



STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: siting.council@ct.gov

Web Site: portal.ct.gov/csc

VIA ELECTRONIC MAIL

June 29, 2023

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

RE: **EM-VER-089-220214** – Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 35 Wildwood Street, New Britain, Connecticut.

Dear Attorney Baldwin:

The Connecticut Siting Council (Council) is in receipt of the correspondence dated June 28, 2023 regarding a project change for the above-referenced exempt modification request acknowledged by the Council on March 7, 2022.

The request to change the model of the remote radio head (RRH) to RF4439d-25A and RF4440-13A due to the unavailability of the approved RRH model is hereby approved with the following conditions:

1. Prior to Verizon's antenna installation, antennas and equipment be installed in compliance with the Mount Analysis prepared by Colliers Engineering & Design dated June 6, 2023 and stamped and signed by Dejian Xu;
2. Within 45 days following completion of equipment installation, Verizon Wireless shall provide documentation certified by a Professional Engineer that its installation complied with the recommendations of the Mount Analysis.

This approval applies only to the project change in the correspondence dated June 28, 2023.

Thank you for your attention and cooperation.

Sincerely,

Melanie A. Bachman
Executive Director

MAB/ANM/dll

c: Erin Stewart, Mayor, City of New Britain (Mayor@NewBritainCT.gov)

June 28, 2023

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

Re: **EM-VER-089-220214 – Cellco Partnership d/b/a Verizon Wireless – 35 Wildwood Street, New Britain, Connecticut**

Dear Attorney Bachman:

On March 7, 2022, the Siting Council approved the above referenced Exempt Modification filing permitting the modification of an existing telecommunications facility located at 35 Wildwood Street in New Britain. Cellco recently learned that the remote radio head (“RRH”) model described in the EM-VER-089-220214 filing is no longer available. Cellco will therefore install RRH models RF-4439d-25A and RF4440d-13A.

Enclosed is a revised Structural Analysis and Mount Analysis, an updated set of project plans and the new RRH specifications.

Please contact me if you have any questions regarding this proposal.

Sincerely,



Kenneth C. Baldwin

Attachments

Copy: Alex Tyurin

SUMMARY & RESULTS

The purpose of this analysis was to verify whether the existing structure is capable of carrying the proposed loading configuration as specified by Verizon Wireless and commissioned by BST Management, LLC.

This analysis has been performed in accordance with the 2022 Connecticut State Building Code based upon a 3-second gust wind speed of 118 mph. Applicable Standard references and design criteria are listed in Appendices A & B.

The proposed feedlines shall be installed as shown in Appendices A & B for the analysis results to be valid.

TOWER SUMMARY AND RESULTS

Member	Capacity	Results
Monopole	96.1%	Pass
Anchor Rods	68.0%	Pass
Base Plate	80.9%	Pass
Foundation	71.6%	Pass

RECOMMENDATIONS

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

ANALYSIS METHOD

trnTower (Version 8.1.1.0), a commercially available software program, was used to create a three-dimensional model of the tower and calculate primary member stresses for various load cases. Selected output from the analysis is included in the report appendices. The following table details the information provided to complete this structural analysis. This analysis is based solely on this information.

DOCUMENTS PROVIDED

Document	Remarks	Source
Collocation Application	Verizon Wireless Collocation Application, updated 06/22/21	BST Management, LLC
Construction Drawings	CEN TEK Job #: 21007.30 Rev. 1, dated 5/12/2023	BST Management, LLC
Tower Design	PJF Job #: 29205-0027, dated 4/29/2005	Verizon
Foundation Design	Not Provided	N/A
Geotechnical Report	Not Provided	N/A
Previous Tower Analysis	GPD Job #: 2021704.27, dated 10/1/2021	Verizon
Tower Mapping	Not Provided	N/A

ASSUMPTIONS

This structural analysis is based on the theoretical capacity of the members and is not a condition assessment of the tower. This analysis is from information supplied, and therefore, its results are based on and are as accurate as that supplied data. GPD has made no independent determination, nor is it required to, of its accuracy. The following assumptions were made for this structural analysis.

1. The tower member sizes and shapes are considered accurate as supplied. The material grade is as per data supplied and/or as assumed and as stated in the materials section.
2. The appurtenance configuration is as supplied, determined from available photos, and/or as modeled in the analysis. It is assumed to be complete and accurate. All antennas, mounts, coax and waveguides are assumed to be properly installed and supported as per manufacturer requirements.
3. All mounts, if applicable, are considered adequate to support the loading. No actual analysis of the mount(s) is performed. This analysis is limited to analyzing the tower only.
4. The soil parameters are as per data supplied or as assumed and stated in the calculations.
5. Foundations are properly designed and constructed to resist the original design loads indicated in the documents provided.
6. The tower and structures have been properly maintained in accordance with TIA Standards and/or with manufacturer's specifications.
7. All welds and connections are assumed to develop at least the member capacity unless determined otherwise and explicitly stated in this report.
8. All prior structural modifications, if applicable, are assumed to be as per data supplied/available and to have been properly installed.
9. Loading interpreted from photos is accurate to $\pm 5'$ AGL, antenna size accurate to ± 3.3 sf, and coax equal to the number of existing antennas without reserve.
10. All existing and proposed loading has been taken from the available site photos as well as documents supplied to GPD at the time of generating this report. All such documents are listed in the Documents Provided Table and are assumed to be accurate. GPD is not responsible for loading scenarios outside those conveyed in the supplied documentation.

If any of these assumptions are not valid or have been made in error, this analysis may be affected, and GPD should be allowed to review any new information to determine its effect on the structural integrity of the tower.

DISCLAIMER OF WARRANTIES

GPD has not performed a site visit to the tower to verify the member sizes or antenna/coax loading. If the existing conditions are not as represented on the tower elevation contained in this report, we should be contacted immediately to evaluate the significance of the discrepancy. This is not a condition assessment of the tower or foundation. This report does not replace a full tower inspection. The tower and foundations are assumed to have been properly fabricated, erected, maintained, in good condition, twist free, and plumb.

The engineering services rendered by GPD in connection with this Comprehensive Structural Analysis are limited to a computer analysis of the tower structure and theoretical capacity of its main structural members. No allowance was made for any damaged, bent, missing, loose, or rusted members (above and below ground). No allowance was made for loose bolts or cracked welds.

This analysis is limited to the designated maximum wind and seismic conditions per the governing tower standards and code. Wind forces resulting in tower vibrations near the structure's resonant frequencies were not considered in this analysis and are outside the scope of this analysis. Lateral loading from any dynamic response was not evaluated under a time-domain based fatigue analysis.

GPD does not analyze the fabrication of the structure (including welding). It is not possible to have all the very detailed information needed to perform a thorough analysis of every structural sub-component and connection of an existing tower. GPD provides a limited scope of service in that we cannot verify the adequacy of every weld, plate connection detail, etc. The purpose of this report is to assess the capability of adding appurtenances usually accompanied by transmission lines to the structure.

It is the owner's responsibility to determine the amount of ice accumulation in excess of the code specified amount, if any, that should be considered in the structural analysis.

The attached sketches are a schematic representation of the analyzed tower. If any material is fabricated from these sketches, the contractor shall be responsible for field verifying the existing conditions, proper fit, and clearance in the field. Any mentions of structural modifications are reasonable estimates and should not be used as a precise construction document. Precise modification drawings are obtainable from GPD, but are beyond the scope of this report.

Miscellaneous items such as antenna mounts, etc., have not been designed or detailed as a part of our work. We recommend that material of adequate size and strength be purchased from a reputable tower manufacturer.

Towers are designed to carry gravity, wind, and ice loads. All members, legs, diagonals, struts, and redundant members provide structural stability to the tower with little redundancy. Absence or removal of a member can trigger catastrophic failure unless a substitute is provided before any removal. Legs carry axial loads and derive their strength from shorter unbraced lengths by the presence of redundant members and their connection to the diagonals with bolts or welds. If the bolts or welds are removed without providing any substitute to the frame, the leg is subjected to a higher unbraced length that immediately reduces its load carrying capacity. If a diagonal is also removed in addition to the connection, the unbraced length of the leg is greatly increased, jeopardizing its load carrying capacity. Failure of one leg can result in a tower collapse because there is no redundancy. Redundant members and diagonals are critical to the stability of the tower.

GPD makes no warranties, expressed and/or implied, in connection with this report and disclaims any liability arising from material, fabrication, and erection of this tower. GPD will not be responsible whatsoever for, or on account of, consequential or incidental damages sustained by any person, firm, or organization as a result of any data or conclusions contained in this report. The maximum liability of GPD pursuant to this report will be limited to the total fee received for preparation of this report.

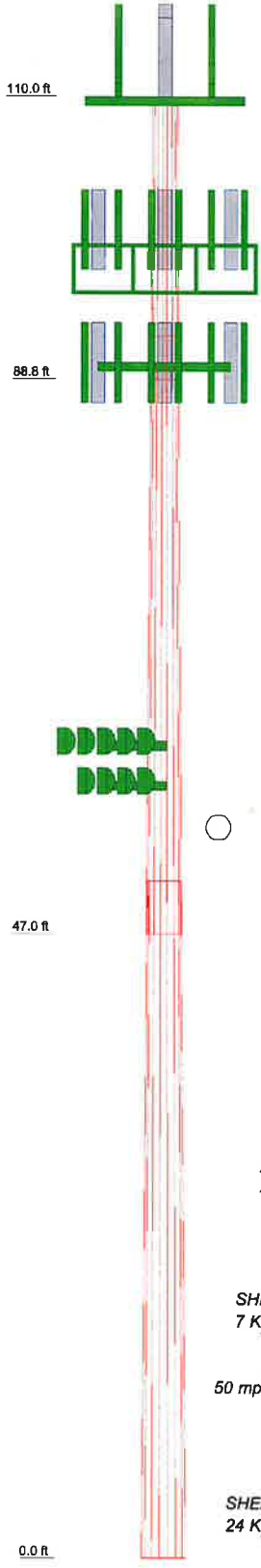
APPENDIX A

Tower Analysis Summary Form

APPENDIX B

Tower Analysis Output File

Section	1	2	3
Length (ft)	21.25	45.00	51.00
Number of Sides	18	18	18
Thickness (in)	0.1875	0.2500	0.3125
Socket Length (ft)	3.25	4.00	30.7655
Top Dia (in)	21.0000	23.8650	39.9300
Bot Dia (in)	24.8250	31.9875	6.0
Grade		A572-65	
Weight (K)	1.0	3.4	6.0



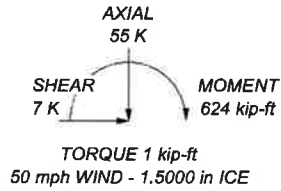
MATERIAL STRENGTH


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

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 118 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: 96.1%

ALL REACTIONS
ARE FACTORED

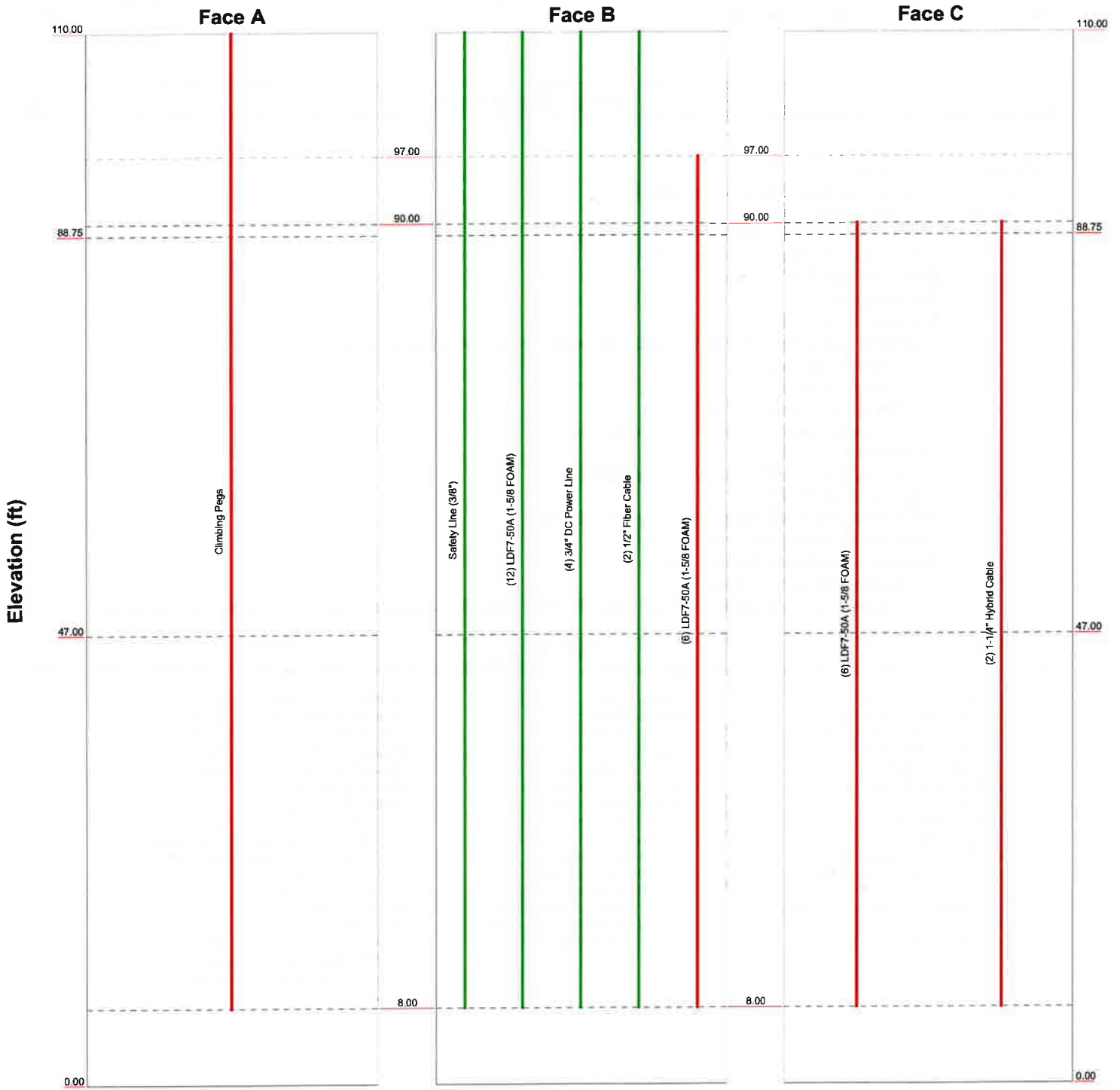


 <p>GPD 520 South Main Street Suite 2531 Akron, Ohio 44311 Phone: (330) 572-2100 FAX: (330) 572-2101</p>	Job: (CT-1341) NEW BRITAIN WILDWOOD STREET
	Project: 2023703.72
	Client: BST Management, LLC Drawn by: pgraf App'd:
	Code: TIA-222-H Date: 05/26/23 Scale: NTS
	Path: Dwg No. E-1

Feed Line Distribution Chart

0' - 110'

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



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	Project: 2023703.72		
	Client: BST Management, LLC	Drawn by: pgraf	App'd:
	Code: TIA-222-H	Date: 05/26/23	Scale: NTS
Path:	Dwg No. E-7		

tnxTower GPD 520 South Main Street Suite 2531 Akron, Ohio 44311 Phone: (330) 572-2100 FAX: (330) 572-2101	Job (CT-1341) NEW BRITAIN WILDWOOD STREET	Page 1 of 11
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	Client BST Management, LLC	Designed by pgraf

Tower Input Data

The tower is a monopole.

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

The following design criteria apply:

Tower is located in Hartford County, Connecticut.

Tower base elevation above sea level: 56.00 ft.

Basic wind speed of 118 mph.

Risk Category II.

Exposure Category C.

Simplified Topographic Factor Procedure for wind speed-up calculations is used.

Topographic Category: 1.

Crest Height: 0.00 ft.

Nominal ice thickness of 1.5000 in.

Ice thickness is considered to increase with height.

Ice density of 56 pcf.

A wind speed of 50 mph is used in combination with ice.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 60 mph.

A non-linear (P-delta) analysis was used.

Pressures are calculated at each section.

Stress ratio used in pole design is 1.

Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

<ul style="list-style-type: none"> Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification √ Use Code Stress Ratios √ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile Include Bolts In Member Capacity Leg Bolts Are At Top Of Section Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) SR Members Have Cut Ends SR Members Are Concentric 	<ul style="list-style-type: none"> Distribute Leg Loads As Uniform Assume Legs Pinned √ Assume Rigid Index Plate √ Use Clear Spans For Wind Area Use Clear Spans For KL/r Retension Guys To Initial Tension √ Bypass Mast Stability Checks √ Use Azimuth Dish Coefficients √ Project Wind Area of Appurt. Autocalc Torque Arm Areas Add IBC .6D+W Combination √ Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Treat Feed Line Bundles As Cylinder Ignore KL/ry For 60 Deg. Angle Legs 	<ul style="list-style-type: none"> Use ASCE 10 X-Brace Ly Rules Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation √ Consider Feed Line Torque Include Angle Block Shear Check Use TIA-222-H Bracing Resist. Exemption Use TIA-222-H Tension Splice Exemption <li style="text-align: center;">Poles √ Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets Pole Without Linear Attachments Pole With Shroud Or No Appurtenances Outside and Inside Corner Radii Are Known
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Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	110.00-88.75	21.25	3.25	18	21.0000	24.8250	0.1875	0.7500	A572-65 (65 ksi)
L2	88.75-47.00	45.00	4.00	18	23.8650	31.9875	0.2500	1.0000	A572-65 (65 ksi)
L3	47.00-0.00	51.00		18	30.7655	39.9300	0.3125	1.2500	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in ²	J in ⁴	r in	C in	I/C in ³	J in ⁴	I/Q in ²	w in	w/t
L1	21.2950	12.3860	677.8263	7.3884	10.6680	63.5383	1356.5444	6.1942	3.3660	17.952
	25.1790	14.6624	1124.4381	8.7463	12.6111	89.1626	2250.3558	7.3326	4.0392	21.542
L2	24.7903	18.7385	1320.2258	8.3833	12.1234	108.8988	2642.1889	9.3710	3.7602	15.041
	32.4424	25.1837	3204.8117	11.2668	16.2496	197.2234	6413.8405	12.5942	5.1898	20.759
L3	31.9218	30.2056	3539.0332	10.8108	15.6289	226.4420	7082.7232	15.1057	4.8647	15.567
	40.4978	39.2956	7792.1193	14.0642	20.2844	384.1427	15594.4917	19.6515	6.4777	20.729

Tower Elevation ft	Gusset Area (per face) ft ²	Gusset Thickness in	Gusset Grade	Adjust. Factor A _f	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 110.00-88.75				1	1	1			
L2 88.75-47.00				1	1	1			
L3 47.00-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
Climbing Pegs	A	No	Surface Ar (CaAa)	110.00 - 8.00	1	1	0.000 0.000	0.1500		0.31
LDF7-50A (1-5/8 FOAM)	B	No	Surface Ar (CaAa)	97.00 - 8.00	6	6	-0.100 0.400	1.9800		0.82
LDF7-50A (1-5/8 FOAM)	C	No	Surface Ar (CaAa)	90.00 - 8.00	6	6	-0.250 0.250	1.9800		0.82
1-1/4" Hybrid Cable	C	No	Surface Ar (CaAa)	90.00 - 8.00	2	2	0.000 0.000	1.2500		1.00

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Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	C _{AA}		Weight plf
							ft ² /ft	plf	
Safety Line (3/8")	B	No	No	CaAa (Out Of Face)	110.00 - 8.00	1	No Ice	0.04	0.22
							1/2" Ice	0.14	0.75
							1" Ice	0.24	1.28
							2" Ice	0.44	2.34
LDF7-50A (1-5/8 FOAM)	B	No	No	Inside Pole	110.00 - 8.00	12	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
							2" Ice	0.00	0.82
3/4" DC Power Line	B	No	No	Inside Pole	110.00 - 8.00	4	No Ice	0.00	0.33
							1/2" Ice	0.00	0.33
							1" Ice	0.00	0.33
							2" Ice	0.00	0.33
1/2" Fiber Cable	B	No	No	Inside Pole	110.00 - 8.00	2	No Ice	0.00	0.15
							1/2" Ice	0.00	0.15
							1" Ice	0.00	0.15
							2" Ice	0.00	0.15

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment °	Placement ft	C _{AA}		Weight K	
			Horz Lateral ft	Vert ft			C _{AA} Front ft ²	C _{AA} Side ft ²		
Platform w/ Handrails & Kickers [LP 1201-1_KCKR-HR-1]	C	None			0.0000	110.00	No Ice	37.61	37.61	2.63
							1/2" Ice	45.62	45.62	3.48
							1" Ice	53.59	53.59	4.46
							2" Ice	69.65	69.65	6.85
Pipe Mount 6'x2.375"	A	From Centroid-Le g	4.00	0.00	0.0000	110.00	No Ice	1.43	1.43	0.03
							1/2" Ice	1.92	1.92	0.04
							1" Ice	2.29	2.29	0.05
							2" Ice	3.06	3.06	0.09
Pipe Mount 6'x2.375"	B	From Centroid-Le g	4.00	0.00	0.0000	110.00	No Ice	1.43	1.43	0.03
							1/2" Ice	1.92	1.92	0.04
							1" Ice	2.29	2.29	0.05
							2" Ice	3.06	3.06	0.09
Pipe Mount 6'x2.375"	C	From Centroid-Le g	4.00	0.00	0.0000	110.00	No Ice	1.43	1.43	0.03
							1/2" Ice	1.92	1.92	0.04
							1" Ice	2.29	2.29	0.05
							2" Ice	3.06	3.06	0.09
7770.00 w/Mount Pipe	A	From Centroid-Le g	4.00	0.00	0.0000	110.00	No Ice	5.51	4.10	0.06
							1/2" Ice	5.87	4.73	0.11
							1" Ice	6.23	5.37	0.16
							2" Ice	6.99	6.70	0.29
7770.00 w/Mount Pipe	B	From Centroid-Le g	4.00	0.00	0.0000	110.00	No Ice	5.51	4.10	0.06
							1/2" Ice	5.87	4.73	0.11
							1" Ice	6.23	5.37	0.16
							2" Ice	6.99	6.70	0.29
7770.00 w/Mount Pipe	C	From Centroid-Le g	4.00	0.00	0.0000	110.00	No Ice	5.51	4.10	0.06
							1/2" Ice	5.87	4.73	0.11
							1" Ice	6.23	5.37	0.16
							2" Ice	6.99	6.70	0.29

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Vert					
			Lateral	ft	°	ft	ft ²	ft ²	K
AM-X-CD-16-65-00T-RET w/ Mount Pipe	A	From Centroid-Le g	4.00 0.00 3.00	0.0000	110.00	No Ice	8.31	6.65	0.09
						1/2" Ice	8.85	7.68	0.16
						1" Ice	9.37	8.56	0.23
						2" Ice	10.45	10.38	0.41
AM-X-CD-16-65-00T-RET w/ Mount Pipe	B	From Centroid-Le g	4.00 0.00 3.00	0.0000	110.00	No Ice	8.31	6.65	0.09
						1/2" Ice	8.85	7.68	0.16
						1" Ice	9.37	8.56	0.23
						2" Ice	10.45	10.38	0.41
AM-X-CD-16-65-00T-RET w/ Mount Pipe	C	From Centroid-Le g	4.00 0.00 3.00	0.0000	110.00	No Ice	8.31	6.65	0.09
						1/2" Ice	8.85	7.68	0.16
						1" Ice	9.37	8.56	0.23
						2" Ice	10.45	10.38	0.41
800 10798 w/ Mount Pipe	A	From Centroid-Le g	4.00 0.00 4.00	0.0000	110.00	No Ice	10.69	5.69	0.08
						1/2" Ice	11.19	6.18	0.14
						1" Ice	11.71	6.67	0.21
						2" Ice	12.75	7.68	0.37
800 10798 w/ Mount Pipe	B	From Centroid-Le g	4.00 0.00 4.00	0.0000	110.00	No Ice	10.69	5.69	0.08
						1/2" Ice	11.19	6.18	0.14
						1" Ice	11.71	6.67	0.21
						2" Ice	12.75	7.68	0.37
800 10798 w/ Mount Pipe	C	From Centroid-Le g	4.00 0.00 4.00	0.0000	110.00	No Ice	10.69	5.69	0.08
						1/2" Ice	11.19	6.18	0.14
						1" Ice	11.71	6.67	0.21
						2" Ice	12.75	7.68	0.37
(2) LGP21401	A	From Centroid-Le g	4.00 0.00 3.00	0.0000	110.00	No Ice	1.10	0.21	0.01
						1/2" Ice	1.24	0.27	0.02
						1" Ice	1.38	0.35	0.03
						2" Ice	1.69	0.52	0.05
(2) LGP21401	B	From Centroid-Le g	4.00 0.00 3.00	0.0000	110.00	No Ice	1.10	0.21	0.01
						1/2" Ice	1.24	0.27	0.02
						1" Ice	1.38	0.35	0.03
						2" Ice	1.69	0.52	0.05
(2) LGP21401	C	From Centroid-Le g	4.00 0.00 3.00	0.0000	110.00	No Ice	1.10	0.21	0.01
						1/2" Ice	1.24	0.27	0.02
						1" Ice	1.38	0.35	0.03
						2" Ice	1.69	0.52	0.05
(2) DBC0061F1V51-2	A	From Centroid-Le g	4.00 0.00 3.00	0.0000	110.00	No Ice	0.43	0.41	0.03
						1/2" Ice	0.51	0.50	0.03
						1" Ice	0.61	0.59	0.04
						2" Ice	0.81	0.79	0.06
(2) DBC0061F1V51-2	B	From Centroid-Le g	4.00 0.00 3.00	0.0000	110.00	No Ice	0.43	0.41	0.03
						1/2" Ice	0.51	0.50	0.03
						1" Ice	0.61	0.59	0.04
						2" Ice	0.81	0.79	0.06
(2) DBC0061F1V51-2	C	From Centroid-Le g	4.00 0.00 3.00	0.0000	110.00	No Ice	0.43	0.41	0.03
						1/2" Ice	0.51	0.50	0.03
						1" Ice	0.61	0.59	0.04
						2" Ice	0.81	0.79	0.06
RRUS 11 B12	A	From Centroid-Le g	4.00 0.00 3.00	0.0000	110.00	No Ice	2.83	1.18	0.05
						1/2" Ice	3.04	1.33	0.07
						1" Ice	3.26	1.48	0.10
						2" Ice	3.71	1.83	0.15
RRUS 11 B12	B	From Centroid-Le g	4.00 0.00 3.00	0.0000	110.00	No Ice	2.83	1.18	0.05
						1/2" Ice	3.04	1.33	0.07
						1" Ice	3.26	1.48	0.10
						2" Ice	3.71	1.83	0.15
RRUS 11 B12	C	From	4.00	0.0000	110.00	No Ice	2.83	1.18	0.05

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
RRUS 12 B2	A	Centroid-Le	0.00	0.0000	110.00	1/2" Ice	1.33	0.07
		g	3.00			1" Ice	1.48	0.10
		From	4.00			2" Ice	1.83	0.15
		Centroid-Le	0.00			No Ice	1.28	0.05
		g	3.00			1/2" Ice	1.43	0.07
			3.00			1" Ice	1.60	0.10
RRUS 12 B2	B	From	4.00	0.0000	110.00	2" Ice	1.95	0.16
		Centroid-Le	0.00			No Ice	1.28	0.05
		g	3.00			1/2" Ice	1.43	0.07
			3.00			1" Ice	1.60	0.10
			3.00			2" Ice	1.95	0.16
			3.00			No Ice	1.28	0.05
RRUS 12 B2	C	From	4.00	0.0000	110.00	No Ice	1.28	0.05
		Centroid-Le	0.00			1/2" Ice	1.43	0.07
		g	3.00			1" Ice	1.60	0.10
			3.00			2" Ice	1.95	0.16
			3.00			No Ice	1.28	0.05
			3.00			1/2" Ice	1.43	0.07
RRUS 4478 B5	A	From	4.00	0.0000	110.00	No Ice	1.06	0.06
		Centroid-Le	0.00			1/2" Ice	1.20	0.08
		g	3.00			1" Ice	1.34	0.09
			3.00			2" Ice	1.66	0.14
			3.00			No Ice	1.06	0.06
			3.00			1/2" Ice	1.20	0.08
RRUS 4478 B5	B	From	4.00	0.0000	110.00	No Ice	1.06	0.06
		Centroid-Le	0.00			1/2" Ice	1.20	0.08
		g	3.00			1" Ice	1.34	0.09
			3.00			2" Ice	1.66	0.14
			3.00			No Ice	1.06	0.06
			3.00			1/2" Ice	1.20	0.08
RRUS 4478 B5	C	From	4.00	0.0000	110.00	No Ice	1.06	0.06
		Centroid-Le	0.00			1/2" Ice	1.20	0.08
		g	3.00			1" Ice	1.34	0.09
			3.00			2" Ice	1.66	0.14
			3.00			No Ice	1.06	0.06
			3.00			1/2" Ice	1.20	0.08
RRUS 4426 B66	A	From	4.00	0.0000	110.00	No Ice	0.73	0.05
		Centroid-Le	0.00			1/2" Ice	0.84	0.06
		g	3.00			1" Ice	0.97	0.08
			3.00			2" Ice	1.24	0.11
			3.00			No Ice	0.73	0.05
			3.00			1/2" Ice	0.84	0.06
RRUS 4426 B66	B	From	4.00	0.0000	110.00	No Ice	0.73	0.05
		Centroid-Le	0.00			1/2" Ice	0.84	0.06
		g	3.00			1" Ice	0.97	0.08
			3.00			2" Ice	1.24	0.11
			3.00			No Ice	0.73	0.05
			3.00			1/2" Ice	0.84	0.06
RRUS 4426 B66	C	From	4.00	0.0000	110.00	No Ice	0.73	0.05
		Centroid-Le	0.00			1/2" Ice	0.84	0.06
		g	3.00			1" Ice	0.97	0.08
			3.00			2" Ice	1.24	0.11
			3.00			No Ice	0.73	0.05
			3.00			1/2" Ice	0.84	0.06
RRUS 32 B30	A	From	4.00	0.0000	110.00	No Ice	1.57	0.06
		Centroid-Le	0.00			1/2" Ice	1.76	0.08
		g	3.00			1" Ice	1.95	0.10
			3.00			2" Ice	2.35	0.16
			3.00			No Ice	1.57	0.06
			3.00			1/2" Ice	1.76	0.08
RRUS 32 B30	B	From	4.00	0.0000	110.00	No Ice	1.57	0.06
		Centroid-Le	0.00			1/2" Ice	1.76	0.08
		g	3.00			1" Ice	1.95	0.10
			3.00			2" Ice	2.35	0.16
			3.00			No Ice	1.57	0.06
			3.00			1/2" Ice	1.76	0.08
RRUS 32 B30	C	From	4.00	0.0000	110.00	No Ice	1.57	0.06
		Centroid-Le	0.00			1/2" Ice	1.76	0.08
		g	3.00			1" Ice	1.95	0.10
			3.00			2" Ice	2.35	0.16
			3.00			No Ice	1.57	0.06
			3.00			1/2" Ice	1.76	0.08
DC6-48-60-18-8F Surge Suppression Unit	C	From Leg	0.50	0.0000	110.00	No Ice	0.92	0.02
			0.00			1/2" Ice	1.46	0.04
			0.00			1" Ice	1.64	0.06
			0.00			2" Ice	2.04	0.11
DC6-48-60-18-8C Surge Suppression Unit	B	From Leg	0.50	0.0000	110.00	No Ice	1.14	0.03
			0.00			1/2" Ice	1.79	0.05

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _A A _{Front}	C _A A _{Side}	Weight
			Horz	Lateral					
			ft	ft	°	ft	ft ²	ft ²	K
			0.00				1" Ice 2.00	2.00	0.07
							2" Ice 2.45	2.45	0.13
Platform w/ Handrails [LP 304-1_HR-1]	C	None			0.0000	97.00	No Ice 21.41	21.41	1.60
							1/2" Ice 26.62	26.62	2.06
							1" Ice 31.66	31.66	2.60
							2" Ice 41.38	41.38	3.96
1412D-1S20	A	From Centroid-Le g	4.00 0.00 3.00		0.0000	97.00	No Ice 1.00	0.41	0.01
							1/2" Ice 1.13	0.50	0.02
							1" Ice 1.26	0.59	0.03
							2" Ice 1.55	0.81	0.06
1412D-1S20	B	From Centroid-Le g	4.00 0.00 3.00		0.0000	97.00	No Ice 1.00	0.41	0.01
							1/2" Ice 1.13	0.50	0.02
							1" Ice 1.26	0.59	0.03
							2" Ice 1.55	0.81	0.06
1412D-1S20	C	From Centroid-Le g	4.00 0.00 3.00		0.0000	97.00	No Ice 1.00	0.41	0.01
							1/2" Ice 1.13	0.50	0.02
							1" Ice 1.26	0.59	0.03
							2" Ice 1.55	0.81	0.06
AIR32 B66Aa/B2A w/ 60" Mount Pipe	A	From Centroid-Le g	4.00 0.00 3.00		0.0000	97.00	No Ice 6.58	5.90	0.15
							1/2" Ice 6.97	6.56	0.21
							1" Ice 7.37	7.24	0.28
							2" Ice 8.20	8.64	0.43
AIR32 B66Aa/B2A w/ 60" Mount Pipe	B	From Centroid-Le g	4.00 0.00 3.00		0.0000	97.00	No Ice 6.58	5.90	0.15
							1/2" Ice 6.97	6.56	0.21
							1" Ice 7.37	7.24	0.28
							2" Ice 8.20	8.64	0.43
AIR32 B66Aa/B2A w/ 60" Mount Pipe	C	From Centroid-Le g	4.00 0.00 3.00		0.0000	97.00	No Ice 6.58	5.90	0.15
							1/2" Ice 6.97	6.56	0.21
							1" Ice 7.37	7.24	0.28
							2" Ice 8.20	8.64	0.43
APXVARR24 43 C-NA20 w/ Mount Pipe	A	From Centroid-Le g	4.00 0.00 3.00		0.0000	97.00	No Ice 17.15	10.64	0.12
							1/2" Ice 17.77	12.07	0.24
							1" Ice 18.40	13.35	0.37
							2" Ice 19.69	15.58	0.66
APXVARR24 43 C-NA20 w/ Mount Pipe	B	From Centroid-Le g	4.00 0.00 3.00		0.0000	97.00	No Ice 17.15	10.64	0.12
							1/2" Ice 17.77	12.07	0.24
							1" Ice 18.40	13.35	0.37
							2" Ice 19.69	15.58	0.66
APXVARR24 43 C-NA20 w/ Mount Pipe	C	From Centroid-Le g	4.00 0.00 3.00		0.0000	97.00	No Ice 17.15	10.64	0.12
							1/2" Ice 17.77	12.07	0.24
							1" Ice 18.40	13.35	0.37
							2" Ice 19.69	15.58	0.66
RRUS 4449-B12+71	A	From Centroid-Le g	4.00 0.00 3.00		0.0000	97.00	No Ice 1.65	1.16	0.07
							1/2" Ice 1.81	1.30	0.09
							1" Ice 1.98	1.45	0.10
							2" Ice 2.34	1.76	0.15
RRUS 4449-B12+71	B	From Centroid-Le g	4.00 0.00 3.00		0.0000	97.00	No Ice 1.65	1.16	0.07
							1/2" Ice 1.81	1.30	0.09
							1" Ice 1.98	1.45	0.10
							2" Ice 2.34	1.76	0.15
RRUS 4449-B12+71	C	From Centroid-Le g	4.00 0.00 3.00		0.0000	97.00	No Ice 1.65	1.16	0.07
							1/2" Ice 1.81	1.30	0.09
							1" Ice 1.98	1.45	0.10
							2" Ice 2.34	1.76	0.15
T-Arm Mount [TA 601-3]	A	None			0.0000	90.00	No Ice 12.56	12.56	0.73
							1/2" Ice 15.36	15.36	0.94
							1" Ice 18.04	18.04	1.21

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K	
BSAMNT-SBS-1-2	A	From Leg	3.00	0.0000	90.00	2" Ice	23.69	23.69	1.92
			0.00			No Ice	0.11	0.00	0.01
			0.00			1/2" Ice	0.15	0.03	0.02
			0.00			1" Ice	0.21	0.08	0.02
BSAMNT-SBS-1-2	B	From Leg	3.00	0.0000	90.00	2" Ice	0.35	0.19	0.02
			0.00			No Ice	0.11	0.00	0.01
			0.00			1/2" Ice	0.15	0.03	0.02
			0.00			1" Ice	0.21	0.08	0.02
BSAMNT-SBS-1-2	C	From Leg	3.00	0.0000	90.00	2" Ice	0.35	0.19	0.02
			0.00			No Ice	0.11	0.00	0.01
			0.00			1/2" Ice	0.15	0.03	0.02
			0.00			1" Ice	0.21	0.08	0.02
BXA-80063 w/ Mount Pipe	A	From Leg	3.00	0.0000	90.00	2" Ice	0.35	0.19	0.02
			0.00			No Ice	3.58	3.66	0.03
			0.00			1/2" Ice	3.88	4.21	0.06
			0.00			1" Ice	4.20	4.77	0.10
BXA-80063 w/ Mount Pipe	B	From Leg	3.00	0.0000	90.00	2" Ice	4.84	5.93	0.20
			0.00			No Ice	3.58	3.66	0.03
			0.00			1/2" Ice	3.88	4.21	0.06
			0.00			1" Ice	4.20	4.77	0.10
BXA-80063 w/ Mount Pipe	C	From Leg	3.00	0.0000	90.00	2" Ice	4.84	5.93	0.20
			0.00			No Ice	3.58	3.66	0.03
			0.00			1/2" Ice	3.88	4.21	0.06
			0.00			1" Ice	4.20	4.77	0.10
(2) NHH-65B-R2B w/ Mount Pipe	A	From Leg	3.00	0.0000	90.00	2" Ice	4.84	5.93	0.20
			0.00			No Ice	8.32	7.00	0.07
			0.00			1/2" Ice	8.88	8.19	0.14
			0.00			1" Ice	9.40	9.08	0.21
(2) NHH-65B-R2B w/ Mount Pipe	B	From Leg	3.00	0.0000	90.00	2" Ice	10.47	10.90	0.39
			0.00			No Ice	8.32	7.00	0.07
			0.00			1/2" Ice	8.88	8.19	0.14
			0.00			1" Ice	9.40	9.08	0.21
(2) NHH-65B-R2B w/ Mount Pipe	C	From Leg	3.00	0.0000	90.00	2" Ice	10.47	10.90	0.39
			0.00			No Ice	8.32	7.00	0.07
			0.00			1/2" Ice	8.88	8.19	0.14
			0.00			1" Ice	9.40	9.08	0.21
MT6407-77A w/ Mount Pipe	A	From Leg	3.00	0.0000	90.00	2" Ice	10.47	10.90	0.39
			0.00			No Ice	4.91	2.68	0.10
			0.00			1/2" Ice	5.26	3.14	0.14
			0.00			1" Ice	5.61	3.62	0.18
MT6407-77A w/ Mount Pipe	B	From Leg	3.00	0.0000	90.00	2" Ice	6.36	4.63	0.29
			0.00			No Ice	4.91	2.68	0.10
			0.00			1/2" Ice	5.26	3.14	0.14
			0.00			1" Ice	5.61	3.62	0.18
MT6407-77A w/ Mount Pipe	C	From Leg	3.00	0.0000	90.00	2" Ice	6.36	4.63	0.29
			0.00			No Ice	4.91	2.68	0.10
			0.00			1/2" Ice	5.26	3.14	0.14
			0.00			1" Ice	5.61	3.62	0.18
RF4440D-13A	A	From Leg	3.00	0.0000	90.00	2" Ice	6.36	4.63	0.29
			0.00			No Ice	1.87	1.13	0.07
			0.00			1/2" Ice	2.03	1.27	0.09
			0.00			1" Ice	2.21	1.41	0.11
RF4440D-13A	B	From Leg	3.00	0.0000	90.00	2" Ice	2.59	1.72	0.16
			0.00			No Ice	1.87	1.13	0.07
			0.00			1/2" Ice	2.03	1.27	0.09
			0.00			1" Ice	2.21	1.41	0.11
						2" Ice	2.59	1.72	0.16

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
RF4440D-13A	C	From Leg	3.00 0.00 0.00	0.0000	90.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.87 2.03 2.21 2.59	1.13 1.27 1.41 1.72	0.07 0.09 0.11 0.16
RF4439D-25A	A	From Leg	3.00 0.00 0.00	0.0000	90.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.87 2.03 2.21 2.59	1.25 1.39 1.54 1.87	0.07 0.09 0.11 0.17
RF4439D-25A	B	From Leg	3.00 0.00 0.00	0.0000	90.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.87 2.03 2.21 2.59	1.25 1.39 1.54 1.87	0.07 0.09 0.11 0.17
RF4439D-25A	C	From Leg	3.00 0.00 0.00	0.0000	90.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.87 2.03 2.21 2.59	1.25 1.39 1.54 1.87	0.07 0.09 0.11 0.17
DB-B1-6C-12AB-0Z	A	From Leg	1.50 0.00 0.00	0.0000	90.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.64 1.81 1.98 2.35	2.51 2.71 2.92 3.35	0.03 0.05 0.08 0.14
12' T-Arm - Round (GPD)	C	From Leg	1.50 0.00 1.50	0.0000	60.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.70 5.33 6.00 6.67	2.33 2.96 3.60 4.87	0.33 0.40 0.47 0.53
10' T-Arm - Round (GPD)	C	From Leg	1.50 0.00 -1.50	0.0000	60.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.90 4.30 4.70 5.50	2.33 2.96 3.60 4.87	0.25 0.30 0.35 0.45

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft	Aperture Area ft ²	Weight K	
Stadium Light (2')	C	Paraboloid w/Shroud (HP)	From Leg	3.00 -6.00 1.50	0.0000		60.00	2.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.14 3.41 3.68 4.21	0.08 0.02 0.00 0.00
Stadium Light (2')	C	Paraboloid w/Shroud (HP)	From Leg	3.00 -3.00 1.50	0.0000		60.00	2.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.14 3.41 3.68 4.21	0.08 0.02 0.00 0.00
Stadium Light (2')	C	Paraboloid w/Shroud (HP)	From Leg	3.00 0.00 1.50	0.0000		60.00	2.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.14 3.41 3.68 4.21	0.08 0.02 0.00 0.00
Stadium Light (2')	C	Paraboloid w/Shroud (HP)	From Leg	3.00 3.00 1.50	0.0000		60.00	2.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.14 3.41 3.68 4.21	0.08 0.02 0.00 0.00
Stadium Light (2')	C	Paraboloid w/Shroud (HP)	From Leg	3.00 6.00	0.0000		60.00	2.00	No Ice 1/2" Ice	3.14 3.41	0.08 0.02

tnxTower

GPD
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Client
 BST Management, LLC

Designed by
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Description	Face or Leg	Dish Type	Offset Type	Offsets:		Azimuth Adjustment	3 dB Beam Width	Elevation ft	Outside Diameter ft	Aperture Area ft ²	Weight K
				Horz Lateral ft	Vert ft						
Stadium Light (2')	C	Paraboloid w/Shroud (HP)	From Leg	3.00	0.0000	60.00	2.00	1" Ice	3.68	0.00	
								2" Ice	4.21	0.00	
								No Ice	3.14	0.08	
								1/2" Ice	3.41	0.02	
								1" Ice	3.68	0.00	
Stadium Light (2')	C	Paraboloid w/Shroud (HP)	From Leg	3.00	0.0000	60.00	2.00	2" Ice	4.21	0.00	
								No Ice	3.14	0.08	
								1/2" Ice	3.41	0.02	
								1" Ice	3.68	0.00	
								2" Ice	4.21	0.00	
Stadium Light (2')	C	Paraboloid w/Shroud (HP)	From Leg	3.00	0.0000	60.00	2.00	No Ice	3.14	0.08	
								1/2" Ice	3.41	0.02	
								1" Ice	3.68	0.00	
								2" Ice	4.21	0.00	
								2" Ice	4.21	0.00	
Stadium Light (2')	C	Paraboloid w/Shroud (HP)	From Leg	3.00	0.0000	60.00	2.00	No Ice	3.14	0.08	
								1/2" Ice	3.41	0.02	
								1" Ice	3.68	0.00	
								2" Ice	4.21	0.00	
								2" Ice	4.21	0.00	

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	110 - 88.75	21.612	47	1.6474	0.0040
L2	92 - 47	15.571	47	1.5286	0.0040
L3	51 - 0	4.854	47	0.8796	0.0029

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
110.00	Platform w/ Handrails & Kickers [LP 1201-1_KCKR-HR-1]	47	21.612	1.6474	0.0042	20714
97.00	Platform w/ Handrails [LP 304-1_HR-1]	47	17.211	1.5708	0.0042	7966
90.00	T-Arm Mount [TA 601-3]	47	14.929	1.5086	0.0041	5432
61.50	Stadium Light (2')	47	6.999	1.0729	0.0035	2847
60.00	12' T-Arm - Round (GPD)	47	6.662	1.0455	0.0034	2776
58.50	Stadium Light (2')	47	6.335	1.0179	0.0034	2709

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	110 - 88.75	93.178	8	7.1238	0.0177
L2	92 - 47	67.130	8	6.6074	0.0174
L3	51 - 0	20.973	8	3.7934	0.0126

inxTower GPD 520 South Main Street Suite 2531 Akron, Ohio 44311 Phone: (330) 572-2100 FAX: (330) 572-2101	Job (CT-1341) NEW BRITAIN WILDWOOD STREET	Page 10 of 11
	Project 2023703.72	Date 13:18:47 05/26/23
	Client BST Management, LLC	Designed by pgraf

Critical Deflections and Radius of Curvature - Design Wind

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
110.00	Platform w/ Handrails & Kickers [LP 1201-1_KCKR-HR-1]	8	93.178	7.1238	0.0185	4915
97.00	Platform w/ Handrails [LP 304-1_HR-1]	8	74.199	6.7906	0.0184	1888
90.00	T-Arm Mount [TA 601-3]	8	64.361	6.5202	0.0181	1283
61.50	Stadium Light (2')	8	30.211	4.6294	0.0151	667
60.00	12' T-Arm - Round (GPD)	8	28.761	4.5106	0.0148	650
58.50	Stadium Light (2')	8	27.352	4.3913	0.0146	634

Compression Checks

Pole Design Data

Section No.	Elevation	Size	L	L _u	Kl/r	A	P _u	φP _n	Ratio P _u / φP _n
	ft		ft	ft		in ²	K	K	
L1	110 - 88.75 (1)	TP24.825x21x0.1875	21.25	0.00	0.0	14.3142	-8.51	837.38	0.010
L2	88.75 - 47 (2)	TP31.9875x23.865x0.25	45.00	0.00	0.0	24.6108	-17.46	1439.73	0.012
L3	47 - 0 (3)	TP39.93x30.7655x0.3125	51.00	0.00	0.0	39.2956	-27.66	2298.79	0.012

Pole Bending Design Data

Section No.	Elevation	Size	M _{ux}	φM _{ux}	Ratio M _{ux} / φM _{ux}	M _{uy}	φM _{uy}	Ratio M _{uy} / φM _{uy}
	ft		kip-ft	kip-ft		kip-ft	kip-ft	
L1	110 - 88.75 (1)	TP24.825x21x0.1875	186.23	482.21	0.386	0.00	482.21	0.000
L2	88.75 - 47 (2)	TP31.9875x23.865x0.25	926.55	1081.13	0.857	0.00	1081.13	0.000
L3	47 - 0 (3)	TP39.93x30.7655x0.3125	2073.78	2189.18	0.947	0.00	2189.18	0.000

Pole Shear Design Data

Section No.	Elevation	Size	Actual V _u	φV _n	Ratio V _u / φV _n	Actual T _u	φT _n	Ratio T _u / φT _n
	ft		K	K		kip-ft	kip-ft	
L1	110 - 88.75 (1)	TP24.825x21x0.1875	12.47	251.22	0.050	0.10	529.16	0.000
L2	88.75 - 47 (2)	TP31.9875x23.865x0.25	20.84	431.92	0.048	0.74	1173.18	0.001
L3	47 - 0 (3)	TP39.93x30.7655x0.3125	23.88	689.64	0.035	2.23	2392.70	0.001

tnxTower GPD 520 South Main Street Suite 2531 Akron, Ohio 44311 Phone: (330) 572-2100 FAX: (330) 572-2101	Job (CT-1341) NEW BRITAIN WILDWOOD STREET	Page 11 of 11
	Project 2023703.72	Date 13:18:47 05/26/23
	Client BST Management, LLC	Designed by pgraf

Pole Interaction Design Data

Section No.	Elevation ft	Ratio P_u ϕP_n	Ratio M_{ux} ϕM_{nx}	Ratio M_{uy} ϕM_{ny}	Ratio V_u ϕV_n	Ratio T_u ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	110 - 88.75 (1)	0.010	0.386	0.000	0.050	0.000	0.399	1.000	4.8.2
L2	88.75 - 47 (2)	0.012	0.857	0.000	0.048	0.001	0.872	1.000	4.8.2
L3	47 - 0 (3)	0.012	0.947	0.000	0.035	0.001	0.961	1.000	4.8.2

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	110 - 88.75	Pole	TP24.825x21x0.1875	1	-8.51	837.38	39.9	Pass
L2	88.75 - 47	Pole	TP31.9875x23.865x0.25	2	-17.46	1439.73	87.2	Pass
L3	47 - 0	Pole	TP39.93x30.7655x0.3125	3	-27.66	2298.79	96.1	Pass
Summary							ELC:	Existing + Proposed
Pole (L3) Rating =							96.1 96.1	Pass Pass

APPENDIX C

Additional Calculations



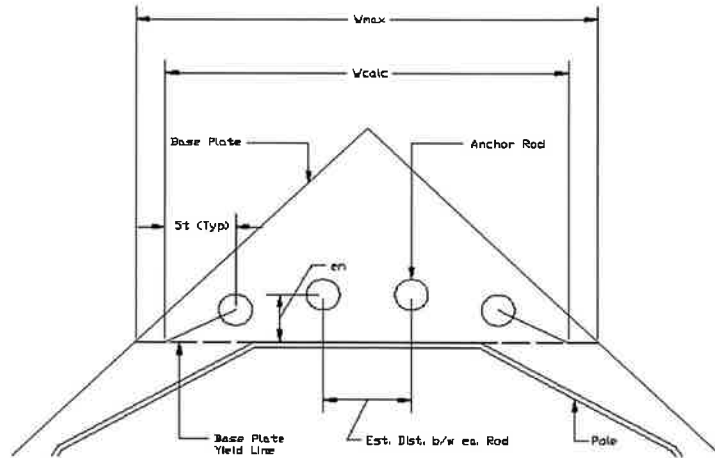
**Anchor Rod and Base Plate Stresses, TIA-222-H-1
CT-1341 / New Britain Wildwood Street
2023703.72**

Overturing Moment =	2074.00	k*ft
Axial Force =	28.00	k
Shear Force =	24.00	k

Maximum Capacity	100%
Apply TIA-222-H Section 15.5?	No

Anchor Rods		
Pole Diameter =	39.93	in
Number of Rods =	12	
Rod Yield Strength, F_y =	75	ksi
Rod Ultimate Strength, F_u =	100	ksi
Rod Circle =	46	in
Rod Diameter =	2.25	in
Rod Projection, l_{ar} =	2.25	in
Is grout present?	No	
Max Tension on Rod, P_{ut} =	177.80	k
Max Compression on Rod, P_{uc} =	182.47	k
Shear on Rod, V_u =	2.00	k
Moment on Rod, M_u =	0.00	k-in
Tension Interaction =	53.2%	OK
Compression Interaction =	68.0%	OK

Base Plate		
Plate Yield Strength, F_y =	50	ksi
ϕ =	0.9	
Plate Thickness =	2.5	in
Plate Width =	45	in
Est. Dist. b/w ea. Rod =	6	in
W_{calc} =	36.90	in
W_{max} =	23.71	in
w =	23.71	in
Z =	37.05	in ³
M_u =	1348.14	k-in
ϕM_n =	1667.08	k-in
Base Plate Capacity =	80.9%	OK



Pier and Pad Foundation

Site # : CT-1341
 Site Name: New Britain Wildwc

TIA-222 Revision: H
 Tower Type: Monopole

Top & Bot. Pad Rein. Different?:
 Block Foundation?:
 Rectangular Pad?:

Superstructure Analysis Reactions		
Compression, P_{comp} :	28	kips
Base Shear, $V_{u,comp}$:	24	kips
Moment, M_u :	2074	ft-kips
Tower Height, H :	110	ft
BP Dist. Above Fdn, bp_{dist} :	3	in

Foundation Analysis Checks				
	Capacity	Demand	Rating	Check
Lateral (Sliding) (kips)	96.29	24.00	24.9%	Pass
Bearing Pressure (ksf)	4.95	2.26	45.6%	Pass
Overturing (kip*ft)	3124.12	2236.00	71.6%	Pass
Pier Flexure (Comp.) (kip*ft)	3778.37	2158.00	57.1%	Pass
Pier Compression (kip)	13497.04	45.81	0.3%	Pass
Pad Flexure (kip*ft)	2401.63	859.48	35.8%	Pass
Pad Shear - 1-way (kips)	667.70	147.14	22.0%	Pass
Pad Shear - 2-way (Comp) (ksi)	0.164	0.026	16.0%	Pass
Flexural 2-way (Comp) (kip*ft)	3289.60	1294.80	39.4%	Pass

Pier Properties		
Pier Shape:	Circular	
Pier Diameter, d_{pier} :	6	ft
Ext. Above Grade, E :	0.5	ft
Pier Rebar Size, S_c :	8	
Pier Rebar Quantity, m_c :	36	
Pier Tie/Spiral Size, S_t :	4	
Pier Tie/Spiral Quantity, m_t :		
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier} :	3	in

Structural Rating: 57.1%
 Soil Rating: 71.6%

Pad Properties		
Depth, D :	6	ft
Pad Width, W_p :	21.5	ft
Pad Thickness, T :	3	ft
Pad Rebar Size (Bottom dir. 2), Sp_2 :	8	
Pad Rebar Quantity (Bottom dir. 2), mp_2 :	22	
Pad Clear Cover, cc_{pad} :	3	in

Material Properties		
Rebar Grade, F_y :	60	ksi
Concrete Compressive Strength, F'_c :	3	ksi
Dry Concrete Density, δ_c :	150	pcf

Soil Properties		
Total Soil Unit Weight, γ :	100	pcf
Ultimate Net Bearing, Q_{net} :	6.000	ksf
Cohesion, C_u :	0.000	ksf
Friction Angle, ϕ :		degrees
SPT Blow Count, N_{blows} :		
Base Friction, μ :	0.3	
Neglected Depth, N :	3.33	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, gw :	N/A	ft

<- Toggle between Gross and Net



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Antenna Mount Analysis Report with Hardware Upgrades and PMI Requirements

Mount ReAnalysis-VZW

SMART Tool Project #: 10203521
Colliers Engineering & Design Project #: 21777831 (Rev. 1)

June 6, 2023

Site Information

Site ID: 5000382099-VZW / NEWINGTON 3 CT
Site Name: NEWINGTON 3 CT
Carrier Name: Verizon Wireless
Address: 35 Wildwood Street
New Britain, Connecticut 06051
Hartford County
Latitude: 41.668192°
Longitude: -72.755197°

Structure Information

Tower Type: 100-Ft Monopole
Mount Type: 8.00-Ft T-Arm

FUZE ID # 16232013

Analysis Results

T-Arm: 54.5% Pass w/ Hardware Upgrades*

* 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: Nathan LaPorte



Executive Summary:

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

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

Sources of Information:

Document Type	Remarks
Radio Frequency Data Sheet (RFDS)	Verizon RFDS Site ID: 674990, dated February 17, 2023
Mount Mapping Report	Hudson Design Group, LLC, Site ID: 467964, dated April 28, 2021
Previous Mount Analysis	Maser Consulting Connecticut Project #: 21777831, dated June 28, 2021

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} : 118 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 : 0.998
Seismic Parameters:	S_s : 0.196 g S_1 : 0.055 g
Maintenance Parameters:	Wind Speed (3-sec. Gust): 30 mph Maintenance Load, L_v : 250 lbs. Maintenance Load, L_m : 500 lbs.
Analysis Software:	RISA-3D (V20)

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
89.00	90.00	6	Commscope	NHH-65B-R2B	Added
		3	Samsung	MT6407-77A	
		3	Samsung	RF4440d-13A	
		3	Samsung	RF4439d-25A	
		1	Raycap	RVZDC-6627-PF-48	
		3	Antel	BXA-80063/4CF	Retained

The recent mount mapping did not report existing OVP units. However, 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.

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:
 - o Channel, Solid Round, Angle, Plate ASTM A36 (Gr. 36)
 - o HSS (Rectangular) ASTM 500 (Gr. B-46)
 - o Pipe ASTM A53 (Gr. B-35)
 - o Threaded Rod F1554 (Gr. 36)
 - o Bolts ASTM A325

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

Analysis Results:

Component	Utilization %	Pass/Fail
Antenna Pipe	14.2%	Pass
Dual Mount Pipe	18.2%	Pass
Standoff Arm	37.3%	Pass
Face Horizontal	50.2%	Pass
Mount Connection	54.5%	Pass

Structure Rating – (Controlling Utilization of all Components)	54.5%
---	--------------

* Results valid after hardware upgrades noted in the PMI Requirements are installed.

The mount has been found structurally adequate for all steel and external connection capacities. Serviceability in accordance with TIA-222-H Section 4.9.11.3 has not been considered.

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	5.4	2.8	10.9	8.3
0.5	7.2	3.9	14.9	11.5
1	8.9	4.7	18.7	14.5

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 shown in attachment 2 **upon the completion of the requirements listed below.**

Contractor shall inspect climbing facilities and safety climb and ensure they are in good condition. Contractor shall install safety climb wire rope guides in locations where wire rope is rubbing against the mount or mount-to-tower connection steel. Wire brush clean any observed corrosion and protect with two (2) coats of cold galvanization (Zinga or Zinc Kote). Contractor shall provide photos of wire rope guide installation as part of PMI documents. Contact EOR if additional guidance is required.

Contractor shall install a new 48" long PIPE 2.0 SCH 40 OVP pipe on the alpha sector standoff horizontal.

Contractor shall replace existing position 2 mount pipe with new 72" long PIPE 2.5 SCH40 pipe (in all sectors). Match existing position 2 pipe location on mount. Attach using VZSMART MSK2 crossover plates. Refer to placement diagrams.

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

Mount Desktop – Post Modification Inspection (PMI) Report Requirements

Documents & Photos Required from Contractor – **Passing Mount Analysis**

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

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

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

MDG #: 5000382099

SMART Project #: 10203521

Fuze Project ID: 16232013

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

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

Base Requirements:

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

Photo Requirements:

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

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

Antenna & equipment placement and Geometry Confirmation:

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

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

OR

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

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

Issue:

Contractor shall inspect climbing facilities and safety climb and ensure they are in good condition. Contractor shall install safety climb wire rope guides in locations where wire rope is rubbing against the mount or mount-to-tower connection steel. Wire brush clean any observed corrosion and protect with two (2) coats of cold galvanization (Zinga or Zinc Kote). Contractor shall provide photos of wire rope guide installation as part of PMI documents. Contact EOR if additional guidance is required.

Contractor shall install a new 48" long PIPE 2.0 SCH 40 OVP pipe on the alpha sector standoff horizontal.

Contractor shall replace existing position 2 mount pipe with new 72" long PIPE 2.5 SCH40 pipe (in all sectors). Match existing position 2 pipe location on mount. Attach using VZSMART MSK2 crossover plates. Refer to placement diagrams.

Response:

Special Instruction Confirmation:

The contractor has read and acknowledges the above special instructions.

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

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

OR

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

Comments:

--

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

Yes No

Contractor certifies no new damage created during the current installation:

Yes No

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

Safety Climb in Good Condition Safety Climb Damaged

Certifying Individual:

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

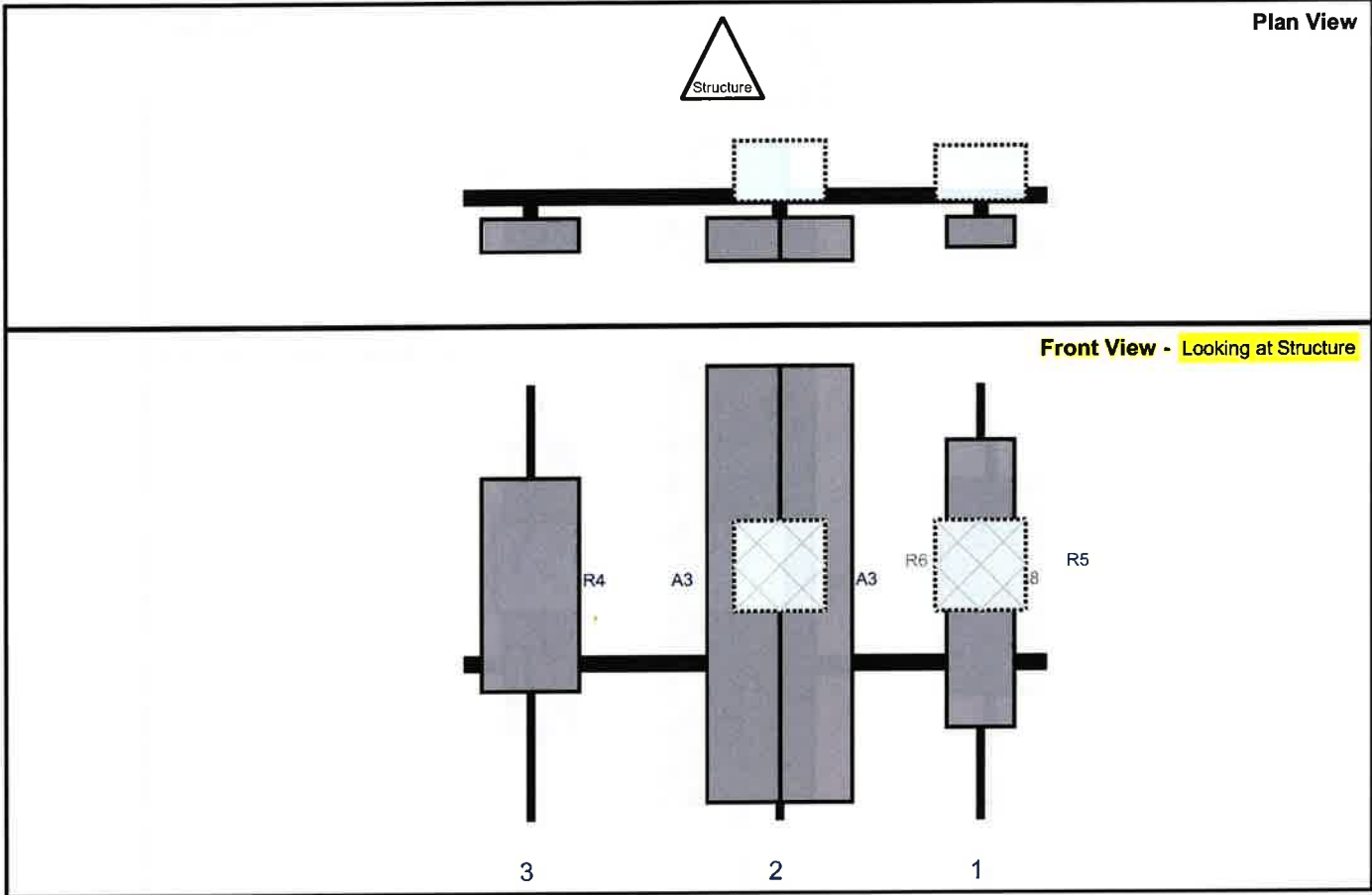
Sector: A
 Structure Type: Monopole
 Mount Elev: 90.00

10203521

6/2/2023



Page: 1



Ref#	Model	Height (in)	Width (in)	H Dist Fm L.	Pipe #	Pipe Pos V	Ant Pos	C. Ant Fm T.	Ant H Off	Status	Validation
A8	BXA-80063/4CF	47.4	11.2	85	1	a	Front	33	0	Retained	04/28/2021
R5	RF4440d-13A	15	15	85	1	a	Behind	30	0	Added	
A3	NHH-65B-R2B	72	11.9	52	2	a	Front	33	6	Added	
A3	NHH-65B-R2B	72	11.9	52	2	b	Front	33	-6	Added	
R6	RF4439d-25A	15	15	52	2	a	Behind	30	0	Added	
R4	MT6407-77A	35.1	16.1	11	3	a	Front	33	0	Added	
OVP	RVZDC-6627-PF-48	29.5	16.5			Member				Added	

Structure: 5000382099-VZW - NEWINGTON 3 CT

Sector: B

6/2/2023

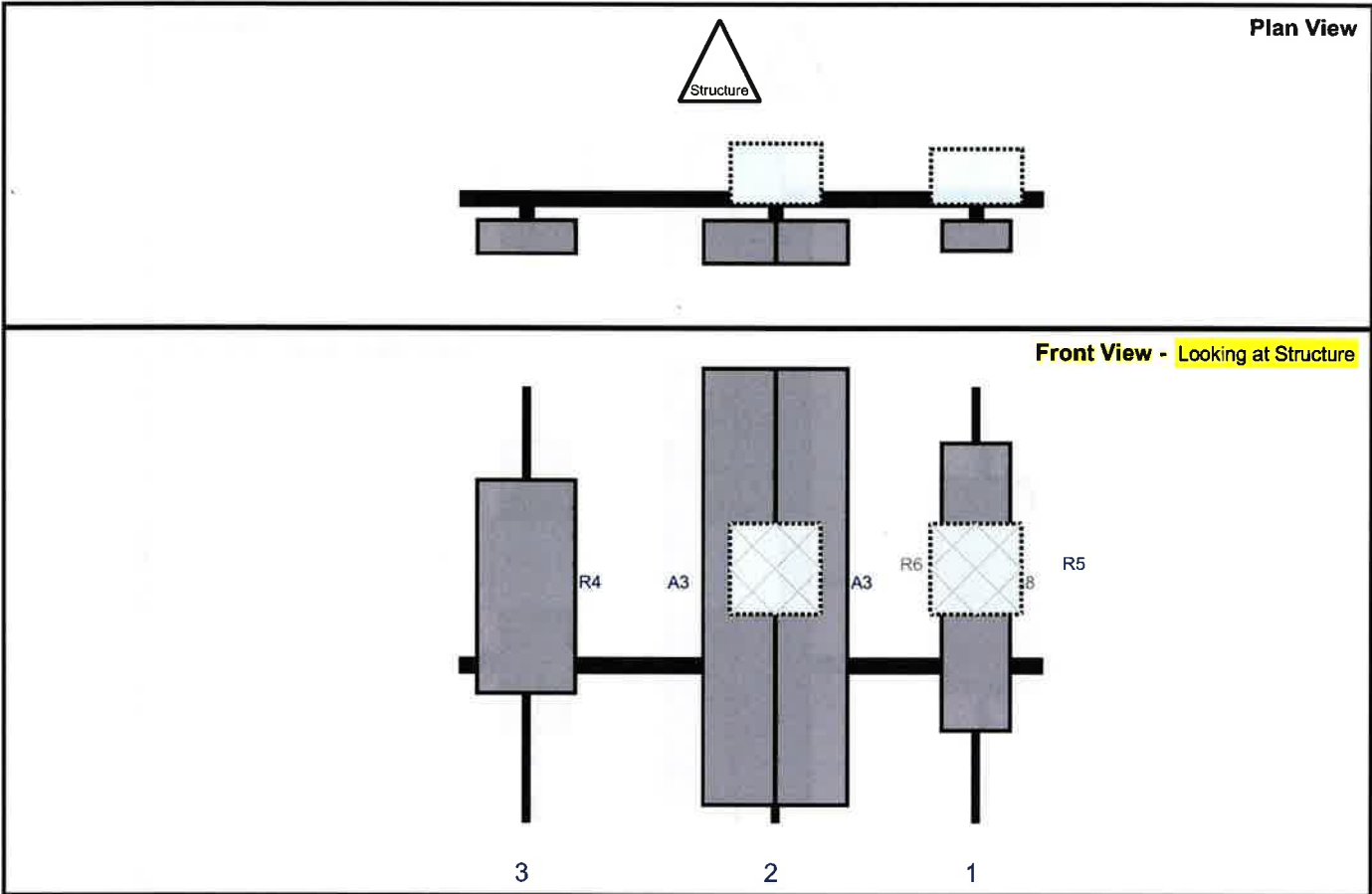
Structure Type: Monopole

10203521



Mount Elev: 90.00

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Ref#	Model	Height (in)	Width (in)	H Dist Fm L.	Pipe #	Pipe Pos V	Ant Pos	C. Ant Fm T.	Ant H Off	Status	Validation
A8	BXA-80063/4CF	47.4	11.2	85	1	a	Front	33	0	Retained	04/28/2021
R5	RF4440d-13A	15	15	85	1	a	Behind	30	0	Added	
A3	NHH-65B-R2B	72	11.9	52	2	a	Front	33	6	Added	
A3	NHH-65B-R2B	72	11.9	52	2	b	Front	33	-6	Added	
R6	RF4439d-25A	15	15	52	2	a	Behind	30	0	Added	
R4	MT6407-77A	35.1	16.1	11	3	a	Front	33	0	Added	

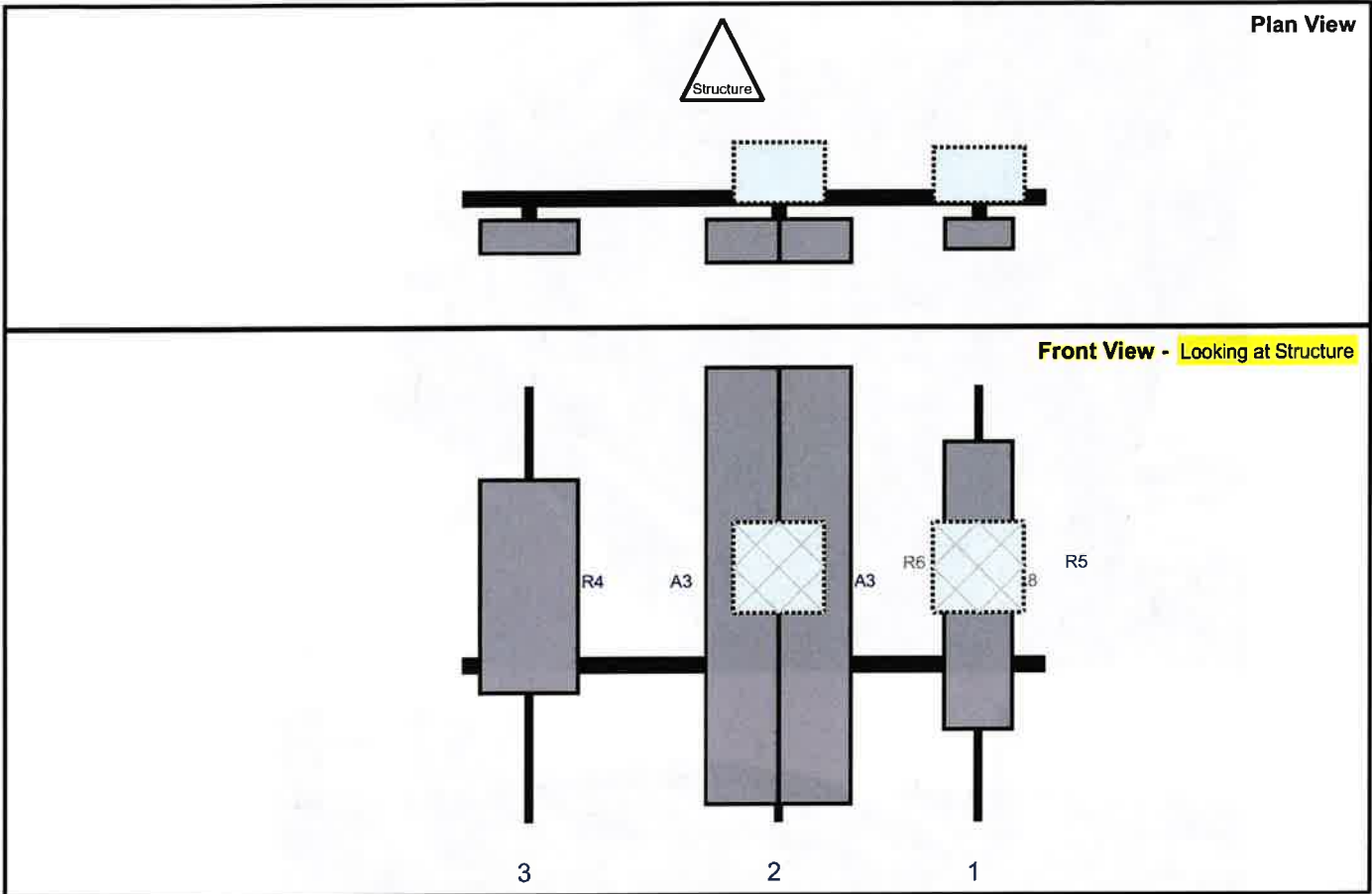
Sector: C
 Structure Type: Monopole
 Mount Elev: 90.00

10203521

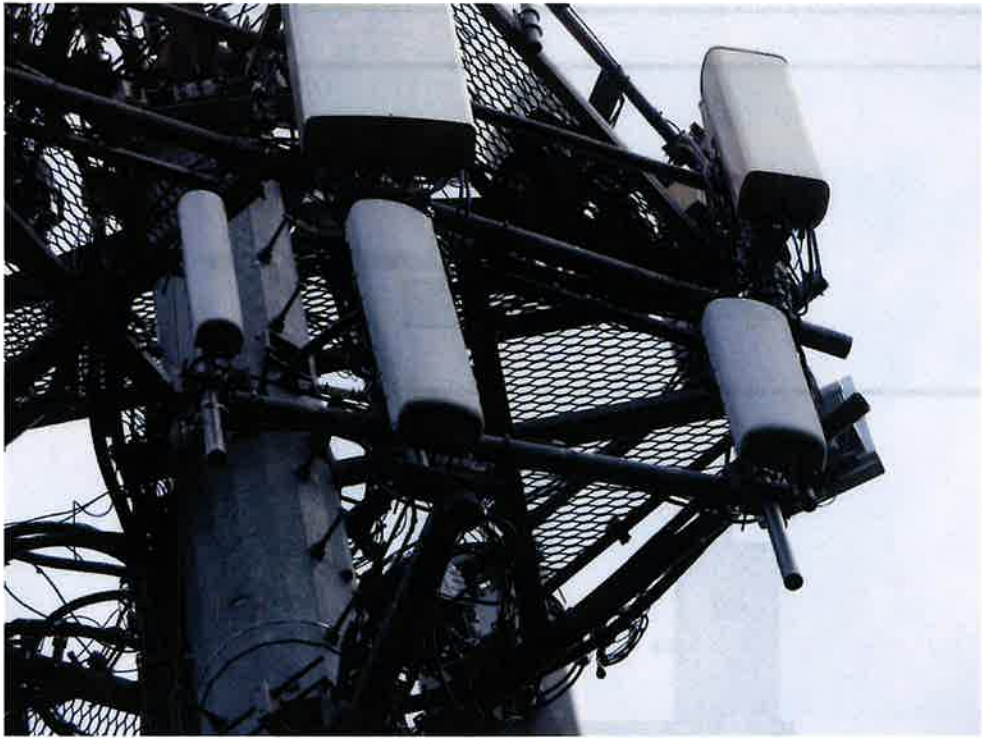
6/2/2023



Page: 3



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	BXA-80063/4CF	47.4	11.2	85	1	a	Front	33	0	Retained	04/28/2021
R5	RF4440d-13A	15	15	85	1	a	Behind	30	0	Added	
A3	NHH-65B-R2B	72	11.9	52	2	a	Front	33	6	Added	
A3	NHH-65B-R2B	72	11.9	52	2	b	Front	33	-6	Added	
R6	RF4439d-25A	15	15	52	2	a	Behind	30	0	Added	
R4	MT6407-77A	35.1	16.1	11	3	a	Front	33	0	Added	



Observed Safety and Structural Issues During the Mount Mapping		
Issue #	Description of Issue	Photo #
1	CLIMBING PEGS OBSTRUCTED BY CABLING	81
2		
3		
4		
5		
6		
7		
8		

Observed Obstructions to Tower Lighting System			
If the tower lighting system is being obstructed by the carrier's equipment (for example: a light nested by the antennas), please provide photos and fill in the information below.			Photo #
Description of Obstruction:			
Type of Light:	Photo #	Additional Comments:	
Lighting Technology:	Photo #		
Elevation (AGL) at base of light (FT.):	Photo #		
Is a service loop available?	Photo #		
Is beacon installed on an extension?	Photo #		

Mapping Notes
<p>1. Please report any visible structural or safety issues observed on the antenna mounts (Damaged members, loose connections, tilting mounts, safety climb issues, etc.)</p> <p>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.</p> <p>3. Please create all required detail sketches of the mounts and insert them into the "Sketches" tab.</p> <p>4. Please measure and enter the bolt sizes and types under the Members Box in the spreadsheet of the mount type.</p> <p>5. Take and label the photos of the tower, mounts, connections, antennas and all measurements. Minimum 50 photos are required.</p> <p>6. Please measure and report the size and length of all existing antenna mounting pipes.</p> <p>7. Please measure and report the antenna information for all sectors.</p> <p>8. Don't delete or rearrange any sheet or contents of any sheet from this mapping form.</p>

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.



Antenna Mount Mapping Form (PATENT PENDING)

FCC #

Tower Owner:	OTHER	Mapping Date:	4/28/2021
Site Name:	NEWINGTON 3 CT	Tower Type:	Monopole
Site Number or ID:	467964	Tower Height (FL):	100
Mapping Contractor:	HUDSON DESIGN GROUP, LLC.	Mount Elevation (FL):	86

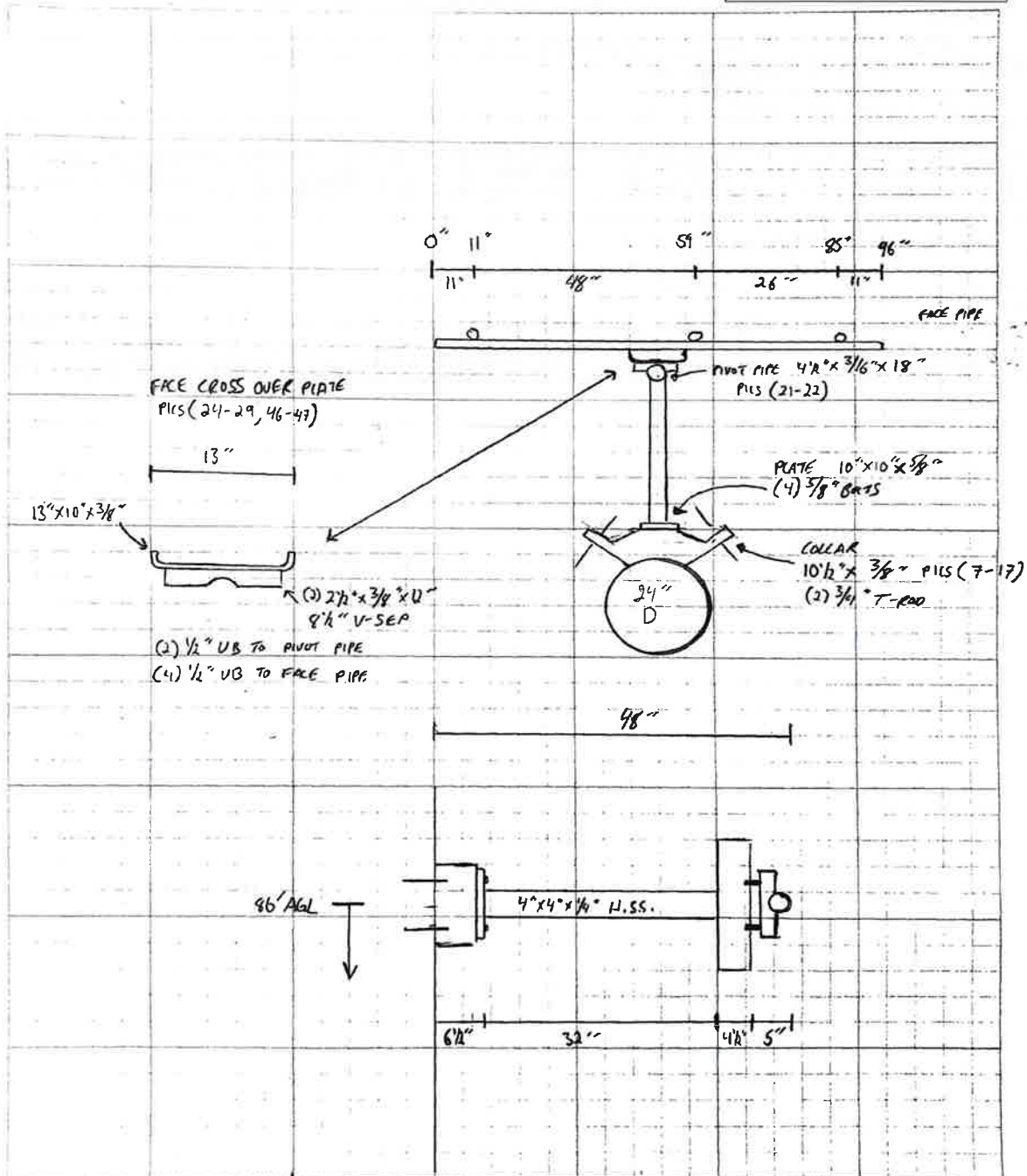
This antenna mapping form is the property of TES and under PATENT PENDING. The information contained herein is considered confidential in nature and is to be used only for the specific customer it was intended for. Reproduction, transmission, publication, modification or disclosure by any method is prohibited except by express written permission of TES. All means and methods are the responsibility of the contractor and the work shall be compliant with ANSI/ASSE A 10.48, OSHA, FCC, FAA and other safety requirements that may apply. TES is not warranting the usability of the safety climb as it must be assessed prior to each use in compliance with OSHA requirements.

Please Insert Sketches of the Antenna Mount

DATE: 04/28/21
 Project Name: _____
 Project No.: NEWINGTON 3 CT
 Design By: [Signature] Chk'd By: _____ Page 2 of 2

45 BEECHWOOD DRIVE
NORTH ANDOVER MA 01845

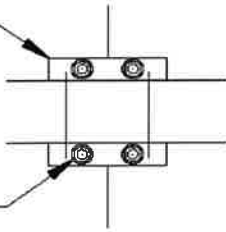
TEL: (978) 557-5553
FAX: (978) 306-5586



Please Insert Sketches of the Antenna Mount, cont'd

6" X 6" X 3/8" THK.
CROSSOVER PLATE

1/2"Ø U-BOLTS (TYP.)

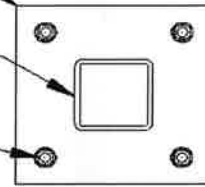


CROSSOVER PLATE DETAIL

10" X 10" X 5/8" THK.
PLATE

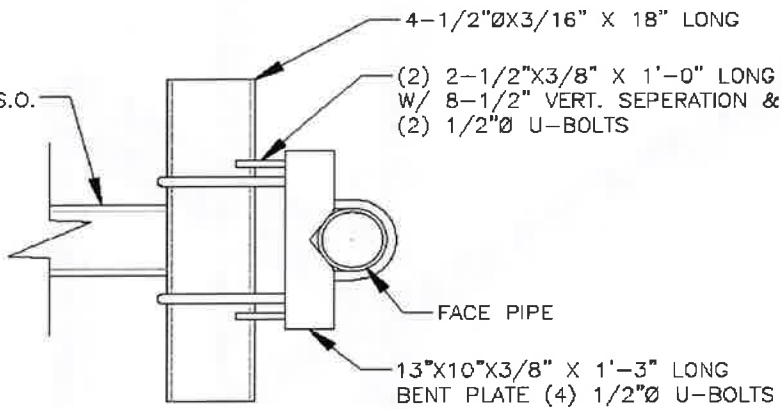
HSS 4" X 4" X 1/4" WALL

(4) 5/8"Ø BOLTS

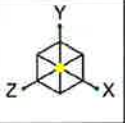


STANDOFF TO RING
MOUNT CONNECTION

HSS 4"X4" S.O.



PIVOT MAST DETAIL



Envelope Only Solution

Colliers Engineering & Design

NL

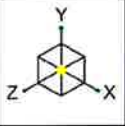
21777831 (Rev. 1)

Mount ReAnalysis-VZW

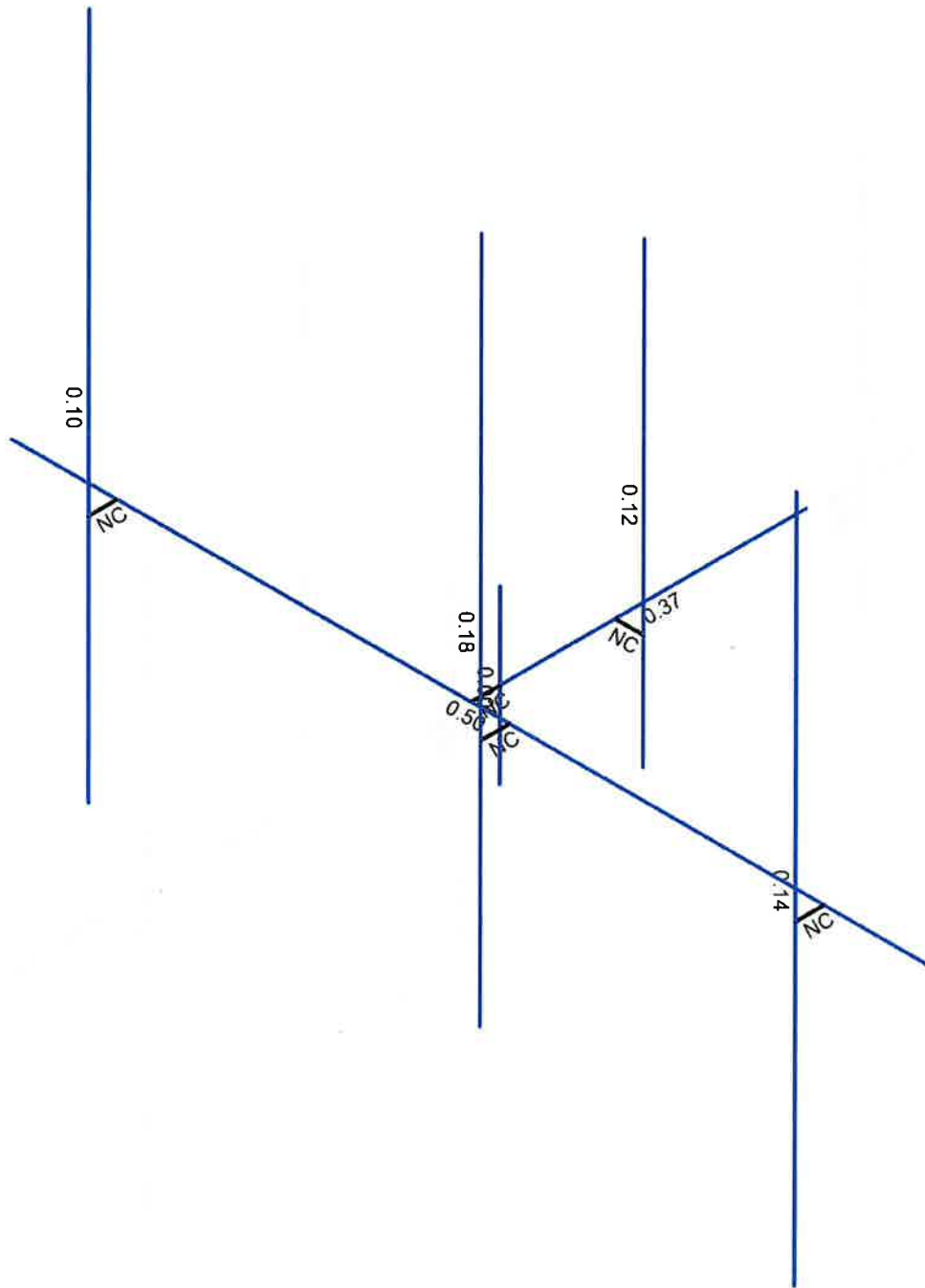
SK-1

Jun 02, 2023

5000382099-VZW_MT_LOT_A_H...



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

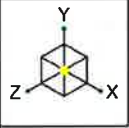


Member Code Checks Displayed (Enveloped)
Envelope Only Solution

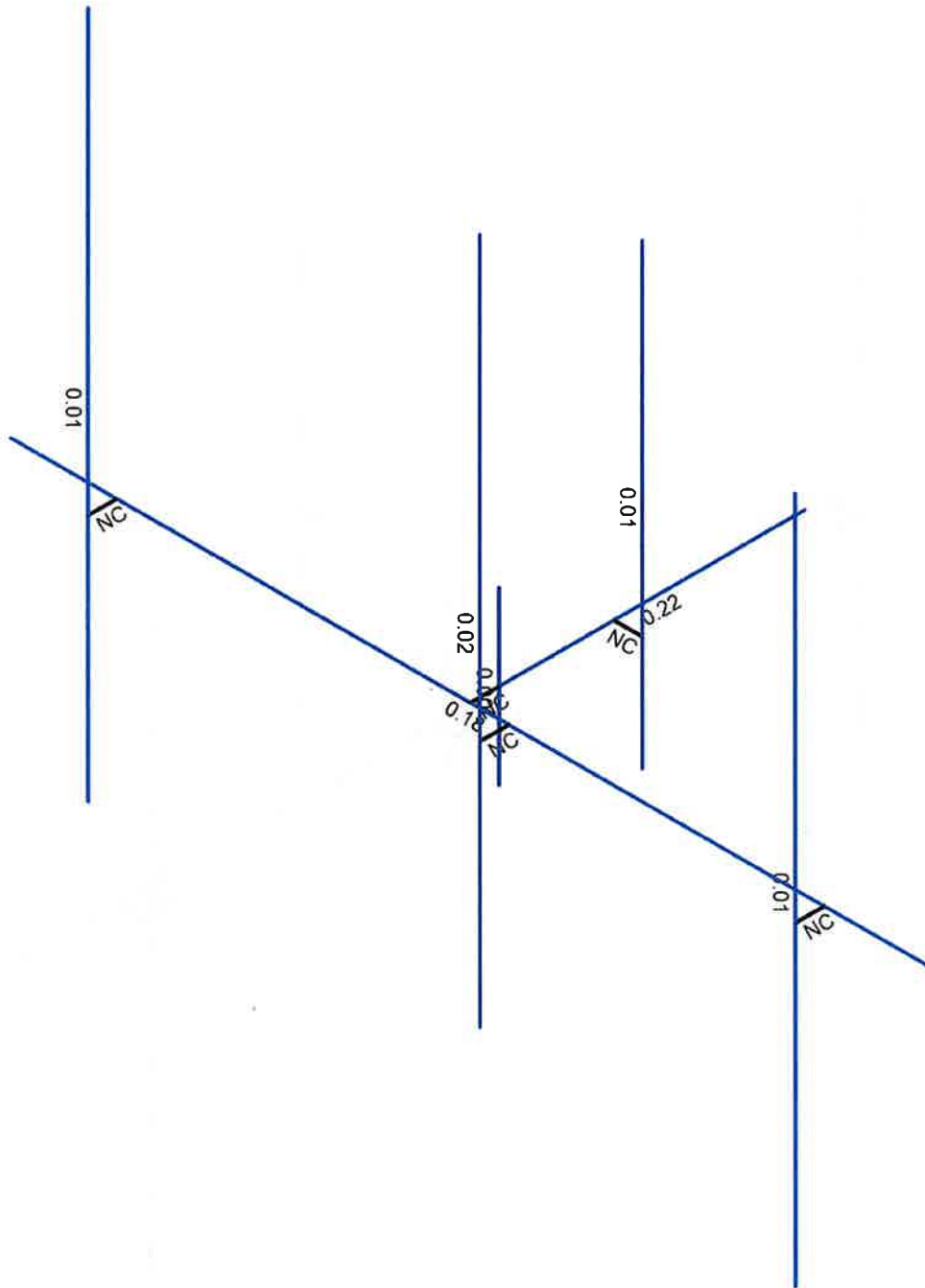
Colliers Engineering & Design
NL
21777831 (Rev. 1)

Mount ReAnalysis-VZW

SK-2
Jun 02, 2023
5000382099-VZW_MT_LOT_A_H...



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



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

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NL
21777831 (Rev. 1)

Mount ReAnalysis-VZW
SK-3
Jun 02, 2023
5000382099-VZW_MT_LOT_A_H...



Company : Colliers Engineering & Design
 Designer : NL
 Job Number : 21777831 (Rev. 1)
 Model Name : Mount ReAnalysis-VZW

6/2/2023
 8:45:53 AM
 Checked By : DX

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [$1e^{6}F^{-1}$]	Density [k/ft ³]	Yield [ksi]	Ry	Fu [ksi]	Rt
1	A36 Gr.36	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2
2	A53 Gr. B	29000	11154	0.3	0.65	0.49	35	1.5	60	1.2
3	A572 Gr.50	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
4	A992	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
5	A500 Gr. B 42	29000	11154	0.3	0.65	0.49	42	1.4	58	1.3
6	A500 Gr. B 46	29000	11154	0.3	0.65	0.49	46	1.4	58	1.3

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in ²]	Iyy [in ⁴]	Izz [in ⁴]	J [in ⁴]
1	Antenna Pipe	PIPE 2.0	Column	Pipe	A53 Gr. B	Typical	1.02	0.627	0.627	1.25
2	Mast Pipe	PIPE 4.0	Column	Pipe	A53 Gr. B	Typical	2.96	6.82	6.82	13.6
3	Face Horizontal	PIPE 3.0	Column	Pipe	A53 Gr. B	Typical	2.07	2.85	2.85	5.69
4	Standoff Arm	HSS4X4X4	Column	Pipe	A500 Gr. B 46	Typical	3.37	7.8	7.8	12.8
5	Dual Mount Pipe	PIPE 2.5	Column	Pipe	A53 Gr. B	Typical	1.61	1.45	1.45	2.89

Member Primary Data

	Label	I Node	J Node	Section/Shape	Type	Design List	Material	Design Rule
1	M1	N7	N6	Face Horizontal	Column	Pipe	A53 Gr. B	Typical
2	M2	N25	N2	Standoff Arm	Column	Pipe	A500 Gr. B 46	Typical
3	M3	N3	N4	Mast Pipe	Column	Pipe	A53 Gr. B	Typical
4	M4	N5	N2	RIGID	None	None	RIGID	Typical
5	M5	N13	N10	RIGID	None	None	RIGID	Typical
6	M6	N12	N9	RIGID	None	None	RIGID	Typical
7	M7	N11	N8	RIGID	None	None	RIGID	Typical
8	MP1A	N14	N15	Antenna Pipe	Column	Pipe	A53 Gr. B	Typical
9	MP2A	N16	N18	Dual Mount Pipe	Column	Pipe	A53 Gr. B	Typical
10	MP3A	N17	N19	Antenna Pipe	Column	Pipe	A53 Gr. B	Typical
11	M11	N24	N25A	RIGID	None	None	RIGID	Typical
12	OVP	N27	N26	Antenna Pipe	Column	Pipe	A53 Gr. B	Typical

Member Advanced Data

	Label	Physical	Deflection Ratio Options	Seismic DR
1	M1	Yes	** NA **	None
2	M2	Yes	** NA **	None
3	M3	Yes	** NA **	None
4	M4	Yes	** NA **	None
5	M5	Yes	** NA **	None
6	M6	Yes	** NA **	None
7	M7	Yes	** NA **	None
8	MP1A	Yes	** NA **	None
9	MP2A	Yes	** NA **	None
10	MP3A	Yes	** NA **	None
11	M11	Yes	** NA **	None
12	OVP	Yes	** NA **	None

Hot Rolled Steel Design Parameters

	Label	Shape	Length [ft]	Channel Conn.	a [ft]	Function
1	M1	Face Horizontal	8	N/A	N/A	Lateral
2	M2	Standoff Arm	2.667	N/A	N/A	Lateral



Company : Colliers Engineering & Design
 Designer : NL
 Job Number : 21777831 (Rev. 1)
 Model Name : Mount ReAnalysis-VZW

6/2/2023
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Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length [ft]	Channel Conn.	a [ft]	Function
3	M3	Mast Pipe	1.5	N/A	N/A	Lateral
4	MP1A	Antenna Pipe	6	N/A	N/A	Lateral
5	MP2A	Dual Mount Pipe	6	N/A	N/A	Lateral
6	MP3A	Antenna Pipe	6	N/A	N/A	Lateral
7	OVP	Antenna Pipe	4	N/A	N/A	Lateral

Design Size and Code Check Parameters

	Label	Max Axial/Bending Chk	Max Shear Chk
1	Typical	1	1

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

Member	Shape	Code Check	Loc [ft]	LC	Shear Check	Loc [ft]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
1	M1	PIPE 3.0	0.502	4	39	0.184	4	7	46290.523	65205	5.749	5.749	1	H1-1b
2	M2	HSS4X4X4	0.373	0	21	0.216	0	y 41	135427.025	139518	16.181	16.181	1.551	H1-1b
3	M3	PIPE 4.0	0	0.75	22	0	0.75	7	92571.332	93240	10.631	10.631	1	H1-1b*
4	MP1A	PIPE 2.0	0.142	3.25	7	0.014	3.25	7	20866.733	32130	1.872	1.872	1	H1-1b
5	MP2A	PIPE 2.5	0.182	3.813	7	0.016	3.813	7	37773.818	50715	3.596	3.596	1	H1-1b
6	MP3A	PIPE 2.0	0.096	3.813	7	0.015	3.813	7	20866.733	32130	1.872	1.872	1	H1-1b
7	OVP	PIPE 2.0	0.115	3	5	0.012	3	5	26521.424	32130	1.872	1.872	1	H1-1b

Load Combinations

	Description	Solve	P-Delta	BLCFactor	BLCFactor	BLCFactor	BLCFactor	BLCFactor	BLCFactor	BLCFactor	BLCFactor	BLCFactor	BLCFactor	BLCFactor
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
14	1.2D + 1.0Di + 1.0Wi (30 Deg)	Yes	Y	1	1.2	39	1.2	2	1	40	1	16	1	54
15	1.2D + 1.0Di + 1.0Wi (60 Deg)	Yes	Y	1	1.2	39	1.2	2	1	40	1	17	1	55
16	1.2D + 1.0Di + 1.0Wi (90 Deg)	Yes	Y	1	1.2	39	1.2	2	1	40	1	18	1	56
17	1.2D + 1.0Di + 1.0Wi (120 Deg)	Yes	Y	1	1.2	39	1.2	2	1	40	1	19	1	57
18	1.2D + 1.0Di + 1.0Wi (150 Deg)	Yes	Y	1	1.2	39	1.2	2	1	40	1	20	1	58
19	1.2D + 1.0Di + 1.0Wi (180 Deg)	Yes	Y	1	1.2	39	1.2	2	1	40	1	21	1	59
20	1.2D + 1.0Di + 1.0Wi (210 Deg)	Yes	Y	1	1.2	39	1.2	2	1	40	1	22	1	60
21	1.2D + 1.0Di + 1.0Wi (240 Deg)	Yes	Y	1	1.2	39	1.2	2	1	40	1	23	1	61
22	1.2D + 1.0Di + 1.0Wi (270 Deg)	Yes	Y	1	1.2	39	1.2	2	1	40	1	24	1	62
23	1.2D + 1.0Di + 1.0Wi (300 Deg)	Yes	Y	1	1.2	39	1.2	2	1	40	1	25	1	63
24	1.2D + 1.0Di + 1.0Wi (330 Deg)	Yes	Y	1	1.2	39	1.2	2	1	40	1	26	1	64
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 Deg)	Yes	Y	1	1.2	39	1.2	77	1.5	31	1	69	1	
30	1.2D + 1.5Lm1 + 1.0Wm (150 Deg)	Yes	Y	1	1.2	39	1.2	77	1.5	32	1	70	1	



Company : Colliers Engineering & Design
 Designer : NL
 Job Number : 21777831 (Rev. 1)
 Model Name : Mount ReAnalysis-VZW

6/2/2023
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 Checked By : DX

Load Combinations (Continued)

Description	Solve	P-Delta	BLC Factor	BLC Factor	BLC Factor	BLC Factor	BLC Factor	BLC Factor	BLC Factor	BLC Factor	BLC Factor	BLC Factor	BLC Factor	BLC Factor	BLC Factor			
31 1.2D + 1.5Lm1 + 1.0Wm (180 Deg)	Yes	Y	1	1.2	39	1.2	77	1.5	33	1	71	1						
32 1.2D + 1.5Lm1 + 1.0Wm (210 Deg)	Yes	Y	1	1.2	39	1.2	77	1.5	34	1	72	1						
33 1.2D + 1.5Lm1 + 1.0Wm (240 Deg)	Yes	Y	1	1.2	39	1.2	77	1.5	35	1	73	1						
34 1.2D + 1.5Lm1 + 1.0Wm (270 Deg)	Yes	Y	1	1.2	39	1.2	77	1.5	36	1	74	1						
35 1.2D + 1.5Lm1 + 1.0Wm (300 Deg)	Yes	Y	1	1.2	39	1.2	77	1.5	37	1	75	1						
36 1.2D + 1.5Lm1 + 1.0Wm (330 Deg)	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 Deg)	Yes	Y	1	1.2	39	1.2	78	1.5	31	1	69	1						
42 1.2D + 1.5Lm2 + 1.0Wm (150 Deg)	Yes	Y	1	1.2	39	1.2	78	1.5	32	1	70	1						
43 1.2D + 1.5Lm2 + 1.0Wm (180 Deg)	Yes	Y	1	1.2	39	1.2	78	1.5	33	1	71	1						
44 1.2D + 1.5Lm2 + 1.0Wm (210 Deg)	Yes	Y	1	1.2	39	1.2	78	1.5	34	1	72	1						
45 1.2D + 1.5Lm2 + 1.0Wm (240 Deg)	Yes	Y	1	1.2	39	1.2	78	1.5	35	1	73	1						
46 1.2D + 1.5Lm2 + 1.0Wm (270 Deg)	Yes	Y	1	1.2	39	1.2	78	1.5	36	1	74	1						
47 1.2D + 1.5Lm2 + 1.0Wm (300 Deg)	Yes	Y	1	1.2	39	1.2	78	1.5	37	1	75	1						
48 1.2D + 1.5Lm2 + 1.0Wm (330 Deg)	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	ELY	1	82	1	83	ELZ	1	ELX		
53 1.2D + 1.0Ev + 1.0Eh (30 Deg)	Yes	Y	1	1.2	39	1.2	81	1	ELY	1	82	0.866	83	0.5	ELZ	0.866	ELX	0.5
54 1.2D + 1.0Ev + 1.0Eh (60 Deg)	Yes	Y	1	1.2	39	1.2	81	1	ELY	1	82	0.5	83	0.866	ELZ	0.5	ELX	0.866
55 1.2D + 1.0Ev + 1.0Eh (90 Deg)	Yes	Y	1	1.2	39	1.2	81	1	ELY	1	82		83	1	ELZ		ELX	1
56 1.2D + 1.0Ev + 1.0Eh (120 Deg)	Yes	Y	1	1.2	39	1.2	81	1	ELY	1	82	-0.5	83	0.866	ELZ	-0.5	ELX	0.866
57 1.2D + 1.0Ev + 1.0Eh (150 Deg)	Yes	Y	1	1.2	39	1.2	81	1	ELY	1	82	-0.866	83	0.5	ELZ	-0.866	ELX	0.5
58 1.2D + 1.0Ev + 1.0Eh (180 Deg)	Yes	Y	1	1.2	39	1.2	81	1	ELY	1	82	-1	83		ELZ	-1	ELX	
59 1.2D + 1.0Ev + 1.0Eh (210 Deg)	Yes	Y	1	1.2	39	1.2	81	1	ELY	1	82	-0.866	83	-0.5	ELZ	-0.866	ELX	-0.5
60 1.2D + 1.0Ev + 1.0Eh (240 Deg)	Yes	Y	1	1.2	39	1.2	81	1	ELY	1	82	-0.5	83	-0.866	ELZ	-0.5	ELX	-0.866
61 1.2D + 1.0Ev + 1.0Eh (270 Deg)	Yes	Y	1	1.2	39	1.2	81	1	ELY	1	82		83	-1	ELZ		ELX	-1
62 1.2D + 1.0Ev + 1.0Eh (300 Deg)	Yes	Y	1	1.2	39	1.2	81	1	ELY	1	82	0.5	83	-0.866	ELZ	0.5	ELX	-0.866
63 1.2D + 1.0Ev + 1.0Eh (330 Deg)	Yes	Y	1	1.2	39	1.2	81	1	ELY	1	82	0.866	83	-0.5	ELZ	0.866	ELX	-0.5
64 0.9D - 1.0Ev + 1.0Eh (0 Deg)	Yes	Y	1	0.9	39	0.9	81	-1	ELY	-1	82	1	83		ELZ	1	ELX	
65 0.9D - 1.0Ev + 1.0Eh (30 Deg)	Yes	Y	1	0.9	39	0.9	81	-1	ELY	-1	82	0.866	83	0.5	ELZ	0.866	ELX	0.5
66 0.9D - 1.0Ev + 1.0Eh (60 Deg)	Yes	Y	1	0.9	39	0.9	81	-1	ELY	-1	82	0.5	83	0.866	ELZ	0.5	ELX	0.866
67 0.9D - 1.0Ev + 1.0Eh (90 Deg)	Yes	Y	1	0.9	39	0.9	81	-1	ELY	-1	82		83	1	ELZ		ELX	1
68 0.9D - 1.0Ev + 1.0Eh (120 Deg)	Yes	Y	1	0.9	39	0.9	81	-1	ELY	-1	82	-0.5	83	0.866	ELZ	-0.5	ELX	0.866
69 0.9D - 1.0Ev + 1.0Eh (150 Deg)	Yes	Y	1	0.9	39	0.9	81	-1	ELY	-1	82	-0.866	83	0.5	ELZ	-0.866	ELX	0.5
70 0.9D - 1.0Ev + 1.0Eh (180 Deg)	Yes	Y	1	0.9	39	0.9	81	-1	ELY	-1	82	-1	83		ELZ	-1	ELX	
71 0.9D - 1.0Ev + 1.0Eh (210 Deg)	Yes	Y	1	0.9	39	0.9	81	-1	ELY	-1	82	-0.866	83	-0.5	ELZ	-0.866	ELX	-0.5
72 0.9D - 1.0Ev + 1.0Eh (240 Deg)	Yes	Y	1	0.9	39	0.9	81	-1	ELY	-1	82	-0.5	83	-0.866	ELZ	-0.5	ELX	-0.866
73 0.9D - 1.0Ev + 1.0Eh (270 Deg)	Yes	Y	1	0.9	39	0.9	81	-1	ELY	-1	82		83	-1	ELZ		ELX	-1
74 0.9D - 1.0Ev + 1.0Eh (300 Deg)	Yes	Y	1	0.9	39	0.9	81	-1	ELY	-1	82	0.5	83	-0.866	ELZ	0.5	ELX	-0.866
75 0.9D - 1.0Ev + 1.0Eh (330 Deg)	Yes	Y	1	0.9	39	0.9	81	-1	ELY	-1	82	0.866	83	-0.5	ELZ	0.866	ELX	-0.5

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Point	Distributed
1	Antenna D	None				33	
2	Antenna Di	None				33	
3	Antenna Wo (0 Deg)	None				33	
4	Antenna Wo (30 Deg)	None				33	
5	Antenna Wo (60 Deg)	None				33	
6	Antenna Wo (90 Deg)	None				33	
7	Antenna Wo (120 Deg)	None				33	



Basic Load Cases (Continued)

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



Company : Colliers Engineering & Design
 Designer : NL
 Job Number : 21777831 (Rev. 1)
 Model Name : Mount ReAnalysis-VZW

6/2/2023
 8:45:53 AM
 Checked By : DX

Basic Load Cases (Continued)

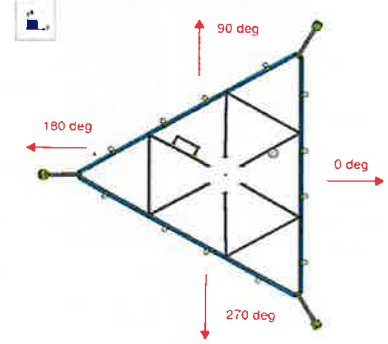
	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Point	Distributed
63	Structure Wi (300 Deg)	None					14
64	Structure Wi (330 Deg)	None					14
65	Structure Wm (0 Deg)	None					14
66	Structure Wm (30 Deg)	None					14
67	Structure Wm (60 Deg)	None					14
68	Structure Wm (90 Deg)	None					14
69	Structure Wm (120 Deg)	None					14
70	Structure Wm (150 Deg)	None					14
71	Structure Wm (180 Deg)	None					14
72	Structure Wm (210 Deg)	None					14
73	Structure Wm (240 Deg)	None					14
74	Structure Wm (270 Deg)	None					14
75	Structure Wm (300 Deg)	None					14
76	Structure Wm (330 Deg)	None					14
77	Lm1	None				1	
78	Lm2	None				1	
79	Lv1	None				1	
80	Lv2	None				1	
81	Antenna Ev	None				33	
82	Antenna Eh (0 Deg)	None				22	
83	Antenna Eh (90 Deg)	None				22	
84	Structure Ev	ELY		-0.042			
85	Structure Eh (0 Deg)	ELZ			-0.105		
86	Structure Eh (90 Deg)	ELX	0.105				

I. Mount-to-Tower Connection Check

Custom Orientation Required

Yes

Nodes (labeled per Risa)	Orientation (per graphic of typical platform)
N25	0



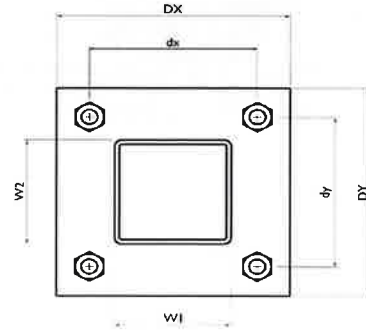
Tower Connection Bolt Checks

Yes

Bolt Orientation

Parallel

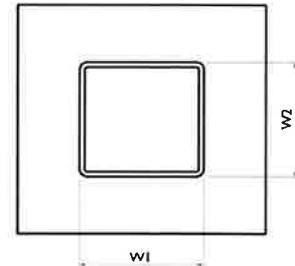
Bolt Quantity per Reaction:	4
d_x (in) (Delta X of typ. bolt config. sketch):	7
d_y (in) (Delta Y of typ. bolt config. sketch):	7
Bolt Type:	A325N
Bolt Diameter (in):	0.625
Required Tensile Strength / bolt (kips):	5.1
Required Shear Strength / bolt (kips):	0.8
Tensile Capacity / bolt (kips):	20.7
Shear Capacity / bolt (kips):	12.4
Bolt Overall Utilization:	25.1%



Tower Connection Baseplate Checks

Yes

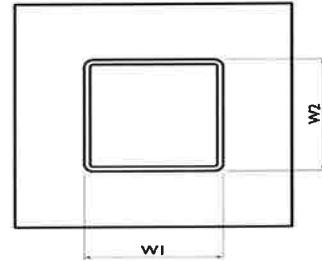
Connecting Standoff Member Shape:	Rect Tube
Weld Stiffener Configuration:	No Stiffeners
Plate Width, D_x (in):	10
Plate Height, D_y (in):	10
W_1 (in):	4
W_2 (in):	4
Member Thickness (in):	0.25
Stiffener location a_1 (in):	
Stiffener location b_1 (in):	
Stiffener location a_2 (in):	
Stiffener location b_2 (in):	
F_y (ksi, plate):	36
Plate Thickness (in):	0.625
Length of Yield Line, L_y (in):	7.75
Bolt Eccentricity, e (in):	2.35
M_u (kip-in):	12.25
$\Phi * M_n$ (kip-in):	24.52
Plate Bending Utilization:	50.0%



Tower Connection Weld Checks

Weld Shape:
Weld Stiffener Configuration:
Stiffener Notch Length, n (in):
Weld Size (1/16 in):
W1 (in):
W2 (in):
Weld Total Length (in):
 Z_x (in³/in):
 Z_y (in³/in):
 J_p (in⁴/in):
 c_x (in)
 c_y (in)
Required combined strength (kip/in):
Weld Capacity (kip/in):
Weld Utilization:

Yes
Rectangle
None
3
4
4
16.00
21.33
21.33
85.33
2.25
2.25
2.28
4.18
54.5%





WIRELESS COMMUNICATIONS FACILITY UPGRADE

NEWINGTON 3 CT
35 WILDWOOD STREET,
NEW BRITAIN, CT 06051

REV.	DATE	ISSUED BY	CHECKED BY	DESCRIPTION
1	06/21/23	ESP	TJR	CONSTRUCTION DRAWINGS - REVISED PER UPDATED REF. DOCS.
2	06/21/23	ESP	TJR	CONSTRUCTION DRAWINGS - REVISED PER NEW PERMITS
3	02/04/22	DMD	ANC	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION
4	07/19/21	ANC	DMD	CONSTRUCTION DRAWINGS - ISSUED FOR CLIENT REVIEW

REV.	DATE	ISSUED BY	CHECKED BY	DESCRIPTION
1	06/21/23	ESP	TJR	CONSTRUCTION DRAWINGS - REVISED PER UPDATED REF. DOCS.
2	06/21/23	ESP	TJR	CONSTRUCTION DRAWINGS - REVISED PER NEW PERMITS
3	02/04/22	DMD	ANC	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION
4	07/19/21	ANC	DMD	CONSTRUCTION DRAWINGS - ISSUED FOR CLIENT REVIEW

PROJECT SUMMARY

1. THE PROPOSED UPGRADE SCOPE OF WORK AT THE EXISTING UNMANNED TELECOMMUNICATIONS FACILITY GENERALLY INCLUDES THE FOLLOWING:

A. **AT THE EXISTING MONOPOLE MOUNTED ANTENNA SECTORS:**

- RETAIN (3) EXISTING ANTEL - BXA-60083/4CF ANTENNAS.
- RETAIN (6) EXISTING COAX CABLES.
- REMOVE (3) EXISTING AMPHENOL - BXA-70063-8CF-2 ANTENNAS.
- REMOVE (3) EXISTING ANTEL - BXA-171083-8BF-EDN-2 ANTENNAS.
- INSTALL (6) NEW COMMSCOPE N#4-858-R2B ANTENNAS.
- INSTALL (3) MTS407-77A ALL-IN-ONE ANTENNA/ RRU's.
- INSTALL (3) NEW COMMSCOPE BASMNT-SBS-1-2 MOUNTS.
- INSTALL (3) NEW SAMSUNG B5/B13 RRH GRAB (RF4440d-13A) & (3) NEW SAMSUNG B2/B06A RRH GRAB (RF4439d-25A).
- INSTALL (1) NEW OVP-S.
- INSTALL (2) NEW 6x12 LI HYBRID CABLES.

B. **AT THE EXISTING VERIZON WIRELESS EQUIPMENT SHELTER**

- REMOVE (8) EXISTING NOKIA RRU's.



verizon

CENTEK Engineering
 (203) 488-0580
 (203) 488-6587 fax
 43-2 North Branford Road
 Branford, CT 06405
 www.CentekEng.com

PROJECT INFORMATION

SITE NAME: NEWINGTON 3 CT
 SITE ADDRESS: 35 WILDWOOD ST, NEW BRITAIN, CT 06051
 LESSEE/TENANT: CELCO PARTNERSHIP d.b.a. VERIZON WIRELESS
 20 ALEXANDER DRIVE, WALLINGFORD, CT 06492
 CONTACT PERSON: WALTER CHARCZNSKI (CONSTRUCTION MANAGER)
 VERIZON WIRELESS (860) 306-1806
 ENGINEER: CENTEK ENGINEERING, INC.
 63-2 NORTH BRANFORD RD. BRANFORD, CT. 06405 (203) 488-0580
 PROJECT COORDINATES: LATITUDE: 41°-40'-5.4912"N
 LONGITUDE: 72°-45'-18.7092"W
 COORDINATES BASED ON VERIZON WIRELESS RFDS DATED MARCH 18, 2021.

SHEET INDEX

SHT. NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	2
N-1	NOTES AND SPECIFICATIONS	2
B-1	RF BILL OF MATERIALS	2
C-1	COMPOUND PLAN AND ELEVATION	2
C-2	ANTENNA SECTOR CONFIGURATION DETAILS	2
C-3	RF DETAILS	2
E-1	ELECTRICAL DETAILS AND SPECIFICATIONS	2

Celco Partnership d/b/a Verizon Wireless

NEWINGTON 3 CT
 35 WILDWOOD STREET,
 NEW BRITAIN, CT 06051

DATE: 07/19/21
 SCALE: AS NOTED
 JOB NO. 21007.30

TITLE SHEET

T-1

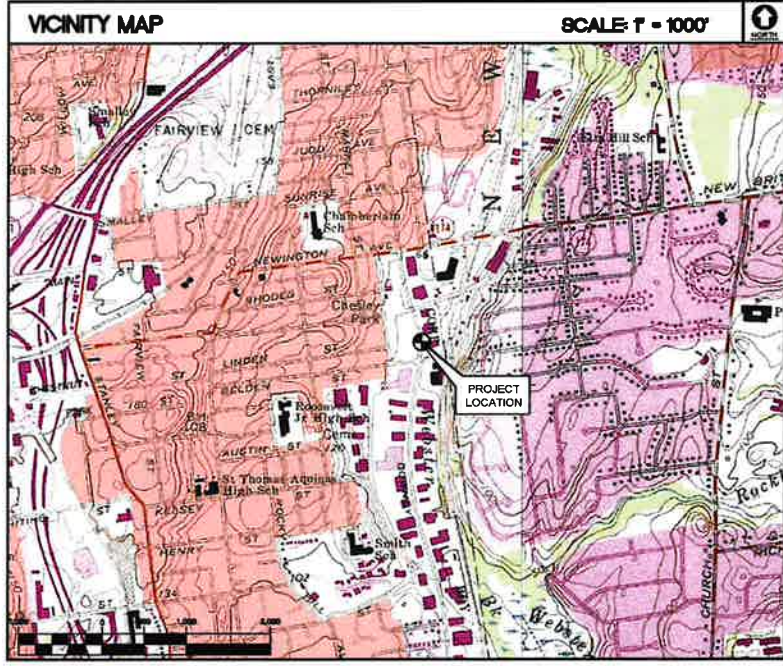
Sheet No. 1 of 7

- GENERAL NOTES**
- ALL WORK SHALL BE IN ACCORDANCE WITH THE 2021 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2022 CONNECTICUT SUPPLEMENT, INCLUDING THE TIA/EA-222 REVISION "H" STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES, 2021 CONNECTICUT FIRE SAFETY CODE, NATIONAL ELECTRICAL CODE, AND LOCAL CODES.
 - SHOULD ANY FIELD CONDITIONS PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL NOT PROCEED WITH ANY AFFECTED WORK.
 - CONTRACTOR SHALL REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUBCONTRACTORS AND ALL RELATED PARTIES. THE SUBCONTRACTORS SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT AFFECTS THEIR WORK.
 - CONTRACTOR SHALL PROVIDE A COMPLETE BUILD-OUT WITH ALL FINISHES, STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS AND PROVIDE ALL ITEMS AS SHOWN OR INDICATED ON THE DRAWINGS OR IN THE WRITTEN SPECIFICATIONS.
 - CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR AND EQUIPMENT TO COMPLETE THE WORK AND FURNISH A COMPLETED JOB ALL IN ACCORDANCE WITH LOCAL AND STATE GOVERNING AUTHORITIES AND OTHER AUTHORITIES HAVING LAWFUL JURISDICTION OVER THE WORK.
 - CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND ALL INSPECTIONS REQUIRED AND SHALL ALSO PAY FEES REQUIRED FOR THE GENERAL CONSTRUCTION, AND ALL TRADES AS APPLICABLE PERMITS SHALL BE PAID FOR BY THE RESPECTIVE SUBCONTRACTORS.
 - CONTRACTOR SHALL MAINTAIN A CURRENT SET OF DRAWINGS AND SPECIFICATIONS ON SITE AT ALL TIMES AND INSURE DISTRIBUTION OF NEW DRAWINGS TO SUBCONTRACTORS AND OTHER RELEVANT PARTIES AS SOON AS THEY ARE MADE AVAILABLE. ALL OLD DRAWINGS SHALL BE MARKED VOID AND REMOVED FROM THE CONTRACT AREA. THE CONTRACTOR SHALL FURNISH AN "AS-BUILT" SET OF DRAWINGS TO OWNER UPON COMPLETION OF PROJECT.
 - LOCATION OF EQUIPMENT, AND WORK SUPPLIED BY OTHERS THAT IS DIAGRAMMATICALLY INDICATED ON THE DRAWINGS SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL DETERMINE LOCATIONS AND DIMENSIONS SUBJECT TO STRUCTURAL CONDITIONS AND WORK OF THE SUBCONTRACTORS.
 - THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY. MAINTAIN EXISTING BUILDING'S/PROPERTY'S OPERATIONS, COORDINATE WORK WITH BUILDING/PROPERTY OWNER.
 - DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
 - ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
 - ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUBCONTRACTORS FOR ANY CONDITION PER MFR.'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
 - ANY AND ALL ERRORS, DISCREPANCIES, AND "MISSED" ITEMS ARE TO BE BROUGHT TO THE ATTENTION OF THE VERIZON WIRELESS CONSTRUCTION MANAGER DURING THE BIDDING PROCESS BY THE CONTRACTOR. ALL THESE ITEMS ARE TO BE INCLUDED IN THE BID. NO 'EXTRA' WILL BE ALLOWED FOR MISSED ITEMS.
 - CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON-SITE SAFETY FROM THE TIME THE JOB IS AWARDED UNTIL ALL WORK IS COMPLETE AND ACCEPTED BY THE OWNER.
 - CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE CONSTRUCTION MANAGER FOR REVIEW.
 - THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES, AND EXISTING CONDITIONS AT THE SITE, PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA.
 - COORDINATION, LAYOUT, FURNISHING AND INSTALLATION OF CONDUIT AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
 - ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUB- CONTRACTORS FOR ANY CONDITION PER THE MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
 - ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
 - THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" AT LEAST 48 HOURS PRIOR TO ANY EXCAVATIONS AT 1-800-922-4455. ALL UTILITIES SHALL BE IDENTIFIED AND CLEARLY MARKED PRIOR TO ANY EXCAVATION WORK. CONTRACTOR SHALL MAINTAIN AND PROTECT MARKED UTILITIES THROUGHOUT PROJECT COMPLETION.

SITE DIRECTIONS

FROM: 20 ALEXANDER DRIVE, WALLINGFORD, CONNECTICUT TO: 35 WILDWOOD ST, NEW BRITAIN, CT 06051

- START OUT GOING NORTH ON ALEXANDER DR TOWARD BARNES INDUSTRIAL RD. 0.18 MI
- TURN RIGHT ONTO BARNES INDUSTRIAL RD. 0.11 MI
- TAKE THE 1ST LEFT ONTO CT-68. 0.35 MI
- TURN RIGHT ONTO RAMP. 0.17 MI
- TURN RIGHT ONTO N COLONY RD/US-5 N. 0.30 MI
- MERGE ONTO CT-18 N TOWARD HARTFORD. 11.74 MI
- TURN LEFT ONTO DEMING RD/CT-180. CONTINUE TO FOLLOW DEMING RD. 0.87 MI
- TURN RIGHT ONTO CHRISTIAN LN. 1.02 MI
- TURN LEFT ONTO SOUTH ST. 0.12 MI
- TAKE THE 1ST RIGHT ONTO JOHN DOWNEY DR. 0.84 MI
- TURN LEFT ONTO BELDEN ST. 0.07 MI
- TURN RIGHT ONTO WILDWOOD ST. 0.15 MI
- 35 WILDWOOD ST, NEW BRITAIN, CT 06051-2425, 35 WILDWOOD ST IS ON THE RIGHT.



NOTES AND SPECIFICATIONS

DESIGN BASIS:

GOVERNING CODE: 2021 INTERNATIONAL BUILDING CODE (IBC) AS MODIFIED BY THE 2022 CT STATE BUILDING CODE AND AMENDMENTS.

1. DESIGN CRITERIA:
- RISK CATEGORY: II (BASED ON TABLE 1604.5 OF THE 2021 IBC)
 - ULTIMATE DESIGN SPEED (TOWER): 97 MPH (Wind) (EXPOSURE B/IMPORTANCE FACTOR 1.0 BASED ON ASCE 7-16) PER 2021 INTERNATIONAL BUILDING CODE (IBC) AS MODIFIED BY THE 2022 CONNECTICUT STATE BUILDING CODE.
 - SEISMIC LOAD (DOES NOT CONTROL): PER ASCE 7-16 MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES.

GENERAL NOTES:

- ALL CONSTRUCTION SHALL BE IN COMPLIANCE WITH THE GOVERNING BUILDING CODE.
- DRAWINGS INDICATE THE MINIMUM STANDARDS. BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
- BEFORE BEGINNING THE WORK, THE CONTRACTOR IS RESPONSIBLE FOR MAKING SUCH INVESTIGATIONS CONCERNING PHYSICAL CONDITIONS (SURFACE AND SUBSURFACE) AT OR CONTIGUOUS TO THE SITE WHICH MAY AFFECT PERFORMANCE AND COST OF THE WORK.
- DIMENSIONS AND DETAILS SHALL BE CHECKED AGAINST EXISTING FIELD CONDITIONS.
- THE CONTRACTOR SHALL VERIFY AND COORDINATE THE SIZE AND LOCATION OF ALL OPENINGS, SLEEVES AND ANCHOR BOLTS AS REQUIRED BY ALL TRADES.
- ALL DIMENSIONS, ELEVATIONS, AND OTHER REFERENCES TO EXISTING STRUCTURES, SURFACE, AND SUBSURFACE CONDITIONS ARE APPROXIMATE. NO GUARANTEE IS MADE FOR THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. THE CONTRACTOR SHALL VERIFY AND COORDINATE ALL DIMENSIONS, ELEVATIONS, ANGLES WITH EXISTING CONDITIONS AND WITH ARCHITECTURAL AND SITE DRAWINGS BEFORE PROCEEDING WITH ANY WORK.
- AS THE WORK PROGRESSES, THE CONTRACTOR SHALL NOTIFY THE OWNER OF ANY CONDITIONS WHICH ARE IN CONFLICT OR OTHERWISE NOT CONSISTENT WITH THE CONSTRUCTION DOCUMENTS AND SHALL NOT PROCEED WITH SUCH WORK UNTIL THE CONFLICT IS SATISFACTORILY RESOLVED.
- THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE SAFETY CODES AND REGULATIONS DURING ALL PHASES OF CONSTRUCTION. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR PROVIDING AND MAINTAINING ADEQUATE SHORING, BRACING, AND BARRICADES AS MAY BE REQUIRED FOR THE PROTECTION OF EXISTING PROPERTY, CONSTRUCTION WORKERS, AND FOR PUBLIC SAFETY.
- THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY. MAINTAIN EXISTING SITE OPERATIONS, COORDINATE WORK WITH NORTHEAST UTILITIES
- ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
- REFER TO DRAWING T1 FOR ADDITIONAL NOTES AND REQUIREMENTS.

NO.	DATE	BY	DESCRIPTION
1	05/12/23	BP	CONSTRUCTION DRAWINGS - REVISED FOR UPDATED REF. DOCS.
2	06/21/23	BP	CONSTRUCTION DRAWINGS - REVISED FOR NEW REFS
3	05/12/23	BP	CONSTRUCTION DRAWINGS - REVISED FOR NEW REFS
4	02/04/22	DM	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION
5	07/19/21	AM	CONSTRUCTION DRAWINGS - ISSUED FOR CLIENT REVIEW



CEN^{TEK} engineering
a member of centel
1231 488-8550
13-2 North Branford Road
Branford, CT 06408
www.centekeng.com

Cellco Partnership d/b/a Verizon Wireless
NEWINGTON 3 CT
95 WILDWOOD STREET,
NEW BRITAIN, CT 06051

DATE: 07/19/21
SCALE: AS NOTED
JOB NO. 21007-30

NOTES AND SPECIFICATIONS

N-1
Sheet No. 2 of 2

PLUMBING DIAGRAM COMMENTS:

A. DIAGRAMS SHOW ANTENNA PORT CONFIGURATIONS AS VIEWED FROM BELOW ANTENNAS.

B. ANTENNA POSITIONS ARE INDICATED AS VIEWED FROM IN FRONT OF ANTENNAS.

C. CAP AND WEATHERPROOF UNUSED ANTENNA PORTS.

NOTES:

1. INFORMATION SHOWN HEREIN IS FOR USE BY VERIZON WIRELESS EQUIPMENT OPERATIONS.

2. THIS B.O.M. DRAWING IS BASED OFF FACILITY UPGRADE DESIGN DRAWINGS PREPARED BY CENTEK ENGINEERING (REV.2 DATED: 06.21.2023), & VERIZON WIRELESS RF ANTENNA EQUIPMENT RECOMMENDATION (DATED 04.20.2023).

BILL OF MATERIALS		
TECHNOLOGY	QUANTITY	ANTENNA
LTE 700	6	COMMSCOPE ANTENNA MODEL: NHH-65B-R2B
LTE 850		
LTE PCS 1900		
LTE AWS 2100		
5G	3	SAMSUNG ANTENNA MODEL: MT8407-77A

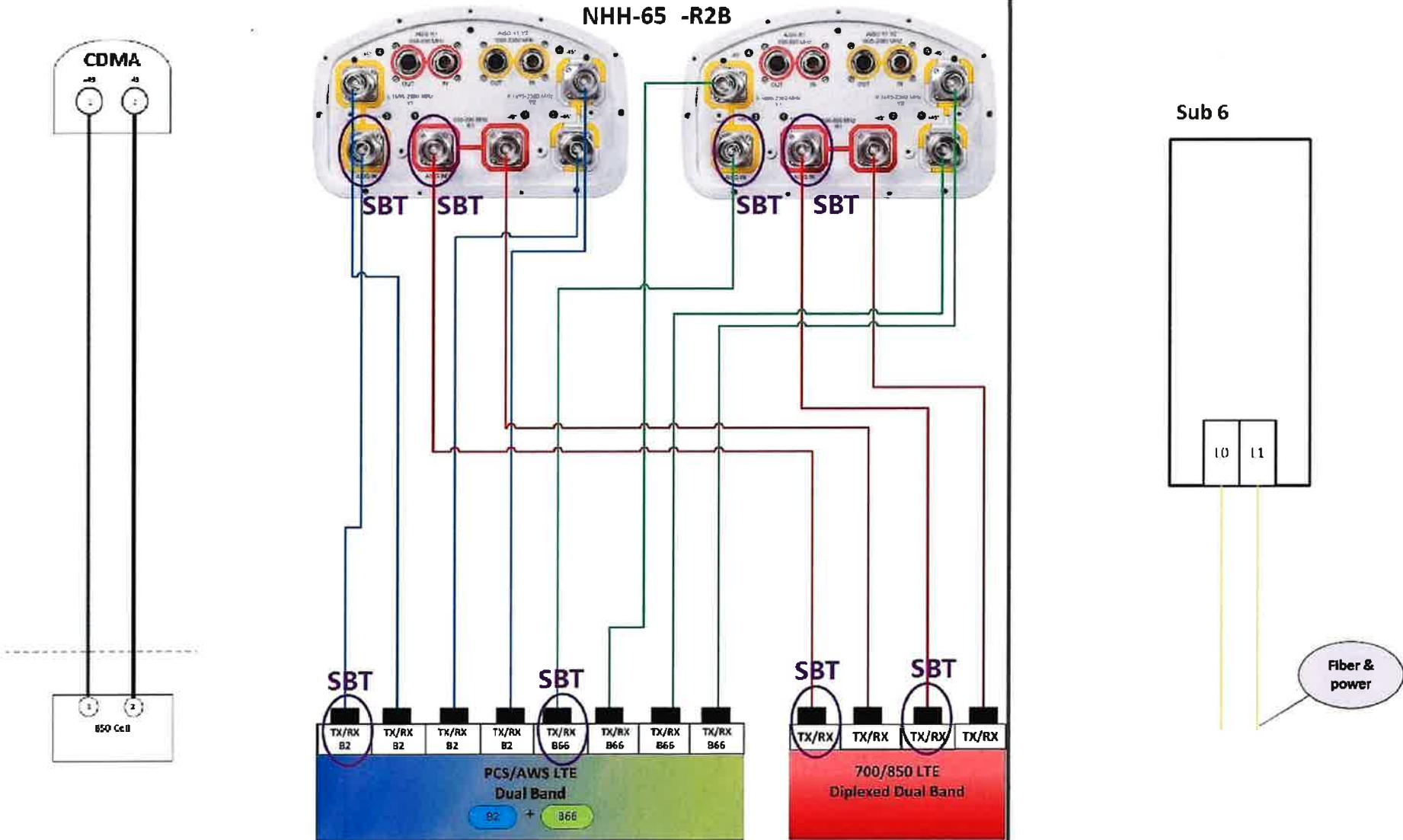
CABLES	QUANTITY	LENGTH	COMMENTS
HYBRID CABLE	2	±150FT EA	6X12 HYBRIFLEX LI

RADIOS	QUANTITY	COMMENTS
LTE 700	3	SAMSUNG MODEL: B5/B13 RRH ORAN (RF4440d-13A)
LTE 850		
LTE PCS 1900	3	SAMSUNG MODEL: B2/B06A RRH ORAN (RF4439d-25A)
LTE AWS 2100		
5G	3	INTEGRATED INTO MT8407-77A ANTENNA

DIPLEXERS	QUANTITY	COMMENTS
-	-	-

OVP BOXES	QUANTITY	COMMENTS
TOWER OVP	1	RAYCAP MODEL: OVP-8

ANTENNA MOUNT	QUANTITY	COMMENTS
SIDE-BY-SIDE MOUNTING KIT	3	COMMSCOPE MODEL: BASMNT-SBS-1-2



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 (203) 488-0590
 68-2 North Branford Road
 Branford, CT 06405
 www.CentekEng.com

Celco Partnership d/b/a Verizon Wireless

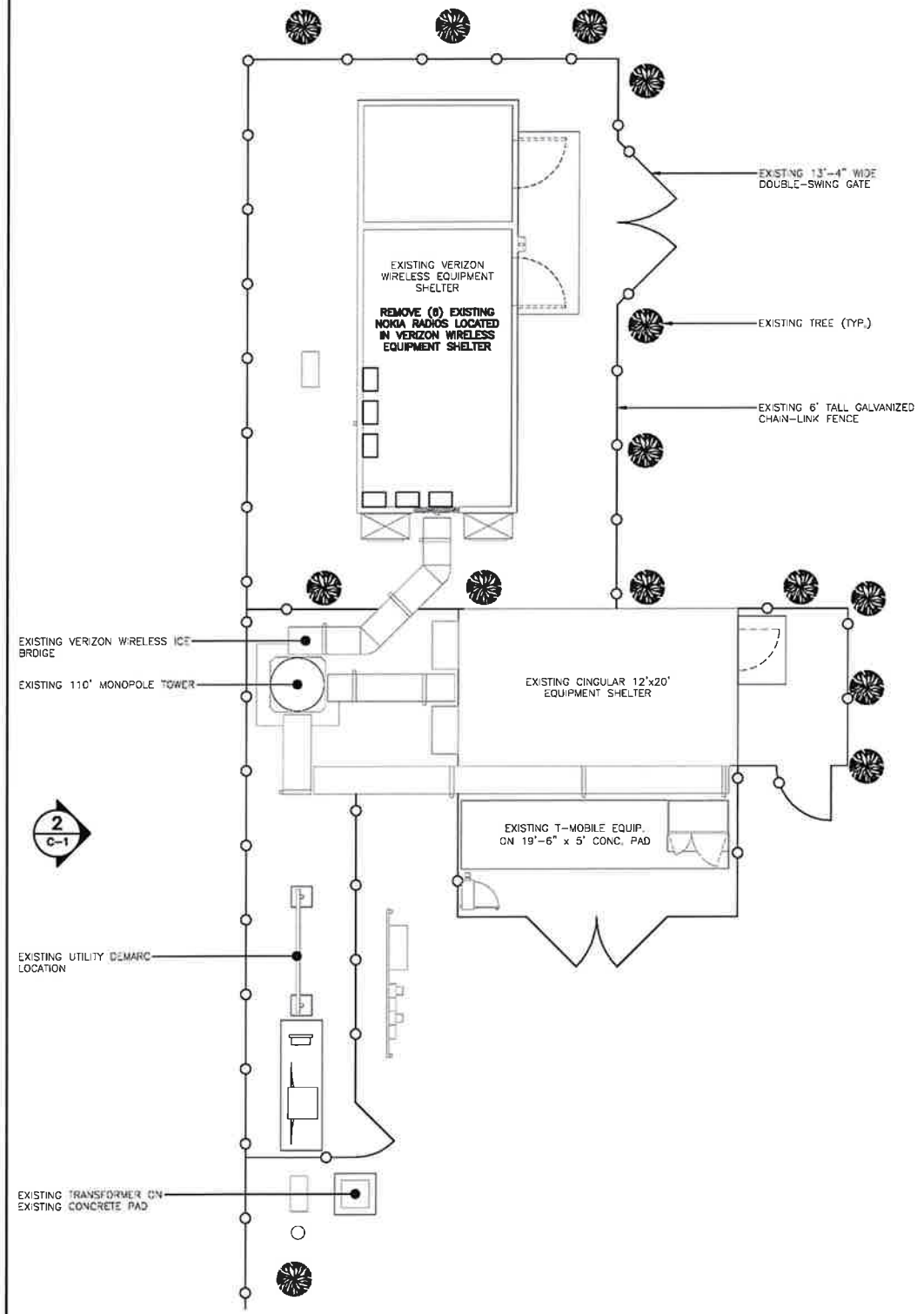
NEWINGTON 3 CT
 35 WILDWOOD STREET,
 NEW BRITAIN, CT 06051

DATE: 07/19/21
 SCALE: AS NOTED
 JOB NO. 21007-30

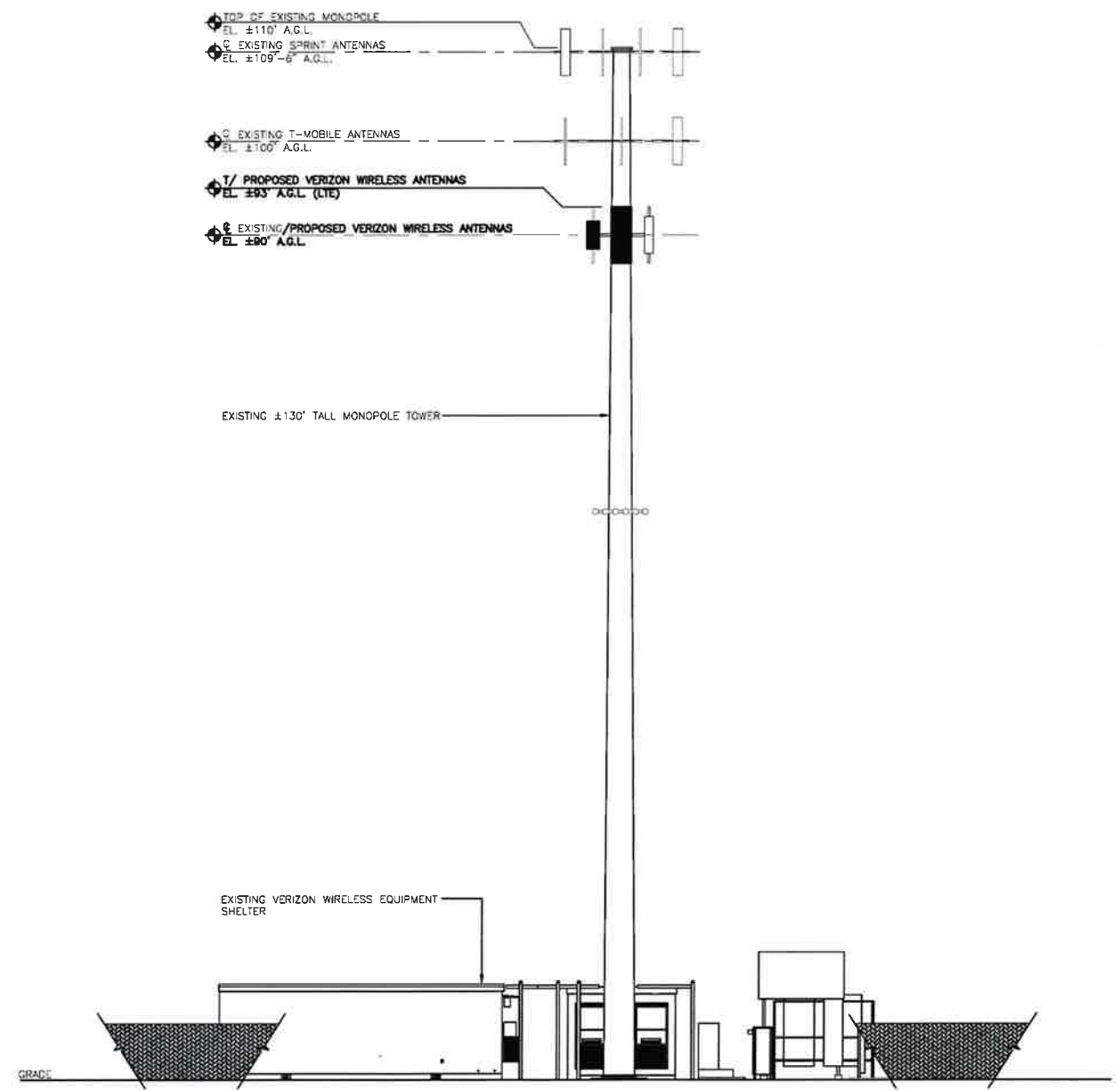
RF BILL OF MATERIALS

B-1
 Sheet No. 3 of 7

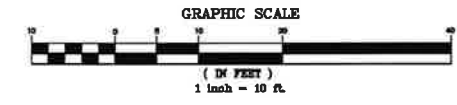
TOWER STRUCTURAL ANALYSIS REFERENCE NOTE
 REFER TO PASSING STRUCTURAL ANALYSIS REPORT
 PREPARED FOR BST MANAGEMENT BY GPD ENGINEERING
 AND ARCHITECTURE PROFESSIONAL CORPORATION (GPD),
 DATED 05/31/2023. GPD PROJECT #2023703.72



1 COMPOUND PLAN - PROPOSED
 C-1 SCALE: 1/8" = 1'-0"



2 WEST ELEVATION - PROPOSED
 C-1 SCALE: 1" = 10'-0"



REV.	DATE	ISSUED BY	CHKD BY	DESCRIPTION
A	07/19/21	AKC	DMD	CONSTRUCTION DRAWINGS - ISSUED FOR CLIENT REVIEW
B	02/04/22	DMD	AKC	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION
C	05/12/23	ESP	AKC	CONSTRUCTION DRAWINGS - REVISED PER NEW PERM
2	06/21/23	ESP	AKC	CONSTRUCTION DRAWINGS - REVISED PER UPDATED REF. DOCS.



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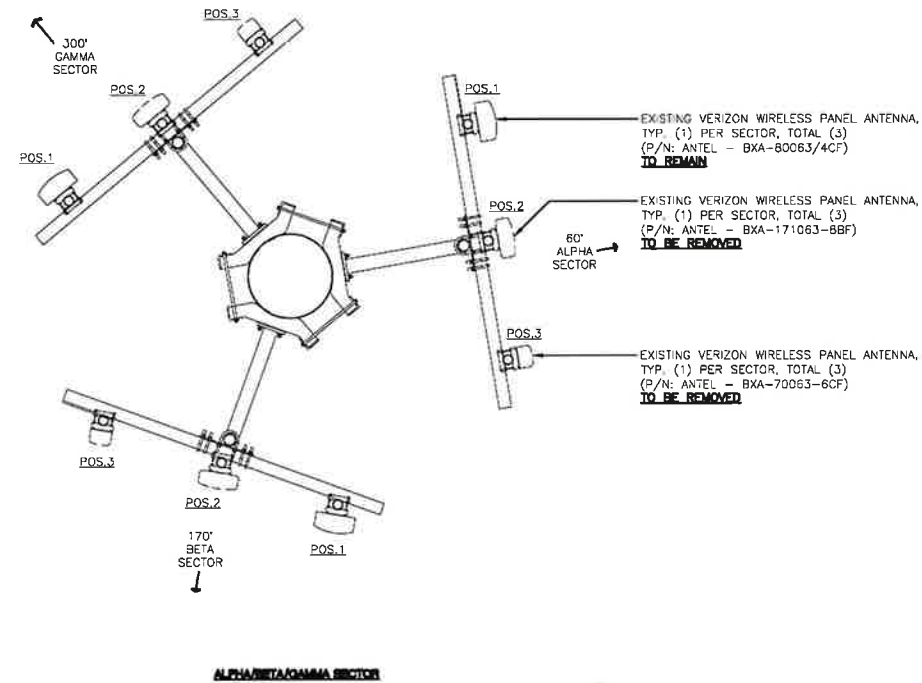
Cellco Partnership d/b/a Verizon Wireless
NEWINGTON 3 CT
 35 WILDWOOD STREET,
 NEW BRITAIN, CT 06051

DATE: 07/19/21
 SCALE: AS NOTED
 JOB NO. 21007-30

COMPOUND
 PLAN AND
 ELEVATION

C-1
 Sheet No. 4 of 7

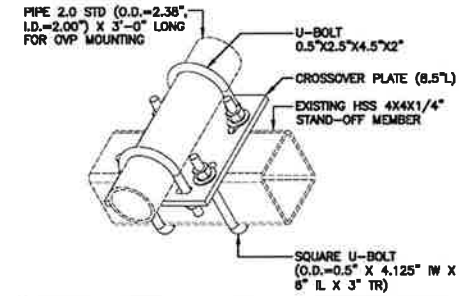
EXISTING ANTENNA CONFIGURATIONS



1 EXISTING SECTOR CONFIGURATION PLAN
 SCALE: 1/2" = 1'-0"



ANTENNA MOUNT ANALYSIS AND MODIFICATIONS REFERENCE NOTE:
 MOUNT MODIFICATIONS ARE REQUIRED WHICH MAY NOT BE DEPICTED WITHIN THESE CONSTRUCTION DRAWINGS. REFER TO PASSING VERIZON WIRELESS "ANTENNA MOUNT ANALYSIS REPORT WITH HARDWARE UPGRADES AND PMI REQUIREMENTS" PREPARED BY "COLLIERS ENGINEERING & DESIGN", DATED 06/08/2023 FOR REQUIRED MODIFICATIONS AND ADDITIONAL INFORMATION.
 ANTENNA MOUNT MAPPING FORM COMPLETED BY "MASER CONSULTING", DATED 04/28/21.

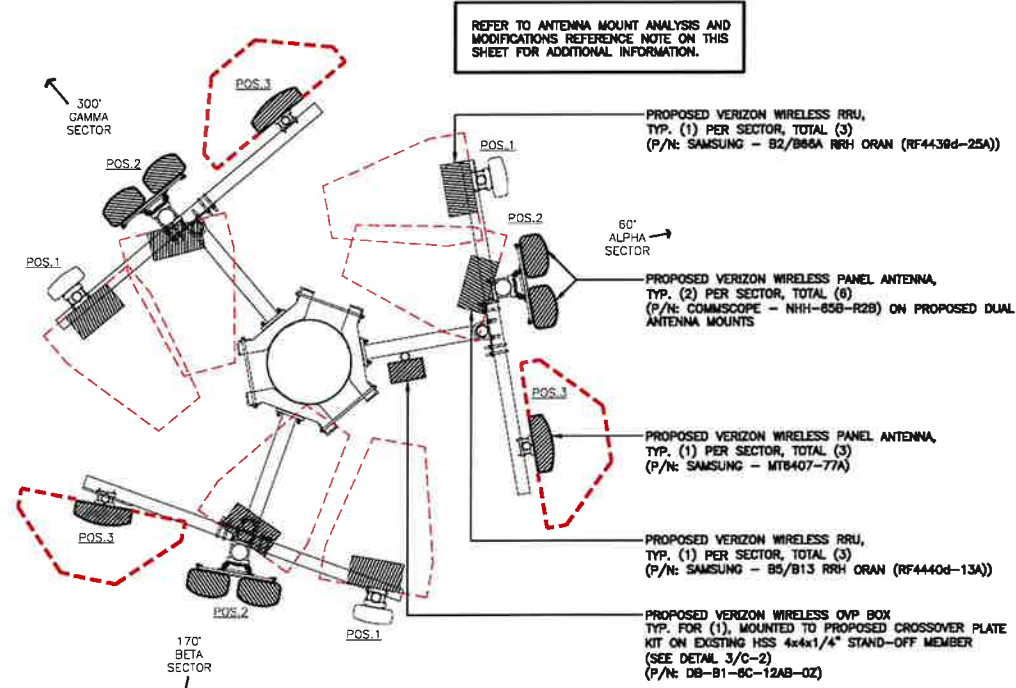


CROSSOVER PLATE	
MAKE/MODEL	DESCRIPTION
MAKE: SITE PRO MODEL: SC243-K	HOT-DIP GALVANIZED, PIPE/HSS IN 90° JUNCTION

NOTES:
 1. PIPE/HSS NOT INCLUDED IN ASSEMBLY KIT.

3 CROSSOVER PLATE KIT DETAIL
 NOT TO SCALE

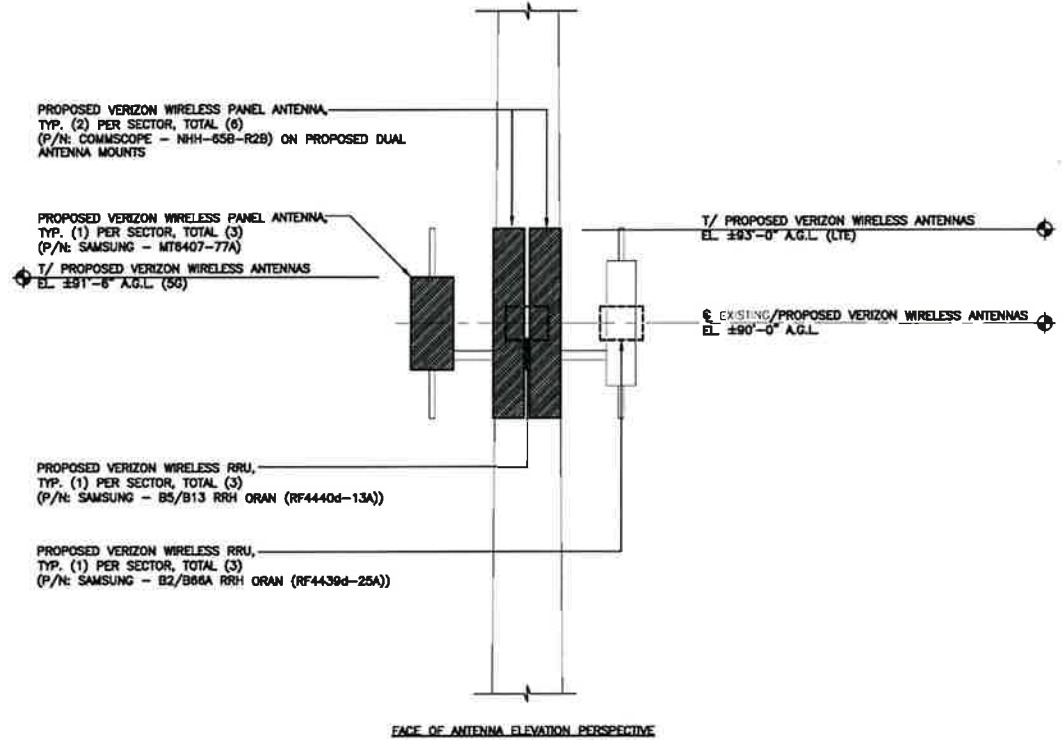
PROPOSED ANTENNA CONFIGURATIONS



LEGEND

	VERIZON WIRELESS MT6407-77A REQUIRED ANTENNA CLEARANCE LIMITS (PER DETAILS ON SHEET C-3)
ANTENNA CLEARANCE STATUS	ALPHA SECTOR: COMPLIANT BETA SECTOR: COMPLIANT GAMMA SECTOR: COMPLIANT
	VERIZON WIRELESS RRU REQUIRED ANTENNA CLEARANCE LIMITS (PER DETAILS ON SHEET C-3)
RRU CLEARANCE STATUS	ALPHA SECTOR: COMPLIANT BETA SECTOR: COMPLIANT GAMMA SECTOR: COMPLIANT

2 PROPOSED SECTOR CONFIGURATION PLAN
 SCALE: 1/2" = 1'-0"



4 PROPOSED SECTOR CONFIGURATION ELEVATION
 SCALE: 3/8" = 1'-0"

CONSTRUCTION DRAWINGS - REVISED PER UPDATED REF. DOCS.
 CONSTRUCTION DRAWINGS - REVISED PER NEW RETOS
 CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION
 CONSTRUCTION DRAWINGS - ISSUED FOR CLIENT REVIEW

REV.	DATE	DRAWN BY	CHECKED BY	DESCRIPTION
2	06/21/23	BSP	TJR	
1	05/12/23	BSP	TJR	
0	02/04/22	DMD	AKC	
A	07/19/21	AKC	DMD	

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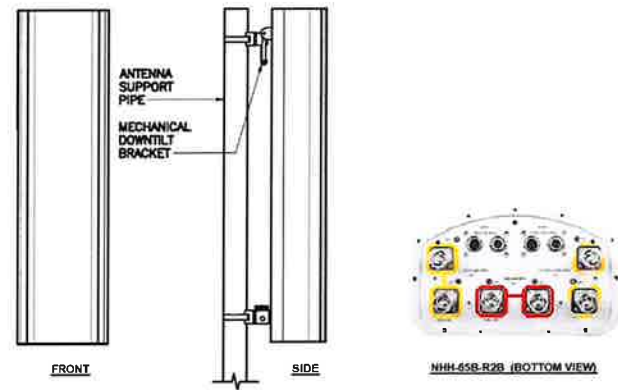
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 12311 484 0580
 12311 484 5587 Fax
 43-2 North Branford Road
 Branford, CT 06405
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DATE: 07/19/21
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ANTENNA SECTOR CONFIGURATION DETAILS

C-2
 Sheet No. 5 of 7



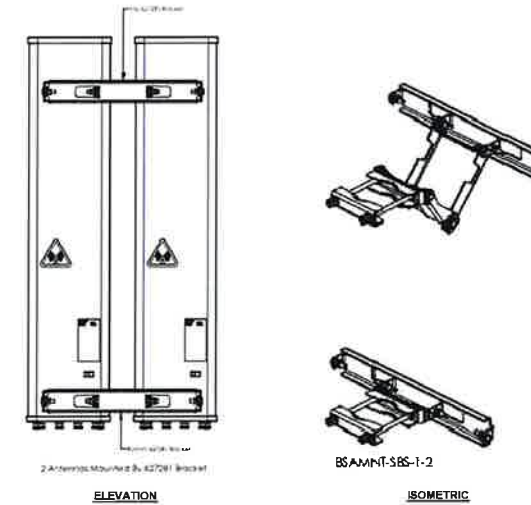
ALPHA/BETA/GAMMA ANTENNA		
EQUIPMENT	DIMENSIONS	WEIGHT (WITH MOUNTING KIT)
MAKE: COMMSCOPE MODEL: NHH-65B-R2B	78.0"L x 18.1"W x 11.8"D	43.7 LBS.

1 ANTENNA DETAIL
C-3 NOT TO SCALE



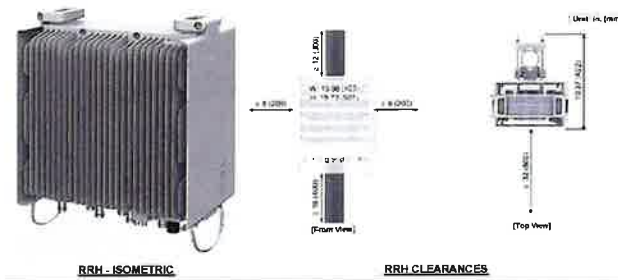
SECTOR ANTENNA		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: SAMSUNG MODEL: MT6407-77A	35.1"H x 16.1"W x 5.5"D (NOT TO EXCEED)	87 LBS. (NOT TO EXCEED)
CLEARANCES AND SERVICE AREA		
TOP:	31.5"	HORIZONTAL DISTANCE: 31.5" (ANT. TO ANT.)
FRONT, SIDES & BOTTOM:	15.7"	VERTICAL DISTANCE: 63.0" (ANT. TO ANT.)
NOTES: 1. THIS ANTENNA HAS ITS OWN BUILT-IN RRH.		

2 SECTOR ANTENNA DETAIL
C-3 NOT TO SCALE



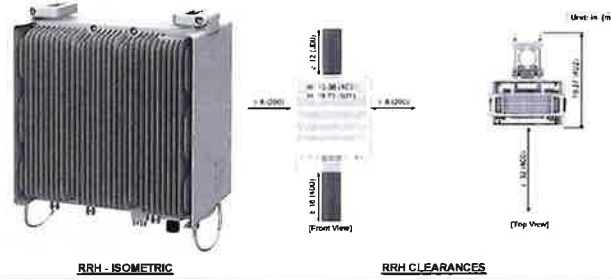
SIDE-BY-SIDE ANTENNA MOUNTING KIT			
MOUNT	DESCRIPTION	SUPPORTED ANTENNAS	GAP BETWEEN ANTENNAS
MAKE: COMMSCOPE MODEL: BSAMNT-SBS-1-2	(2) BRACKET KIT FOR MOUNTING (2) ANTENNAS SIDE-BY-SIDE	SBNHH 65" AND 85" NHH 65" AND 85"	3-3/8"
NOTES: 1. CONTRACTOR TO CONFIRM MOUNT MAKE/MODEL AND QUANTITY WITH VERIZON WIRELESS CONSTRUCTION MANAGER PRIOR TO ORDERING.			

3 PROPOSED SIDE-BY-SIDE ANTENNA MOUNT
C-3 NOT TO SCALE



DUAL BAND RRU (REMOTE RADIO UNIT)			
EQUIPMENT	BANDS	DIMENSIONS	WEIGHT
MAKE: SAMSUNG MODEL: RF4439d-25A	B2: PCS (1900 MHz) B06: AWS (2100 MHz)	15.0"H x 15.0"W x 10.0"D	74.7 LBS.
NOTES: 1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH VERIZON WIRELESS CONSTRUCTION MANAGER PRIOR TO ORDERING.			

4 DUAL-BAND AWS/PCS MACRO RADIO UNIT DETAIL
C-3 NOT TO SCALE



DUAL BAND RRU (REMOTE RADIO UNIT)			
EQUIPMENT	BANDS	DIMENSIONS	WEIGHT
MAKE: SAMSUNG MODEL: RF4440d-13A	B5: 850 MHz B13: 700 MHz	15.0"H x 15.0"W x 9.0"D	70.3 LBS.
NOTES: 1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH VERIZON WIRELESS CONSTRUCTION MANAGER PRIOR TO ORDERING.			

5 DUAL-BAND 700/850 MHZ MACRO RADIO UNIT DETAIL
C-3 NOT TO SCALE



OVP BOX		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: RFS MODEL: DB-B1-6C-12AB-0Z	28.0"H x 15.7"W x 10.3"D	32 LBS.
NOTES: 1. CONTRACTOR TO CONFIRM OVP BOX MAKE/MODEL AND QUANTITY WITH VERIZON WIRELESS CONSTRUCTION MANAGER PRIOR TO ORDERING.		

6 PROPOSED OVER-VOLTAGE PROTECTION BOX
C-3 NOT TO SCALE

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10751 - 185-0507 Fax
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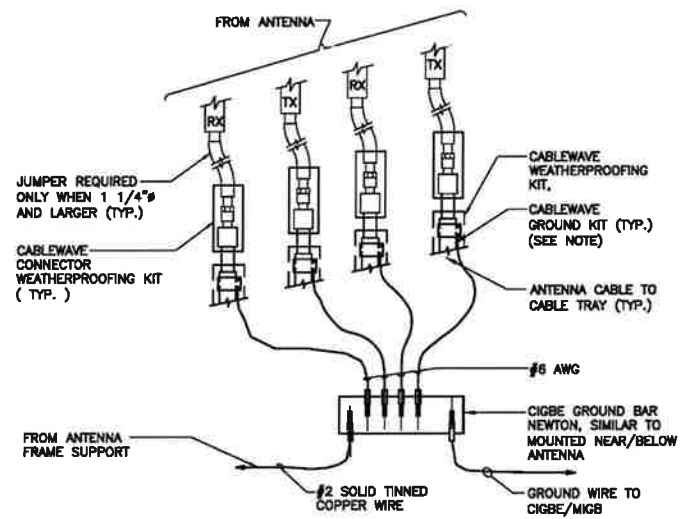
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REV.	DATE	DRAWN BY	CHECK'D BY	DESCRIPTION
2	06/21/23	BSP	YJR	CONSTRUCTION DRAWINGS - REVISED PER UPDATED REF. DOCS.
1	05/12/23	BSP	YJR	CONSTRUCTION DRAWINGS - REVISED PER NEW PERIS
0	02/04/22	DMD	AKC	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION
A	07/19/21	AKC	DMD	CONSTRUCTION DRAWINGS - ISSUED FOR CLIENT REVIEW

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RF DETAILS

C-3
Sheet No. 8 of 7



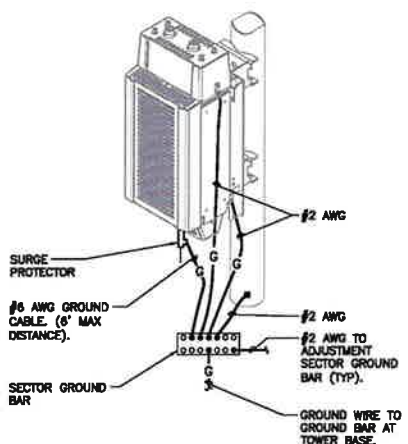
NOTES

- DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE

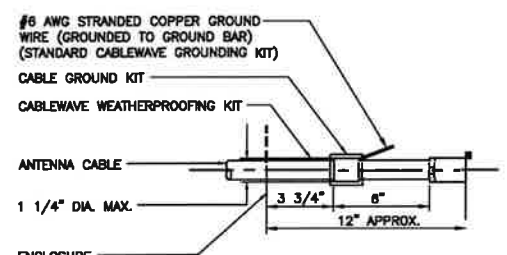
1 CONNECTION OF GROUND WIRES TO GROUND BAR
E-1 NOT TO SCALE

EACH RRH CABINET SHALL BE GROUNDED IN THE FOLLOWING MANNER:

- AT TOP OF THE CABINET
- AT RIGHT SIDE OF THE CABINET.



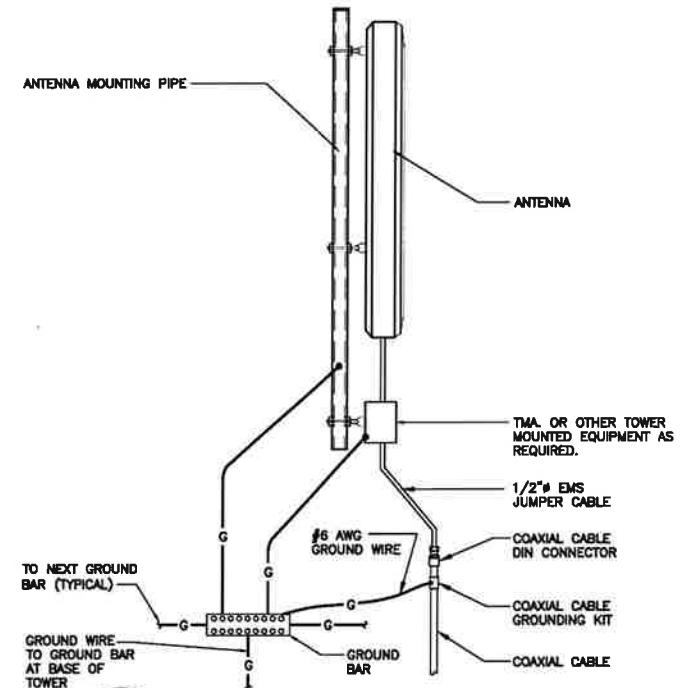
2 RRH POLE MOUNT GROUNDED
E-1 NOT TO SCALE



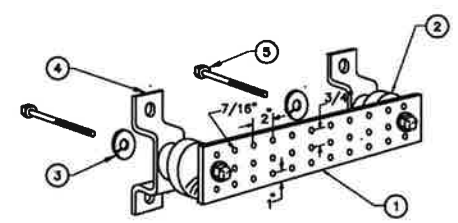
NOTES

- DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.

3 ANTENNA CABLE GROUNDING DETAIL
E-1 NOT TO SCALE



4 TYPICAL ANTENNA GROUNDING DETAIL
E-1 NOT TO SCALE



NOTES

- TINNED COPPER GROUND BAR, 1/4" x 4" x 20", NEWTON INSTRUMENT CO. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.
- INSULATORS, NEWTON INSTRUMENT CAT. NO. 3061-4.
- 5/8" LOCK WASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-B.
- WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT. NO. A-8056.
- 5/8-11 x 1" STAINLESS STEEL TRUSS SPANNER MACHINE SCREWS.

5 GROUND BAR DETAIL
E-1 NOT TO SCALE

ELECTRICAL SPECIFICATIONS

SECTION 18010

- 1.01. SCOPE OF WORK
- WORK SHALL INCLUDE ALL LABOR, EQUIPMENT AND SERVICES REQUIRED TO COMPLETE (MAKE READY FOR OPERATION) ALL THE ELECTRICAL WORK INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING:
 - CELLULAR GROUNDING SYSTEMS CONSISTING OF ANTENNA GROUNDING, GROUND BARS, ETC.
- 1.02. GENERAL REQUIREMENTS
- THE ENTIRE ELECTRICAL INSTALLATION SHALL BE MADE IN STRICT ACCORDANCE WITH ALL LOCAL, STATE AND NATIONAL CODES AND REGULATIONS WHICH MAY APPLY AND NOTHING IN THE DRAWINGS OR SPECIFICATIONS SHALL BE INTERPRETED AS AN INFRINGEMENT OF SUCH CODES OR REGULATIONS.
 - THE ELECTRICAL CONTRACTOR IS TO BE RESPONSIBLE FOR THE COMPLETE INSTALLATION AND COORDINATION OF THE ENTIRE ELECTRICAL SERVICE. ALL ACTIVITIES TO BE COORDINATED THROUGH OWNERS REPRESENTATIVE, DESIGN ENGINEER AND OTHER AUTHORITIES HAVING JURISDICTION OF TRADES.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND PAY ALL FEES THAT MAY BE REQUIRED FOR THE ELECTRICAL WORK AND FOR SCHEDULING OF ALL INSPECTIONS THAT MAY BE REQUIRED BY THE LOCAL AUTHORITY.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH THE BUILDING OWNER FOR NEW AND/OR DEMOLITION WORK INVOLVED.
 - NO MATERIAL OTHER THAN THAT CONTAINED IN THE "LATEST LIST OF ELECTRICAL FITTINGS" APPROVED BY THE UNDERWRITERS' LABORATORIES, SHALL BE USED IN ANY PART OF THE WORK. ALL MATERIAL FOR WHICH LABEL SERVICE HAS BEEN ESTABLISHED SHALL BEAR THE U.L. LABEL.
 - THE CONTRACTOR SHALL GUARANTEE ALL NEW WORK FOR A PERIOD OF ONE YEAR FROM THE ACCEPTANCE DATE BY THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING WARRANTIES FROM ALL EQUIPMENT MANUFACTURERS FOR SUBMISSION TO THE OWNER.
 - DRAWINGS INDICATE GENERAL ARRANGEMENT OF WORK INCLUDED IN CONTRACT. CONTRACTOR SHALL, WITHOUT EXTRA CHARGE, MAKE MODIFICATIONS TO THE LAYOUT OF THE WORK TO PREVENT CONFLICT WITH WORK OF OTHER TRADES AND FOR THE PROPER INSTALLATION OF WORK. CHECK ALL DRAWINGS AND VISIT JOB SITE TO VERIFY SPACE AND TYPE OF EXISTING CONDITIONS IN WHICH WORK WILL BE DONE, PRIOR TO SUBMITTAL OF BID.
 - THE ELECTRICAL CONTRACTOR SHALL SUPPLY THREE (3) COMPLETE SETS OF APPROVED DRAWINGS, ENGINEERING DATA SHEETS, MAINTENANCE AND OPERATING INSTRUCTION MANUALS FOR ALL SYSTEMS AND THEIR RESPECTIVE EQUIPMENT. THESE MANUALS SHALL BE INSERTED IN VINYL COVERED 3-RING BINDERS AND TURNED OVER TO OWNER'S REPRESENTATIVE ONE (1) WEEK PRIOR TO FINAL PUNCH LIST.
 - ALL WORK SHALL BE INSTALLED IN A NEAT AND WORKMAN LIKE MANNER AND WILL BE SUBJECT TO THE APPROVAL OF THE OWNER'S REPRESENTATIVE.
 - ALL EQUIPMENT AND MATERIALS TO BE INSTALLED SHALL BE NEW, UNLESS OTHERWISE NOTED.
 - BEFORE FINAL PAYMENT, THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF PRINTS (AS-BUILTS), LEGIBLY MARKED IN RED PENCIL TO SHOW ALL CHANGES FROM THE ORIGINAL PLANS.
 - ENTIRE ELECTRICAL INSTALLATION SHALL BE IN ACCORDANCE WITH OWNER'S SPECIFICATIONS, AND REQUIREMENTS OF ALL LOCAL AUTHORITIES HAVING JURISDICTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH APPROPRIATE INDIVIDUALS TO OBTAIN ALL SUCH SPECIFICATIONS AND REQUIREMENTS. NOTHING CONTAINED IN, OR OMITTED FROM, THESE DOCUMENTS SHALL RELIEVE CONTRACTOR FROM THIS OBLIGATION.

SECTION 18450

- 1.01. GROUNDING
- ALL NON-CURRENT CARRYING PARTS OF THE ELECTRICAL AND TELEPHONE CONDUIT SYSTEMS SHALL BE MECHANICALLY AND ELECTRICALLY CONNECTED TO PROVIDE AN INDEPENDENT RETURN PATH TO THE EQUIPMENT GROUNDING SOURCES.
 - GROUNDING SYSTEM WILL BE IN ACCORDANCE WITH THE LATEST ACCEPTABLE EDITION OF THE NATIONAL ELECTRICAL CODE AND REQUIREMENTS PER LOCAL INSPECTOR HAVING JURISDICTION.
 - EQUIPMENT GROUNDING CONDUCTOR:
 - EACH EQUIPMENT GROUND CONDUCTOR SHALL BE SIZED IN ACCORDANCE WITH THE N.E.C. ARTICLE 250-122.
 - THE MINIMUM SIZE OF EQUIPMENT GROUND CONDUCTOR SHALL BE #12 AWG COPPER.
 - CELLULAR GROUNDING SYSTEM:

PROVIDE THE CELLULAR GROUNDING SYSTEM AS SPECIFIED ON DRAWINGS, INCLUDING, BUT NOT LIMITED TO:

 - GROUND BARS
 - ANTENNA GROUND CONNECTIONS AND PLATES.
 - ALL EQUIPMENT SHALL BE BONDED TO GROUND AS REQUIRED BY N.E.C., MFC. SPECIFICATIONS, AND OWNER'S SPECIFICATIONS.

CONSTRUCTION DRAWINGS - REVISED PER UPDATED REF. DOCS.	DATE	BY	CHK'D	BY
CONSTRUCTION DRAWINGS - REVISED FOR NEW FEES	06/21/23	ESP		
CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION	05/12/23	LJR		
CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION	02/04/22	DMB		
CONSTRUCTION DRAWINGS - ISSUED FOR CLIENT REVIEW	07/19/21	ANC		

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DATE: 07/19/21
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ELECTRICAL
DETAILS AND
SPECIFICATIONS

E-1
Sheet No. 1 of 1

SAMSUNG

AWS/PCS MACRO RADIO

DUAL-BAND AND HIGH POWER FOR MACRO COVERAGE

Samsung's future proof dual-band radio is designed to help effectively increase the coverage areas in wireless networks. This AWS/PCS 4T4R dual-band radio has 4Tx/4Rx to 2Tx/2Rx RF chains options and a total output power of 320W, making it ideal for macro sites.

Model Code RF4439d-25A



Homepage
samsungnetworks.com

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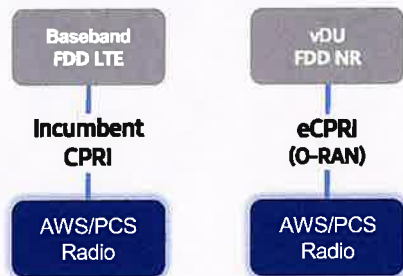


Youtube
www.youtube.com/samsung5g

Points of Differentiation

Continuous Migration

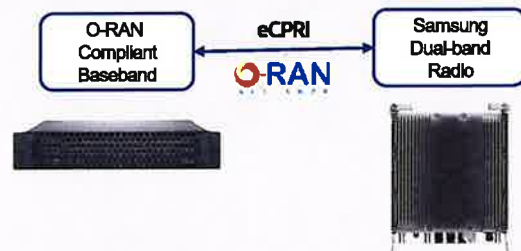
Samsung's AWS/PCS macro radio can support each incumbent CPRI interface as well as advanced eCPRI interfaces. This feature provides installable options for both legacy LTE networks and added NR networks.



O-RAN Compliant

A standardized O-RAN radio can help in implementing cost-effective networks, which are capable of sending more data without compromising additional investments.

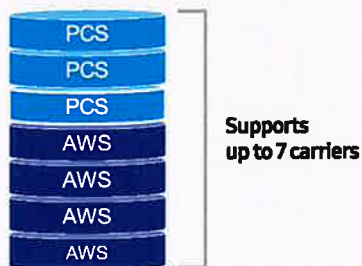
Samsung's state-of-the-art O-RAN technology will help accelerate the effort toward constructing a solid O-RAN ecosystem.



Optimum Spectrum Utilization

The number of required carriers varies according to site (region). Supporting many carriers is essential for using all frequencies that the operator has available.

The new AWS/PCS dual-band radio can support up to 3 carriers in the PCS (1.9GHz) band and 4 carriers in the AWS (2.1GHz) band, respectively.



Brand New Features in a Compact Size

Samsung's AWS/PCS macro radio offers several features, such as dual connectivity for baseband for both CDU and vDU, O-RAN capability, more carriers and an enlarged PCS spectrum, combined into an incumbent radio volume of 36.8L.



Technical Specifications

Item	Specification
Tech	LTE / NR
Brand	B25(PCS), B66(AWS)
Frequency Band	DL: 1930 – 1995MHz, UL: 1850 – 1915MHz DL: 2110 – 2200MHz, UL: 1710 – 1780MHz
RF Power	(B25) 4 × 40W or 2 × 60W (B66) 4 × 60W or 2 × 80W
IBW/OBW	(B25) 65MHz / 30MHz (B66) DL 90MHz, UL 70MHz / 60MHz
Installation	Pole, Wall
Size/Weight	14.96 x 14.96 x 10.04inch (36.8L) / 74.7lb

SAMSUNG

700/850MHZ MACRO RADIO

DUAL-BAND AND HIGH POWER FOR MACRO COVERAGE

Samsung's future proof dual-band radio is designed to help effectively increase the coverage areas in wireless networks. This 700/850MHz 4T4R dual-band radio has 4Tx/4Rx to 2Tx/2Rx RF chains options and a total output power of 320W, making it ideal for macro sites.

Model Code RF4440d-13A



Homepage
samsungnetworks.com

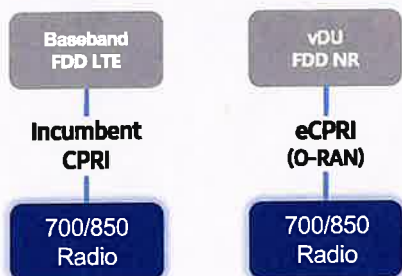


Youtube
www.youtube.com/samsung5g

Points of Differentiation

Continuous Migration

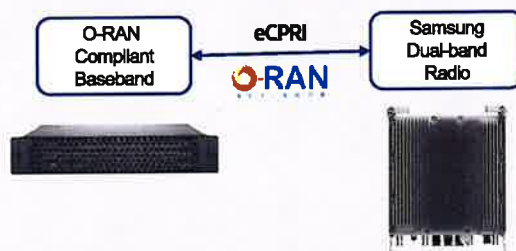
Samsung's 700/850MHz macro radio can support each incumbent CPRI interface as well as an advanced eCPRI interface. This feature provides installable options for both legacy LTE networks and added NR networks.



O-RAN Compliant

A standardized O-RAN radio can help when implementing cost-effective networks because it is capable of sending more data without compromising additional investments.

Samsung's state-of-the-art O-RAN technology will help accelerate the effort toward constructing a solid O-RAN ecosystem.



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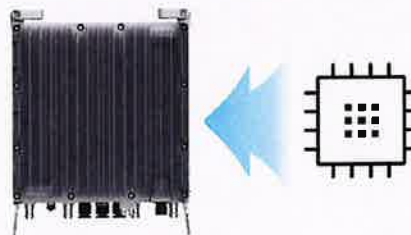
The new 700/850MHz dual-band radio can support up to 2 carriers in the B13 (700MHz) band and 3 carriers in the B5 (850MHz) band, respectively.



Secured Integrity

Access to sensitive data is allowed only to authorized software.

The Samsung radio's CPU can protect root of trust, which is credential information to verify SW integrity, and secure storage provides access control to sensitive data by using dedicated hardware (TPM).



Technical Specifications

Item	Specification
Tech	LTE / NR
Brand	B13(700MHz), B5(850MHz)
Frequency Band	DL: 746 – 756MHz, UL: 777 – 787MHz DL: 869 – 894MHz, UL: 824 – 849MHz
RF Power	(B13) 4 × 40W or 2 × 60W (B5) 4 × 40W or 2 × 60W
IBW/OBW	(B13) 10MHz / 10MHz (B5) 25MHz / 25MHz
Installation	Pole, Wall
Size/ Weight	14.96 x 14.96 x 9.05inch (33.2L) / 70.33 lb