Robinson+Cole

KENNETH C. BALDWIN

280 Trumbull Street
Hartford, CT 06103-3597
Main (860) 275-8200
Fax (860) 275-8299
kbaldwin@rc.com
Direct (860) 275-8345

Also admitted in Massachusetts

November 13, 2019

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

Re: **Notice of Exempt Modification – Facility Modification**
76 East Ridge Road, Ridgefield, Connecticut

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains twelve (12) antennas at the top of the existing 130-foot tower at the Ridgefield Police Department, 76 East Ridge Road in Ridgefield, Connecticut (the "Property"). The tower and Property are owned by the Town of Ridgefield ("Town"). In September of 1989, the Connecticut Siting Council ("Council") approved Cellco's proposal to extend an existing 80-foot Police Department tower (Docket No. 113). The tower was extended to its current height of 130 feet and is shared by Cellco, Sprint, T-Mobile and the Town. Copies of the Council's Decision and Order (Docket No. 113) is included in Attachment 1.

Cellco now intends to modify its facility by removing three (3) of its existing antennas and replacing them with six (6) new antennas; replacing nine (9) remote radio heads ("RRHs") with nine (9) new RRHs; and installing six (6) HYBRIFLEX™ fiber optic antenna cables. Included in Attachment 2 are plans for the proposed facility modification and specifications for the replacement antennas, RRHs and HYBRIFLEX™ cables.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Ridgefield's First Selectman, Rudy Marconi and Richard Baldelli, Ridgefield's Director of Planning and Zoning.

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

1. The proposed modifications will not result in an increase in the height of the existing tower. Cellco's replacement antennas and RRHs will be installed at a centerline height of 128 feet on the 130-foot tower.

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

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

4. The installation of six (6) new antennas and nine (9) RRHs will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A worst-case radio frequency table for Cellco's modified facility is included in Attachment 3.

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

6. The tower and its foundation can support Cellco's proposed modifications. (*See* Structural Analysis Report included in Attachment 4).

A copy of the parcel map and Property owner information is included in Attachment 5. A Certificate of Mailing verifying that this filing was sent to municipal officials is included in Attachment 6.

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

Sincerely,

Kenneth C. Baldwin

Enclosures
Copy to:
Rudy Marconi, Ridgefield First Selectman
Richard Baldelli, Ridgefield Director of Planning and Zoning
Tim Parks

ATTACHMENT 1

DOCKET NO. 113 - An application of Metro Mobile CTS of Fairfield County, Inc., for a Certificate of Environmental Compatibility and Public Need for cellular telephone antennas and associated equipment in the Town of Ridgefield, Connecticut.	: Connecticut : : Siting : Council :September 8, 1989

DECISION AND ORDER

Pursuant to the foregoing Opinion, the Connecticut Siting Council finds that the effects associated with the construction, operation, and maintenance of a cellular monopole tower and associated equipment at the proposed Ridgefield site, including effects on the natural environment; ecological balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife, are not significant either alone or cumulatively with other effects, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application, and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by Section 16-50k of the Connecticut General Statutes (CGS) be issued to Metro Mobile CTS of Fairfield County, Inc., for the construction, operation,and maintenance of a cellular telephone tower site and associated equipment at the proposed site on Governor Street in Ridgefield, Connecticut.

The facility shall be substantially constructed, operated, and maintained as specified in the Council's record on this matter, and subject to the following conditions:

1. The tower shall be a monopole no taller than necessary to provide the proposed service, and in no event shall the structure exceed a total height of 143 feet, including antennas.

2. The facility shall be constructed in accordance with applicable sections of the State of Connecticut Basic Building Code.
3. Unless necessary to comply with conditions of the Federal Aviation Administration, no lights shall be installed on this tower.
4. The Certificate Holder or its successor shall not oppose public or private entities who seek to share space on the tower unless technical reasons preclude such tower sharing.
5. The Certificate Holder or its successor shall notify the Council for acknowledgement or approval if and when directional antennas or any equipment other than that listed in this application are added to this facility.
6. If this facility does not provide, or permanently ceases to provide, cellular service following the completion of construction, this Decision and Order shall be void, and the tower and all associated equipment in this application shall be dismantled and removed or reapplication for any new use shall be made to the Council and a Certificate granted before any such new use is made.
7. The Certificate Holder shall comply with any future radio frequency (RF) standard, promulgated by State or federal regulatory agencies. Upon the establishment of any new governmental RF standards, the facility granted in this Decision and Order shall be brought into compliance with such standards.
8. Unless otherwise approved by the Council, this Decision and Order shall be void if all construction authorized herein is not completed within three years of the issuance of this Decision and Order, or within three years of the completion of any appeal taken in this Decision and Order.

Pursuant to Section 16-50p, we hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below. A notice of issuance shall be published in the Danbury News-Times, the Stamford Advocate, and the White Plains Reporter Dispatch.

By this Decision and Order, the Council disposes of the legal rights, duties, and privileges of each party named or admitted to the proceeding in accordance with Section 16-50j-17 of the Regulations of State Agencies.

The parties or intervenors to this proceeding are:

PARTY	ITS REPRESENTATIVE
Metro Mobile CTS of Fairfield County, Inc. 50 Rockland Road South Norwalk, CT 06854 ATTN: Phillip Mayberry General Manager	Jennifer Young Gaudet, Esq. David W. Bogan, Esq. Bryne, Slater, Sandler Shulman & Rouse, P.C. 330 Main Street P.O. Box 3216 Hartford, CT 06103 Fleischman and Walsh, P.C. 1400 16th Street, N.W. Suite 600 Washington, D.C. 20036 ATTN: Richard Rubin, Esq.
INTERVENOR	ITS REPRESENTATIVE
SNET Cellular, Inc. 227 Church Street New Haven, CT 06506	Peter J. Tyrrell Senior Attorney SNET Cellular, Inc. Room 1021 227 Church Street New Haven, CT 06506

CERTIFICATION

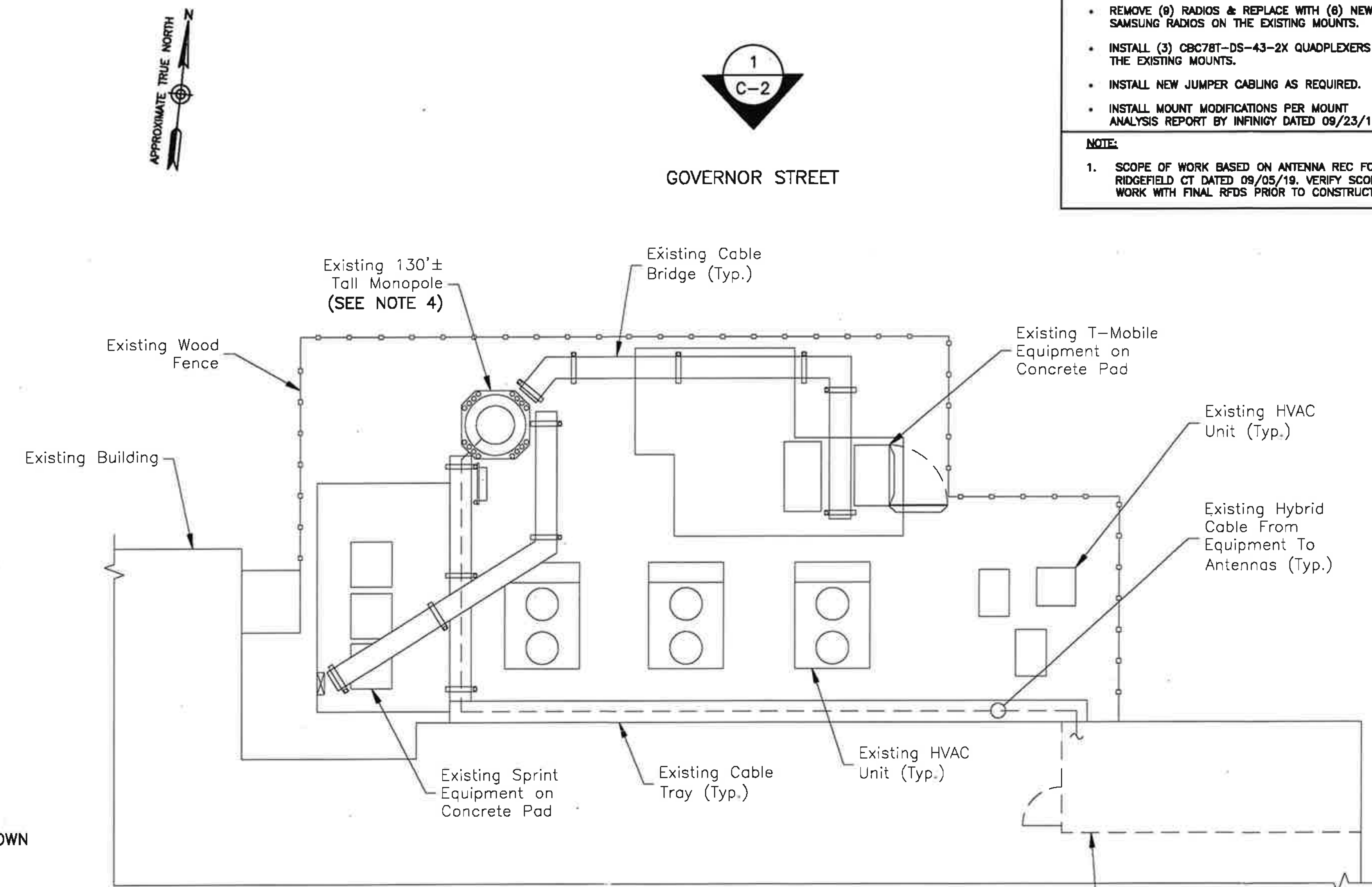
The undersigned members of the Connecticut Siting Council hereby certify that they have heard this case in Docket No. 113 or read the record thereof, and that we voted as follows:

Dated at New Britain, Connecticut the 8th day of September, 1989.

Council Members	Vote Cast
Gloria Dibble Pond Chairperson	YES
Commissioner Peter Boucher Designee: Robert A. Pulito	YES
Commissioner Leslie Carothers Designee: Brian Emerick	ABSENT
Harry E. Covey	ABSTAIN
Mortimer A. Gelston	YES
Daniel P. Lynch, Jr.	YES
Paulann H. Sheets	YES
William H. Smith	YES
Colin C. Tait	YES

ATTACHMENT 2

KEY MAP
SCALE: N.T.S. (1)



COMPOUND PLAN
SCALE: 1"=20' FOR 11"x17"
1"=10' FOR 22"x34" (2)

0' 10' 20'

SCOPE OF WORK

- REMOVE (3) EXISTING ANTENNAS IN POSITION 5.
- RELOCATE (3) EXISTING ANTENNAS FROM POSITION 3 TO POSITION 5.
- RELOCATE (3) EXISTING ANTENNAS FROM POSITION 1 TO POSITION 3.
- INSTALL (3) PROPOSED ANTENNAS IN POSITION 2.
- INSTALL (3) PROPOSED CBRS RRHS WITH CLIP ON ANTENNAS.
- REMOVE (9) RADIOS & REPLACE WITH (6) NEW SAMSUNG RADIOS ON THE EXISTING MOUNTS.
- INSTALL (3) CBC78T-DS-43-2X QUADPLEXERS ON THE EXISTING MOUNTS.
- INSTALL NEW JUMPER CABLING AS REQUIRED.
- INSTALL MOUNT MODIFICATIONS PER MOUNT ANALYSIS REPORT BY INFINIGY DATED 09/23/19.

NOTE:

1. SCOPE OF WORK BASED ON ANTENNA REC FOR RIDGEFIELD CT DATED 09/05/19. VERIFY SCOPE OF WORK WITH FINAL RFDS PRIOR TO CONSTRUCTION.

NOTES:

1. NORTH SHOWN AS APPROXIMATE.
2. SOME EXISTING AND PROPOSED INFORMATION NOT SHOWN FOR CLARITY.
3. SITE PLAN & ELEVATION BASED ON A SITE VISIT BY DEWBERRY ENGINEERS INC. ON 07/21/17.
4. MOUNT ALL ANTENNAS, COAX, RRH'S, OVP BOXES, MOUNT MODIFICATIONS, ETC. IN ACCORDANCE WITH THE MOUNT ANALYSIS REPORT COMPLETED BY INFINIGY DATED 09/23/19 & TOWER STRUCTURAL ANALYSIS REPORT BY INFINIGY DATED 09/23/19.
5. REUSE EXISTING ANTENNA MOUNTS AND COAX. INSPECT FOR DAMAGE OR DECAY AND REPLACE AS NEEDED PER STRUCTURAL ANALYSIS.
6. THIS DOCUMENT WAS DEVELOPED TO REFLECT A SPECIFIC SITE AND ITS SITE CONDITIONS AND IS NOT TO BE USED FOR ANOTHER SITE OR WHEN OTHER CONDITIONS PERTAINS. REUSE OF THIS DOCUMENT IS AT THE SOLE RISK OF THE USER.

CELLCO PARTNERSHIP
d/b/a verizon WIRELESS
99 EAST RIVER DRIVE
EAST HARTFORD, CT 06108

RIDGEFIELD CT

CONSTRUCTION DRAWINGS

1	10/21/19	FOR SUBMITTAL
0	05/02/19	FOR SUBMITTAL
B	04/02/19	FOR COMMENT
A	02/20/19	FOR COMMENT

Dewberry®
Dewberry Engineers Inc.
99 SUMMER STREET
SUITE 700
BOSTON, MA 02110
PHONE: 617.695.3400
FAX: 617.695.3310

STATE OF CONNECTICUT · LICENSED PROFESSIONAL ENGINEER · 28971

DRAWN BY:	JC
REVIEWED BY:	CDH
CHECKED BY:	BBR
PROJECT NUMBER:	50002925
JOB NUMBER:	50110091

SITE ADDRESS:

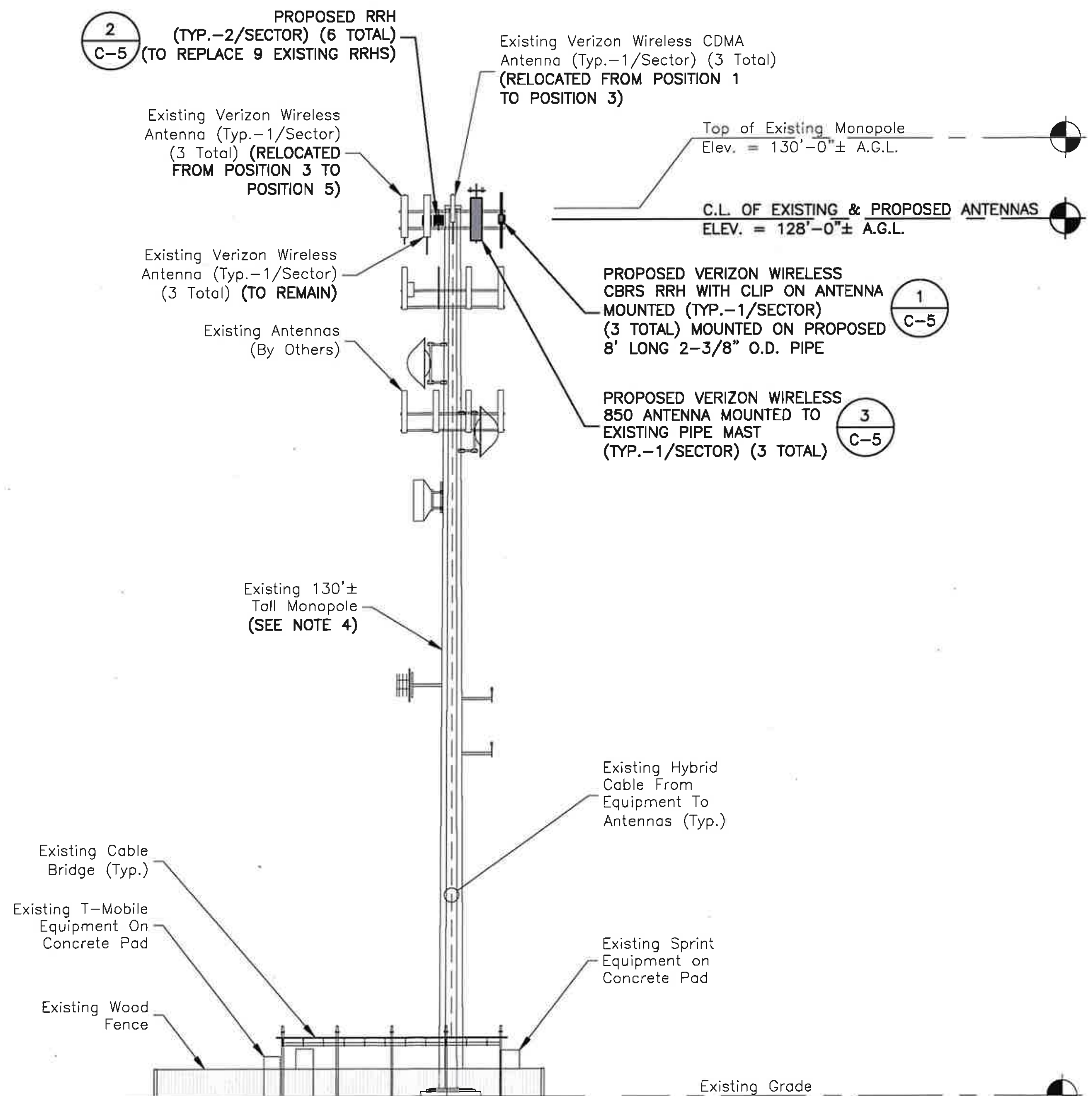
76 EAST RIDGE ROAD
RIDGEFIELD, CT 06877

SHEET TITLE

KEY MAP & COMPOUND PLAN

SHEET NUMBER

C-1



NORTH ELEVATION (1)

SCALE: 1"=20' FOR 11"x17"
1"=10' FOR 22"x34"

0' 10' 20'

NOTES:

1. ELEVATION SHOWN AS APPROXIMATE.
2. SOME EXISTING AND PROPOSED INFORMATION NOT SHOWN FOR CLARITY.
3. SITE PLAN & ELEVATION BASED ON A SITE VISIT BY DEWBERRY ENGINEERS INC. ON 07/21/17.
4. MOUNT ALL ANTENNAS, COAX, RRH'S, OVP BOXES, MOUNT MODIFICATIONS, ETC. IN ACCORDANCE WITH THE MOUNT ANALYSIS REPORT COMPLETED BY INFINIGY DATED 09/23/19 & TOWER STRUCTURAL ANALYSIS REPORT BY INFINIGY DATED 09/23/19.
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d/b/a verizon WIRELESS
99 EAST RIVER DRIVE
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RIDGEFIELD CT

CONSTRUCTION DRAWINGS		
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B	04/02/19	FOR COMMENT
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FAX: 617.695.3310

STATE OF CONNECTICUT · LICENSED PROFESSIONAL ENGINEER · 28971

DRAWN BY:	JC
REVIEWED BY:	CDH
CHECKED BY:	BBR
PROJECT NUMBER:	50002925
JOB NUMBER:	50110091

SITE ADDRESS:

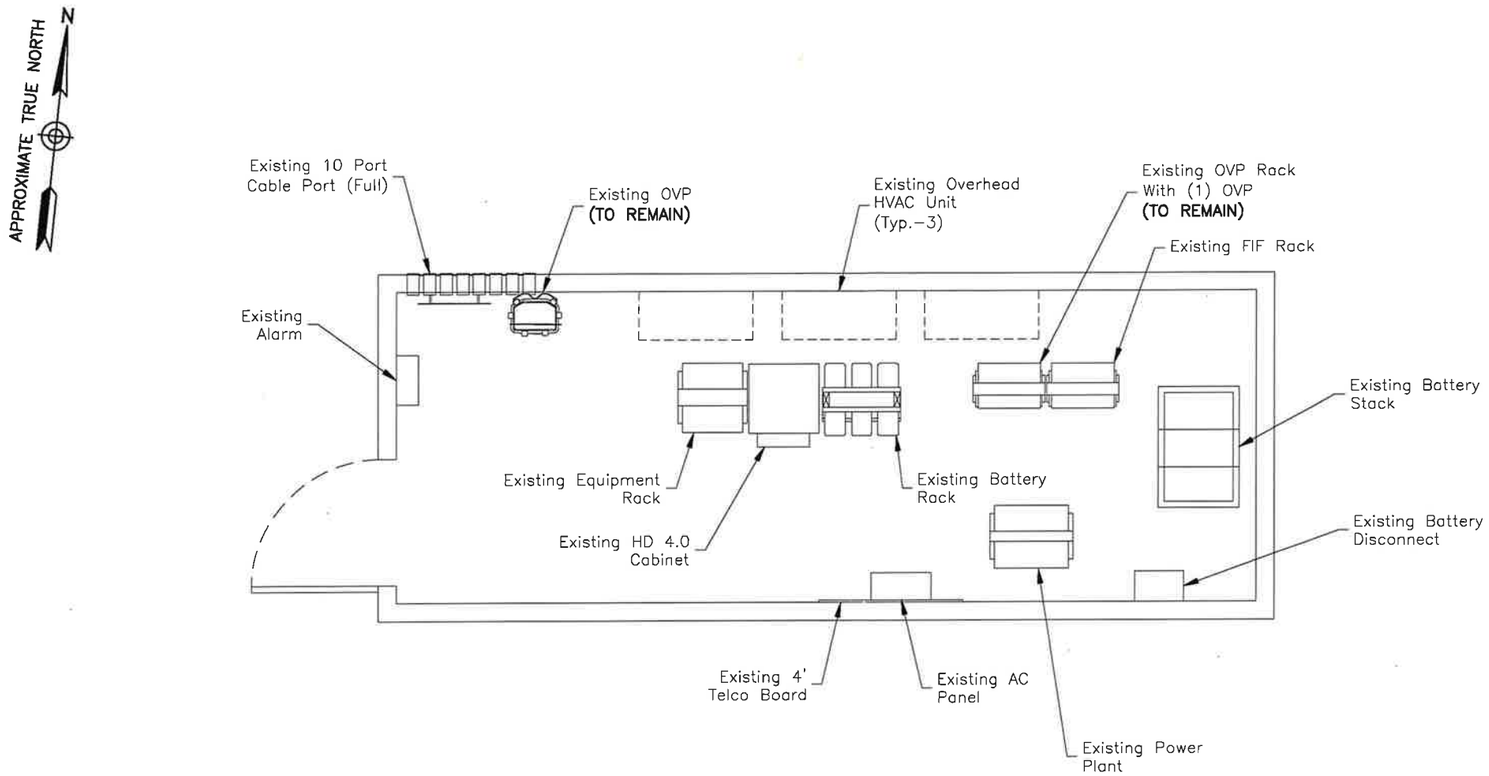
76 EAST RIDGE ROAD
RIDGEFIELD, CT 06877

SHEET TITLE

NORTH ELEVATION

SHEET NUMBER

C–2



EQUIPMENT ROOM PLAN

1

SCALE: 1/4"=1' FOR 11"x17"
1/2"=1' FOR 22"x34"

0' 2' 4' 6'

NOTES:

1. NORTH SHOWN AS APPROXIMATE.
2. SOME EXISTING AND PROPOSED INFORMATION NOT SHOWN FOR CLARITY.
3. THIS DOCUMENT WAS DEVELOPED TO REFLECT A SPECIFIC SITE AND ITS SITE CONDITIONS AND IS NOT TO BE USED FOR ANOTHER SITE OR WHEN OTHER CONDITIONS PERTAINS. REUSE OF THIS DOCUMENT IS AT THE SOLE RISK OF THE USER.

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99 EAST RIVER DRIVE
EAST HARTFORD, CT 06108

RIDGEFIELD CT

CONSTRUCTION DRAWINGS		
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0	05/02/19	FOR SUBMITTAL
B	04/02/19	FOR COMMENT
A	02/20/19	FOR COMMENT

Dewberry
Dewberry Engineers Inc.
99 SUMMER STREET
SUITE 700
BOSTON, MA 02110
PHONE: 617.695.3400
FAX: 617.695.3310

STATE OF CONNECTICUT
BENJAMIN B. RITE
28971
LICENSED
PROFESSIONAL ENGINEER

DRAWN BY:	JC
REVIEWED BY:	CDH
CHECKED BY:	BBR
PROJECT NUMBER:	50002925
JOB NUMBER:	50110091

SITE ADDRESS:

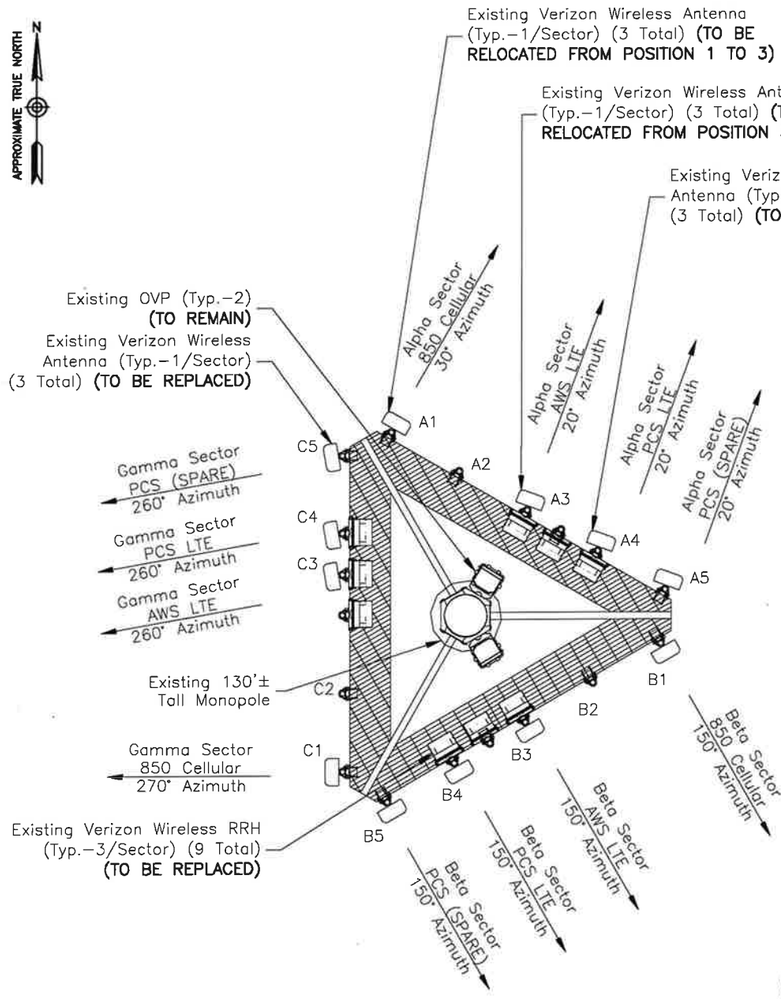
76 EAST RIDGE ROAD
RIDGEFIELD, CT 06877

SHEET TITLE

EQUIPMENT ROOM PLAN

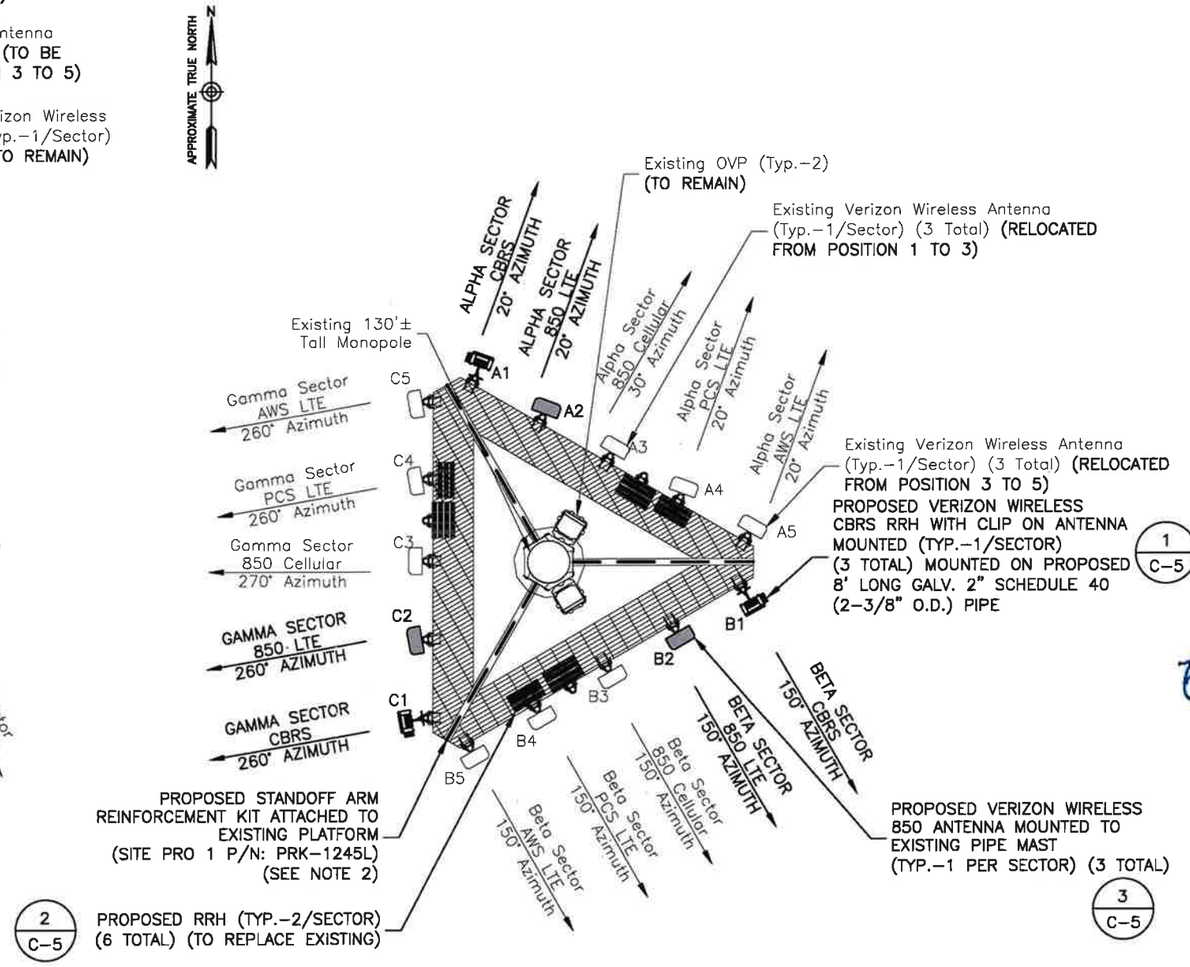
SHEET NUMBER

C-3



EXISTING ANTENNA PLAN 1

SCALE: N.T.S.



PROPOSED ANTENNA PLAN 2

SCALE: N.T.S.

NOTES:

1. AZIMUTHS BASED ON TRUE NORTH.
2. MOUNT ALL ANTENNAS, COAX, RRH'S, OVP BOXES, MOUNT MODIFICATIONS, ETC. IN ACCORDANCE WITH THE MOUNT ANALYSIS REPORT COMPLETED BY INFINIGY DATED 09/23/19 & TOWER STRUCTURAL ANALYSIS REPORT BY INFINIGY DATED 09/23/19.

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d/b/a verizon WIRELESS
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EAST HARTFORD, CT 06108

RIDGEFIELD CT

CONSTRUCTION DRAWINGS		
1	10/21/19	FOR SUBMITTAL
0	05/02/19	FOR SUBMITTAL
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Dewberry
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99 SUMMER STREET
SUITE 700
BOSTON, MA 02110
PHONE: 617.695.3400
FAX: 617.695.3310

STATE OF CONNECTICUT BENJAMIN B. RAU 28971 LICENSED PROFESSIONAL ENGINEER

DRAWN BY:	JC
REVIEWED BY:	CDH
CHECKED BY:	BBR
PROJECT NUMBER:	50002925
JOB NUMBER:	50110091

SITE ADDRESS:

76 EAST RIDGE ROAD
RIDGEFIELD, CT 06877

SHEET TITLE

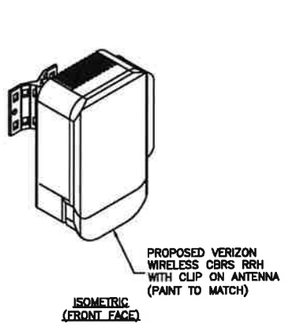
EXISTING & PROPOSED ANTENNA PLANS

SHEET NUMBER

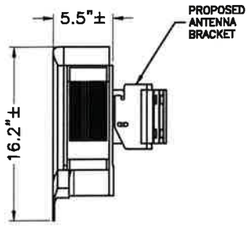
C–4

GENERAL NOTES:

1. ALL DIMENSIONS TO, OF, AND ON EXISTING BUILDINGS, DRAINAGE STRUCTURES, AND SITE IMPROVEMENTS SHALL BE VERIFIED IN FIELD BY CONTRACTOR PRIOR TO ALL FABRICATION WITH ALL DISCREPANCIES REPORTED IMMEDIATELY TO THE ENGINEER.
2. DO NOT CHANGE SIZE NOR SPACING OF STRUCTURAL ELEMENTS.
3. DETAILS SHOWN ARE TYPICAL; SIMILAR DETAILS APPLY TO SIMILAR CONDITIONS UNLESS OTHERWISE NOTED.
4. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY WHICH IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
5. BRACE STRUCTURES UNTIL ALL STRUCTURAL ELEMENTS NEEDED FOR STABILITY ARE INSTALLED. THESE ELEMENTS ARE AS FOLLOWS: LATERAL BRACING, ANCHOR BOLTS, ETC.
6. DETERMINE EXACT LOCATION OF EXISTING UTILITIES, GROUNDS DRAINS, DRAIN PIPES, VENTS, ETC. BEFORE COMMENCING WORK.
7. INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE OWNER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH REMEDIAL ACTION SHALL REQUIRE WRITTEN APPROVAL BY THE OWNER'S REPRESENTATIVE PRIOR TO PROCEEDING.
8. EACH CONTRACTOR SHALL COOPERATE WITH THE OWNER'S REPRESENTATIVE AND COORDINATE THEIR WORK WITH THE WORK OF OTHERS.
9. REPAIR ANY DAMAGE DURING CONSTRUCTION TO MATCH EXISTING PRE-CONSTRUCTION CONDITIONS TO THE SATISFACTION OF THE CONSTRUCTION MANAGER.
10. ALL CABLE/CONDUIT ENTRY/EXIT PORTS SHALL BE WEATHERPROOFED DURING INSTALLATION USING A SILICONE SEALANT.
11. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
12. SEAL PENETRATIONS THROUGH FIRE RATED AREAS WITH UL LISTED D FIRE CODE APPROVED MATERIALS.
13. TURN OVER ALL SALVAGEABLE BUILDING MATERIAL TO BUILDING MANAGER.
14. ALL DISRUPTIVE WORK AND WORK WITHIN TENANT SPACES TO BE COORDINATED WITH BUILDING REPRESENTATIVE.
15. ALL ROOF PENETRATIONS SHALL BE RESTORED TO MAINTAIN ALL ROOF WARRANTIES AND ENSURE A PERMANENT WATERPROOF SEAL.
16. CONTRACTOR SHALL NOTIFY THE ENGINEER A MINIMUM OF 48 HOURS IN ADVANCE PRIOR TO CONSTRUCTION START, MORE SPECIFICALLY BEFORE: SEALING ANY FLOOR, WALL OR ROOF PENETRATION, FINAL UTILITY CONNECTIONS, POURING CONCRETE, BACKFILLING UTILITY TRENCHES AND STRUCTURAL POSTS OR MOUNTING CONNECTIONS, FOR ENGINEERING REVIEW AND INSPECTION.



ISOMETRIC (FRONT FACE)



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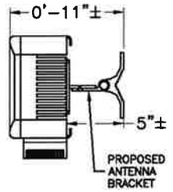


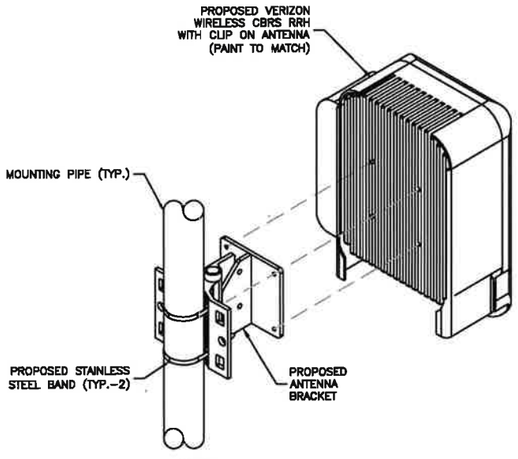
PLAN

ISOMETRIC (REAR FACE)

NOTES:

1. INSTALL ALL EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS. USE APPROPRIATE MOUNTING HARDWARE FOR CONSTRUCTION TYPE.
2. ANTENNAS ARE SHOWN PERPENDICULAR TO BUILDING FACADE. ANTENNAS WILL BE REQUIRED TO BE PANNED TO MEET REQUIRED AZIMUTHS.
3. ANTENNA WEIGHT: APPROXIMATELY 20 LBS.

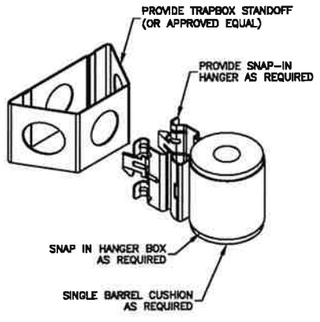
CBRS RRH WITH CLIP ANTENNA DETAIL (1)
SCALE: N.T.S.



NOTES:

1. INSTALL ALL EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS. USE APPROPRIATE MOUNTING HARDWARE FOR CONSTRUCTION TYPE.
2. ALL EQUIPMENT SHALL BE GROUNDED PER VERIZON WIRELESS STANDARDS AND MANUFACTURER'S RECOMMENDATIONS.
3. WEATHER SEAL ALL WALL PENETRATIONS & WEATHER SEAL AROUND EXTERIOR WALL MOUNT WITH SILICONE SEALANT.

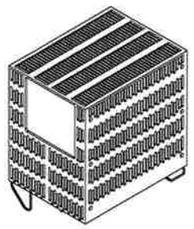
MOUNTING DETAIL (4)
SCALE: N.T.S.



JUMPER MOUNT (5)
SCALE: N.T.S.

LTE 700/850

MANUFACTURER:	SAMSUNG
MODEL:	700/850 RRH
DIMENSIONS:	15.0"H X 15.0"W X 8.1"D
WEIGHT:	82.0 LBS



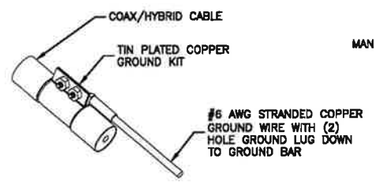
LTE 1900/2100

MANUFACTURER:	SAMSUNG
MODEL:	LTE 1900/2100 RRH
DIMENSIONS:	15.0"H X 15.9"W X 10.0"D
WEIGHT:	97.5 LBS

NOTE:

1. CONTRACTOR TO VERIFY WITH CONSTRUCTION MANAGER FOR FINAL MANUFACTURER SPECIFICATIONS PRIOR TO CONSTRUCTION.

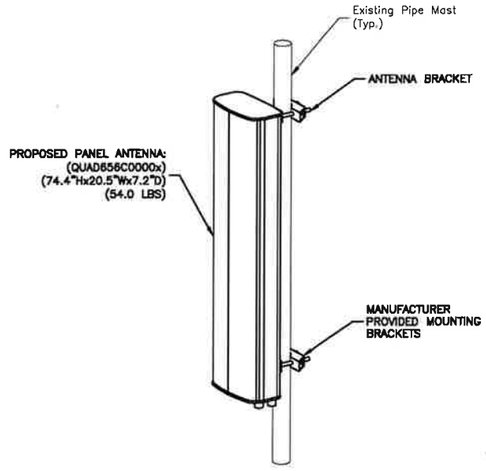
REMOTE UNIT DETAILS (2)
SCALE: N.T.S.



NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND. ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. GROUNDING KIT SHALL BE TIN PLATED COPPER WITH TWO-HOLE LUG, SIZE PER COAX DIAMETER.
3. WEATHER SEAL GROUND KIT PER CARRIER REQUIREMENTS.
4. COAX CABLE GROUND KIT LOCATION & QUANTITY SHALL BE PER CARRIER SPECIFICATIONS & STANDARDS.

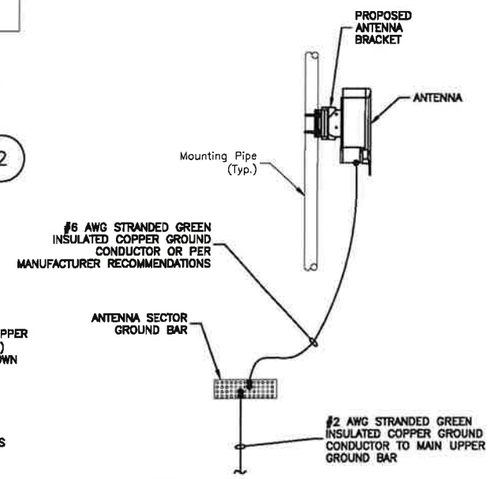
COAX/HYBRID GROUNDING DETAIL (6)
SCALE: N.T.S.



NOTES:

1. MOUNT ANTENNAS PER MANUFACTURER'S RECOMMENDATIONS.
2. GROUND ANTENNAS AND MOUNTS PER MANUFACTURER'S RECOMMENDATIONS AND VERIZON WIRELESS STANDARDS.
3. CONFIRM REQUIRED ANTENNAS WITH THE LATEST ANTENNA REC.

ANTENNA DETAIL (3)
SCALE: N.T.S.



NOTES:

1. VERIFY EXISTING GROUNDING SYSTEM IS INSTALLED PER VERIZON WIRELESS STANDARDS.
2. BOND NEW EQUIPMENT INTO EXISTING GROUND SYSTEM IN ACCORDANCE WITH VERIZON WIRELESS STANDARDS AND MANUFACTURER'S RECOMMENDATIONS.

TYPICAL ANTENNA GROUNDING DETAIL (7)
SCALE: N.T.S

CELLCO PARTNERSHIP
d/b/a verizon WIRELESS
99 EAST RIVER DRIVE
EAST HARTFORD, CT 06108

RIDGEFIELD CT

CONSTRUCTION DRAWINGS		
1	10/21/19	FOR SUBMITTAL
0	05/02/19	FOR SUBMITTAL
B	04/02/19	FOR COMMENT
A	02/20/19	FOR COMMENT

Dewberry
Dewberry Engineers Inc.
99 SUMMER STREET
SUITE 700
BOSTON, MA 02110
PHONE: 617.695.3400
FAX: 617.695.3310

DRAWN BY:	JC
REVIEWED BY:	CDH
CHECKED BY:	BBR
PROJECT NUMBER:	50002925
JOB NUMBER:	50110091

SITE ADDRESS:

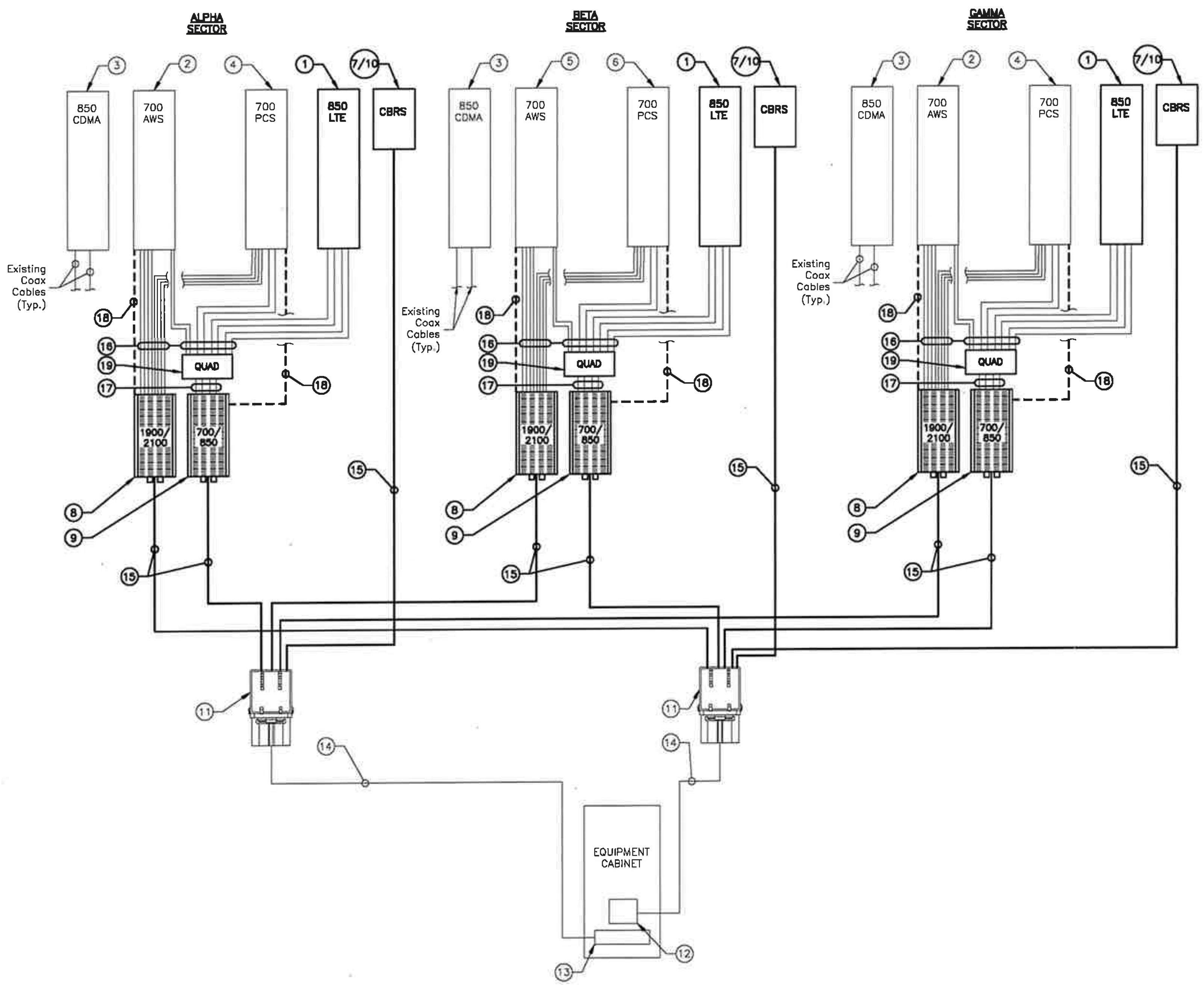
76 EAST RIDGE ROAD
RIDGEFIELD, CT 06877

SHEET TITLE

CONSTRUCTION DETAILS

SHEET NUMBER

C-5



NOTE:

1. ANTENNAS VIEWED FROM BEHIND.

PLUMBING DIAGRAM (1)

SCALE: N.T.S.

BILL OF MATERIALS

SITE NAME: RIDGEFIELD CT

ITEM	DESCRIPTION	QTY.	LENGTH	COMMENTS
1	ANTENNA 850 LTE	3		MOUNTED TO ANTENNA FRAME (QUAD656C000X)
2	ANTENNA 700 AWS	2		MOUNTED TO ANTENNA FRAME (ALPHA/GAMMA) (SBNHH-1D85B) (EXISTING)
3	ANTENNA 850 CDMA	3		MOUNTED TO ANTENNA FRAME (BXA-80080/4CF-FP) (EXISTING)
4	ANTENNA 700 PCS	2		MOUNTED TO ANTENNA FRAME (ALPHA/GAMMA) (SBNHH-1D85B) (EXISTING)
5	ANTENNA 700 AWS	1		MOUNTED TO ANTENNA FRAME (BETA) (SBNHH-1D65B) (EXISTING)
6	ANTENNA 700 PCS	1		MOUNTED TO ANTENNA FRAME (BETA) (SBNHH-1D65B) (EXISTING)
7	SAMGSUNG XXDWMM-12.5-65-8T-CBRS	3		MOUNTED TO PROPOSED MOUNT PIPE
8	SAMSUNG B2/B66A RRH_BR049	3		MOUNTED TO ANTENNA FRAME (PROPOSED)
9	SAMSUNG B5/B13 RRH_BR04C	3		MOUNTED TO ANTENNA FRAME (PROPOSED)
10	SAMSUNG CBRS RRH-RT4401-48A	3		MOUNTED TO PROPOSED MOUNT PIPE
11	6-OVP (UPPER)	2		MOUNTED TO ANTENNA FRAME (EXISTING)
12	6-OVP (LOWER)	1		MOUNTED INSIDE SHELTER (WALL-MOUNTED) (EXISTING)
13	6-OVP (LOWER)	1		MOUNTED INSIDE SHELTER (RACK-MOUNTED) (EXISTING)
14	6X12 MAIN LINE (HYBRIFLEX)	2	220 FT	ROUTED FROM LOWER OVP TO UPPER OVP (EXISTING)
15	1X1 HYBRID CABLE	6	15 FT	ROUTED FROM UPPER OVP TO RRH
16	TOP JUMPER	48	10 FT	ROUTED FROM QUADPLEXER/RRH TO ANTENNA
17	TOP JUMPER	12	5 FT	ROUTED FROM RRH TO QUADPLEXER
18	RET CONTROL CABLE	6	3 M	ROUTED FROM RRH TO ANTENNA
19	COMMSCOPE QUADPLEXER	3		MOUNTED TO ANTENNA FRAME (CBC78T-DS-43-2X)

LEGEND

- LIGHT LINE DENOTES EXISTING
- DARK LINE DENOTES PROPOSED
- DASHED LINE DENOTES FUTURE
- DARK DASHED LINE DENOTES RET CABLE

CELLCO PARTNERSHIP
d/b/a verizon WIRELESS
99 EAST RIVER DRIVE
EAST HARTFORD, CT 06108

RIDGEFIELD CT

CONSTRUCTION DRAWINGS

1	10/21/19	FOR SUBMITTAL
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STATE OF CONNECTICUT · PROFESSIONAL ENGINEER · LICENSED · 28971

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REVIEWED BY:	CDH
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PROJECT NUMBER:	50002925
JOB NUMBER:	50110091

SITE ADDRESS:

76 EAST RIDGE ROAD
RIDGEFIELD, CT 06877

SHEET TITLE

BILL OF MATERIALS & PLUMBING DIAGRAM

SHEET NUMBER

C-6

QUAD656C0000x

Twin Band | Quad Port | Panel Antenna | (2x) X-Pol | 65° / 65° | 15.0 / 15.0 dBi | Variable Tilt

- Twin band, quad-port panel antenna with variable electrical tilt
- 4x4 MIMO
- Patented internal RET actuator adds no additional length to the antenna

Ordering Options	Model Number
When ordering, replace "x" in the model number with one of the options listed below.	
Manual Electrical Tilt	QUAD656C0000M
Remote Electrical Tilt AISG v2.0 / 3GPP with an MDCU RET Actuator	QUAD656C0000G
Remote Electrical Tilt AISG v2.0 / 3GPP with an MDDU RET Actuator	QUAD656C0000L
Mounting bracket kits and other accessories are ordered separately.	

Electrical Characteristics		(2x) 696-900 MHz	
Frequency Bands		696-806 MHz	806-900 MHz
Polarization		(2x) ±45° (Quad-Pol)	
Horizontal Beamwidth		67°	66°
Vertical Beamwidth		13.6°	12.4°
Gain		14.5 dBi	15.0 dBi
Electrical Downtilt		0-12°	
Impedance		50Ω	
VSWR		≤ 1.5:1	
Upper Sidelobe Suppression		18 dB	18 dB
Front-to-Back Ratio		> 25 dB	> 25 dB
Inband Isolation		25 dB	
Isolation Between Bands		28 dB	
IM3 (2x20W carrier)		< -153 dBc	
Input Power		(4x) 500 W	
Total Number of Connectors		Antennas has 4 connectors located at the bottom	
Connectors Per Band	696-900 MHz	(2x) 7/16-DIN Female	
	696-900 MHz	(2x) 7/16-DIN Female	
Diplexed		No	
Lightning Protection		Direct Ground	
Operating Temperature		-40° to +60° C (-40° to +140° F)	

Mechanical Characteristics					
Dimensions (Length x Width x Depth)		1889 x 520 x 182	mm	74.4 x 20.5 x 7.2	in
Depth with Z-Brackets		227	mm	8.9	in
Weight without Mounting Brackets: MET		24.5	kg	54.0	lbs
Weight without Mounting Brackets: RET		24.8	kg	54.7	lbs
Survival Wind Speed		> 241	km/hr	> 150	mph
Wind Area	Front	0.98	m^2	10.6	ft^2
	Side	0.34	m^2	3.7	ft^2
Wind Loads (160 km/hr or 100 mph)	Front	1200	N	270	lbf
	Side	415	N	93	lbf

QUAD656C0000x

Twin Band | Quad Port | Panel Antenna | (2x) X-Pol | 65° / 65° | 15.0 / 15.0 dBi | Variable Tilt

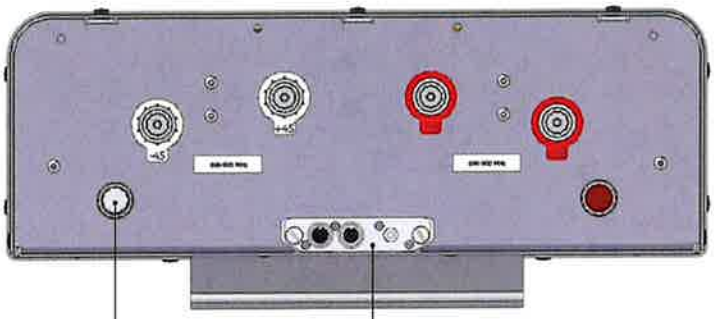
Electrical Downtilt Control		
Electrical downtilt for each band can be controlled separately. Tilt indicator(s) are covered by removable transparent cap(s).		
Manual Electrical Tilt (MET) Control	A colored knob at the end of the tilt indicator allows change of the tilt without need of a tool. The knob color is identical to the corresponding connector ring color. To access the knob, remove the cap by turning it counter-clockwise. It is re-installed by opposite rotation. Do not remove the transparent cap(s) from the antenna.	
Remote Electrical Tilt (RET) Control	The remote control of the electrical tilt is managed by either a Multi-Device Control Unit (MDCU) or a Multi-Device Dual Unit (MDDU) inserted in the bottom of the antenna. A single actuator individually controls the tilt of each band (no need for daisy chain cables between the bands). This module does not add any additional length to the antenna. For RET control, the transparent caps must be in place and locked. The tilt angle indicators always remain visible and the antenna still has manual tilt control (manual override).	
RET Actuator	Select one of the following RET actuators when ordering this antenna.	
	Multi-Device Control Unit (MCDU)	The MDCU is an electronic module that allows the remote control of the electrical downtilt (RET) in Amphenol antennas with factory embedded motors. The MDCU is factory installed. Refer to ordering options.
	Multi-Device Dual Unit (MDDU)	The MDDU allows two separate RET Controllers to independently drive the RETs in Amphenol antennas with factory installed motors (for antenna sharing). The MDDU is factory installed. Refer to ordering options.
Important Installation Instructions	In order to operate RET control, the transparent caps covering the tilt adjustment indicators must be engaged and locked. Do not cut them from the antenna. Do not install the antenna with the connectors facing upward.	

Mounting Options	Part Number	Image	Fits Pipe Diameter	Weight
All mounting bracket kits are ordered separately unless otherwise indicated. Select from the options listed below.				
3-Point Mounting and Downtilt Bracket Kit	36210008		40-115 mm 1.6-4.5 in	6.9 kg 15.2 lbs

QUAD656C0000x

Twin Band | Quad Port | Panel Antenna | (2x) X-Pol | 65° / 65° | 15.0 / 15.0 dBi | Variable Tilt

Bottom View of Antenna

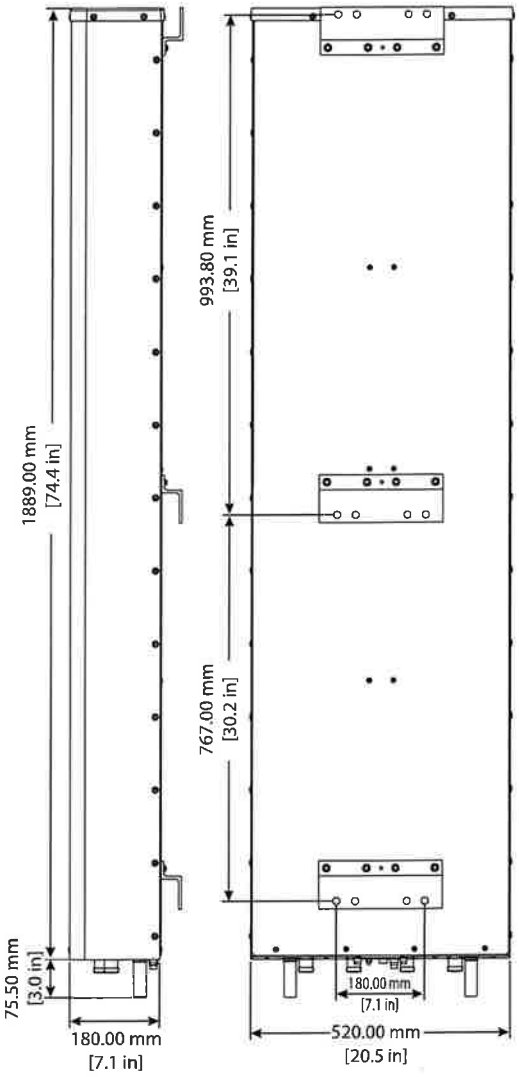


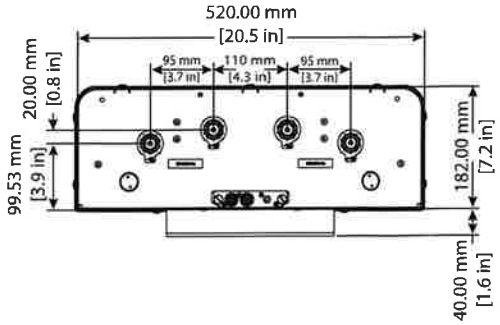
Location of the MDCU or MDDU for RET Control *(MDCU shown)*

Tilt indicators covered by transparent caps.
Manual adjustment is accessed by removing the caps.
Knob colors are the same as the connectors.

In order to operate RET control, the transparent caps covering the tilt adjustment indicators must be engaged and locked. Do not cut them from the antenna.

Dimensions

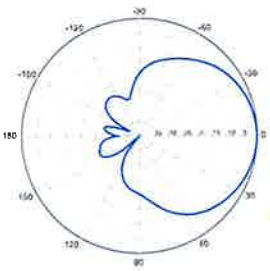




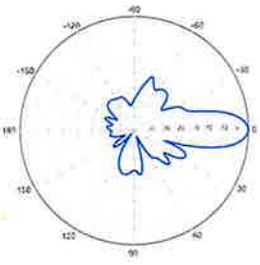
QUAD656C0000x

Twin Band | Quad Port | Panel Antenna | (2x) X-Pol | 65° / 65° | 15.0 / 15.0 dBi | Variable Tilt

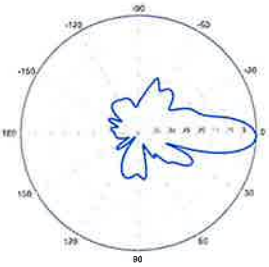
696-900 MHz



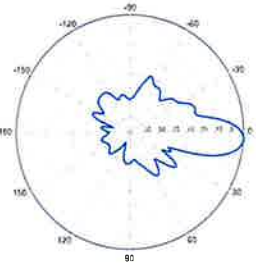
Horizontal | 750 MHz



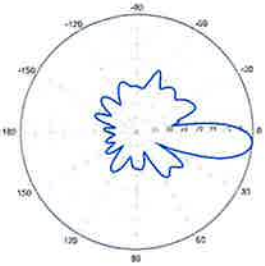
0° | Vertical | 750 MHz



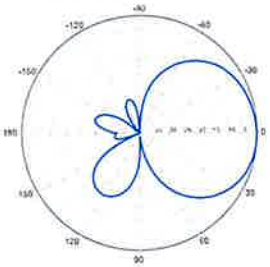
2° | Vertical | 750 MHz



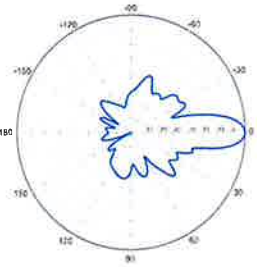
4° | Vertical | 750 MHz



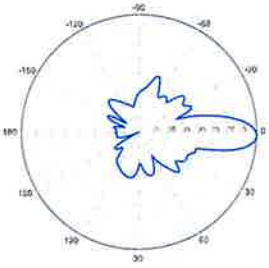
6° | Vertical | 750 MHz



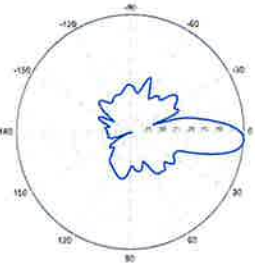
Horizontal | 850 MHz



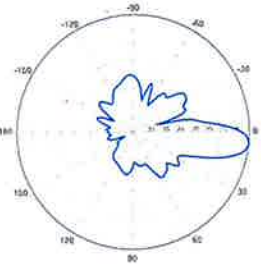
0° | Vertical | 850 MHz



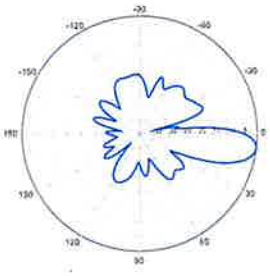
2° | Vertical | 850 MHz



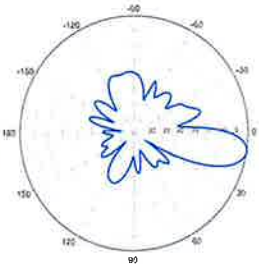
4° | Vertical | 850 MHz



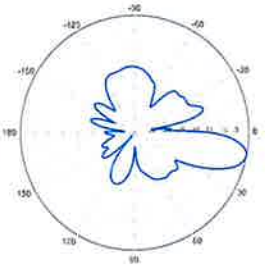
6° | Vertical | 850 MHz



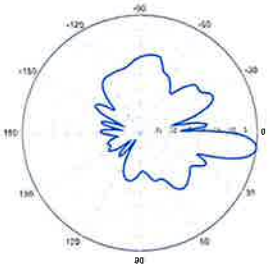
8° | Vertical | 750 MHz



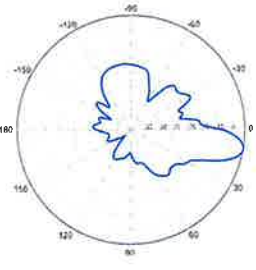
10° | Vertical | 750 MHz



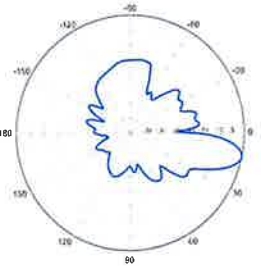
12° | Vertical | 750 MHz



8° | Vertical | 850 MHz

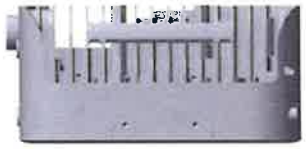


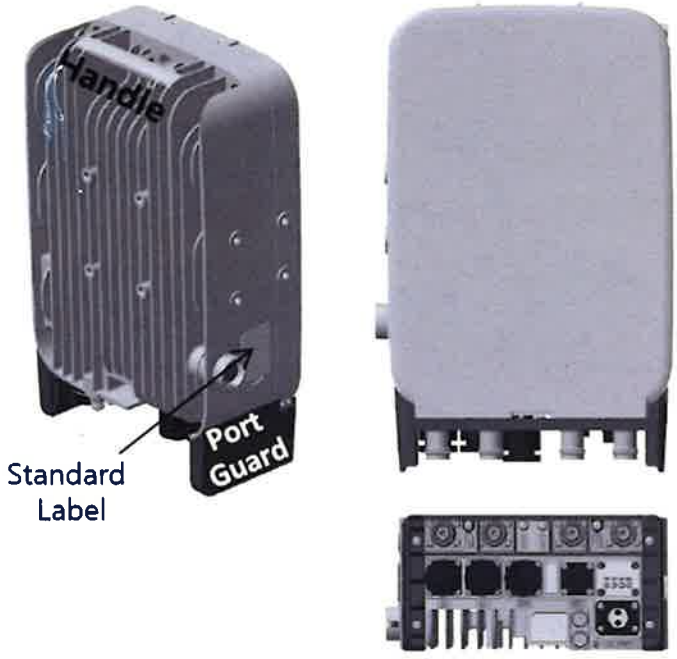
10° | Vertical | 850 MHz



12° | Vertical | 850 MHz

[CBRS RRH] Spec.





Current Size: 216 x 307 x 105.5 mm (6.99L)
(8.5 x 12.1 x 4.1 inch., excluding Port Guard)
Design is subject to minor change

Item	Specification
Band	Band 48 (3.5 GHz)
Frequency	3550~3700 MHz
IBW	150 MHz
OBW	80 MHz
# of Carriers	5/10/15/20 MHz x 4 carriers
RF Chain	4TX / 4RX
RF Output Power & EIRP	4 path x 5 W (Total: 20 W = 43 dBm) (EIRP: 47 dBm / 10 MHz)
RX Sensitivity	Typical : -101.5 dBm @ 1 Rx (3GPP 36.104, Wide Area)
Modulation	256-QAM support (1024-QAM with 1~2dB power back-off)
Input Power	-48 VDC (-38 to -57 VDC, 1 SKU), with clip-on AC-DC converter (Option)
Power Consumption	About 160 Watt @ 100% RF load, typical conditions
Volume	Under 7L (w/o Antenna), Under 9.6L (with antenna)
Weight	Under 8.0 kg (18.64 lb) (w/o Antenna), Under 10.5 Kg (with ant.)
Operating Temperature	-40°C (-40°F) ~ 55°C (131°F) (W/o solar load)
Cooling	Natural convection
Unwanted Emission	3GPP 36.104 Category A [B48] : FCC 47 CFR 96.41 e)
Optic Interface	20km, 2 ports (9.8Gbps x 2), SFP, single mode, duplex or Bi-Di
CPRI Cascade	Not supported
# of Antenna Port	4
External Alarm (UDA)	4
RET	AISG 2.2
TMA & built-in Bias-T I//F and PIM cancellation	Not supported
Mounting Options	Pole, wall, tower, back to back, side by side (for external ant), 3 RRH with Clip-on Antenna on the pole
Antenna Type	Integrated (Clip-on) antenna (Option), External antenna (Option)
NB-IoT	Not Supported (HW Resource reserved for 1 Guard Band NB-IoT per LTE carrier)
Spectrum Analyzer	TX/RX Support
External Alarm (UDA)	4
5G NR	Support with S/W upgrade
XRAN	Support with S/W upgrade

[CBRS] Clip-on Antenna Specifications

VzW accepted IP45 in FLD, but IP55 is Samsung Spec.

Items	Clip-on Antenna, BASTA**
Antenna Gain	12.5 ± 0.5 dBi (Max 13 dBi)
Horizontal BW (-3dB)	65° ± 5°
Vertical BW (-3dB)	17° ±3°
Electrical Tilt	8° (fixed) ±2°
Front-to-Back Ratio	> 25 dB
Port-to-Port Tracking	< 3 dB
VSWR	< 1.5
Isolation	> 25 dB
Ingress Protection	**IP55**
Size	220(W)×313(H)×34.3(D) mm (*) (8.7 x 12.3 x 1.4 inch.)
Weight	< **2.0** kg [Typ. 1.3 kg]
It is required that the radio should be weatherproofed properly with JMA WPS Boot with external antenna or with Weatherproof Boot for clip-on antennas.	

Antenna includes integrated cable with connector

* Design is subject to minor change

** Ant. spec. follows NGMN recommendations on Base Station Antenna Standards (BASTA). For example, 'mean ± tolerance of 86.6%' is applied to double-sided specification of statistical RF parameters.

SAMSUNG

Dual-Band Radio Unit
700/850MHz (B13/B5)

RFV01U-D2A

Samsung's RFV01U-D2A is a compact remote Radio Unit (RU) designed for deployments that require flexibility in installation and rapid onlining, without compromising on coverage, capacity or operational expenses.

The RFV01U-D2A RU targets dual-band support across Band 13 (700MHz) and Band 5 (850MHz), making it an ideal product for broad coverage footprints across multiple common low-end, long-range frequencies.

The RU handles all Radio Frequency (RF) processing in a single, compact unit, and is designed to interface via CPRI with Samsung's CDU baseband offerings, in both distributed- and central-RAN configurations.

In addition to its minimal footprint and ease of installation, the RU is also designed to reduce cost of ownership through its integrated spectrum analyzer, which allows for remote RF monitoring, greatly reducing the need for on-site maintenance visits.

Features and Benefits

- Dual-band support for broad frequency coverage
- Minimal footprint reduces site costs
- Rapid, easy installation
- Flexibly deployable in any location
- Remote RF monitoring capability
- Convection cooled, silent operation

Key Technical Specifications

Duplex Type: FDD
Operating Frequencies:
B13: DL(746-756MHz)/UL(777-787MHz)
B5: DL(869-894MHz)/UL(824-849MHz)
Instantaneous Bandwidth: 10MHz(B13) + 25MHz(B5)
RF Chain: 4T4R/2T4R/2T2R
Output Power: Total 320W
DU-RU Interface: CPRI (10Gbps)
Dimensions: 380 x 380 x 207mm (29.9L)
Weight: 31.9kg
Input Power: -48V DC
Operating Temp.: -40 - 55°(w/o solar load)
Cooling: Natural convection

SAMSUNG

Dual-Band Radio Unit
AWS/PCS (B66/B2)
RFV01U-D1A

Samsung's RFV01U-D1A is a compact remote Radio Unit (RU) designed for deployments that require flexibility in installation and rapid onlining, without compromising on coverage, capacity or operational expenses.

The RFV01U-D1A RU targets dual-band support across Band 66 (AWS) and Band 2 (PCS), making it an ideal product for broad coverage footprints across multiple common mid-range frequencies.

The RU handles all Radio Frequency (RF) processing in a single, compact unit, and is designed to interface via CPRI with Samsung's CDU baseband offerings, in both distributed- and central-RAN configurations.

In addition to its minimal footprint and ease of installation, the RU is also designed to reduce cost of ownership through its integrated spectrum analyzer, which allows for remote RF monitoring, greatly reducing the need for on-site maintenance visits.

Features and Benefits

- Dual-band support for broad frequency coverage
- Minimal footprint reduces site costs
- Rapid, easy installation
- Flexibly deployable in any location
- Remote RF monitoring capability
- Convection cooled, silent operation
- Built-in Broadcast Auxiliary Services (BAS) filter ensures compliant AWS operation without impacting footprint

Key Technical Specifications

Duplex Type: FDD
Operating Frequencies:
B66: DL(2,110-2,180MHz)/UL(1,710-1,780MHz)
B2: DL(1,930-1,990MHz)/UL(1,850-1,910MHz)
Instantaneous Bandwidth:
70MHz(B66) + 60MHz(B2)
RF Chain: 4T4R/2T4R/2T2R
Output Power: Total 320W
DU-RU Interface: CPRI (10Gbps)
Dimensions: 380 x 380 x 255mm (36.8L)
Weight: 38.3kg
Input Power: -48V DC
Operating Temp.: -40 ~ 55°(w/o solar load)
Cooling: Natural convection

Product Data Sheet HB158-1-08U8-S8J18

HYBRIFLEX™ RRH Hybrid Feeder Cabling Solution, 1-5/8", Single-Mode Fiber

Product Description

RFS' HYBRIFLEX Remote Radio Head (RRH) hybrid feeder cabling solution combines optical fiber and DC power for RRHs in a single lightweight aluminum corrugated cable, making it the world's most innovative solution for RRH deployments.

It was developed to reduce installation complexity and costs at Cellular sites. HYBRIFLEX allows mobile operators deploying an RRH architecture to standardize the RRH installation process and eliminate the need for and cost of cable grounding. HYBRIFLEX combines optical fiber (multi-mode or single-mode) and power in a single corrugated cable. It eliminates the need for junction boxes and can connect multiple RRHs with a single feeder. Standard RFS CELLFLEX® accessories can be used with HYBRIFLEX cable. Both pre-connectorized and on-site options are available.

Figure 1: HYBRIFLEX Series

Features/Benefits

- Aluminum corrugated armor with outstanding bending characteristics – minimizes installation time and enables mechanical protection and shielding
- Same accessories as 1 5/8" coaxial cable
- Outer conductor grounding – Eliminates typical grounding requirements and saves on installation costs
- Lightweight solution and compact design – Decreases tower loading
- Robust cabling – Eliminates need for expensive cable trays and ducts
- Installation of tight bundled fiber optic cable pairs directly to the RRH – Reduces CAPEX and wind load by eliminating need for interconnection
- Optical fiber and power cables housed in single corrugated cable – Saves CAPEX by standardizing RRH cable installation and reducing installation requirements
- Outdoor polyethylene jacket – Ensures long-lasting cable protection

Technical Specifications

Outer Conductor Armor	Corrugated Aluminum	[mm (in)]	46.5 (1.83)
Jacket	Polyethylene, PE	[mm (in)]	50.3 (1.98)
UV-Protection	Individual and External Jacket		Yes
Mechanical Properties			
Weight, Approximate		[kg/m (lb/ft)]	1.9 (1.30)
Minimum Bending Radius, Single Bending		[mm (in)]	200 (8)
Minimum Bending Radius, Repeated Bending		[mm (in)]	500 (20)
Recommended/Maximum Clamp Spacing		[m (ft)]	1.0 / 1.2 (3.25 / 4.0)
Electrical Properties			
DC-Resistance Outer Conductor Armor		[Ω/km (Ω/1000ft)]	068 (0.205)
DC-Resistance Power Cable, 8.4mm²(8AWG)		[Ω/km (Ω/1000ft)]	2.1 (0.307)
Fiber Optic Cable			
Version			Single-mode OM3
Quantity, Fiber Count			16 (8 pairs)
Core/Clad		[µm]	50/125
Primary Coating (Acrylate)		[µm]	245
Buffer Diameter, Nominal		[µm]	900
Secondary Protection, Jacket, Nominal		[mm (in)]	2.0 (0.08)
Minimum Bending Radius		[mm (in)]	104 (4.1)
Insertion Loss @ wavelength 850nm		dB/km	3.0
Insertion Loss @ wavelength 1310nm		dB/km	1.0
Standards (Meets or exceeds)			UL94-V0, UL1666 RoHS Compliant
DC Power Cable Properties			
Size (Power)		[mm² (AWG)]	8.4 (8)
Quantity, Wire Count (Power)			16 (8 pairs)
Size (Alarm)		[mm² (AWG)]	0.8 (18)
Quantity, Wire Count (Alarm)			4 (2 pairs)
Type			UV protected
Strands			19
Primary Jacket Diameter, Nominal		[mm (in)]	6.8 (0.27)
Standards (Meets or exceeds)			NFPA 130, ICEA S-95-658 UL Type XHHW-2, UL 44 UL-LS Limited Smoke, UL VW-1 IEEE-383 (1974), IEEE1202/FT4 RoHS Compliant
Environmental			
Installation Temperature		[°C (°F)]	-40 to +65 (-40 to149)
Operation Temperature		[°C (°F)]	-40 to +65 (-40 to149)

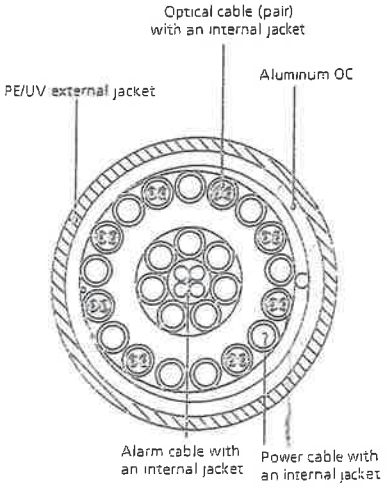


Figure 2: Construction Detail

* This data is provisional and subject to change

ATTACHMENT 3

	General	Power	Density					
Site Name: Ridgefield								
Tower Height: 130'								
CARRIER	**# OF CHAN.**	**WATTS ERP**	**HEIGHT**	**CALC. POWER DENS**	**FREQ.**	**MAX. PERMISS. EXP.**	**FRACTION MPE**	**Total**
*Sprint	3	693	118	1900	0.0596	1	0.60%	
*Sprint	1	390	118	850	0.0112	0.5667	0.20%	
*Sprint	2	693	118	2500	0.0397	1	0.40%	
*T-Mobile	2	2334	100	2100	0.19	1	1.90%	
*T-Mobile	2	2334	100	1900	0.19	1	1.90%	
*T-Mobile	2	1167	100	2100	0.095	1	0.95%	
*T-Mobile	0	1167	100	1900	0	1	0.00%	
*T-Mobile	2	1167	100	1900	0.095	1	0.95%	
*T-Mobile	2	620	100	600	0.0505	0.4000	1.26%	
*T-Mobile	2	679	100	700	0.0553	0.4667	1.18%	
VZW PCS	**4**	**1593**	**128**	**0.1398**	**1970**	**1.0**	**13.98%**	
VZW Cellular	**3**	**498**	**128**	**0.0328**	**880**	**0.5793**	**5.66%**	
VZW Cellular	**4**	**245**	**128**	**0.0215**	**869**	**0.5866**	**3.67%**	
VZW AWS	**4**	**1577**	**128**	**0.1384**	**2145**	**1.0**	**13.84%**	
VZW 700	**4**	**713**	**128**	**0.0626**	**746**	**0.4973**	**12.59%**	
VZW CBRS	**4**	**31**	**128**	**0.0027**	**3550**	**2.36**	**0.12%**	
								59.1%
* Source: Siting Council								

ATTACHMENT 4

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

1033 WATERVLIET SHAKER RD, ALBANY, NY 12205

Structural Analysis Report

September 23, 2019

Verizon Site Name	RIDGEFIELD CT
Verizon Site Number	468697
Client	Verizon
Carrier	Verizon
Infinigy Job Number	1126-D0001-B
Site Location	76 East Ridge Ave. Ridgefield, CT 6877 41.280917 N NAD83 73.492889 W NAD83
Structure Type	130' Monopole
Structural Usage Ratio	**91.8%**
Overall Result	**Pass**

Upon reviewing the results of this analysis, it is our opinion that the structure meets the specified TIA code requirements. The tower and foundation are therefore deemed adequate to support the existing and proposed loading as listed in this report.

Morteza Ashouri
Project Engineer II

Contents

Introduction

Infinigy Engineering has been requested to perform a structural analysis on the existing 130' monopole. All supporting documents have been obtained from the client and are assumed to be accurate and applicable to this site. The tower was analyzed using tnx Tower version 8.0.3.2 tower analysis software.

Supporting Documentation

Previous Analysis	InfinigyEn gineering Job #1080-Z0001-B, dated March 21, 2019
Existing Loading	Infinigy Job #184924, dated November 28, 2018
RFDS	Verizon RFDS ID #106361, dated September 5, 2019

Analysis Code Requirements

Wind Speed	93 mph (3-Second Gust, V_{ASD}) / 120 mph (3-Second Gust, V_{ULT})
Wind Speed w/ ice	50 mph (3-Second Gust) w/ 3/4" ice
TIA Revision	TIA/EIA-222-G
Adopted IBC	2015 IBC / 2018 Connecticut State BuildingCode
Structure Class	III
Exposure CategoryB	
Topographic Category1	
Calculated Crest Height	0 ft

Conclusion

Upon reviewing the results of this analysis, it is our opinion that the structure meets the specified TIA code requirements. The tower and foundations are therefore deemed adequate to support the existing and proposed loading as listed in this report.

If you have any questions, require additional information, or actual conditions differ from those as detailed in this report please contact me via the information below:

Morteza Ashouri
Project Engineer II | **INFINIGY**
1517 Old Apex Rd., Suite 100, Cary, NC 27513
(O) 518-690-0790
mashouri@infinigy.com | www.infinigy.com

Final Configuration Loading

Mount Height (ft)	Qty.	Appurtenance	Mount Type	Coax& Lines	Carrier
130.0	1	10' Omni	Leg	(1) 7/8"	Town
128.0	2	Commscope SBNHH-1D65B	Platform w/ Handrails	(12) 7/8" (2) 1-1/4" (1) 1/2"	Verizon
	4	Commscope SBNHH-1D85B			
	3	Antel BXA-80080/4CF FP			
	3	Amphenol QUAD 656 C0000X			
	3	Samsung XXDWMM-12.5-65-8T-CBRS			
	3	Samsung CBRS RRH-RT4401-48A			
	3	Samsung RRH-BR049 B2/66A			
	3	Samsung RRH-BR04C B5/B13			
	3	Commscope CBC78T-DS-43-2X			
116.0	3	RFS APXVSPP18-C-A20	Low Profile Platform	(3) 1-1/4" Hybrid	Sprint
	3	RFS APXVTM14-C-120			
	3	ALU 30"x18"x4" RRH			
	3	ALU 800 MHz RRH			
	3	ALU 1900MHz RRH			
106.0	1	Andrew VHLP3-11W-6WH	Pipe	(1) EW63	Town
99.9	3	Ericsson AIR21 B2A/B4P	Platform w/ Handrails	(16) 7/8"	T-Mobile
	3	Ericsson AIR21 B4A/B2P			
	3	Andrew LNX-6515DS-VTM			
	3	Ericsson RRUS-11			
	3	TMA			
	2	RFI BA4040-41-DIN		(2) 7/8"	Town
87.0	1	Andrew VHLP3-11W-6WH	Pipe	(1) EW63	
85.0	1	10' Omni	Side Arm	(2) ½"	
	1	18" Dipole			
	1	Andrew VHLP3-11W-6WH	Pipe	(1) EW63	
59.0	1	8 Element Yagi	Side Arm	(1) 7/8"	
57.0	1	2' Omni	Side Arm	(1) 7/8"	
48.8	1	GPS	Side Arm	(1) ½	Verizon

Structure Usages

Pole (L3)	91.8%	Pass
Base Plate	87.0%	Pass
RATING	**91.8%**	**Pass**

Foundation Reactions

Reaction Data	Design Reactions	Analysis Reactions	Result
Moment (kip-ft)	--	2783.0	--
Shear (kip)	--	32.4	--
Axial (kip)	--	32.3	--

- Tower base reactions are acceptable per rigorous structural analysis

Deflection, Twist, and Sway

Antenna Elevation (ft)	Deflection (in)	Twist (°)	Sway(°)
128.0	23.708	0.010	1.659

*Per ANSI/TIA-222-G Section 2.8.2 maximum serviceability structural deflection limit is 3% of structure height.
*Per ANSI/TIA-222-G Section 2.8.2 maximum serviceability structural twist and sway limit is 4 degrees.
*Per ANSI/TIA-222-G Section 2.8.3 deflection, Twist, and sway values were calculated using a basic 3-second gust wind speed of 60 mph.
*It is the responsibility of the client to ensure their proposed and/or existing equipment will meet ANSI/TIA-222-G Annex D or other appropriate microwave signal degradation limits based on the provided values above.

Assumptions and Limitations

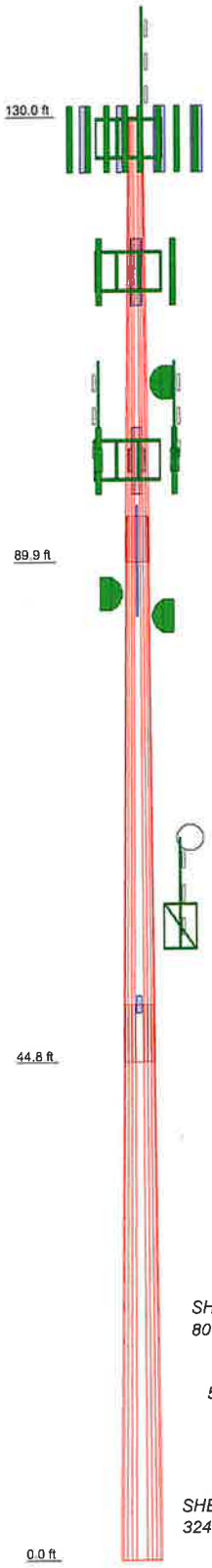
Our structural calculations are completed assuming all information provided to Infinigy Engineering is accurate and applicable to this site. For the purposes of calculations, we assume an overall structure condition of "like new" and all members and connections to be free of corrosion and/or structural defects. The structure owner and/or contractor shall verify the structure's condition prior to installation of any proposed equipment. If actual conditions differ from those described in this report Infinigy Engineering should be notified immediately to complete a revised evaluation.

Our evaluation is completed using standard TIA, AISC, ACI, and ASCE methods and procedures. Our structural results are proprietary and should not be used by others as their own. Infinigy Engineering is not responsible for decisions made by others that are or are not based on our supplied assumptions and conclusions.

This report is an evaluation of the tower structure only and does not reflect adequacy of any existing antenna mounts, mount connections, or coax mounting attachments. These elements are assumed to be adequate for the purposes of this analysis and are assumed to have been installed per their manufacturer requirements.

Section	1	2	3
Length (ft)	40.08	49.17	50.00
Number of Sides	12	12	12
Thickness (in)	0.2200	0.3100	0.3800
Socket Length (ft)	4.08	5.17	
Top Dia (in)	16.2600	23.7422	32.8026
Bot Dia (in)	25.0800	34.5600	43.8000
Grade		A572-65	
Weight (lb)	1975.8	4816.9	7894.6

14687.2



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
PD440-140 (Town- Old)	130	APXVSPP18-C-A20 (Sprint)	116
Angle Platform w/ Handrails (Verizon)	128	APXVTM14-ALU-120 (Sprint)	116
BXA-80080-4CF (Verizon)	128	APXVTM14-ALU-120 (Sprint)	116
BXA-80080-4CF (Verizon)	128	APXVTM14-ALU-120 (Sprint)	116
BXA-80080-4CF (Verizon)	128	800 MHz RRH (Sprint)	116
SBNHH-1D65B (Verizon)	128	800 MHz RRH (Sprint)	116
SBNHH-1D65B (Verizon)	128	800 MHz RRH (Sprint)	116
SBNHH-1D85B (Verizon)	128	1900MHz RRH (Sprint)	116
SBNHH-1D85B (Verizon)	128	1900MHz RRH (Sprint)	116
SBNHH-1D85B (Verizon)	128	1900MHz RRH (Sprint)	116
SBNHH-1D85B (Verizon)	128	Pipe Low Profile Platform (Sprint)	116
QUAD685CW000G (Verizon)	128	VHLP3-11W-6WH (Town)	106
QUAD685CW000G (Verizon)	128	RRUS-11 (T-Mobile)	99
QUAD685CW000G (Verizon)	128	Angle Platform w/ Handrails (T-Mobile)	99
RRH-B4 (Verizon)	128	RRUS-11 (T-Mobile)	99
RRH-B4 (Verizon)	128	BA4040-41-DIN (Town)	99
RRH-B4 (Verizon)	128	BA4040-41-DIN (Town)	99
RRH-B4 (Verizon)	128	AIR21 B4A/B2P (T-Mobile)	99
RRH-B4 (Verizon)	128	AIR21 B4A/B2P (T-Mobile)	99
RRH-B4 (Verizon)	128	AIR21 B4A/B2P (T-Mobile)	99
CBC7821-DF-2X (Verizon)	128	AIR 21 B2A/B4P (T-Mobile)	99
CBC7821-DF-2X (Verizon)	128	AIR 21 B2A/B4P (T-Mobile)	99
CBC7821-DF-2X (Verizon)	128	AIR 21 B2A/B4P (T-Mobile)	99
Samsung CBRS RRH-RT4401-48A (Verizon)	128	KRY 112 144/1 (T-Mobile)	99
		KRY 112 144/1 (T-Mobile)	99
Samsung CBRS RRH-RT4401-48A (Verizon)	128	KRY 112 144/1 (T-Mobile)	99
		LNX-6515DS-VTM (T-Mobile)	99
Samsung CBRS RRH-RT4401-48A (Verizon)	128	LNX-6515DS-VTM (T-Mobile)	99
		LNX-6515DS-VTM (T-Mobile)	99
Samsung XXDWMM-12.5-65-8T-CBRS (Verizon)	128	RRUS-11 (T-Mobile)	99
		VHLP3-11W-6WH (Town)	87
Samsung XXDWMM-12.5-65-8T-CBRS (Verizon)	128	2' Omni (Town- Old)	86
		Pipe Side Arm (Town- Old)	86
Samsung XXDWMM-12.5-65-8T-CBRS (Verizon)	128	10' Omni (Town- Old)	85
		VHLP3-11W-6WH (Town)	85
		Pipe Side Arm (Town- Old)	59
APXVSPP18-C-A20 (Sprint)	116	4' Yagi (Town- Old)	59
APXVSPP18-C-A20 (Sprint)	116	2' Omni (Town- Old)	57
		Pipe Side Arm (Town- Old)	57
		GPS (Verizon)	50

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower designed for Exposure B to the TIA-222-G Standard.
2. Tower designed for a 93 mph basic wind in accordance with the TIA-222-G Standard.
3. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 60 mph wind.
5. Tower Structure Class III.
6. Topographic Category 1 with Crest Height of 0.00 ft
7. TOWER RATING: 91.8%

ALL REACTIONS ARE FACTORED

AXIAL 65758 lb

SHEAR 8019 lb

MOMENT 762673 lb-ft

TORQUE 1592 lb-ft
50 mph WIND - 0.7500 in ICE

AXIAL 32341 lb

SHEAR 32422 lb

MOMENT 2783013 lb-ft

TORQUE 5882 lb-ft
REACTIONS - 93 mph WIND

Infinigy Engineering PLLC
1517 Old Apex Rd
Cary, NC 27513
Phone: (518) 690 0790
FAX:

Job: 1126-D0001-B			
Project: Ridgefield CT			
Client: Verizon	Drawn by: mashouri		App'd:
Code: TIA-222-G	Date: 09/20/19		Scale: NTS
Path:			Dwg No. E-1

Tower Input Data

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

Basic wind speed of 93 mph.
Structure Class III.
Exposure Category B.
Topographic Category 1.
Crest Height 0.00 ft.
Nominal ice thickness of 0.7500 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

	Consider Moments - Legs		Distribute Leg Loads As Uniform
	Consider Moments - Horizontals		Assume Legs Pinned
	Consider Moments - Diagonals	√	Assume Rigid Index Plate
	Use Moment Magnification	√	Use Clear Spans For Wind Area
√	Use Code Stress Ratios	√	Use Clear Spans For KL/r
√	Use Code Safety Factors - Guys	√	Retension Guys To Initial Tension
	Escalate Ice		Bypass Mast Stability Checks
	Always Use Max Kz	√	Use Azimuth Dish Coefficients
	Use Special Wind Profile	√	Project Wind Area of Appurt.
√	Include Bolts In Member Capacity	√	Autocalc Torque Arm Areas
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination
√	Secondary Horizontal Braces Leg		Sort Capacity Reports By Component
	Use Diamond Inner Bracing (4 Sided)	√	Triangulate Diamond Inner Bracing
	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder
	SR Members Are Concentric		Ignore KL/ry For 60 Deg. Angle Legs

	Use ASCE 10 X-Brace Ly Rules
	Calculate Redundant Bracing Forces
	Ignore Redundant Members in FEA
	SR Leg Bolts Resist Compression
√	All Leg Panels Have Same Allowable
	Offset Girt At Foundation
√	Consider Feed Line Torque
√	Include Angle Block Shear Check
	Use TIA-222-G Bracing Resist. Exemption
	Use TIA-222-G Tension Splice Exemption
	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

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	130.00-89.92	40.08	4.08	12	16.2600	25.0800	0.2200	0.8800	A572-65 (65 ksi)

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L2	89.92-44.83	49.17	5.17	12	23.7422	34.5600	0.3100	1.2400	A572-65 (65 ksi)
L3	44.83-0.00	50.00		12	32.8026	43.8000	0.3800	1.5200	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in²	I in⁴	r in	C in	I/C in³	J in⁴	It/Q in²	w in	w/t
L1	16.7560	11.3627	373.1450	5.7423	8.4227	44.3024	756.0929	5.5924	3.7681	17.128
	25.8871	17.6108	1389.2099	8.8999	12.9914	106.9327	2814.9159	8.6675	6.1318	27.872
L2	25.3996	23.3900	1639.2314	8.3887	12.2984	133.2878	3321.5272	11.5118	5.5321	17.845
	35.6698	34.1884	5119.0013	12.2615	17.9021	285.9445	10372.4845	16.8265	8.4313	27.198
L3	35.0029	39.6722	5323.1297	11.6073	16.9917	313.2778	10786.1039	19.5255	7.7727	20.454
	45.2110	53.1287	12784.8276	15.5444	22.6884	563.4962	25905.5268	26.1483	10.7200	28.211

Tower Elevation ft	Gusset Area (per face) ft²	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 130.00-89.92				1	1	1			
L2 89.92-44.83				1	1	1			
L3 44.83-0.00				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
7/8 (Verizon)	A	No	Surface Ar (CaAa)	128.00 - 0.00	6	6	0.000 0.000	1.1100		0.54
1 5/8 (Verizon) ***	A	No	Surface Ar (CaAa)	128.00 - 0.00	2	2	0.000 0.000	1.9800		1.04
1 5/8" Fiber (T-Mobile)	A	No	Surface Ar (CaAa)	100.00 - 0.00	1	1	0.000 0.000	1.6250		1.61
1 5/8" Fiber (T-Mobile)	B	No	Surface Ar (CaAa)	100.00 - 0.00	1	1	0.000 0.000	1.6250		1.61
1 5/8" Fiber (T-Mobile)	C	No	Surface Ar (CaAa)	100.00 - 0.00	1	1	0.000 0.000	1.6250		1.61

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
***									
7/8 (Verizon)	A	No	No	Inside Pole	128.00 - 0.00	12	No Ice	0.00	0.54
							1/2" Ice	0.00	0.54
							1" Ice	0.00	0.54
***									
1 5/8" Fiber (Sprint)	A	No	No	Inside Pole	118.00 - 0.00	1	No Ice	0.00	1.61
							1/2" Ice	0.00	1.61
							1" Ice	0.00	1.61
1 5/8" Fiber (Sprint)	A	No	No	Inside Pole	118.00 - 0.00	2	No Ice	0.00	1.61
							1/2" Ice	0.00	1.61
							1" Ice	0.00	1.61
1 1/4" Hybriflex Cable (Sprint)	A	No	No	Inside Pole	118.00 - 0.00	1	No Ice	0.00	1.00
							1/2" Ice	0.00	1.00
							1" Ice	0.00	1.00
***									
7/8 (T-Mobile)	A	No	No	Inside Pole	100.00 - 0.00	12	No Ice	0.00	0.54
							1/2" Ice	0.00	0.54
							1" Ice	0.00	0.54
1/2 (Town)	A	No	No	Inside Pole	107.00 - 87.00	1	No Ice	0.00	0.25
							1/2" Ice	0.00	0.25
							1" Ice	0.00	0.25
***									
1/2 (Town)	A	No	No	Inside Pole	87.00 - 83.00	2	No Ice	0.00	0.25
							1/2" Ice	0.00	0.25
							1" Ice	0.00	0.25
***									
1/2 (Town)	A	No	No	Inside Pole	83.00 - 0.00	3	No Ice	0.00	0.25
							1/2" Ice	0.00	0.25
							1" Ice	0.00	0.25
***									
1/2 (Verizon)	A	No	No	Inside Pole	50.00 - 0.00	1	No Ice	0.00	0.25
							1/2" Ice	0.00	0.25
							1" Ice	0.00	0.25

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
L1	130.00-89.92	A	0.000	0.000	42.079	0.000	698.87
		B	0.000	0.000	1.638	0.000	16.23
		C	0.000	0.000	1.638	0.000	16.23
L2	89.92-44.83	A	0.000	0.000	55.213	0.000	1192.36
		B	0.000	0.000	7.327	0.000	72.59
		C	0.000	0.000	7.327	0.000	72.59
L3	44.83-0.00	A	0.000	0.000	54.894	0.000	1197.86
		B	0.000	0.000	7.285	0.000	72.18
		C	0.000	0.000	7.285	0.000	72.18

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft²	A_F ft²	C_AA_A In Face ft²	C_AA_A Out Face ft²	Weight lb
L1	130.00-89.92	A	2.113	0.000	0.000	96.671	0.000	2018.24
		B		0.000	0.000	5.897	0.000	113.47
		C		0.000	0.000	5.897	0.000	113.47
L2	89.92-44.83	A	2.012	0.000	0.000	133.863	0.000	3074.44
		B		0.000	0.000	26.378	0.000	507.56
		C		0.000	0.000	26.378	0.000	507.56
L3	44.83-0.00	A	1.798	0.000	0.000	129.921	0.000	2948.04
		B		0.000	0.000	25.320	0.000	472.83
		C		0.000	0.000	25.320	0.000	472.83

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	130.00-89.92	-3.3537	-1.9362	-3.3087	-1.9103
L2	89.92-44.83	-3.4859	-2.0126	-3.5424	-2.0452
L3	44.83-0.00	-3.7889	-2.1875	-4.1463	-2.3938

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

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	4	7/8	89.92 - 128.00	1.0000	1.0000
L1	6	1 5/8	89.92 - 128.00	1.0000	1.0000
L1	21	1 5/8" Fiber	89.92 - 100.00	1.0000	1.0000
L1	22	1 5/8" Fiber	89.92 - 100.00	1.0000	1.0000
L1	23	1 5/8" Fiber	89.92 - 100.00	1.0000	1.0000
L2	4	7/8	44.83 - 89.92	1.0000	1.0000
L2	6	1 5/8	44.83 - 89.92	1.0000	1.0000
L2	21	1 5/8" Fiber	44.83 - 89.92	1.0000	1.0000
L2	22	1 5/8" Fiber	44.83 - 89.92	1.0000	1.0000
L2	23	1 5/8" Fiber	44.83 - 89.92	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
PD440-140 (Town- Old)	B	From Leg	0.00		0.0000	130.00	No Ice	2.66	2.66	20.00
			0.00				1/2" Ice	4.44	4.44	33.00
			5.00				1" Ice	6.22	6.22	46.00
***										
Angle Platform w/ Handrails (Verizon)	C	From Leg	0.00		0.0000	128.00	No Ice	38.80	38.80	2000.00
			0.00				1/2" Ice	44.23	44.23	2450.00
			0.00				1" Ice	50.42	50.42	2900.00
***										
APXVSPP18-C-A20 (Sprint)	A	From Leg	3.00		0.0000	116.00	No Ice	8.26	3.06	57.00
			0.00				1/2" Ice	8.81	3.44	106.52
			0.00				1" Ice	9.36	3.83	162.12
APXVSPP18-C-A20 (Sprint)	B	From Leg	3.00		0.0000	116.00	No Ice	8.26	3.06	57.00
			0.00				1/2" Ice	8.81	3.44	106.52
			0.00				1" Ice	9.36	3.83	162.12
APXVSPP18-C-A20 (Sprint)	C	From Leg	3.00		0.0000	116.00	No Ice	8.26	3.06	57.00
			0.00				1/2" Ice	8.81	3.44	106.52
			0.00				1" Ice	9.36	3.83	162.12
APXVTM14-ALU-120 (Sprint)	A	From Leg	3.00		0.0000	116.00	No Ice	6.34	3.61	37.00
			0.00				1/2" Ice	6.72	3.97	76.53
			0.00				1" Ice	7.10	4.33	121.12
APXVTM14-ALU-120 (Sprint)	B	From Leg	3.00		0.0000	116.00	No Ice	6.34	3.61	37.00
			0.00				1/2" Ice	6.72	3.97	76.53
			0.00				1" Ice	7.10	4.33	121.12
APXVTM14-ALU-120 (Sprint)	C	From Leg	3.00		0.0000	116.00	No Ice	6.34	3.61	37.00
			0.00				1/2" Ice	6.72	3.97	76.53
			0.00				1" Ice	7.10	4.33	121.12
800 MHz RRH (Sprint)	A	From Leg	3.00		0.0000	116.00	No Ice	1.93	2.06	64.00
			0.00				1/2" Ice	2.11	2.24	86.12
			0.00				1" Ice	2.29	2.43	111.30
800 MHz RRH (Sprint)	B	From Leg	3.00		0.0000	116.00	No Ice	1.93	2.06	64.00
			0.00				1/2" Ice	2.11	2.24	86.12
			0.00				1" Ice	2.29	2.43	111.30
800 MHz RRH (Sprint)	C	From Leg	3.00		0.0000	116.00	No Ice	1.93	2.06	64.00
			0.00				1/2" Ice	2.11	2.24	86.12
			0.00				1" Ice	2.29	2.43	111.30
1900MHz RRH (Sprint)	A	From Leg	3.00		0.0000	116.00	No Ice	2.31	2.38	60.00
			0.00				1/2" Ice	2.52	2.58	83.90
			0.00				1" Ice	2.73	2.79	111.08
1900MHz RRH (Sprint)	B	From Leg	3.00		0.0000	116.00	No Ice	2.31	2.38	60.00
			0.00				1/2" Ice	2.52	2.58	83.90
			0.00				1" Ice	2.73	2.79	111.08
1900MHz RRH (Sprint)	C	From Leg	3.00		0.0000	116.00	No Ice	2.31	2.38	60.00
			0.00				1/2" Ice	2.52	2.58	83.90
			0.00				1" Ice	2.73	2.79	111.08
Pipe Low Profile Platform (Sprint)	C	From Leg	0.00		0.0000	116.00	No Ice	21.70	21.70	1500.00
			0.00				1/2" Ice	27.20	27.20	1700.00
			0.00				1" Ice	32.70	32.70	1900.00
***										
BA4040-41-DIN (Town)	B	From Leg	3.00		0.0000	99.00	No Ice	6.20	6.20	68.00
			0.00				1/2" Ice	8.30	8.30	112.59
			4.00				1" Ice	10.42	10.42	170.27
BA4040-41-DIN (Town)	C	From Leg	3.00		0.0000	99.00	No Ice	6.20	6.20	68.00
			0.00				1/2" Ice	8.30	8.30	112.59
			4.00				1" Ice	10.42	10.42	170.27
AIR21 B4A/B2P (T-Mobile)	A	From Leg	3.00		0.0000	99.00	No Ice	6.05	4.31	91.00
			0.00				1/2" Ice	6.42	4.66	132.68
			0.00				1" Ice	6.80	5.02	179.47

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
AIR21 B4A/B2P	B	From Leg	3.00	0.0000	99.00	No Ice	6.05	4.31	91.00
(T-Mobile)			0.00			1/2" Ice	6.42	4.66	132.68
			0.00			1" Ice	6.80	5.02	179.47
AIR21 B4A/B2P	C	From Leg	3.00	0.0000	99.00	No Ice	6.05	4.31	91.00
(T-Mobile)			0.00			1/2" Ice	6.42	4.66	132.68
			0.00			1" Ice	6.80	5.02	179.47
AIR 21 B2A/B4P	A	From Leg	3.00	0.0000	99.00	No Ice	6.05	4.31	91.00
(T-Mobile)			0.00			1/2" Ice	6.42	4.66	132.68
			0.00			1" Ice	6.80	5.02	179.47
AIR 21 B2A/B4P	B	From Leg	3.00	0.0000	99.00	No Ice	6.05	4.31	91.00
(T-Mobile)			0.00			1/2" Ice	6.42	4.66	132.68
			0.00			1" Ice	6.80	5.02	179.47
AIR 21 B2A/B4P	C	From Leg	3.00	0.0000	99.00	No Ice	6.05	4.31	91.00
(T-Mobile)			0.00			1/2" Ice	6.42	4.66	132.68
			0.00			1" Ice	6.80	5.02	179.47
KRY 112 144/1	A	From Leg	3.00	0.0000	99.00	No Ice	0.35	0.16	11.00
(T-Mobile)			0.00			1/2" Ice	0.43	0.21	14.04
			0.00			1" Ice	0.51	0.28	18.30
KRY 112 144/1	B	From Leg	3.00	0.0000	99.00	No Ice	0.35	0.16	11.00
(T-Mobile)			0.00			1/2" Ice	0.43	0.21	14.04
			0.00			1" Ice	0.51	0.28	18.30
KRY 112 144/1	C	From Leg	3.00	0.0000	99.00	No Ice	0.35	0.16	11.00
(T-Mobile)			0.00			1/2" Ice	0.43	0.21	14.04
			0.00			1" Ice	0.51	0.28	18.30
LNX-6515DS-VTM	A	From Leg	3.00	0.0000	99.00	No Ice	11.45	4.64	50.30
(T-Mobile)			0.00			1/2" Ice	12.06	5.14	116.17
			0.00			1" Ice	12.69	5.65	189.71
LNX-6515DS-VTM	B	From Leg	3.00	0.0000	99.00	No Ice	11.45	4.64	50.30
(T-Mobile)			0.00			1/2" Ice	12.06	5.14	116.17
			0.00			1" Ice	12.69	5.65	189.71
LNX-6515DS-VTM	C	From Leg	3.00	0.0000	99.00	No Ice	11.45	4.64	50.30
(T-Mobile)			0.00			1/2" Ice	12.06	5.14	116.17
			0.00			1" Ice	12.69	5.65	189.71
RRUS-11	A	From Leg	3.00	0.0000	99.00	No Ice	3.79	1.46	55.00
(T-Mobile)			0.00			1/2" Ice	4.04	1.63	80.77
			0.00			1" Ice	4.29	1.81	109.98
RRUS-11	B	From Leg	3.00	0.0000	99.00	No Ice	3.79	1.46	55.00
(T-Mobile)			0.00			1/2" Ice	4.04	1.63	80.77
			0.00			1" Ice	4.29	1.81	109.98
RRUS-11	C	From Leg	3.00	0.0000	99.00	No Ice	3.79	1.46	55.00
(T-Mobile)			0.00			1/2" Ice	4.04	1.63	80.77
			0.00			1" Ice	4.29	1.81	109.98
Angle Platform w/ Handrails	C	From Leg	0.00	0.0000	99.00	No Ice	30.40	30.40	2000.00
(T-Mobile)			0.00			1/2" Ice	34.66	34.66	2450.00
			0.00			1" Ice	39.51	39.51	2900.00
***									
10' Omni	A	From Leg	3.00	0.0000	85.00	No Ice	3.00	3.00	33.30
(Town- Old)			0.00			1/2" Ice	4.03	4.03	55.09
			5.00			1" Ice	5.03	5.03	83.44
2' Omni	A	From Leg	3.00	0.0000	86.00	No Ice	0.41	0.41	5.00
(Town- Old)			0.00			1/2" Ice	0.54	0.54	9.68
			0.00			1" Ice	0.69	0.69	16.05
Pipe Side Arm	A	From Leg	3.00	0.0000	86.00	No Ice	0.46	3.55	150.00
(Town- Old)			0.00			1/2" Ice	0.62	4.93	175.00
			0.00			1" Ice	0.78	5.89	200.00
***									
2' Omni	B	From Leg	3.00	0.0000	57.00	No Ice	0.41	0.41	5.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
(Town- Old)			0.00			1/2" Ice	0.54	0.54	9.68
			3.00			1" Ice	0.69	0.69	16.05
4' Yagi	A	From Leg	3.00	0.0000	59.00	No Ice	1.70	1.70	15.00
(Town- Old)			0.00			1/2" Ice	1.99	1.99	26.41
			4.00			1" Ice	2.30	2.30	41.51
Pipe Side Arm	B	From Leg	3.00	0.0000	57.00	No Ice	0.46	3.55	150.00
(Town- Old)			0.00			1/2" Ice	0.62	4.93	175.00
			0.00			1" Ice	0.78	5.89	200.00
Pipe Side Arm	A	From Leg	3.00	0.0000	59.00	No Ice	0.46	3.55	150.00
(Town- Old)			0.00			1/2" Ice	0.62	4.93	175.00
			0.00			1" Ice	0.78	5.89	200.00
***									
GPS	A	From Leg	0.00	0.0000	50.00	No Ice	0.42	0.42	10.00
(Verizon)			0.00			1/2" Ice	0.57	0.57	15.96
			0.00			1" Ice	0.69	0.69	23.49
***									
***									
***									
BXA-80080-4CF	A	From Leg	3.00	0.0000	128.00	No Ice	4.80	2.84	14.30
(Verizon)			-6.00			1/2" Ice	5.12	3.15	45.30
			0.00			1" Ice	5.45	3.47	80.73
BXA-80080-4CF	B	From Leg	3.00	0.0000	128.00	No Ice	4.80	2.84	14.30
(Verizon)			-6.00			1/2" Ice	5.12	3.15	45.30
			0.00			1" Ice	5.45	3.47	80.73
BXA-80080-4CF	C	From Leg	3.00	0.0000	128.00	No Ice	4.80	2.84	14.30
(Verizon)			-6.00			1/2" Ice	5.12	3.15	45.30
			0.00			1" Ice	5.45	3.47	80.73
SBNHH-1D65B	A	From Leg	3.00	0.0000	128.00	No Ice	8.20	5.42	40.60
(Verizon)			0.50			1/2" Ice	8.66	5.88	91.24
			0.00			1" Ice	9.13	6.35	148.02
SBNHH-1D65B	B	From Leg	3.00	0.0000	128.00	No Ice	8.20	5.42	40.60
(Verizon)			0.50			1/2" Ice	8.66	5.88	91.24
			0.00			1" Ice	9.13	6.35	148.02
SBNHH-1D85B	C	From Leg	3.00	0.0000	128.00	No Ice	8.20	5.42	49.60
(Verizon)			0.50			1/2" Ice	8.66	5.88	100.24
			0.00			1" Ice	9.13	6.35	157.02
SBNHH-1D85B	A	From Leg	3.00	0.0000	128.00	No Ice	8.20	5.42	49.60
(Verizon)			-0.50			1/2" Ice	8.66	5.88	100.24
			0.00			1" Ice	9.13	6.35	157.02
SBNHH-1D85B	B	From Leg	3.00	0.0000	128.00	No Ice	8.20	5.42	49.60
(Verizon)			-0.50			1/2" Ice	8.66	5.88	100.24
			0.00			1" Ice	9.13	6.35	157.02
SBNHH-1D85B	C	From Leg	3.00	0.0000	128.00	No Ice	8.20	5.42	49.60
(Verizon)			-0.50			1/2" Ice	8.66	5.88	100.24
			0.00			1" Ice	9.13	6.35	157.02
QUAD685CW000G	A	From Leg	3.00	0.0000	128.00	No Ice	11.85	7.93	38.70
(Verizon)			6.00			1/2" Ice	12.48	8.54	106.40
			0.00			1" Ice	13.12	9.15	181.94
QUAD685CW000G	B	From Leg	3.00	0.0000	128.00	No Ice	11.85	7.93	38.70
(Verizon)			6.00			1/2" Ice	12.48	8.54	106.40
			0.00			1" Ice	13.12	9.15	181.94
QUAD685CW000G	C	From Leg	3.00	0.0000	128.00	No Ice	11.85	7.93	38.70
(Verizon)			6.00			1/2" Ice	12.48	8.54	106.40
			0.00			1" Ice	13.12	9.15	181.94
RRH-B4	A	From Leg	3.00	0.0000	128.00	No Ice	2.76	1.09	62.00
(Verizon)			-6.00			1/2" Ice	2.97	1.24	80.28
			0.00			1" Ice	3.19	1.41	101.52

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
RRH-B4 (Verizon)	B	From Leg	3.00 -6.00 0.00	0.0000	128.00	No Ice 1/2" Ice 1" Ice	2.76 2.97 3.19	1.09 1.24 1.41	62.00 80.28 101.52
RRH-B4 (Verizon)	C	From Leg	3.00 -6.00 0.00	0.0000	128.00	No Ice 1/2" Ice 1" Ice	2.76 2.97 3.19	1.09 1.24 1.41	62.00 80.28 101.52
RRH-B4 (Verizon)	A	From Leg	3.00 -6.00 0.00	0.0000	128.00	No Ice 1/2" Ice 1" Ice	2.76 2.97 3.19	1.09 1.24 1.41	62.00 80.28 101.52
RRH-B4 (Verizon)	B	From Leg	3.00 -6.00 0.00	0.0000	128.00	No Ice 1/2" Ice 1" Ice	2.76 2.97 3.19	1.09 1.24 1.41	62.00 80.28 101.52
RRH-B4 (Verizon)	C	From Leg	3.00 -6.00 0.00	0.0000	128.00	No Ice 1/2" Ice 1" Ice	2.76 2.97 3.19	1.09 1.24 1.41	62.00 80.28 101.52
CBC7821-DF-2X (Verizon)	A	From Leg	3.00 0.00 0.00	0.0000	128.00	No Ice 1/2" Ice 1" Ice	0.48 0.57 0.66	0.36 0.44 0.53	15.40 20.68 27.50
CBC7821-DF-2X (Verizon)	B	From Leg	3.00 0.00 0.00	0.0000	128.00	No Ice 1/2" Ice 1" Ice	0.48 0.57 0.66	0.36 0.44 0.53	15.40 20.68 27.50
CBC7821-DF-2X (Verizon)	C	From Leg	3.00 0.00 0.00	0.0000	128.00	No Ice 1/2" Ice 1" Ice	0.48 0.57 0.66	0.36 0.44 0.53	15.40 20.68 27.50
Samsung CBRS RRH-RT4401-48A (Verizon)	A	From Leg	3.00 -6.00 0.00	0.0000	128.00	No Ice 1/2" Ice 1" Ice	0.86 0.98 1.10	0.29 0.36 0.45	18.64 25.54 34.24
Samsung CBRS RRH-RT4401-48A (Verizon)	B	From Leg	3.00 -6.00 0.00	0.0000	128.00	No Ice 1/2" Ice 1" Ice	0.86 0.98 1.10	0.29 0.36 0.45	18.64 25.54 34.24
Samsung CBRS RRH-RT4401-48A (Verizon)	C	From Leg	3.00 -6.00 0.00	0.0000	128.00	No Ice 1/2" Ice 1" Ice	0.86 0.98 1.10	0.29 0.36 0.45	18.64 25.54 34.24
Samsung XXDWMM-12.5-65-8T-CBRS (Verizon)	A	From Leg	3.00 -6.00 0.00	0.0000	128.00	No Ice 1/2" Ice 1" Ice	0.89 1.01 1.14	0.12 0.17 0.24	4.40 9.58 16.40
Samsung XXDWMM-12.5-65-8T-CBRS (Verizon)	B	From Leg	3.00 -6.00 0.00	0.0000	128.00	No Ice 1/2" Ice 1" Ice	0.89 1.01 1.14	0.12 0.17 0.24	4.40 9.58 16.40
Samsung XXDWMM-12.5-65-8T-CBRS (Verizon) ***	C	From Leg	3.00 -6.00 0.00	0.0000	128.00	No Ice 1/2" Ice 1" Ice	0.89 1.01 1.14	0.12 0.17 0.24	4.40 9.58 16.40

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral / Vert (ft)	Azimuth Adjustment (°)	3 dB Beam Width (°)	Elevation (ft)	Outside Diameter (ft)		Aperture Area (ft^2)	Weight (lb)
VHLP3-11W-6WH (Town)	C	Paraboloid w/Shroud (HP)	From Leg	0.50 0.00 0.00	9.3400		87.00	3.00	No Ice 1/2" Ice 1" Ice	7.07 7.47 7.86	67.90 106.25 144.59
VHLP3-11W-6WH (Town)	B	Paraboloid w/Shroud (HP)	From Leg	0.50 0.00 0.00	-20.0700		106.00	3.00	No Ice 1/2" Ice 1" Ice	7.07 7.47 7.86	67.90 106.25 144.59
VHLP3-11W-6WH (Town)	B	Paraboloid w/Shroud (HP)	From Leg	0.50 0.00 0.00	-84.4300		85.00	3.00	No Ice 1/2" Ice 1" Ice	7.07 7.47 7.86	67.90 106.25 144.59

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service

Comb. No.	Description
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	130 - 89.92	24.397	46	1.6753	0.0099
L2	94 - 44.83	12.700	46	1.3211	0.0053
L3	50 - 0	3.450	46	0.6441	0.0020

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
130.00	PD440-140	46	24.397	1.6753	0.0103	26447
128.00	Angle Platform w/ Handrails	46	23.708	1.6586	0.0100	26447
116.00	APXVSPP18-C-A20	46	19.615	1.5551	0.0078	9445
106.00	VHLP3-11W-6WH	46	16.338	1.4588	0.0066	5509
99.00	BA4040-41-DIN	46	14.168	1.3821	0.0058	4264
87.00	VHLP3-11W-6WH	46	10.781	1.2260	0.0046	3589
86.00	2' Omni	46	10.521	1.2116	0.0045	3577
85.00	VHLP3-11W-6WH	46	10.263	1.1971	0.0044	3566
59.00	4' Yagi	46	4.782	0.7851	0.0025	3292
57.00	2' Omni	46	4.460	0.7531	0.0024	3273
50.00	GPS	46	3.450	0.6441	0.0020	3269

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	130 - 89.92	119.387	16	8.1467	0.0486
L2	94 - 44.83	62.533	16	6.4899	0.0263
L3	50 - 0	17.047	16	3.1831	0.0097

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
130.00	PD440-140	16	119.387	8.1467	0.0517	5786
128.00	Angle Platform w/ Handrails	16	116.045	8.0699	0.0498	5786
116.00	APXVSPP18-C-A20	16	96.182	7.5933	0.0394	2064
106.00	VHLP3-11W-6WH	16	80.256	7.1442	0.0331	1201
99.00	BA4040-41-DIN	16	69.691	6.7814	0.0290	927
87.00	VHLP3-11W-6WH	16	53.150	6.0319	0.0228	769
86.00	2' Omni	16	51.872	5.9623	0.0223	766
85.00	VHLP3-11W-6WH	16	50.610	5.8917	0.0219	762
59.00	4' Yagi	16	23.634	3.8774	0.0122	676
57.00	2' Omni	16	22.044	3.7201	0.0116	670
50.00	GPS	16	17.047	3.1831	0.0097	664

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
L1	130 - 128.105	TP25.08x16.26x0.22	40.08	130.00	264.8	11.6581	-391.05	37565.00	0.010
	128.105 - 126.211					11.9535	-10221.50	40493.20	0.252
	126.211 - 124.316					11.9535	-10387.20	40493.20	0.257
	124.316 - 122.421					12.2488	-10708.30	43569.80	0.246
	122.421 - 120.526					12.5442	-11031.70	46798.40	0.236
	120.526 - 118.632					12.8396	-11357.60	50182.60	0.226
	118.632 - 116.737					13.1350	-11502.70	53726.20	0.214
	116.737 - 114.842					13.7257	-17690.90	61306.10	0.289
	114.842 - 112.947					14.0211	-5975.55	65349.70	0.091
	112.947 - 111.053					14.3164	-6107.75	69567.40	0.088
	111.053 - 109.158					14.6118	-6244.35	73962.70	0.084
	109.158 - 107.263					14.9072	-6385.28	78539.30	0.081
	107.263 - 105.368					15.2026	-6584.69	83301.00	0.079
	105.368 - 103.474					15.4979	-6734.67	88251.30	0.076
	103.474 - 101.579					15.7933	-6888.96	93393.90	0.074
	101.579 - 99.6842					16.0887	-7047.54	98732.60	0.071
	99.6842 - 97.7895					16.3840	-10381.40	104271.00	0.100
	97.7895 - 95.8947					16.6794	-10559.90	110013.00	0.096

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
	95.8947 - 94					16.9748	-10744.00	115961.00	0.093
	94 - 89.92					17.6108	-4835.34	129491.00	0.037
L2	94 - 89.92	TP34.56x23.7422x0.31	49.17	130.00	179.1	24.2860	-6654.41	171037.00	0.039
	89.92 - 87.7022					24.7731	-11804.50	181535.00	0.065
	87.7022 - 85.4844					25.2601	-12358.00	192454.00	0.064
	85.4844 - 83.2667					25.7472	-12759.60	203802.00	0.063
	83.2667 - 81.0489					26.2342	-13097.50	215589.00	0.061
	81.0489 - 78.8311					26.7213	-13442.70	227820.00	0.059
	78.8311 - 76.6133					27.2083	-13795.00	240506.00	0.057
	76.6133 - 74.3956					27.6954	-14154.40	253655.00	0.056
	74.3956 - 72.1778					28.1824	-14520.70	267274.00	0.054
	72.1778 - 69.96					28.6695	-14894.00	281372.00	0.053
	69.96 - 67.7422					29.1565	-15274.00	295957.00	0.052
	67.7422 - 65.5244					29.6436	-15660.90	311038.00	0.050
	65.5244 - 63.3067					30.1306	-16054.40	326623.00	0.049
	63.3067 - 61.0889					30.6177	-16454.60	342719.00	0.048
	61.0889 - 58.8711					31.1047	-17051.90	359336.00	0.047
	58.8711 - 56.6533					31.5918	-17641.80	376482.00	0.047
	56.6533 - 54.4356					32.0788	-18062.50	394165.00	0.046
	54.4356 - 52.2178					32.5659	-18489.80	412392.00	0.045
	52.2178 - 50					33.0530	-18923.50	431174.00	0.044
	50 - 44.83					34.1884	-9449.31	477151.00	0.020
L3	50 - 44.83	TP43.8x32.8026x0.38	50.00	130.00	129.8	41.0636	-11264.40	550237.00	0.020
	44.83 - 42.4705					41.6986	-21263.60	576160.00	0.037
	42.4705 - 40.1111					42.3336	-21813.80	602885.00	0.036
	40.1111 - 37.7516					42.9686	-22371.50	630424.00	0.035
	37.7516 - 35.3921					43.6037	-22936.60	658789.00	0.035
	35.3921 - 33.0326					44.2387	-23509.20	687992.00	0.034
	33.0326 - 30.6732					44.8737	-24089.20	718046.00	0.034
	30.6732 - 28.3137					45.5087	-24676.70	748962.00	0.033
	28.3137 - 25.9542					46.1437	-25271.50	780754.00	0.032
	25.9542 - 23.5947					46.7787	-25873.60	813432.00	0.032
	23.5947 - 21.2353					47.4137	-26483.20	847010.00	0.031

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
	21.2353 - 18.8758					48.0487	-27100.10	881500.00	0.031
	18.8758 - 16.5163					48.6837	-27724.40	916913.00	0.030
	16.5163 - 14.1568					49.3187	-28356.00	953262.00	0.030
	14.1568 - 11.7974					49.9537	-28994.90	990559.00	0.029
	11.7974 - 9.43789					50.5887	-29641.20	1028820.00	0.029
	9.43789 - 7.07842					51.2237	-30294.80	1068050.00	0.028
	7.07842 - 4.71895					51.8587	-30955.70	1108260.00	0.028
	4.71895 - 2.35947					52.4937	-31624.00	1149480.00	0.028
	2.35947 - 0					53.1287	-32299.60	1191700.00	0.027

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} lb-ft	ϕM_{nx} lb-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} lb-ft	ϕM_{ny} lb-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	130 - 128.105	TP25.08x16.26x0.22	588.82	286557.50	0.002	0.00	286557.50	0.000
	128.105 - 126.211		6741.53	301360.00	0.022	0.00	301360.00	0.000
	126.211 - 124.316		6435.08	301360.00	0.021	0.00	301360.00	0.000
	124.316 - 122.421		9655.75	316535.83	0.031	0.00	316535.83	0.000
	122.421 - 120.526		12979.42	332084.17	0.039	0.00	332084.17	0.000
	120.526 - 118.632		16387.75	348005.00	0.047	0.00	348005.00	0.000
	118.632 - 116.737		21258.58	364299.17	0.058	0.00	364299.17	0.000
	116.737 - 114.842		32404.33	396560.83	0.082	0.00	396560.83	0.000
	114.842 - 112.947		115810.00	411100.00	0.282	0.00	411100.00	0.000
	112.947 - 111.053		136385.83	425770.00	0.320	0.00	425770.00	0.000
	111.053 - 109.158		157462.50	440563.33	0.357	0.00	440563.33	0.000
	109.158 - 107.263		179046.67	455472.50	0.393	0.00	455472.50	0.000
	107.263 - 105.368		201279.17	470490.00	0.428	0.00	470490.00	0.000
	105.368 - 103.474		224303.33	485608.33	0.462	0.00	485608.33	0.000
	103.474 - 101.579		247853.33	500819.17	0.495	0.00	500819.17	0.000
	101.579 - 99.6842		271934.17	516115.00	0.527	0.00	516115.00	0.000
	99.6842 - 97.7895		305326.67	531490.00	0.574	0.00	531490.00	0.000

Section No.	Elevation ft	Size	M_{ux} lb-ft	ϕM_{nx} lb-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} lb-ft	ϕM_{ny} lb-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
	97.7895 - 95.8947		338216.67	546934.17	0.618	0.00	546934.17	0.000
	95.8947 - 94		371637.50	562441.67	0.661	0.00	562441.67	0.000
	94 - 89.92		192250.83	596011.67	0.323	0.00	596011.67	0.000
L2	94 - 89.92	TP34.56x23.7422x0.31	253351.67	883075.00	0.287	0.00	883075.00	0.000
	89.92 - 87.7022		486940.83	919075.00	0.530	0.00	919075.00	0.000
	87.7022 - 85.4844		528887.50	955800.00	0.553	0.00	955800.00	0.000
	85.4844 - 83.2667		573644.17	993241.67	0.578	0.00	993241.67	0.000
	83.2667 - 81.0489		618942.50	1031400.00	0.600	0.00	1031400.00	0.000
	81.0489 - 78.8311		664960.00	1070283.33	0.621	0.00	1070283.33	0.000
	78.8311 - 76.6133		711698.33	1106425.00	0.643	0.00	1106425.00	0.000
	76.6133 - 74.3956		759160.83	1140150.00	0.666	0.00	1140150.00	0.000
	74.3956 - 72.1778		807350.00	1174141.67	0.688	0.00	1174141.67	0.000
	72.1778 - 69.96		856266.67	1208375.00	0.709	0.00	1208375.00	0.000
	69.96 - 67.7422		905916.67	1242841.67	0.729	0.00	1242841.67	0.000
	67.7422 - 65.5244		956308.33	1277525.00	0.749	0.00	1277525.00	0.000
	65.5244 - 63.3067		1007433.33	1312416.67	0.768	0.00	1312416.67	0.000
	63.3067 - 61.0889		1059300.00	1347500.00	0.786	0.00	1347500.00	0.000
	61.0889 - 58.8711		1111416.67	1382766.67	0.804	0.00	1382766.67	0.000
	58.8711 - 56.6533		1165108.33	1418208.33	0.822	0.00	1418208.33	0.000
	56.6533 - 54.4356		1219800.00	1453808.33	0.839	0.00	1453808.33	0.000
	54.4356 - 52.2178		1275241.67	1489558.33	0.856	0.00	1489558.33	0.000
	52.2178 - 50		1331441.67	1525441.67	0.873	0.00	1525441.67	0.000
	50 - 44.83		681311.67	1609541.67	0.423	0.00	1609541.67	0.000
L3	50 - 44.83	TP43.8x32.8026x0.38	784445.00	2053183.33	0.382	0.00	2053183.33	0.000
	44.83 - 42.4705		1528500.00	2107166.67	0.725	0.00	2107166.67	0.000
	42.4705 - 40.1111		1591950.00	2161508.33	0.737	0.00	2161508.33	0.000
	40.1111 - 37.7516		1656116.67	2216183.33	0.747	0.00	2216183.33	0.000
	37.7516 - 35.3921		1721008.33	2271183.33	0.758	0.00	2271183.33	0.000
	35.3921 - 33.0326		1786608.33	2326500.00	0.768	0.00	2326500.00	0.000
	33.0326 - 30.6732		1852941.67	2382100.00	0.778	0.00	2382100.00	0.000
	30.6732 - 28.3137		1920000.00	2437983.33	0.788	0.00	2437983.33	0.000
	28.3137 - 25.9542		1987791.67	2494133.33	0.797	0.00	2494133.33	0.000
	25.9542 - 23.5947		2056325.00	2550541.67	0.806	0.00	2550541.67	0.000

Section No.	Elevation ft	Size	M_{ux} lb-ft	ϕM_{nx} lb-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} lb-ft	ϕM_{ny} lb-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
	23.5947 - 21.2353		2125600.00	2607175.00	0.815	0.00	2607175.00	0.000
	21.2353 - 18.8758		2195608.33	2664041.67	0.824	0.00	2664041.67	0.000
	18.8758 - 16.5163		2266375.00	2721108.33	0.833	0.00	2721108.33	0.000
	16.5163 - 14.1568		2337891.67	2778366.67	0.841	0.00	2778366.67	0.000
	14.1568 - 11.7974		2410166.67	2835808.33	0.850	0.00	2835808.33	0.000
	11.7974 - 9.43789		2483200.00	2893408.33	0.858	0.00	2893408.33	0.000
	9.43789 - 7.07842		2557000.00	2951158.33	0.866	0.00	2951158.33	0.000
	7.07842 - 4.71895		2631566.67	3009041.67	0.875	0.00	3009041.67	0.000
	4.71895 - 2.35947		2706900.00	3067050.00	0.883	0.00	3067050.00	0.000
	2.35947 - 0		2783016.67	3125158.33	0.891	0.00	3125158.33	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u lb	ϕV_n lb	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u lb-ft	ϕT_n lb-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	130 - 128.105	TP25.08x16.26x0.22	150.99	429660.00	0.000	53.00	583672.50	0.000
	128.105 - 126.211		1742.04	440545.00	0.004	46.81	613755.83	0.000
	126.211 - 124.316		1725.22	451431.00	0.004	230.16	613755.83	0.000
	124.316 - 122.421		1763.81	462317.00	0.004	230.16	644595.00	0.000
	122.421 - 120.526		1802.36	473203.00	0.004	230.16	676190.00	0.000
	120.526 - 118.632		1840.86	484089.00	0.004	230.16	708540.83	0.000
	118.632 - 116.737		2164.17	494975.00	0.004	266.79	741647.50	0.000
	116.737 - 114.842		3131.79	504025.00	0.006	391.96	807189.17	0.000
	114.842 - 112.947		10733.40	511376.00	0.021	1507.77	836716.67	0.002
	112.947 - 111.053		10996.90	518580.00	0.021	1576.48	866508.33	0.002
	111.053 - 109.158		11263.50	525637.00	0.021	1646.30	896550.00	0.002
	109.158 - 107.263		11533.30	532546.00	0.022	1717.22	926825.00	0.002
	107.263 - 105.368		12021.20	539308.00	0.022	1716.61	957316.67	0.002
	105.368 - 103.474		12297.40	545923.00	0.023	1565.44	988016.67	0.002
	103.474 - 101.579		12576.70	552390.00	0.023	1639.73	1018900.00	0.002
	101.579 - 99.6842		12859.30	558710.00	0.023	1715.16	1049950.00	0.002

Section No.	Elevation ft	Size	Actual V_u lb	ϕV_n lb	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u lb-ft	ϕT_n lb-ft	Ratio $\frac{T_u}{\phi T_n}$
	99.6842 - 97.7895		17232.20	564883.00	0.031	1970.50	1081166.67	0.002
	97.7895 - 95.8947		17512.60	570909.00	0.031	2047.97	1112525.00	0.002
	95.8947 - 94		17795.30	576788.00	0.031	2126.70	1144000.00	0.002
	94 - 89.92		8160.69	588946.00	0.014	1042.35	1212150.00	0.001
L2	94 - 89.92	TP34.56x23.7422x0.31	10334.50	895061.00	0.012	1259.04	1798308.33	0.001
	89.92 - 87.7022		18816.10	913011.00	0.021	2381.21	1871466.67	0.001
	87.7022 - 85.4844		19480.00	930961.00	0.021	2872.29	1946083.33	0.001
	85.4844 - 83.2667		20282.00	948912.00	0.021	2870.60	2022158.33	0.001
	83.2667 - 81.0489		20606.30	966862.00	0.021	2712.03	2099700.00	0.001
	81.0489 - 78.8311		20931.70	984812.00	0.021	2794.99	2178691.67	0.001
	78.8311 - 76.6133		21258.40	999639.00	0.021	2878.78	2252108.33	0.001
	76.6133 - 74.3956		21586.30	1011800.00	0.021	2963.40	2320616.67	0.001
	74.3956 - 72.1778		21915.50	1023760.00	0.021	3048.85	2389633.33	0.001
	72.1778 - 69.96		22245.90	1035520.00	0.021	3135.14	2459150.00	0.001
	69.96 - 67.7422		22577.50	1047070.00	0.022	3222.29	2529141.67	0.001
	67.7422 - 65.5244		22910.30	1058430.00	0.022	3310.30	2599566.67	0.001
	65.5244 - 63.3067		23244.40	1069580.00	0.022	3399.18	2670416.67	0.001
	63.3067 - 61.0889		23579.70	1080530.00	0.022	3488.93	2741658.33	0.001
	61.0889 - 58.8711		24031.50	1091280.00	0.022	3997.68	2813266.67	0.001
	58.8711 - 56.6533		24521.40	1101820.00	0.022	3995.44	2885225.00	0.001
	56.6533 - 54.4356		24859.10	1112170.00	0.022	3563.22	2957500.00	0.001
	54.4356 - 52.2178		25198.10	1122310.00	0.022	3656.55	3030075.00	0.001
	52.2178 - 50		25538.20	1132260.00	0.023	3750.78	3102925.00	0.001
	50 - 44.83		12546.00	1154650.00	0.011	1913.09	3273658.33	0.001
L3	50 - 44.83	TP43.8x32.8026x0.38	13932.20	1506590.00	0.009	2073.33	4179166.67	0.000
	44.83 - 42.4705		26773.00	1522400.00	0.018	4075.41	4288800.00	0.001
	42.4705 - 40.1111		27075.20	1537980.00	0.018	4165.72	4399150.00	0.001
	40.1111 - 37.7516		27379.00	1553330.00	0.018	4257.20	4510183.33	0.001
	37.7516 - 35.3921		27684.50	1568450.00	0.018	4349.83	4621875.00	0.001
	35.3921 - 33.0326		27991.70	1583350.00	0.018	4443.64	4734183.33	0.001
	33.0326 - 30.6732		28300.60	1598010.00	0.018	4538.61	4847091.67	0.001
	30.6732 - 28.3137		28611.10	1612450.00	0.018	4634.75	4960566.67	0.001
	28.3137 - 25.9542		28923.30	1626660.00	0.018	4732.07	5074583.33	0.001

Section No.	Elevation ft	Size	Actual V_u lb	ϕV_n lb	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u lb-ft	ϕT_n lb-ft	Ratio $\frac{T_u}{\phi T_n}$
	25.9542 - 23.5947		29237.10	1640640.00	0.018	4830.57	5189100.00	0.001
	23.5947 - 21.2353		29552.60	1654400.00	0.018	4930.23	5304091.67	0.001
	21.2353 - 18.8758		29869.70	1667920.00	0.018	5031.09	5419533.33	0.001
	18.8758 - 16.5163		30188.40	1681220.00	0.018	5133.13	5535400.00	0.001
	16.5163 - 14.1568		30508.70	1694290.00	0.018	5236.36	5651650.00	0.001
	14.1568 - 11.7974		30830.60	1707130.00	0.018	5340.78	5768250.00	0.001
	11.7974 - 9.43789		31154.10	1719750.00	0.018	5446.38	5885191.33	0.001
	9.43789 - 7.07842		31479.10	1732130.00	0.018	5553.18	6002424.67	0.001
	7.07842 - 4.71895		31805.70	1744290.00	0.018	5661.17	6119933.33	0.001
	4.71895 - 2.35947		32133.80	1756220.00	0.018	5770.35	6237683.33	0.001
	2.35947 - 0		32463.50	1767920.00	0.018	5880.73	6355641.33	0.001

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	130 - 128.105	0.010	0.002	0.000	0.000	0.000	0.012 ✔	1.000	4.8.2 ✔
	128.105 - 126.211	0.252	0.022	0.000	0.004	0.000	0.275 ✔	1.000	4.8.2 ✔
	126.211 - 124.316	0.257	0.021	0.000	0.004	0.000	0.278 ✔	1.000	4.8.2 ✔
	124.316 - 122.421	0.246	0.031	0.000	0.004	0.000	0.276 ✔	1.000	4.8.2 ✔
	122.421 - 120.526	0.236	0.039	0.000	0.004	0.000	0.275 ✔	1.000	4.8.2 ✔
	120.526 - 118.632	0.226	0.047	0.000	0.004	0.000	0.273 ✔	1.000	4.8.2 ✔
	118.632 - 116.737	0.214	0.058	0.000	0.004	0.000	0.272 ✔	1.000	4.8.2 ✔
	116.737 - 114.842	0.289	0.082	0.000	0.006	0.000	0.370 ✔	1.000	4.8.2 ✔
	114.842 - 112.947	0.091	0.282	0.000	0.021	0.002	0.374 ✔	1.000	4.8.2 ✔
	112.947 - 111.053	0.088	0.320	0.000	0.021	0.002	0.409 ✔	1.000	4.8.2 ✔
	111.053 - 109.158	0.084	0.357	0.000	0.021	0.002	0.442 ✔	1.000	4.8.2 ✔
	109.158 - 107.263	0.081	0.393	0.000	0.022	0.002	0.475 ✔	1.000	4.8.2 ✔

tnxTower	Job	Page
	1126-D0001-B	18 of 20
Infinigy Engineering PLLC 1517 Old Apex Rd Cary, NC 27513 Phone: (518) 690 0790 FAX:	**Project** Ridgefield CT	**Date** 08:17:30 09/20/19
	Client Verizon	**Designed by** mashouri

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	107.263 - 105.368	0.079	0.428	0.000	0.022	0.002	0.507 ✔	1.000	4.8.2 ✔
	105.368 - 103.474	0.076	0.462	0.000	0.023	0.002	0.539 ✔	1.000	4.8.2 ✔
	103.474 - 101.579	0.074	0.495	0.000	0.023	0.002	0.569 ✔	1.000	4.8.2 ✔
	101.579 - 99.6842	0.071	0.527	0.000	0.023	0.002	0.599 ✔	1.000	4.8.2 ✔
	99.6842 - 97.7895	0.100	0.574	0.000	0.031	0.002	0.675 ✔	1.000	4.8.2 ✔
	97.7895 - 95.8947	0.096	0.618	0.000	0.031	0.002	0.715 ✔	1.000	4.8.2 ✔
	95.8947 - 94	0.093	0.661	0.000	0.031	0.002	0.754 ✔	1.000	4.8.2 ✔
	94 - 89.92	0.037	0.323	0.000	0.014	0.001	0.360 ✔	1.000	4.8.2 ✔
L2	94 - 89.92	0.039	0.287	0.000	0.012	0.001	0.326 ✔	1.000	4.8.2 ✔
	89.92 - 87.7022	0.065	0.530	0.000	0.021	0.001	0.595 ✔	1.000	4.8.2 ✔
	87.7022 - 85.4844	0.064	0.553	0.000	0.021	0.001	0.618 ✔	1.000	4.8.2 ✔
	85.4844 - 83.2667	0.063	0.578	0.000	0.021	0.001	0.641 ✔	1.000	4.8.2 ✔
	83.2667 - 81.0489	0.061	0.600	0.000	0.021	0.001	0.661 ✔	1.000	4.8.2 ✔
	81.0489 - 78.8311	0.059	0.621	0.000	0.021	0.001	0.681 ✔	1.000	4.8.2 ✔
	78.8311 - 76.6133	0.057	0.643	0.000	0.021	0.001	0.701 ✔	1.000	4.8.2 ✔
	76.6133 - 74.3956	0.056	0.666	0.000	0.021	0.001	0.722 ✔	1.000	4.8.2 ✔
	74.3956 - 72.1778	0.054	0.688	0.000	0.021	0.001	0.742 ✔	1.000	4.8.2 ✔
	72.1778 - 69.96	0.053	0.709	0.000	0.021	0.001	0.762 ✔	1.000	4.8.2 ✔
	69.96 - 67.7422	0.052	0.729	0.000	0.022	0.001	0.781 ✔	1.000	4.8.2 ✔
	67.7422 - 65.5244	0.050	0.749	0.000	0.022	0.001	0.799 ✔	1.000	4.8.2 ✔
	65.5244 - 63.3067	0.049	0.768	0.000	0.022	0.001	0.817 ✔	1.000	4.8.2 ✔
	63.3067 - 61.0889	0.048	0.786	0.000	0.022	0.001	0.835 ✔	1.000	4.8.2 ✔
	61.0889 - 58.8711	0.047	0.804	0.000	0.022	0.001	0.852 ✔	1.000	4.8.2 ✔
	58.8711 - 56.6533	0.047	0.822	0.000	0.022	0.001	0.869 ✔	1.000	4.8.2 ✔
	56.6533 - 54.4356	0.046	0.839	0.000	0.022	0.001	0.885 ✔	1.000	4.8.2 ✔
	54.4356 - 52.2178	0.045	0.856	0.000	0.022	0.001	0.902 ✔	1.000	4.8.2 ✔

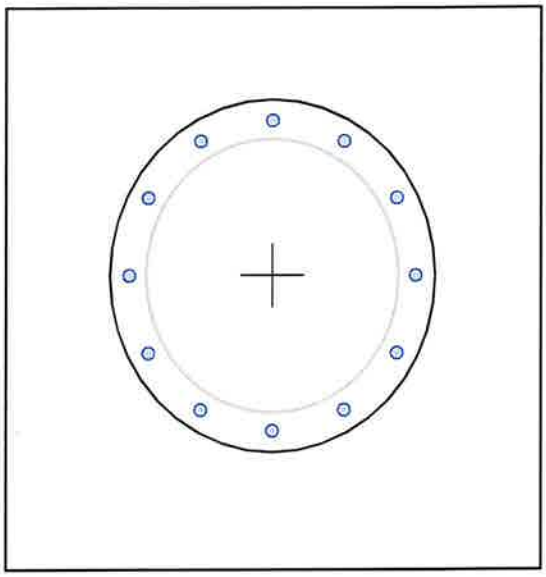
Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	52.2178 - 50	0.044	0.873	0.000	0.023	0.001	0.917 ✔	1.000	4.8.2 ✔
	50 - 44.83	0.020	0.423	0.000	0.011	0.001	0.443 ✔	1.000	4.8.2 ✔
L3	50 - 44.83	0.020	0.382	0.000	0.009	0.000	0.403 ✔	1.000	4.8.2 ✔
	44.83 - 42.4705	0.037	0.725	0.000	0.018	0.001	0.763 ✔	1.000	4.8.2 ✔
	42.4705 - 40.1111	0.036	0.737	0.000	0.018	0.001	0.773 ✔	1.000	4.8.2 ✔
	40.1111 - 37.7516	0.035	0.747	0.000	0.018	0.001	0.783 ✔	1.000	4.8.2 ✔
	37.7516 - 35.3921	0.035	0.758	0.000	0.018	0.001	0.793 ✔	1.000	4.8.2 ✔
	35.3921 - 33.0326	0.034	0.768	0.000	0.018	0.001	0.802 ✔	1.000	4.8.2 ✔
	33.0326 - 30.6732	0.034	0.778	0.000	0.018	0.001	0.812 ✔	1.000	4.8.2 ✔
	30.6732 - 28.3137	0.033	0.788	0.000	0.018	0.001	0.821 ✔	1.000	4.8.2 ✔
	28.3137 - 25.9542	0.032	0.797	0.000	0.018	0.001	0.830 ✔	1.000	4.8.2 ✔
	25.9542 - 23.5947	0.032	0.806	0.000	0.018	0.001	0.838 ✔	1.000	4.8.2 ✔
	23.5947 - 21.2353	0.031	0.815	0.000	0.018	0.001	0.847 ✔	1.000	4.8.2 ✔
	21.2353 - 18.8758	0.031	0.824	0.000	0.018	0.001	0.855 ✔	1.000	4.8.2 ✔
	18.8758 - 16.5163	0.030	0.833	0.000	0.018	0.001	0.863 ✔	1.000	4.8.2 ✔
	16.5163 - 14.1568	0.030	0.841	0.000	0.018	0.001	0.872 ✔	1.000	4.8.2 ✔
	14.1568 - 11.7974	0.029	0.850	0.000	0.018	0.001	0.880 ✔	1.000	4.8.2 ✔
	11.7974 - 9.43789	0.029	0.858	0.000	0.018	0.001	0.887 ✔	1.000	4.8.2 ✔
	9.43789 - 7.07842	0.028	0.866	0.000	0.018	0.001	0.895 ✔	1.000	4.8.2 ✔
	7.07842 - 4.71895	0.028	0.875	0.000	0.018	0.001	0.903 ✔	1.000	4.8.2 ✔
	4.71895 - 2.35947	0.028	0.883	0.000	0.018	0.001	0.910 ✔	1.000	4.8.2 ✔
	2.35947 - 0	0.027	0.891	0.000	0.018	0.001	0.918 ✔	1.000	4.8.2 ✔

Section Capacity Table

tnxTower	Job: 1126-D0001-B	Page: 20 of 20
Infinigy Engineering PLLC 1517 Old Apex Rd Cary, NC 27513 Phone: (518) 690 0790 FAX:	Project: Ridgefield CT	Date: 08:17:30 09/20/19
	Client: Verizon	Designed by: mashouri

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
L1	130 - 89.92	Pole	TP25.08x16.26x0.22	1	-10744.00	115961.00	75.4	Pass
L2	89.92 - 44.83	Pole	TP34.56x23.7422x0.31	2	-18923.50	431174.00	91.7	Pass
L3	44.83 - 0	Pole	TP43.8x32.8026x0.38	3	-32299.60	1191700.00	91.8	Pass
							Summary	
						Pole (L3)	91.8	Pass
						RATING =	**91.8**	**Pass**

Date:	9/20/2019
Customer:	Verizon
Engineer:	BDA
Job #:	1080-Z0001-B
Baseplate/Flange:	Base Plate
Plate Shape:	Circle
Use Addendum 3:	No

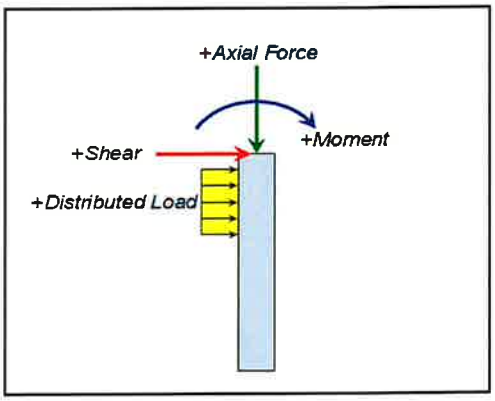


Loading Data		
TIA Code Revision:	Rev-G	
Axial:	32.3	kips
Moment:	2783.0	k-ft
Plate Data		
Pole Base Diameter:	43.8	in
Pole Base Shape:	12 Sided	
Pole thickness:	0.38	in
Pole Fy:	65	ksi
Base Weld Size:	0.38	in
Plate Diameter:	56.5	in
Plate Thickness:	2.5	in
Plate Steel Grade:	A572 Gr. 60	ksi
Internal/External:	External	ksi
Anchor Bolt Data		
Bolt Diameter:	2.25	in
Bolt Hole Diameter:	2.3125	in
Bolt Quantity:	12	
Bolt Grade:	A615 Gr. 75	psi
Bolt Circle:	49.75	in
Bolt Spacing:	6	in
Fully Developed:	Unknown	
Additional Bolt Data		
Bolt Diameter:		in
Bolt Quantity:		
Bolt Grade:		psi
Bolt Circle:		in
Angle:		deg
Stiffener Data		
Stiffener Quantity:		
Stiffener Height:		in
Stiffener Width:		in

Plate Ratio:	25.10	%
Bolt Ratio:	87.02	%
Additional Bolt Ratio:	-	%
Vertical Weld Ratio:	-	%
Horizontal Weld Ratio:	-	%
Stiffener Ratio:	-	

Date:	9/20/2019
Site Name:	Ridgefield CT
Client:	Verizon
Infinigy Job #:	1080-Z0001-B
Analysis/Design:	Analysis
Tower Type:	Monopole

Infinigy Engineering PLLC
Drilled Shaft Calculations
ACI 318-11
Ensoft L-Pile 1212.6.37
Ensoft Shaft 2012.7.8

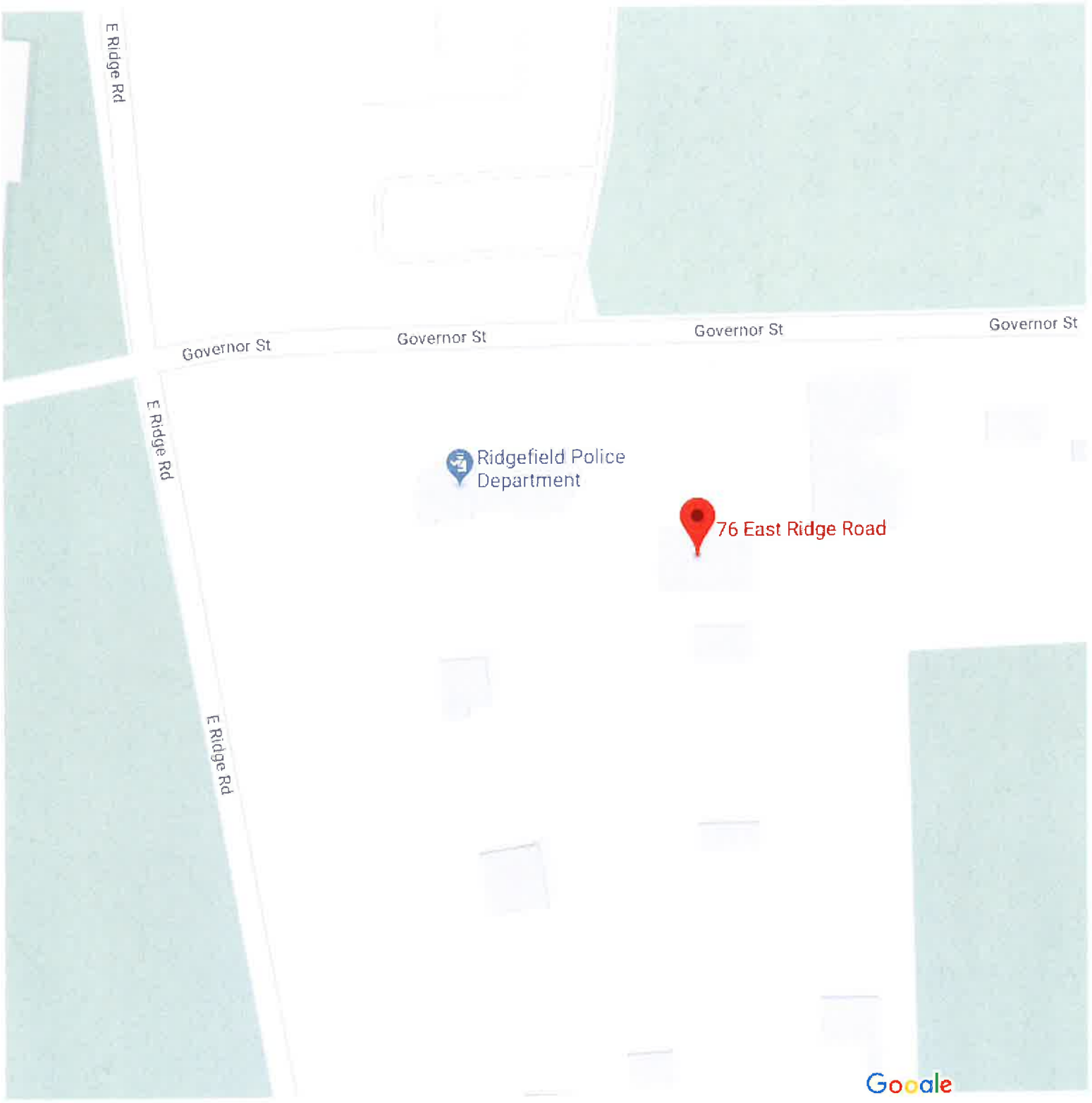


Loading Data			
TIA Code Revision:	ANSI/TIA-222-G		
Factored Moment:	2783.00	kip-ft	From tnxTower
Factored Uplift:	0.00	kips	
Factored Axial:	32.30	kips	
Factored Shear:	32.40	kips	
Service Moment:	563.00	kip-ft	
Service Uplift:	0.00	kips	
Service Axial:	26.90	kips	
Service Shear:	6.60	kips	

Concrete Strength Check			
Bending Reduction Factor:	0.90		
Unfactored Ultimate Moment Capacity:	5943.63	k-ft	From L-Pile
Maximum Moment In Shaft:	2887.46	k-ft	
Depth of Maximum Moment in Shaft:	4.41	ft	
SF:	**2.06**	OK	

Servicability Soil Stability Check			
Allowable Service Pile Head Deflection:	0.75	in	
Maximum Service Pile Head Deflection:	0.08	in	From L-Pile
Deflection Ratio:	**11**	%	

ATTACHMENT 5


E Ridge Rd
Governor St
Governor St
Governor St
Governor St
E Ridge Rd
Ridgefield Police Department
76 East Ridge Road
E Ridge Rd
Google

The Assessor's office is responsible for the maintenance of records on the ownership of properties. Assessments are computed at 70% of the estimated market value of real property at the time of the last revaluation which was 2012.

Information on the Property Records for the Municipality of Ridgefield was last updated on 8/6/2014.

Parcel Information

Location:	76 EAST RIDGE	Property Use:	Office	Primary Use:	Office Building
Unique ID:	E150204	Map Block Lot:	E15-0204	Acres:	1.90
490 Acres:	0.00	Zone:	RA	Volume / Page:	0182/0240
Developers Map / Lot:		Census:	2453		

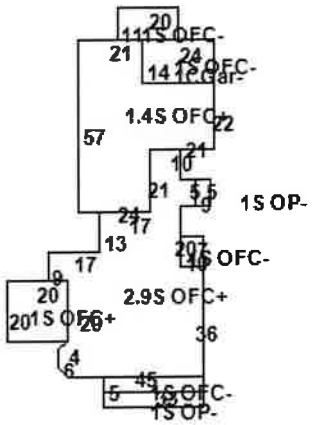
Value Information

	Appraised Value	70% Assessed Value
Land	1,600,000	1,120,010

	Appraised Value	70% Assessed Value
Buildings	1,037,348	726,140
Detached Outbuildings	293,220	205,250
Total	2,930,568	2,051,400

Building 1

Photo Not Available



Category:	Office	Use:	Office Building	Stories:	2.90

Above Grade:	10,921	Below Grade:	4,678	Below Grade Finish:	3,566
Construction:	Good	Year Built:	1930	Heating:	Hot Water
Fuel:	Oil	Cooling Percent:	100%	Siding:	Wood Shingles/Vinyl
Roof Material:	Asphalt Reg3 Tab				

Special Features

Attached Components

Type:	Construction:	Year Built:	Area:
Garage	Concrete Block/Frame	1930	336
Porch	Open	1930	330
Porch	Open	1930	45

Detached Outbuildings

Type:	Construction:	Year Built:	Length:	Width:	Area:
Garage	Detatched 1 Story Masonry	1930	0.00	0.00	4,320
Paving	Paving	1930	0.00	0.00	6,000
Shed	Average Shed	1930	0.00	0.00	144

ATTACHMENT 6

UNITED STATES POSTAL SERVICE®

Certificate of Mailing — Firm

Name and Address of Sender	TOTAL NO. of Pieces Listed by Sender	TOTAL NO. of Pieces Received at Post Office™	Affix Stamp Here *Postmark with Date of Receipt.*
Kenneth C. Baldwin, Esq. Robinson & Cole LLP 280 Trumbull Street Hartford, CT 06103	2	2	OLD STATE HOUSE STATION 06103 NOV 13 2019 USPS neopost 11/13/2019 US POSTAGE $002.79⁰ ZIP 06103 041L12203637
	Postmaster, per *(name of receiving employee)*		

USPS® Tracking Number / Firm-specific Identifier	Address (Name, Street, City, State, and ZIP Code™)	Postage	Fee	Special Handling	Parcel Airlift
1.	Rudy Marconi, First Selectman Town of Ridgefield 400 Main Street Ridgefield, CT 06877				
2.	Richard Baldelli, Director of Planning and Zoning Town of Ridgefield Town Hall Annex 66 Prospect Street Ridgefield, CT 06877				
3.					
4.					
5.					
6.					