121
273	46	N7	103.969	94.806	15.832	.049	0	-.132
274	46	N8	-100.789	94.585	-15.234	.049	0	-.132
275	46	Totals:	7.149	336.171	0			
276	46	COG (in):	X: 73.708	Y: -9	Z: -1.88			
277	47	N5	-113.998	73.453	16.549	.043	0	.121
278	47	N6	102.673	73.326	-14.924	.043	0	.121
279	47	N7	112.681	94.812	17.406	.049	0	-.132
280	47	N8	-92.059	94.58	-13.665	.049	0	-.132
281	47	Totals:	9.297	336.171	5.366			
282	47	COG (in):	X: 73.708	Y: -9	Z: -1.88			
283	48	N5	-127.104	73.465	18.759	.043	0	.121
284	48	N6	89.54	73.314	-12.722	.043	0	.121
285	48	N7	125.616	94.81	20.274	.048	0	-.132
286	48	N8	-79.097	94.582	-10.804	.049	0	-.132
287	48	Totals:	8.953	336.171	15.507			
288	48	COG (in):	X: 73.708	Y: -9	Z: -1.88			
289	49	N5	-108.176	73.473	15.735	.043	0	.121
290	49	N6	108.514	73.308	-15.734	.043	0	.121
291	49	N7	102.209	94.774	15.532	.049	0	-.132
292	49	N8	-102.547	94.616	-15.533	.049	0	-.132
293	49	Totals:	0	336.171	0			
294	49	COG (in):	X: 73.708	Y: -9	Z: -1.88			
295	50	N5	-108.176	73.473	15.735	.043	0	.121
296	50	N6	108.514	73.308	-15.734	.043	0	.121
297	50	N7	102.209	94.774	15.532	.049	0	-.132
298	50	N8	-102.547	94.616	-15.533	.049	0	-.132
299	50	Totals:	0	336.171	0			
300	50	COG (in):	X: 73.708	Y: -9	Z: -1.88			
301	51	N5	-126.173	85.735	18.357	.05	0	.142
302	51	N6	126.632	85.51	-18.357	.05	0	.142
303	51	N7	119.211	110.585	18.121	.057	0	-.154
304	51	N8	-119.671	110.369	-18.122	.057	0	-.154
305	51	Totals:	0	392.199	0			
306	51	COG (in):	X: 73.708	Y: -9	Z: -1.88			
307	52	N5	-134.638	74.871	19.5	.043	0	.124
308	52	N6	86.05	74.655	-12.572	.044	0	.123
309	52	N7	128.56	96.576	20.224	.049	0	-.134

Joint Reactions (By Combination) (Continued)

	LC	Joint Label	X [lb]	Y [lb]	Z [lb]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
310	52	N8	-79.971	96.355	-11.436	.05	0	-.134
311	52	Totals:	0	342.457	15.716			
312	52	COG (in):	X: 73.708	Y: -9	Z: -1.88			
313	53	N5	-133.362	74.899	19.348	.043	0	.124
314	53	N6	87.334	74.629	-12.724	.044	0	.123
315	53	N7	123.354	96.532	19.322	.049	0	-.134
316	53	N8	-85.183	96.396	-12.336	.05	0	-.134
317	53	Totals:	-7.858	342.457	13.61			
318	53	COG (in):	X: 73.708	Y: -9	Z: -1.88			
319	54	N5	-125.881	74.913	18.306	.044	0	.124
320	54	N6	94.836	74.616	-13.761	.044	0	.123
321	54	N7	112.996	96.493	17.482	.049	0	-.134
322	54	N8	-95.56	96.435	-14.169	.049	0	-.134
323	54	Totals:	-13.61	342.457	7.858			
324	54	COG (in):	X: 73.708	Y: -9	Z: -1.88			
325	55	N5	-114.193	74.911	16.654	.044	0	.124
326	55	N6	106.551	74.62	-15.406	.044	0	.123
327	55	N7	100.254	96.467	15.198	.049	0	-.134
328	55	N8	-108.328	96.459	-16.446	.049	0	-.134
329	55	Totals:	-15.716	342.457	0			
330	55	COG (in):	X: 73.708	Y: -9	Z: -1.88			
331	56	N5	-101.428	74.892	14.835	.044	0	.124
332	56	N6	119.343	74.638	-17.217	.043	0	.124
333	56	N7	88.542	96.464	13.081	.05	0	-.134
334	56	N8	-120.067	96.463	-18.556	.049	0	-.134
335	56	Totals:	-13.61	342.457	-7.858			
336	56	COG (in):	X: 73.708	Y: -9	Z: -1.88			
337	57	N5	-91.01	74.861	13.335	.044	0	.124
338	57	N6	129.781	74.667	-18.711	.043	0	.124
339	57	N7	81.001	96.482	11.699	.05	0	-.134
340	57	N8	-127.629	96.446	-19.934	.049	0	-.134
341	57	Totals:	-7.858	342.457	-13.61			
342	57	COG (in):	X: 73.708	Y: -9	Z: -1.88			
343	58	N5	-85.732	74.827	12.558	.044	0	.124
344	58	N6	135.065	74.699	-19.485	.043	0	.124
345	58	N7	79.653	96.519	11.421	.05	0	-.134
346	58	N8	-128.986	96.412	-20.21	.049	0	-.134
347	58	Totals:	0	342.457	-15.716			
348	58	COG (in):	X: 73.708	Y: -9	Z: -1.88			
349	59	N5	-87.013	74.799	12.711	.044	0	.124
350	59	N6	133.776	74.725	-19.333	.043	0	.124
351	59	N7	84.864	96.563	12.323	.05	0	-.134
352	59	N8	-123.769	96.37	-19.311	.049	0	-.134
353	59	Totals:	7.858	342.457	-13.61			
354	59	COG (in):	X: 73.708	Y: -9	Z: -1.88			
355	60	N5	-94.505	74.785	13.752	.044	0	.123
356	60	N6	126.263	74.738	-18.296	.043	0	.124
357	60	N7	95.234	96.602	14.163	.05	0	-.134
358	60	N8	-113.381	96.332	-17.477	.049	0	-.134
359	60	Totals:	13.61	342.457	-7.858			
360	60	COG (in):	X: 73.708	Y: -9	Z: -1.88			
361	61	N5	-106.199	74.787	15.404	.044	0	.123
362	61	N6	114.541	74.735	-16.651	.044	0	.124
363	61	N7	107.981	96.628	16.447	.049	0	-.134
364	61	N8	-100.607	96.308	-15.2	.049	0	-.134
365	61	Totals:	15.716	342.457	0			
366	61	COG (in):	X: 73.708	Y: -9	Z: -1.88			

Joint Reactions (By Combination) (Continued)

	LC	Joint Label	X [lb]	Y [lb]	Z [lb]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
367	62	N5	-118.959	74.806	17.223	.044	0	.123
368	62	N6	101.755	74.716	-14.84	.044	0	.124
369	62	N7	119.687	96.631	18.564	.049	0	-.134
370	62	N8	-88.874	96.303	-13.09	.049	0	-.134
371	62	Totals:	13.61	342.457	7.858			
372	62	COG (in):	X: 73.708	Y: -9	Z: -1.88			
373	63	N5	-129.366	74.837	18.723	.043	0	.124
374	63	N6	91.328	74.687	-13.347	.044	0	.124
375	63	N7	127.218	96.613	19.946	.049	0	-.134
376	63	N8	-81.322	96.321	-11.713	.05	0	-.134
377	63	Totals:	7.858	342.457	13.61			
378	63	COG (in):	X: 73.708	Y: -9	Z: -1.88			
379	64	N5	-103.592	53.737	14.976	.031	0	.089
380	64	N6	54.834	53.604	-8.048	.031	0	.089
381	64	N7	99.228	69.321	15.758	.035	0	-.096
382	64	N8	-50.471	69.179	-6.97	.036	0	-.096
383	64	Totals:	0	245.842	15.716			
384	64	COG (in):	X: 73.708	Y: -9	Z: -1.88			
385	65	N5	-102.315	53.764	14.823	.031	0	.089
386	65	N6	56.117	53.578	-8.2	.031	0	.089
387	65	N7	94.022	69.278	14.856	.035	0	-.096
388	65	N8	-55.681	69.221	-7.87	.036	0	-.096
389	65	Totals:	-7.858	245.842	13.61			
390	65	COG (in):	X: 73.708	Y: -9	Z: -1.88			
391	66	N5	-94.831	53.779	13.782	.031	0	.089
392	66	N6	63.616	53.565	-9.238	.031	0	.089
393	66	N7	83.661	69.238	13.018	.035	0	-.096
394	66	N8	-66.056	69.26	-9.704	.036	0	-.096
395	66	Totals:	-13.61	245.842	7.858			
396	66	COG (in):	X: 73.708	Y: -9	Z: -1.88			
397	67	N5	-83.139	53.776	12.131	.031	0	.089
398	67	N6	75.327	53.568	-10.883	.031	0	.089
399	67	N7	70.915	69.213	10.734	.036	0	-.096
400	67	N8	-78.82	69.284	-11.982	.035	0	-.096
401	67	Totals:	-15.716	245.842	0			
402	67	COG (in):	X: 73.708	Y: -9	Z: -1.88			
403	68	N5	-70.37	53.757	10.313	.031	0	.089
404	68	N6	88.115	53.587	-12.696	.031	0	.089
405	68	N7	59.2	69.209	8.618	.036	0	-.096
406	68	N8	-90.555	69.288	-14.093	.035	0	-.097
407	68	Totals:	-13.61	245.842	-7.858			
408	68	COG (in):	X: 73.708	Y: -9	Z: -1.88			
409	69	N5	-59.95	53.727	8.815	.031	0	.089
410	69	N6	98.55	53.616	-14.19	.031	0	.089
411	69	N7	51.656	69.228	7.237	.036	0	-.096
412	69	N8	-98.114	69.271	-15.471	.035	0	-.097
413	69	Totals:	-7.858	245.842	-13.61			
414	69	COG (in):	X: 73.708	Y: -9	Z: -1.88			
415	70	N5	-54.671	53.693	8.038	.031	0	.089
416	70	N6	103.834	53.648	-14.965	.031	0	.089
417	70	N7	50.307	69.264	6.959	.036	0	-.096
418	70	N8	-99.47	69.237	-15.748	.035	0	-.096
419	70	Totals:	0	245.842	-15.716			
420	70	COG (in):	X: 73.708	Y: -9	Z: -1.88			
421	71	N5	-55.953	53.665	8.19	.031	0	.089
422	71	N6	102.546	53.674	-14.813	.031	0	.089
423	71	N7	55.518	69.307	7.861	.036	0	-.096

Joint Reactions (By Combination) (Continued)

	LC	Joint Label	X [lb]	Y [lb]	Z [lb]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
424	71	N8	-94.254	69.195	-14.848	.035	0	-.096
425	71	Totals:	7.858	245.842	-13.61			
426	71	COG (in):	X: 73.708	Y: -9	Z: -1.88			
427	72	N5	-63.448	53.651	9.232	.031	0	.089
428	72	N6	95.036	53.688	-13.775	.031	0	.089
429	72	N7	65.891	69.347	9.7	.036	0	-.096
430	72	N8	-83.868	69.156	-13.014	.035	0	-.096
431	72	Totals:	13.61	245.842	-7.858			
432	72	COG (in):	X: 73.708	Y: -9	Z: -1.88			
433	73	N5	-75.146	53.654	10.882	.031	0	.089
434	73	N6	83.318	53.684	-12.13	.031	0	.089
435	73	N7	78.642	69.372	11.983	.036	0	-.096
436	73	N8	-71.098	69.132	-10.736	.035	0	-.096
437	73	Totals:	15.716	245.842	0			
438	73	COG (in):	X: 73.708	Y: -9	Z: -1.88			
439	74	N5	-87.909	53.673	12.7	.031	0	.089
440	74	N6	70.535	53.666	-10.317	.031	0	.089
441	74	N7	90.352	69.376	14.099	.035	0	-.096
442	74	N8	-59.368	69.127	-8.625	.036	0	-.096
443	74	Totals:	13.61	245.842	7.858			
444	74	COG (in):	X: 73.708	Y: -9	Z: -1.88			
445	75	N5	-98.319	53.703	14.199	.031	0	.089
446	75	N6	60.112	53.636	-8.823	.031	0	.089
447	75	N7	97.885	69.357	15.481	.035	0	-.096
448	75	N8	-51.82	69.145	-7.247	.036	0	-.096
449	75	Totals:	7.858	245.842	13.61			
450	75	COG (in):	X: 73.708	Y: -9	Z: -1.88			

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

	Member	Shape	Code Check	Loc[in]	LC	Shear ...	Loc[in]	Dir	LC	phi*Pnc ...	phi*Pnt [...	phi*Mn y...	phi*Mn z...	Cb	Eqn
1	F1	PIPE_2.0	.151	111....	13	.044	111....		13	13237.0...	32130	1.872	1.872	1	H1-1b
2	F2	PIPE_2.0	.159	111....	19	.044	111....		19	13237.0...	32130	1.872	1.872	1	H1-1b
3	MP3A	PIPE_2.0	.086	27	22	.025	27		21	28843.4...	32130	1.872	1.872	1...	H1-1b
4	MP2A	PIPE_2.0	.084	27	16	.023	9		22	28843.4...	32130	1.872	1.872	1...	H1-1b

VzW SMART Tool© Vendor

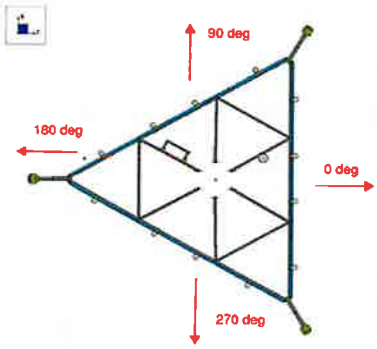
Client:	Verizon Wireless	Date:	12/15/2023
Site Name:	BRISTOL CT		
MDG #:	5000103444		
Fuze ID #:	17226438	Page:	1

Version 2.00

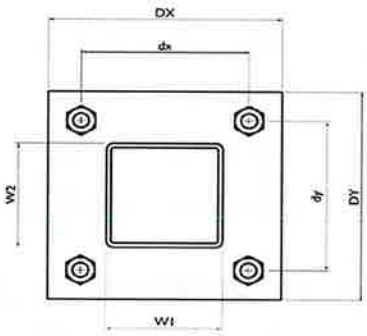
I. Mount-to-Tower Connection Check

Custom Orientation Required	Yes

Nodes (labeled per Risa)	Orientation (per graphic of typical platform)
N5	180
N6	180
N7	180
N8	180



Tower Connection Bolt Checks	Yes
Bolt Orientation	Parallel
Bolt Quantity per Reaction:	4
d_x (in) *(Delta X of typ. bolt config. sketch)* :	5
d_y (in) *(Delta Y of typ. bolt config. sketch)* :	3.25
Bolt Type:	A36
Bolt Diameter (in):	0.5
Required Tensile Strength / bolt (kips):	0.2
Required Shear Strength / bolt (kips):	0.4
Tensile Capacity / bolt (kips):	6.4
Shear Capacity / bolt (kips):	3.8
Bolt Overall Utilization:	**9.3%**
Tower Connection Baseplate Checks	No



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MOUNT MODIFICATION DRAWINGS
PROPOSED 10.00' FACE MOUNT (BETA SECTOR)

TOWER OWNER: N/A
TOWER OWNER SITE NUMBER: N/A

CARRIER SITE NAME: BRISTOL CT
CARRIER SITE NUMBER: 5000103444
FUZE ID: 17226438

32 VALLEY STREET
BRISTOL, CT 06010
HARTFORD COUNTY

LATITUDE: 41.676209° N
LONGITUDE: 72.947604° W

DESIGN CRITERIA

WIND LOADS

BASIC WIND SPEED (3 SECOND GUST), V = 120 MPH
EXPOSURE CATEGORY B
TOPOGRAPHIC CATEGORY: 1
TOPOGRAPHIC CONSIDERED: N/A
TOPOGRAPHIC METHOD: N/A
MEAN BASE ELEVATION (AMSL) = 320'26'

ICE LOADS

ICE WIND SPEED (3 SECOND GUST), V = 50 MPH
ICE THICKNESS = 1.50 IN

SEISMIC LOADS

SEISMIC DESIGN CATEGORY B
SHORT TERM MCER GROUND MOTION, S_s = .187
LONG TERM MCER GROUND MOTION, S_1 = .054

PROJECT INFORMATION

APPLICANT/LESSEE

COMPANY: VERIZON WIRELESS

CLIENT REPRESENTATIVE

COMPANY: VERIZON WIRELESS

PROJECT MANAGER

COMPANY: COLLIERS ENGINEERING & DESIGN
CONTACT: PETER ALBANO
PHONE 856.797.0412
E-MAIL: PETER.ALBANO@COLLIERSENG.COM

CONTRACTOR PMI REQUIREMENTS

PMI LOCATION: HTTPS://PMI.VZWSMART.COM
SMART TOOL PROJECT #: 10211663
VZW MDG #: 5000103444
ANALYSIS DATE: 05/13/24

PMI REQUIREMENTS EMBEDDED WITHIN MOUNT MODIFICATION REPORT

SHEET INDEX

SHEET	DESCRIPTION
ST-1	TITLE SHEET
SBOM-1	BILL OF MATERIALS
SGN-1	GENERAL NOTES
SCF-1	CLIMBING FACILITY DETAIL
SS-1	MODIFICATION DETAILS
SS-2	MOUNT PHOTOS
	SPECIFICATION SHEETS

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SCALE: AS SHOWN
JOB NUMBER: 23777162

REV	DATE	DESCRIPTION	BY	CHK'D BY
1	05/16/24	PROJECT CONSTRUCTION	DAC	DMS
0	5/13/24	PROJECT CONSTRUCTION	DAC	DMS

05/16/2024
COLLIERS ENGINEERING & DESIGN CT, P.C.

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SITE NAME:
BRISTOL CT
5000103444
32 VALLEY STREET
BRISTOL, CT 06010
HARTFORD COUNTY

Colliers Engineering & Design
141 LAUREL
2000 Midlantic Drive
Suite 300
Mt. Laurel, NJ 08054
Phone: 856.797.0412
COLLIERS ENGINEERING & DESIGN (NJ), INC.
DOING BUSINESS AS COLLIERS CONSULTING

TITLE SHEET

ST-1

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION

BILL OF MATERIALS

SECTION 1 - VZWSMART KITS

QUANTITY	MANUFACTURER	PART NUMBER	DESCRIPTION	NOTES	UNIT WEIGHT (LBS.)	WEIGHT (LBS.)
2	VZWSMART	VZWSMART-P40-238X120	120" LONG, PIPE 2 SCH40 (2.375"OD X 0.154" THK)		37	74
8		VZWSMART-MSK1	CROSSOVER PLATE		14	112

SECTION 2 - OTHER REQUIRED PARTS

QUANTITY	MANUFACTURER	PART NUMBER	DESCRIPTION	NOTES	UNIT WEIGHT (LBS.)	WEIGHT (LBS.)
2	-	-	36" LONG, PIPE 2 SCH40 (2.375"OD X 0.154" THK)	GALVANIZED.	11	22

SECTION 3 - REQUIRED SAFETY CLIMB PARTS

QUANTITY	MANUFACTURER	PART NUMBER	DESCRIPTION	NOTES	UNIT WEIGHT (LBS.)	WEIGHT (LBS.)
					TOTAL:	208

NOTES:

1. THE MANUFACTURERS LISTED ARE THE APPROVED VENDORS FOR THE VZW MOUNT KITS. EACH MANUFACTURER WILL BE AWARE OF WHICH KITS HAVE BEEN THROUGH THE VZW APPROVAL PROCESS AND THEY ARE IN TURN APPROVED TO SELL. PLEASE NOTE THAT THE MATERIAL UTILIZED ON THE MOUNT MODIFICATIONS WILL BE REVIEWED AS A PART OF THE DESKTOP PMI COMPLETED BY THE SMART TOOL VENDOR. IT WILL BE REQUIRED THAT THE VZW KITS SPECIFIED ARE UTILIZED IN THE MODIFICATIONS.
2. ALL MATERIALS REQUIRED FOR THE DESIGNED MODIFICATIONS BUT NOT LISTED IN THIS SHEET ARE ASSUMED TO BE PROVIDED BY THE CONTRACTOR.

VZWSMART KITS - APPROVED VENDORS

COMMSCOPE	
CONTACT	SALVADOR ANGUIANO
PHONE	(817) 304-7492
EMAIL	SALVADOR.ANGUIANO@COMMSCOPE.COM
WEBSITE	WWW.COMMSCOPE.COM

METROSITE FABRICATORS, LLC	
CONTACT	KENT RAMEY
PHONE	(706) 335-7045 (C), (706) 982-9788 (P)
EMAIL	KENT@METROSITELLC.COM
WEBSITE	METROSITEFABRICATORS.COM

PERFECTVISION	
CONTACT	WIRELESS SALES
PHONE	(844) 887-6723
EMAIL	WWW.PERFECT-VISION.COM
WEBSITE	WIRELESSSALES@PERFECT-VISION.COM

SABRE INDUSTRIES, INC.	
CONTACT	ANGIE WELCH
PHONE	(866) 428-6937
EMAIL	AKWELCH@SABREINDUSTRIES.COM
WEBSITE	WWW.SABRESITESOLUTIONS.COM

SITE PRO 1	
CONTACT	PAULA BOSWELL
PHONE	(972) 236-9843
EMAIL	PAULA.BOSWELL@VALMONT.COM
WEBSITE	WWW.SITEPRO1.COM

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SCALE: AS SHOWN
J-D NUMBER: 23777162

REV	DATE	ISSUED FOR	DRAWN BY	CHECKED BY
1	09/19/23	CONSTRUCTION	NH	PMN
0	03/10/23	PRELIMINARY	NH	SH

05/16/2024

COLLIERS ENGINEERING & DESIGN CT, P.C.
C.T. PC.0001111

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SITE NAME:

BRISTOL CT
5000103444

32 VALLEY STREET
BRISTOL, CT 06010
HARTFORD COUNTY

Colliers Engineering & Design
MT. LAUREL
2000 Midlantic Drive
Suite 150
Mt. Laurel, NJ 08054
Phone: (856) 797-0423
COLLIERS ENGINEERING & DESIGN INC.
CERTIFICATE OF AUTHORIZATION

SHEET TITLE: BILL OF MATERIALS

SHEET NUMBER: SBOM-1

GENERAL NOTES

1. THESE MODIFICATIONS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE GOVERNING PROVISIONS OF THE TELECOMMUNICATIONS INDUSTRY STANDARD TIA-222-H, MATERIALS AND SERVICES PROVIDED BY THE CONTRACTOR SHALL CONFORM TO THE ABOVE MENTIONED CODES.
2. CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PREVENT DAMAGE TO EXISTING STRUCTURES. ANY DAMAGE TO EXISTING STRUCTURES AS A RESULT OF THE CONTRACTOR'S WORK OR FROM DAMAGE DUE TO OTHER CAUSES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
3. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS BEFORE BEGINNING WORK, ORDERING MATERIAL, AND PREPARING OF SHOP DRAWINGS. ANY DISCREPANCIES BETWEEN FIELD CONDITIONS AND THE CONTRACT DOCUMENTS SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER. IF THE CONTRACTOR DISCOVERS ANY EXISTING CONDITIONS THAT ARE NOT REPRESENTED ON THESE DRAWINGS, OR ANY CONDITIONS THAT WOULD INTERFERE WITH THE INSTALLATION OF THE MODIFICATIONS, NOTIFY THE ENGINEER IMMEDIATELY.
4. IT IS ASSUMED THAT ANY STRUCTURAL MODIFICATION WORK SPECIFIED ON THESE PLANS WILL BE ACCOMPLISHED BY KNOWLEDGEABLE WORKMEN WITH TOWER CONSTRUCTION EXPERIENCE.
5. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION METHODS, MEANS, TECHNIQUES, SEQUENCES, AND PROCEDURES.
6. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN AND SHALL MEET ANSI/TIA-322 (LATEST EDITION), OSHA, AND GENERAL INDUSTRY STANDARDS. ALL RIGGING PLANS SHALL ADHERE TO ANSI/TIA-322 (LATEST EDITION) INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION.
7. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PROGRAMS IN ACCORDANCE WITH APPLICABLE SAFETY CODES.
8. WORK SHALL ONLY BE PERFORMED DURING CALM DRY DAYS (WINDS LESS THAN 30-MPH). THE STRUCTURE SHOWN ON THE DRAWINGS IS STRUCTURALLY SOUND ONLY IN THE COMPLETED FORM. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STRENGTH AND STABILITY OF THE STRUCTURE DURING ERECTION. CONTRACTOR SHALL PROVIDE TEMPORARY SUPPORT, SHORING, BRACING AND ANY OTHER STRUCTURAL SYSTEMS AS REQUIRED TO RESIST ALL FORCES THAT MAY OCCUR DURING HANDLING AND ERECTION UNTIL THE STRUCTURE IS FULLY COMPLETED. TEMPORARY SUPPORTS, BRACING AND OTHER STRUCTURAL SYSTEMS REQUIRED DURING CONSTRUCTION SHALL REMAIN THE CONTRACTOR'S PROPERTY AFTER THEIR USE.
9. ALL INSTALLATIONS PERFORMED ON THIS STRUCTURE SHALL BE COMPLETED IN ACCORDANCE WITH THE GOVERNING PROVISIONS OF THE STANDARD FOR INSTALLATION, ALTERATION AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS, ANSI/TIA-322.
10. CONTRACTOR SHALL SECURE SITE BACK TO EXISTING CONDITION UNDER SUPERVISION OF OWNER. ALL FENCE, STONE, GEOFABRIC, GROUNDING, AND SURROUNDING GRADE SHALL BE REPLACED AND REPAIRED AS REQUIRED TO ACHIEVE OWNER APPROVAL. POSITIVE DRAINAGE AWAY FROM TOWER SITE SHALL BE MAINTAINED.
11. CONNECTIONS BETWEEN ITEMS SUPPORTED BY THE STRUCTURE AND THE STRUCTURE NOT SPECIFICALLY DETAILED IN THE CONTRACT DOCUMENTS ARE THE RESPONSIBILITY OF THE CONTRACTOR. SUCH CONNECTIONS SHALL BE DESIGNED, COORDINATED AND INSPECTED BY A PROFESSIONAL STRUCTURAL ENGINEER LICENSED IN THE STATE OF THE PROJECT. SUBMIT SIGNED AND SEALED CALCULATIONS DURING SHOP DRAWING REVIEW.
12. DO NOT SCALE DRAWINGS.
13. DO NOT USE THESE DRAWINGS FOR ANY OTHER SITE.
14. ALL MATERIAL UTILIZED FOR THIS PROJECT MUST BE NEW AND FREE OF ANY DEFECTS. ANY MATERIAL SUBSTITUTIONS, INCLUDING BUT NOT LIMITED TO ALTERED SIZE AND/OR STRENGTHS, MUST BE APPROVED BY THE OWNER AND ENGINEER IN WRITING.
15. THE MOUNT UNDER NO CIRCUMSTANCES SHOULD BE USED AS A TIE OFF POINT.

STRUCTURAL STEEL

1. DESIGN, DETAILING, FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING PUBLICATIONS EXCEPT AS SPECIFICALLY INDICATED IN THE CONTRACT DOCUMENTS
   a. AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL OF STEEL CONSTRUCTION (15TH EDITION)
   b. SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS
   c. AISC CODE OF STANDARD PRACTICE
2. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING UNLESS OTHERWISE SHOWN:

CHANNELS, ANGLES, PLATES, ETC	ASTM A36 (GR 36)
STEEL PIPE	ASTM A53 (GR 35)
BOLTS	ASTM A325
NUTS	ASTM A563
LOCK WASHERS	LOCKING STRUCTURAL GRADE

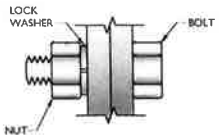
3. ALL SUBSTITUTIONS PROPOSED BY THE CONTRACTOR SHALL BE APPROVED IN WRITING BY THE ENGINEER. CONTRACTOR SHALL PROVIDE DOCUMENTATION TO ENGINEER FOR VERIFYING THE SUBSTITUTE IS SUITABLE FOR USE AND MEETS ORIGINAL DESIGN CRITERIA. DIFFERENCES FROM THE ORIGINAL DESIGN, INCLUDING MAINTENANCE, REPAIR AND REPLACEMENT, SHALL BE NOTED. ESTIMATES OF COSTS/CREDITS ASSOCIATED WITH THE SUBSTITUTION (INCLUDING RE-DESIGN COSTS AND COSTS TO SUB-CONTRACTORS) SHALL BE PROVIDED TO THE ENGINEER. CONTRACTOR SHALL PROVIDE ADDITIONAL DOCUMENTATION AND/OR SPECIFICATIONS TO THE ENGINEER AS REQUESTED
4. PROVIDE STRUCTURAL STEEL SHOP DRAWINGS TO ENGINEER FOR APPROVAL PRIOR TO FABRICATION.
   a. SUBMIT SHOP DRAWINGS TO
      PETER.ALBANO@COLLIERSENG.COM
   b. PROVIDE COLLIERS ENGINEERING & DESIGN PROJECT # AND COLLIERS ENGINEERING & DESIGN PROJECT ENGINEER CONTACT IN THE BODY OF THE EMAIL.
5. DRILL NO HOLES IN ANY NEW OR EXISTING STRUCTURAL STEEL MEMBERS OTHER THAN THOSE SHOWN ON STRUCTURAL DRAWINGS WITHOUT THE APPROVAL OF THE ENGINEER OF RECORD.
6. GALVANIZED ASTM A325 BOLTS SHALL NOT BE REUSED.
7. ALL NEW STEEL SHALL BE HOT BE DIPPED GALVANIZED FOR FULL WEATHER PROTECTION. IN ADDITION ALL NEW STEEL SHALL BE PAINTED TO MATCH EXISTING STEEL. CONTRACTOR SHALL OBTAIN WRITTEN PERMISSION TO PROTECT STEEL BY ANY OTHER MEANS.
8. ALL BOLT ASSEMBLIES FOR STRUCTURAL MEMBERS REPRESENTED IN THIS DRAWING REQUIRE LOCKING DEVICES TO BE INSTALLED IN ACCORDANCE WITH TIA-222-H SECTION 4.9.2 REQUIREMENTS.
9. WHERE CONNECTIONS ARE NOT FULLY DETAILED ON THESE DRAWINGS, FABRICATOR SHALL DESIGN CONNECTIONS TO RESIST LOADS AND FORCES WHERE SHOWN ON DRAWINGS AND AS OUTLINED IN SPECIFICATIONS.
10. FOR MEMBERS BEING REPLACED, PROVIDE NEW BOLTS AND MATCH EXISTING SIZE AND GRADE. MAINTAIN AISC REQUIREMENTS FOR MINIMUM BOLT DISTANCE AND SPACING.
11. ALL PROPOSED AND/OR REPLACED BOLTS SHALL BE OF SUFFICIENT LENGTH SUCH THAT THE END OF THE BOLT IS AT LEAST FLUSH WITH THE FACE OF THE NUT. IT IS NOT PERMITTED FOR THE BOLT END TO BE BELOW THE FACE OF THE NUT AFTER TIGHTENING IS COMPLETED.
12. GALVANIZED ASTM A325 BOLTS SHALL NOT BE REUSED.
13. ALL NEW STEEL SHALL BE HOT BE DIPPED GALVANIZED FOR FULL WEATHER PROTECTION. CONTRACTOR SHALL OBTAIN WRITTEN PERMISSION TO PROTECT STEEL BY ANY OTHER MEANS.
14. ALL EXISTING PAINTED/GALVANIZED SURFACES DAMAGED DURING REHAB INCLUDING AREAS UNDER STIFFENER PLATES SHALL BE WIRE BRUSHED CLEAN, REPAIRED BY COLD GALVANIZING (ZINC COTE, OR EOR APPROVED EQUAL), AND REPAINTED TO MATCH THE EXISTING FINISH (IF APPLICABLE).
15. ALL HOLES IN STEEL MEMBERS SHALL BE SIZED 1/16" LARGER THAN THE BOLT DIAMETER. STANDARD HOLES SHALL BE USED UNLESS NOTED OTHERWISE.

BOLT SCHEDULE (IN.)

BOLT DIAMETER	STANDARD HOLE	SHORT SLOT	MIN. EDGE DISTANCE	SPACING
1/2	9/16	9/16 x 11/16	7/8	1 1/2
5/8	11/16	11/16 x 7/8	1 1/8	1 7/8
3/4	13/16	13/16 x 1	1 1/4	2 1/4
7/8	15/16	15/16 x 1 1/8	1 1/2	2 5/8
1	1 1/16	1 1/16 x 1 5/16	1 3/4	3

WORKABLE GAGES (IN.)

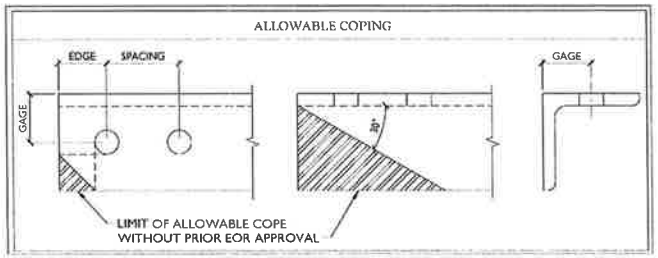
LEG	GAGE
4	2 1/2
3 1/2	2
3	1 3/4
2 1/2	1 3/8
2	1 1/8



TYP. BOLT ASSEMBLY

NOTES:

1. ALL DIMENSIONS REPRESENTED IN THE ABOVE TABLES ARE AISC MINIMUM REQUIREMENTS. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS IN FIELD AND NOTIFY ENGINEER IF DISTANCES ARE LESS THAN THOSE PROVIDED.
2. THE DIMENSIONS PROVIDED ARE MINIMUM REQUIREMENTS. ACTUAL DIMENSIONS OF PROPOSED MEMBERS WITHIN THESE DRAWINGS MAY VARY FROM THE AISC MINIMUM REQUIREMENTS
3. SHORT SLOT HOLES SHALL ONLY BE USED WHEN DEPICTED IN THE DRAWINGS
4. MATCH EXISTING GAGES WHEN APPLICABLE, UNLESS MINIMUM EDGE DISTANCES ARE COMPROMISED.



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05/16/2024

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SITE NAME:

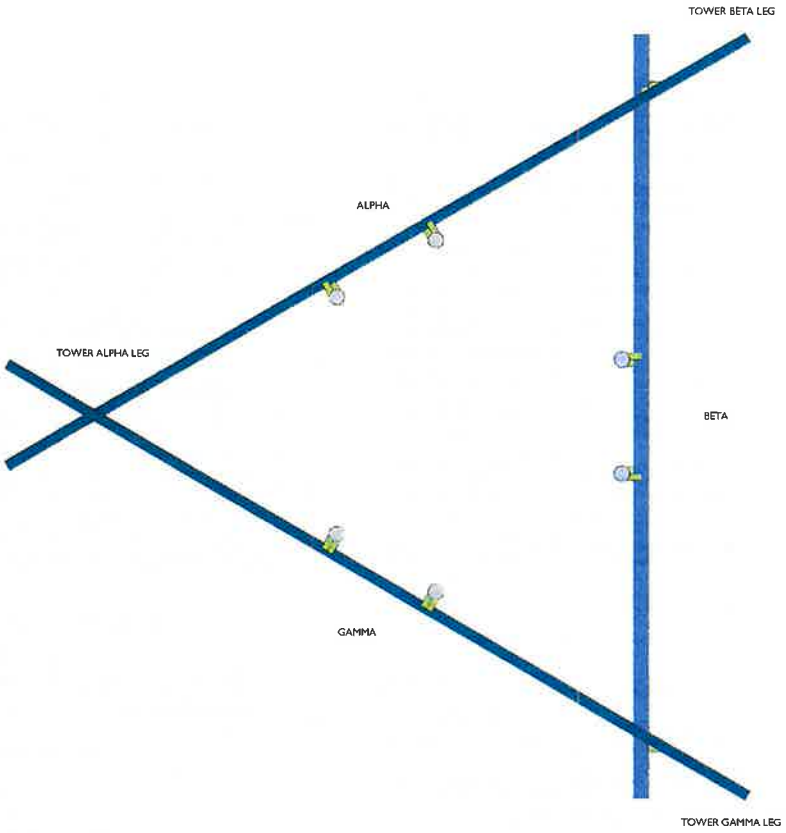
BRISTOL CT
5000103444

32 VALLEY STREET
BRISTOL, CT 06010
HARTFORD COUNTY

GENERAL NOTES

SGN-1

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.



1 CLIMBING FACILITY LOCATION
SCALE: N.T.S.

STRUCTURAL NOTES:

1. PER THE MOUNT MAPPING COMPLETED BY ONSIGHT SERVICES ON 7/29/2023, THE SAFETY CLIMB AND CLIMBING FACILITIES UP TO THE VERIZON MOUNT ELEVATION (103'-0") ARE IN GOOD CONDITION. COLLIERS ENGINEERING & DESIGN DOES NOT WARRANT THIS INFORMATION.

2. INSTALL SHALL NOT CAUSE HARM TO THE STRUCTURE, CLIMBING FACILITY, SAFETY CLIMB, OR ANY SYSTEM INSTALLED ON THE STRUCTURE. TIMELY NOTICE AND DOCUMENTATION SHALL BE PROVIDED BY CONTRACTORS TO THE EOR (OF STRUCTURAL DESIGN) IF AN OBSTRUCTION WAS REQUIRED TO MEET THE RF SYSTEM DESIGN REQUIREMENTS AND PERFORMANCES.

NOTE:

NO EXISTING CLIMBING FACILITY.

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AS SHOWN

REV	DATE	DESCRIPTION	DRAWN BY	CHECKED BY
1	09/19/23	PRELIMINARY CONSTRUCTION	BAC	PWN
2	10/19/23	PRELIMINARY CONSTRUCTION	BAC	BM
3	12/19/23	PRELIMINARY CONSTRUCTION	BAC	BM

05/10/2024

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SITE NAME:

BRISTOL CT
5000103444

32 VALLEY STREET
BRISTOL, CT 06010
HARTFORD COUNTY

Colliers Engineering & Design

CLIMBING FACILITY DETAIL

SCF-1

LEGEND:

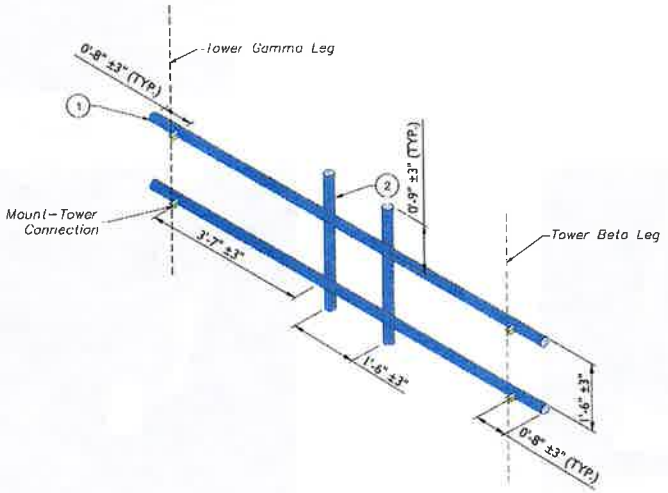
- PROPOSED
- EXISTING
- EXISTING

MOUNT MODIFICATION SCHEDULE

NO.	ELEVATION	QUANTITY	DESCRIPTION	NOTES
1	103'-0"	2	PROPOSED 120" LONG, PIPE 2 SCH40 (PART #: VZWSMART-P40-238X120)	CONTRACTOR SHALL REPLACE EXISTING UNISTRUT HORIZONTALS THAT SPAN BETWEEN THE BETA AND GAMMA TOWER LEGS. CONNECT PROPOSED PIPE TO TOWER LEGS WITH PROPOSED CROSSOVER PLATES (VZWSMART-MSK1). PROPOSED FACE HORIZONTALS SHALL BE ATTACHED TO THE INTERIOR SIDE OF TOWER FACE, AND SHALL BE ADJUSTED VERTICALLY AS NEEDED IN ORDER TO ACHIEVE INSTALLATION AS SHOWN.
2		2	36" LONG, PIPE 2 SCH40 (2.375"OD X 0.154" THK)	CONNECT NEW MOUNT PIPE TO PROPOSED HORIZONTALS WITH CROSSOVER PLATES (PART #: VZWSMART-MSK1)

GENERAL NOTES:

A. CONTRACTOR SHALL VERIFY THAT NEW & EXISTING STEEL IS FREE OF CORROSION. VISIBLE MINOR CORROSION SHALL BE WIRE BRUSHED CLEAN AND TREATED WITH COLD GALVANIZATION. REPORT ANY SIGNIFICANT CORROSION TO EOR
B. THREADED ROD FROM PROPOSED KITS SHALL BE TRIMMED TO EXTEND NO MORE THAN 3" BEYOND THE LOCK NUT. TREAT ALL CUT ENDS WITH (2) COATS OF COLD GALVANIZATION (ZINC KOTE OR EOR APPROVED EQUAL).
C. MOUNT MEMBERS NOT SHOWN FOR CLARITY U.N.O.



1 PROPOSED ISOMETRIC VIEW (BETA ONLY)

SCALE : N.T.S.

Colliers Engineering & Design

www.colliersengineering.com

verizon

811 PROTECT YOURSELF

Know what's below. Call before you dig.

SIZE	AS SHOWN	DRAWING #	23177162

REV	DATE	REVISIONS	DRAWN BY	CHECKED BY
1	05/16/2024	PRELIMINARY CONSTRUCTION	MK	RMA
0	04/05/24	PRELIMINARY CONSTRUCTION	MK	RMA

05/16/2024

COLLIERS ENGINEERING & DESIGN CT, P.C.
C.T. PEC.0001111

SITE NAME:

BRISTOL CT
5000103444

32 VALLEY STREET
BRISTOL, CT 06010
HARTFORD COUNTY

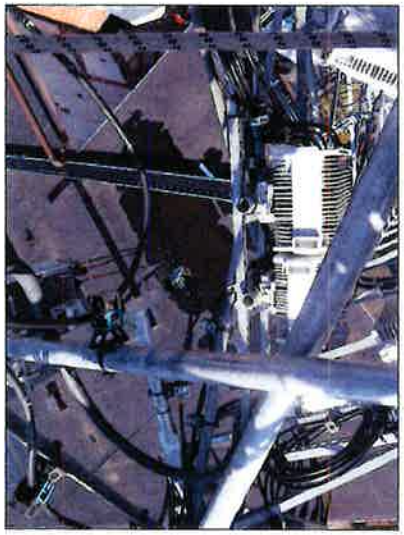
Colliers Engineering & Design

MODIFICATION DETAILS

SS-1

MOUNT PHOTO 1

MOUNT PHOTO 2



MOUNT PHOTO 3

MOUNT PHOTO 4

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811 Know what's below. Call before you dig.

FOR STATE SPECIFIC DIRECT ANCHE NUMBERS VISIT WWW.CALL811.COM

AS SHOWN

REV	DATE	DRAWN BY	CHECKED BY
1	05/10/24	CAM	PMA
0	12/11/23	CAM	BH

05/10/2024

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

SITE NAME:

BRISTOL CT
5000103444

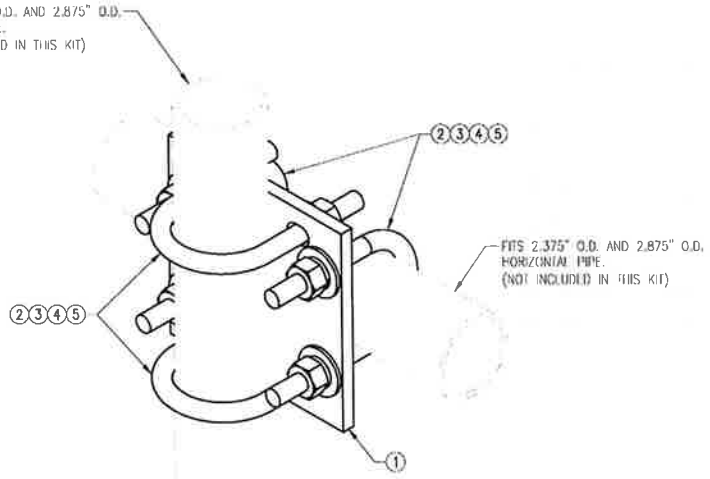
32 VALLEY STREET
BRISTOL, CT 06010
HARTFORD COUNTY

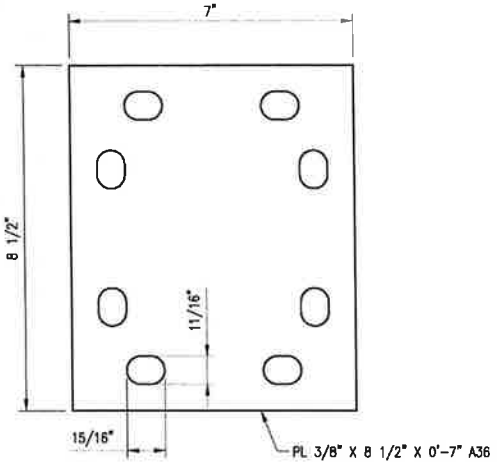
Colliers Engineering & Design

MT. LAUREL
2000 Midlantic Drive
Suite 100
Mt. Laurel, NJ 08054
Phone: 856.797.0412
COLLIERS ENGINEERING & DESIGN, INC.
CONSULTANTS AT WILLIAM CONNELL INC.

MOUNT PHOTOS

SS-2





PL375-857

NOTES:
1. HOT-DIPPED GALVANIZED PER ASTM A123.

VZWSMART-MSK1 (CROSSOVER PLATE)

ITEM NO.	QTY.	PART NO.	DESCRIPTION	SHEET #	WT
1	1	PL375-857	PL 3/8" X 8 1/2" X 0'-7" A36	MSK1-11	6
2	4	MS02-625-300-500	RU-BOLT 5/8" X 3" I.W. X 5" I.L. A36 (OR EQUIV.)	RBC-1	5
3	8	FW-625	5/8" HDG USS FLAT WASHER	---	1
4	8	LW-625	5/8" HDG LOCK WASHER	---	0
5	8	NUT-625	5/8" HDG HEX NUT	---	1
				GALVANIZED WT	14

VzW SMART Tool© Vendor

verizon

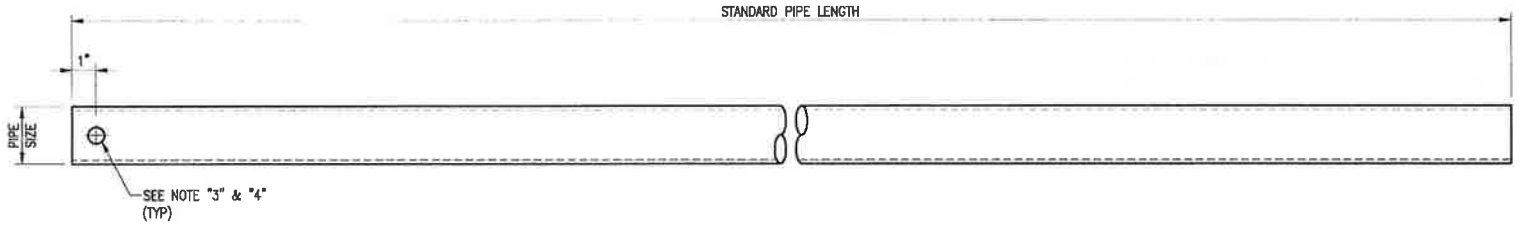
FOR REFERENCE ONLY

DRAWN BY: H.R | CHECKED BY: HMA

REV	DESCRIPTION	BY	DATE
1	FIRST ISSUE	H.R	05/08/20

SHEET TITLE:
VZWSMART-MSK1
CROSSOVER PLATE

SHEET NUMBER: VZWSMART-MSK1 | REV #: 0



VZWSMART Standard Pipe		
VZWSMART Number	Size	Length
P40-238X048	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	48"
P40-238X072	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	72"
P40-238X096	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	96"
P40-238X120	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	120"
P40-238X126	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	126"
P40-238X150	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	150"
P40-238X174	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	174"
P40-278X048	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	48"
P40-278X072	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	72"
P40-278X096	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	96"
P40-278X120	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	120"
P40-278X126	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	126"
P40-278X150	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	150"
P40-278X174	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	174"
P40-312X048	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	48"
P40-312X072	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	72"
P40-312X126	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	126"
P40-312X150	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	150"
P40-312X174	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	174"

NOTE:
APPROVED SMART KIT VENDORS ARE ALLOWED TO SUBSTITUTE AT THEIR DISCRETION PIPES LISTED ON THIS PAGE FOR CUSTOM LENGTH COMPONENTS OF MATCHING SIZE. SUBSTITUTIONS SHALL MEET THE ORIGINAL STRUCTURAL INTENT.

NOTES:
1. ALL PIPE GRADE A53-B OR BETTER.
2. HOT-DIPPED GALVANIZED PER ASTM A123.
3. ALL HOLES ARE 11/16" DIA. U.N.O
4. HOLES MAY OR MAY NOT BE PRESENT, DEPEND UPON MANUFACTURE DISCRETION.
5. ALL FIELD CUT AND DRILLED SURFACES SHALL BE REPAIRED WITH A MINIMUM OF TWO COATS OF ZINGA OR ZINC COTE PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.

VzW SMART Tool© Vendor

verizon

FOR REFERENCE ONLY

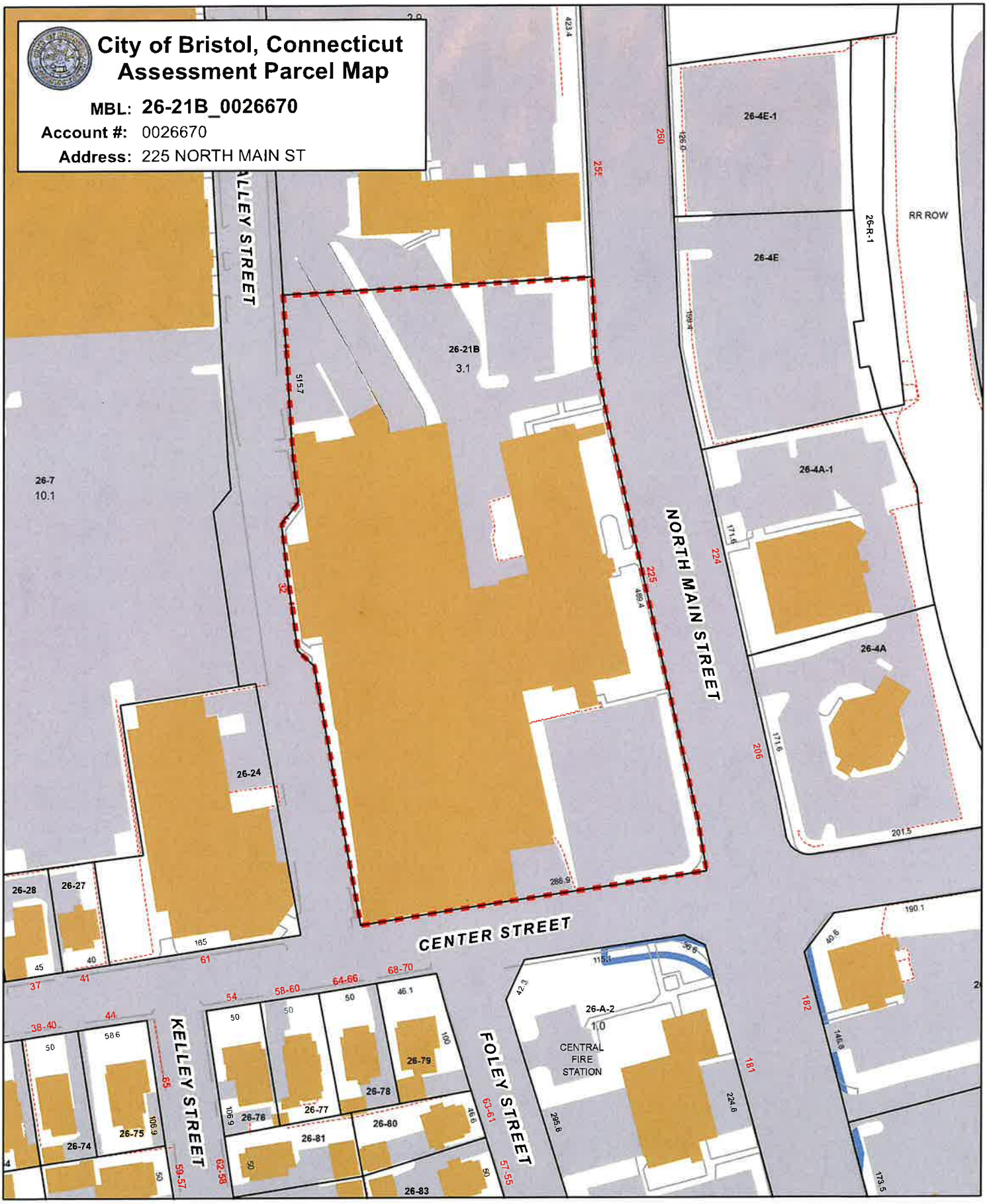
DRAWN BY: BT | CHECKED BY: HMA/KW

REV	DESCRIPTION	BY	DATE
1	FIRST ISSUE	BT	08/04/21

SHEET TITLE:
VZWSMART STANDARD PIPE

SHEET NUMBER: VZWSMART-PIPE | REV #: 0

ATTACHMENT 4



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

City of Bristol, CT

Property Listing Report

Map Block Lot	26-21B	Building #	1	PID	1588	Account	0026670

Property Information

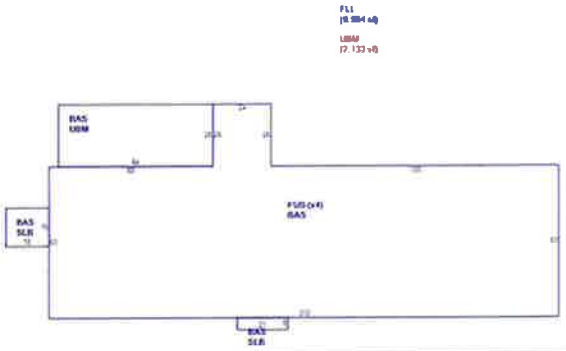
Property Location	225 NORTH MAIN ST
Owner	CARPENTER REALTY COMPANY
Co-Owner	
Mailing Address	PO BOX 176 BRISTOL CT 06011
Land Use	340 Off Bldg
Land Class	C
Zoning Code	BD-1
Census Tract	04061

Neighborhood	
Acreage	3.19
Utilities	All Public
Lot Setting/Desc	Level
Book / Page	0692/0054
Additional Info	

Photo

0026670 03/15/2016

Sketch



Primary Construction Details

Year Built	1912
Building Desc.	Off Bldg
Building Style	Office Bldg
Building Grade	NA
Stories	5
Occupancy	28.00
Exterior Walls	Brick/Masonry
Exterior Walls 2	NA
Roof Style	Flat
Roof Cover	T+G/Rubber
Interior Walls	Drywall/Sheetr
Interior Walls 2	NA
Interior Floors 1	Carpet
Interior Floors 2	

Heating Fuel	Propane Gas
Heating Type	Forced Air-Duc
AC Type	03
Bedrooms	0
Full Bathrooms	0
Half Bathrooms	0
Extra Fixtures	0
Total Rooms	0
Bath Style	NA
Kitchen Style	NA
Fin Bsmt Area	0
Fin Bsmt Quality	0
Bsmt Gar	0
Fireplaces	0

(*Industrial / Commercial Details)

Building Use	Comm/Ind
Building Condition	A
Sprinkler %	NA
Heat / AC	Heat/AC Pkgs
Frame Type	Masonry
Baths / Plumbing	Average
Ceiling / Wall	Sus-Ceil & WL
Rooms / Prtns	Average
Wall Height	12.00
First Floor Use	NA
Foundation	NA

Report Created On 10/12/2021

ATTACHMENT 5

Verizon/Bristol

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	3	OLD STATE HOUSE STATION 06103 JUN 17 2024 quadient CORRECTION USPS IMI $003.34 06/17/2024 ZIP 06101 043M32206619 POSTAGE
	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.	Jeffrey Caggiano, Mayor City of Bristol 111 North Main Street Bristol, CT 06010				
2.	Robert Flanagan, City Planner City of Bristol 111 North Main Street Bristol, CT 06010				
3.	Carpenter Realty Company P.O. Box 176 Bristol, CT 06011				
4.					
5.					
6.					

See Reverse for Instructions