

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

IN RE:	:	
	:	
A PETITION OF CELCO PARTNERSHIP	:	SUB-PETITION NO. 1133
D/B/A VERIZON WIRELESS FOR A	:	365 HARTFORD ROAD
DECLARATORY RULING FOR	:	NEW BRITAIN, CT
APPROVAL OF AN ELIGIBLE FACILITY	:	
REQUEST FOR MODIFICATIONS TO AN	:	
EXISTING TELECOMMUNICATIONS	:	
TOWER AT 365 HARTFORD ROAD, NEW	:	
BRITAIN, CONNECTICUT	:	OCTOBER 3, 2017

SUB-PETITION FOR DECLARATORY RULING:
ELIGIBLE FACILITIES REQUEST FOR MODIFICATIONS
THAT WILL NOT SUBSTANTIALLY CHANGE THE
PHYSICAL DIMENSIONS OF AN EXISTING TOWER

I. Introduction

Pursuant to Section 6409(a) of the Middle Class Tax Relief and Job Creation Act of 2012, codified at 47 U.S.C. § 1455(a) (“Section 6409(a)”) and the October 21, 2014 Report and Order (FCC-14-153) issued by the Federal Communications Commission (“FCC”) (the “FCC Order”), Cellco Partnership d/b/a Verizon Wireless (“Cellco”) hereby petitions the Connecticut Siting Council (the “Council”) for a declaratory ruling (“Sub-Petition”) that the proposed modifications to an existing telecommunications tower at the Stanley Golf Course, 365 Hartford Road in New Britain, Connecticut constitutes an Eligible Facilities Request (“EFR”) under the FCC Order. Cellco has designated this site as its “New Britain 8 Facility”.

II. Factual Background

The City of New Britain (“City”) maintains a 160-foot monopole tower in the northwest corner on a 175.83-acre parcel at 365 Hartford Road (a/k/a 245 Hartford Road) in New Britain, Connecticut (the “Property”). See Attachment 1 – Site Vicinity Map and Site Schematic (Aerial

Photograph). The tower and underlying property are owned by the City. The tower currently supports municipal and emergency service communications antennas. Equipment associated with the existing antennas is located near the base of the tower within a fenced facility compound.

III. Cellco's Proposed New Britain 8 Facility

Cellco intends to install twelve (12) antennas and nine (9) remote radio heads ("RRHs") on an antenna platform at a centerline height of 60 feet above ground level ("AGL") on the tower. Cellco will also install a 11'-6" x 20' steel platform with a roof canopy to support its radio equipment, a back-up battery cabinet and a 15 kW diesel-fueled back-up generator. Power and telephone service to Cellco's equipment will extend from the existing utility backboard at the tower site. Project Plans for the proposed New Britain 8 Facility are included in Attachment 2. Specifications for Cellco's antennas, RRHs and generator are included in Attachment 3. A Tower Structural Analysis Report confirming that the tower can accommodate Cellco's proposed modifications is included in Attachment 4.

IV. Discussion

A. The Proposed Modification Will Not Cause a Substantial Change to the Physical Dimensions of the Existing Tower or Base Station

Section 6409(a) provides, in relevant part, that "a State or local government may not deny, and shall approve, any eligible facilities request for a modification of an existing wireless tower or base station that does not substantially change the physical dimensions of such tower or base station." Pursuant to the FCC Order, the proposed modification does not substantially change the physical dimensions of the tower or base station if the following criteria are satisfied.

1. *The proposed modified facility will not increase the height of the tower by more than ten (10) percent or by the height of one additional antenna array with separation from*

the nearest existing antenna not to exceed twenty (20) feet, whichever is greater. Cellco proposes to install its antennas and RRHs at a height of 60 feet AGL on the existing 160-foot tower.

2. *The proposed facility will not protrude from the edge of the structure more than six (6) feet.* The proposed antennas and RRHs will not protrude more than six (6) feet from the edge of the structure (antenna platform).

3. *The proposed facility does not involve installation of more than the standard number of new equipment cabinets for the technology involved, but not to exceed four cabinets.* Cellco intends to install two (2) equipment cabinets to house its radio equipment.

4. *The proposed facility does not entail any excavation or deployment outside the current site of the base station.* All of Cellco's site improvements will remain within the limits of the existing facility compound.

5. *The proposed facility does not defeat the existing concealment elements of the base station.* None of the existing antennas on the tower are concealed in any fashion. Likewise, Cellco's antennas and related equipment will not be concealed.

6. *The proposed facility complies with conditions associated with the prior approval of construction or modification of the base station.* The existing tower is owned and was constructed by the City. Pursuant to Section 40-10-50 of the New Britain Zoning Regulations, the City is exempt from local zoning requirements. A building permit was obtained for the construction of the tower on June 6, 2013. A copy of the building permit is included in Attachment 5.

B. FCC Compliance

Cellco's New Britain 8 Facility will comply with the FCC standard for radio frequency

("RF") emissions. Far Field Approximation tables showing Cellco's RF emissions levels are included in Attachment 6. These Far Field calculations demonstrate that Cellco's facility will operate well within the RF emissions safety limits established by the FCC.

C. Notice to the City, Property Owner and Abutting Landowners

On October 3, 2017, a copy of this Sub-Petition was sent to New Britain Mayor Erin Stewart and Sergio Lupo, New Britain's Director of Building. Copies of the letters sent to Mayor Stewart and Mr. Lupo are included in Attachment 7. A copy of this Sub-Petition was also sent to each owner of land that abuts the Property. A sample abutter's cover letter and the list of those abutting landowners who were sent notice and a copy of the Sub-Petition is included in Attachment 8.

V. Conclusion

Based on the information provided above, Cellco respectfully submits that the proposed modification of the existing base station at the Property constitutes an "eligible facilities request" under Section 6409(a) and the FCC Order.

Respectfully submitted,

CELLCO PARTNERSHIP d/b/a VERIZON
WIRELESS

By 

Kenneth C. Baldwin, Esq.
Robinson & Cole LLP
280 Trumbull Street
Hartford, CT 06103-3597
(860) 275-8200
Its Attorneys

ATTACHMENT 1



- Legend**
- ✕ Proposed Verizon Wireless Facility
 - ⊠ Surrounding Verizon Wireless Facilities
 - ▭ Municipal Boundary
 - 🌊 Waterbody

Base Map Source: 2016 Aerial Photograph (CTECO)
 Map Scale: 1 inch = 4,000 feet
 Map Date: June 2017



Site Vicinity Map

Proposed Wireless
 Telecommunications Facility
 New Britain 8 CT
 365 Hartford Road
 New Britain, Connecticut





Existing Fenced Tower Compound (by others)






Existing SNET Utility Pole

Approximate Underground Power & Telco Route

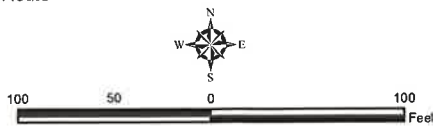
Existing +/-160' Tall Monopole Tower (by others) with Proposed VzW Antennas Mounted at a Centerline Height of 60' AGL

Proposed VzW +/-12'x20' Equipment/Lease Area

Legend

-  Existing +/-160' Tall Monopole Tower (by others)
-  Existing Fenced Tower Compound (by others)
-  Proposed VzW +/-12'x20' Equipment Lease Area
-  Approximate VzW Underground Power & Telco Utility Route
-  Approximate Parcel Boundary (CTDEEP GIS)

Map Notes:
 Base Map Source: 2016 Aerial Photograph (CTECO)
 Map Scale: 1 inch = 100 feet
 Map Date: June 2017



Site Schematic

Proposed Wireless Telecommunications Facility
 New Britain 8 CT
 365 Hartford Road
 New Britain, Connecticut



ATTACHMENT 2



NEW BRITAIN 8 CT
 20141136721
 365 HARTFORD ROAD (aka 245 HARTFORD ROAD)
 NEW BRITAIN, CT 06050

INSTALLATION OF WIRELESS TELECOMMUNICATIONS FACILITY
 ANTENNA(S) AND RELATED EQUIPMENT

APPLICANT:



99 EAST RIVER DRIVE - 9th FLOOR
 EAST HARTFORD, CT 06108

PREPARED BY:



21 B Street | Burlington, MA 01803
 Tel: (781) 273-2500 | Fax: (781) 273-3311
 www.ebiconsulting.com



Kelly Shanahan

ENGINEER STAMP/SIGNATURE

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SUBMITTALS

NO.	DATE	DESCRIPTION	BY
0	06/13/17	FOR ZONING REVIEW	JD
1	06/29/17	PER COMMENTS	SM
2	07/12/17	PER COMMENTS	SH
3	08/24/17	REVISED PER COMMENTS	RW
4	10/02/17	REVISED PER COMMENTS	OJ

EBI JOB NO:
8116000051

SITE INFO:
**NEW BRITAIN 8 CT
 20141136721
 365 HARTFORD ROAD
 NEW BRITAIN, CT 06050**

SHEET TITLE:
TITLE SHEET

DRAWN BY: JD	SHEET NO: T-1
CHECKED BY: JS	
DATE: 06/2/17	



DIRECTIONS

DIRECTIONS:
 FROM HARTFORD, CT
 START AT 99 E RIVER DR. GO STRAIGHT (NE) ON E RIVER DR. TURN LEFT (N) ON E RIVER DR. TURN LEFT (W) ON TO US 44 (CONNECTICUT BLVD) TURN LEFT (WSW) ON TO I-84 W (YANKEE EXPY) US 6/US 44) RAMP. KEEP RIGHT (WNW) ON TO SR 9 RAMP 39A. KEEP LEFT (S) ON SR 9 RAMP. KEEP RIGHT (SE) ON TO SR 71 (HARTFORD RD) RAMP 30. KEEP RIGHT (SSW) ON TO SR 71 (HARTFORD RD). FINISH AT 365 HARTFORD RD

SHEET INDEX

SHEET	DESCRIPTION
T-1	TITLE SHEET
Z-1	SITE PLAN
Z-2	COMPOUND PLAN
Z-3	ANTENNA LAYOUT & TOWER ELEVATION
Z-4	ABUTTERS MAP & LIST
Z-5	DETAILS

PROJECT TEAM

APPLICANT: CELLCO PARTNERSHIP d/b/a VERIZON WIRELESS
 99 EAST RIVER DRIVE - 9th FLOOR
 EAST HARTFORD, CT 06108

TOWER/PROPERTY OWNER: CITY OF NEW BRITAIN
 27 WEST MAIN STREET
 NEW BRITAIN, CT 06051

ARCHITECT & ENGINEER: EBI CONSULTING
 21 B STREET
 BURLINGTON, MA 01803
 (781) 273-2500

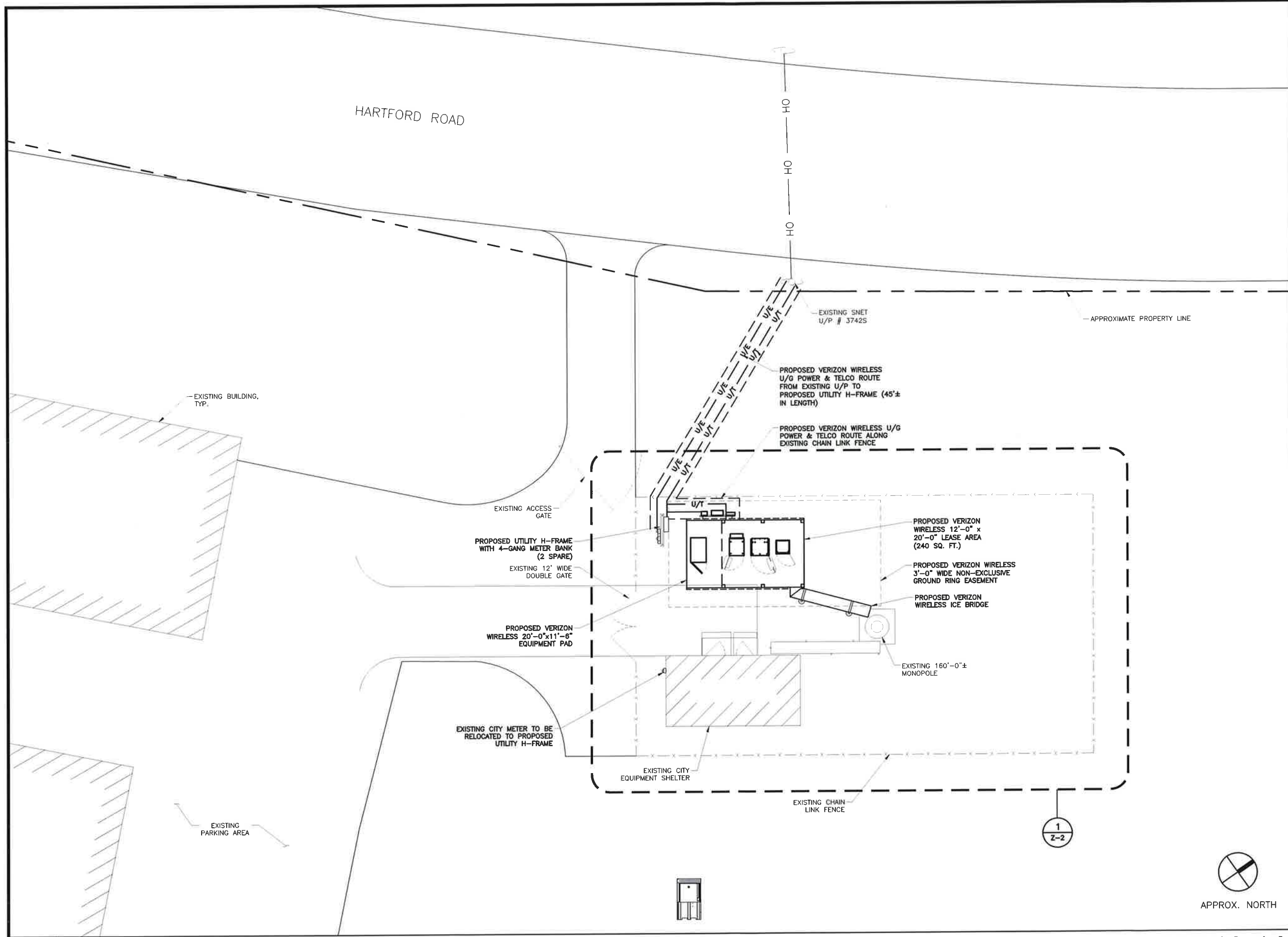
SITE ACQUISITION: EBI CONSULTING
 21 B STREET
 BURLINGTON, MA 01803
 (781) 273-2500

LEGAL COUNSEL: KENNETH C. BALDWIN, ESQ
 ROBINSON & COLE LLP
 (860) 275-8345

PROJECT INFORMATION

SITE NAME: NEW BRITAIN 8 CT
 SITE ADDRESS: 365 HARTFORD ROAD
 NEW BRITAIN, CT 06050
 COORDINATES: LATITUDE: 41° 42' 31.08" N (NAD 83)
 LONGITUDE: 72° 45' 58.02" W (NAD 83)
 GROUND ELEVATION: 188'± A.M.S.L. (NAVD88)

- SCOPE OF WORK**
- INSTALL (12) ANTENNAS AND (9) RRU'S ON EXISTING TOWER.
 - INSTALL LOW PROFILE ANTENNA PLATFORM ON EXISTING TOWER.
 - INSTALL EQUIPMENT PAD AND RELATED ANTENNA EQUIPMENT AT GRADE.
 - INSTALL 20KW DIESEL GENERATOR.
 - INSTALL CABLE ICE BRIDGE FROM PROPOSED EQUIPMENT PAD TO EXISTING MONOPOLE.



APPLICANT:



99 EAST RIVER DRIVE - 9th FLOOR
EAST HARTFORD, CT 06108

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EBI JOB NO:

8116000051

SITE INFO:

NEW BRITAIN 8 CT
20141136721
365 HARTFORD ROAD
NEW BRITAIN, CT 06050

SHEET TITLE:

SITE PLAN

DRAWN BY:

JD

CHECKED BY:

JS

DATE:

06/2/17

SHEET NO:

Z-1

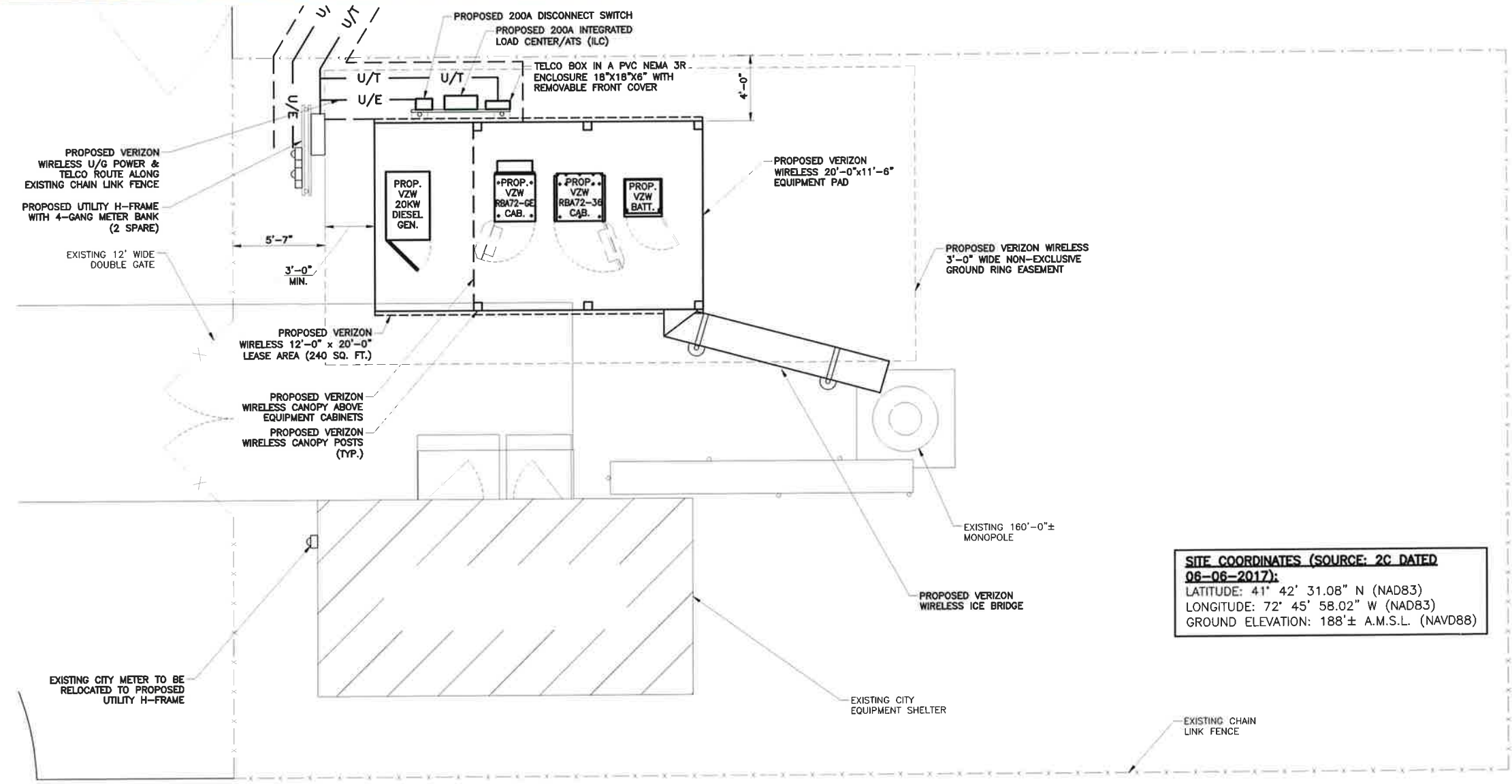
11x17 SCALE: 1/16" = 1'-0"
22x34 SCALE: 1/8" = 1'-0"



APPROX. NORTH



THIS PHOTO IS INSERTED TO SHOW EXISTING CONDITIONS - SEE ELEVATION AND DETAILS FOR EQUIPMENT LAYOUT AND INFO



SITE COORDINATES (SOURCE: 2C DATED 06-06-2017):
 LATITUDE: 41° 42' 31.08" N (NAD83)
 LONGITUDE: 72° 45' 58.02" W (NAD83)
 GROUND ELEVATION: 188'± A.M.S.L. (NAVD88)

APPLICANT:
verizon
 99 EAST RIVER DRIVE - 9th FLOOR
 EAST HARTFORD, CT 06108

PREPARED BY:
EBI Consulting
 environmental | engineering | due diligence
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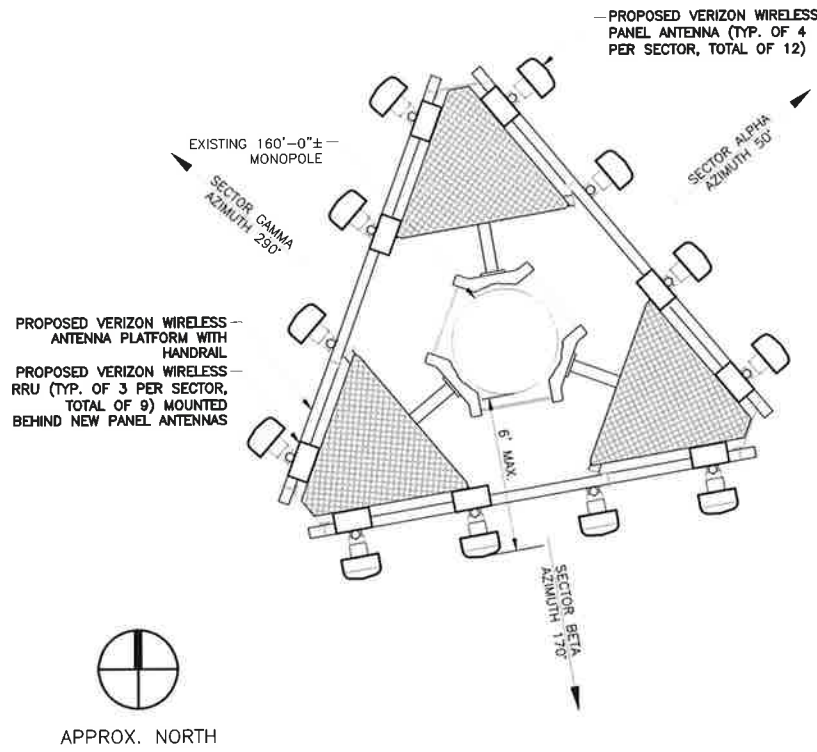
SITE INFO:
NEW BRITAIN 8 CT
20141136721
365 HARTFORD ROAD
NEW BRITAIN, CT 06050

SHEET TITLE:
COMPOUND PLAN

DRAWN BY: JD
 CHECKED BY: JS
 DATE: 06/2/17

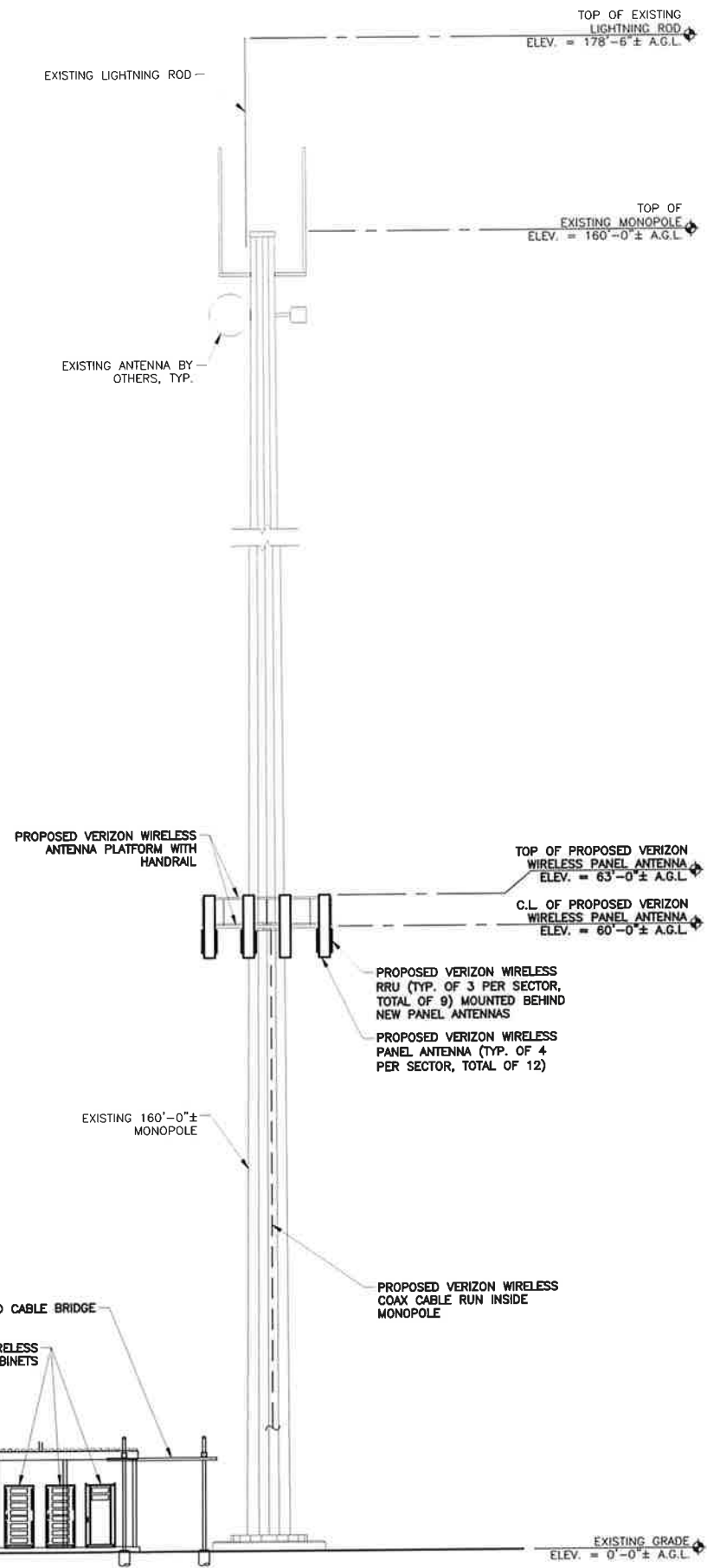
SHEET NO:
Z-2

11x17 SCALE: 1/8" = 1'-0"
 22x34 SCALE: 1/4" = 1'-0"



1 ANTENNA LAYOUT

11x17 SCALE: 3/16" = 1'-0"
22x34 SCALE: 3/8" = 1'-0"



2 TOWER ELEVATION

11x17 SCALE: 1/16" = 1'-0"
22x34 SCALE: 1/8" = 1'-0"

APPLICANT:
verizon
99 EAST RIVER DRIVE - 9th FLOOR
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4	10/02/17	REVISED PER COMMENTS	OJ

EBI JOB NO:
8116000051

SITE INFO:
**NEW BRITAIN 8 CT
20141136721
365 HARTFORD ROAD
NEW BRITAIN, CT 06050**

SHEET TITLE:
**ANTENNA LAYOUT &
TOWER ELEVATION**

DRAWN BY: JD	SHEET NO: Z-3
CHECKED BY: JS	
DATE: 06/2/17	



APPROX. NORTH



1 ABUTTERS MAP

11X17 SCALE: N.T.S.

	Property Address	Owner and Mailing Address
1.	475 Hartford Road	NB - BTMC LLC c/o Target Corp. T1289 Property Tax P.O. Box 9456 TPN0950 Minneapolis, MN 55440-9456
2.	405 Hartford Road	Costco Wholesale Corporation c/o Property Tax Dept. 1196 999 Lake Drive Issaquah, WA 98027
3.	2233 Stanley Street	City of New Britain - Park 27 West Main Street New Britain, CT 06051
4.	171 Hartford Road	Elk Fairway LLC 489 Fifth Avenue, 7th Floor New York, NY 10017
5.	60 Hartford Road	City of New Britain - Fire Station 27 West Main Street New Britain, CT 06051
6.	2056 Stanley Street	Salza Enterprises LLC 2056 Stanley Street New Britain, CT 06053
7.	2086 Stanley Street	New Country Club Estates LLC 2086 Stanley Street New Britain, CT 06053
8.	2045 Stanley Street	Monty Bagdigian Est. Alice Bagdigian Exec. Problem Deed 15 Dunham Lane Farmington, CT 06032
9.	22 Drury Lane	Mylene N. Largent 22 Drury Lane New Britain, CT 06053
10.	34 Drury Lane	Mark Degrandia 292 Monroe Street New Britain, CT 06052
11.	190 Sunny Slope Drive	City of New Britain 27 West Main Street New Britain, CT 06051
12.	31 Par Drive	Larry M. and Regina Lynch 31 Par Drive New Britain, CT 06053
13.	27 Par Drive	Sharon M. Delaney 27 Par Drive New Britain, CT 06053
14.	21 Par Drive	Krystyna and Tadeusz I Palewicz Kristof J. and Darek Palewicz 21 Par Drive New Britain, CT 06053

	Property Address	Owner and Mailing Address
15.	15 Par Drive	Mary J. and Michael Gilbert 15 Par Drive New Britain, CT 06053
16.	90 Golf Boulevard	John R. and Bozena Mathieu 90 Golf Boulevard New Britain, CT 06053
17.	76 Golf Boulevard	Craig Hurd and Heather Cabral 1304 Naples Road Harrison, ME 04040
18.	60 Golf Boulevard	Susan B. Weber 60 Golf Boulevard New Britain, CT 06053
19.	48 Golf Boulevard	Patricia Misko 48 Golf Boulevard New Britain, CT 06053
20.	156 Fairway Drive	Russell P. Carter and Tiffany Sterna 206 Kemble Road Baltimore, MD 21218
21.	150 Barbour Road	Edward J. Salgado 150 Barbour Road New Britain, CT 06053
22.	173 Fairway Drive	Donald and Phyllis Naples 143 Fairway Drive New Britain, CT 06053
23.	181 Fairway Drive	Matthew V. Dunham 181 Fairway Drive New Britain, CT 06053
24.	187 Fairway Drive	Catherine A. Fodder and Mary Fodder-Lebel 187 Fairway Drive New Britain, CT 06053
25.	195 Fairway Drive	William R. White, Jr. and Stephen P. Michelston, Jr. 195 Fairway Drive New Britain, CT 06053
26.	203 Fairway Drive	Donald S. McCue P.O. Box 265 New Britain, CT 06050
27.	207 Fairway Drive	Donald J. Perrotta 207 Fairway Drive New Britain, CT 06053
28.	215 Fairway Drive	Anthony and Stella Wiater 215 Fairway Drive New Britain, CT 06053
29.	229 Fairway Drive	Roger L. Bogdan and Lucia Dranginis 277 Main Street, Apt. B3 Farmington, CT 06032
30.	235 Fairway Drive	Joseph J., Maryann and Gregory Forgione 235 Fairway Drive New Britain, CT 06053

	Property Address	Owner and Mailing Address
31.	243 Fairway Drive	Brian J. Tanguay 243 Fairway Drive New Britain, CT 06053
32.	249 Fairway Drive	James Bogdan 249 Fairway Drive New Britain, CT 06053
33.	255 Fairway Drive	Joanna S. Abramek and Marcin P. Pogonacki 255 Fairway Drive New Britain, CT 06053
34.	263 Fairway Drive	Halina Popczak 263 Fairway Drive New Britain, CT 06053
35.	281 Fairway Drive	Henry S., Christine and David Milewski 281 Fairway Drive New Britain, CT 06053
36.	276 Fairway Drive	Henry K. and Anna Kurzya 276 Fairway Drive New Britain, CT 06053
37.	282 Fairway Drive	Taahai and Floyd Bookal 282 Fairway Drive New Britain, CT 06053
38.	290 Fairway Drive	Peter E. and Kellie J. Maliszewski 290 Fairway Drive New Britain, CT 06053
39.	300 Barbour Road	Stanislaw and Grazyna Stachura 300 Barbour Road New Britain, CT 06053
40.	308 Barbour Road	Timothy J. Cummings, Jr. 308 Barbour Road New Britain, CT 06053
41.	316 Barbour Road	Philip A. Cormier 316 Barbour Road New Britain, CT 06053
42.	324 Barbour Road	Denise and Clarence Woods 324 Barbour Road New Britain, CT 06053
43.	332 Barbour Road	Vincent Santoro 332 Barbour Road New Britain, CT 06053
44.	26 Volpe Court	William and Kathleen O'Reilly 26 Volpe Court New Britain, CT 06053
45.	32 Volpe Court	Jerry and Elzbieta Poniatowski 32 Volpe Court New Britain, CT 06053
46.	38 Volpe Court	William and Barbara Grim 38 Volpe Court New Britain, CT 06053
47.	29 Volpe Court	State of Connecticut - DOT 2800 Berlin Turnpike Newington, CT 06031
48.	33 Volpe Court	State of Connecticut - DOT 2800 Berlin Turnpike Newington, CT 06031
NEWINGTON		
Property Address		Owner and Mailing Address
1.	245 Hartford Road	City of New Britain Costco Wholesale Corp./New Britain Property Tax Dept. 1196 999 Lake Drive Issaquah, WA 98027
2.	412 Ella Grasso Boulevard	Connecticut State University System 450 Capitol Avenue Hartford, CT 06106

2 ABUTTERS LIST

APPLICANT:



99 EAST RIVER DRIVE - 9th FLOOR
EAST HARTFORD, CT 06108

PREPARED BY:

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EBI JOB NO:

8116000051

SITE INFO:

NEW BRITAIN 8 CT
20141136721
365 HARTFORD ROAD
NEW BRITAIN, CT 06050

SHEET TITLE:

ABUTTERS MAP & LIST

DRAWN BY:

JD

CHECKED BY:

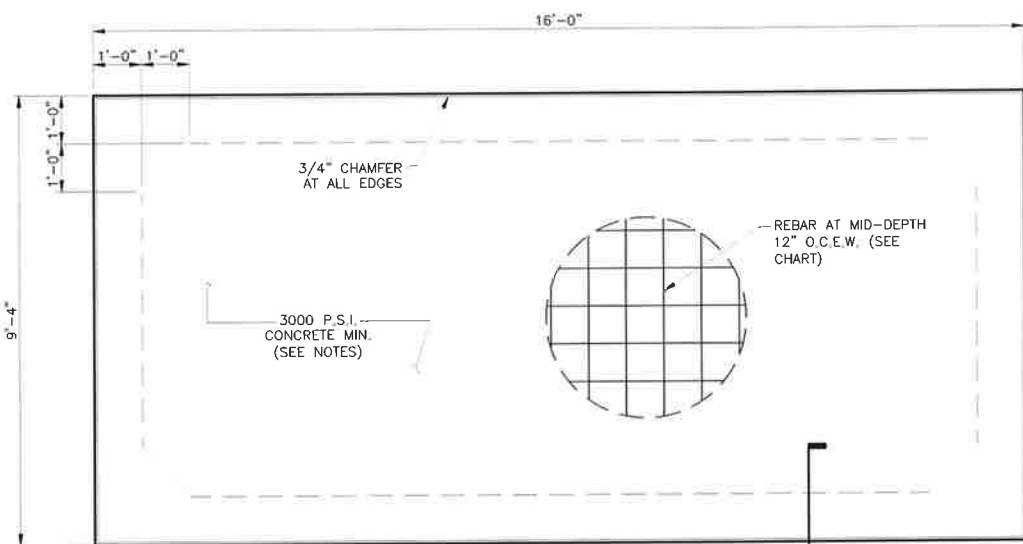
JS

DATE:

06/2/17

SHEET NO:

Z-4



CONTRACTOR NOTE:

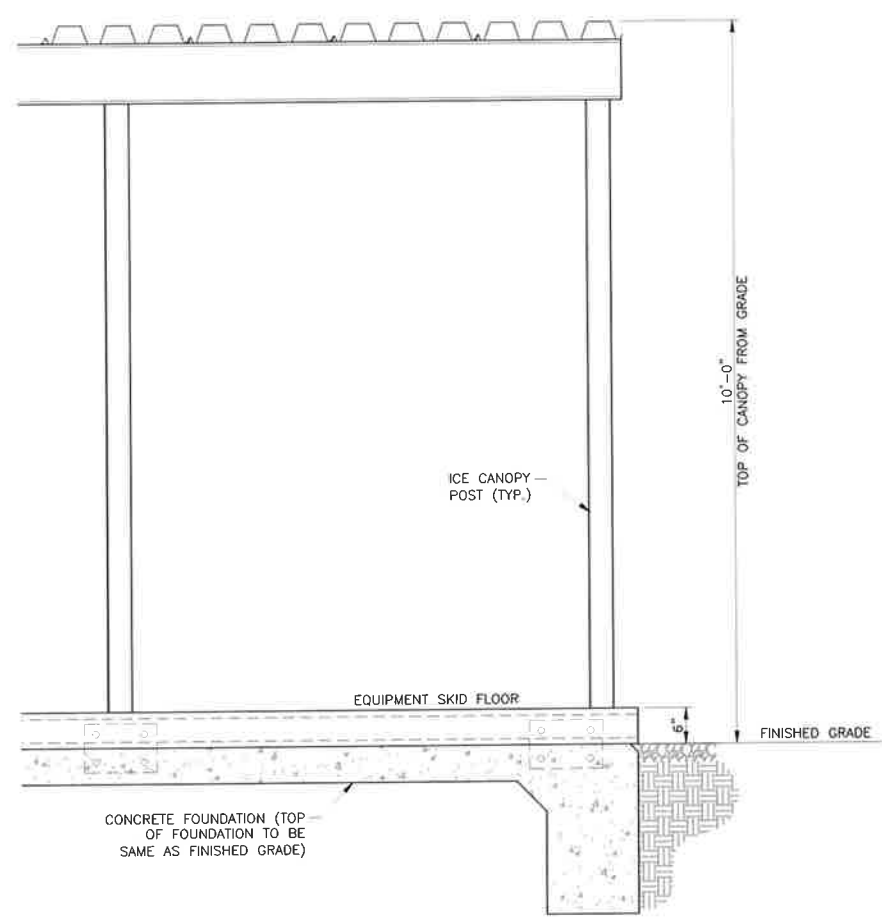
1. INTEGRATED EQUIPMENT SKID IS TO BE FASTENED DOWN TO CONCRETE FOUNDATION IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

CONCRETE NOTES:

1. ALL CONCRETE FOR INTEGRATED SKID SLAB FOUNDATION SHALL BE 3000 P.S.I. (MIN).
2. IF EQUIPMENT SET DATE WILL BE WITHIN 48 HRS. OF SLAB POUR, THEN SITE CONTRACTOR SHALL USE 5000 P.S.I. CONCRETE (MIN) TO OBTAIN MIN. 1800 P.S.I. CONCRETE WITHIN THE ALLOTTED 48 HRS. (NO EXCEPTIONS)

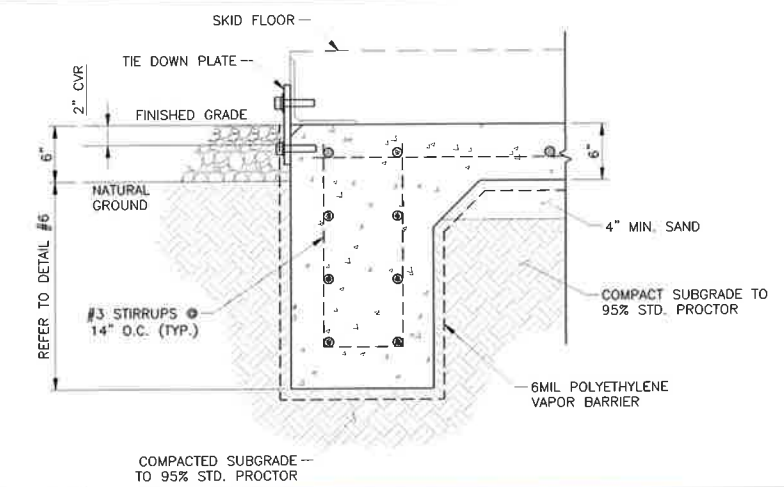
NOTES:

1. CONTRACTOR SHALL VERIFY PROPOSED SKID SIZE AT VERIZON WIRELESS STAGING YARD PRIOR TO CONSTRUCTION OR ORDERING REINFORCING STEEL.
2. ELECTRICAL CONTRACTOR SHALL COORDINATE STUB-UP LOCATIONS WITH PROPOSED SKID (FIELD VERIFY AT STAGING YARD).
3. CONTRACTOR SHALL ANCHOR SKID PER MANUFACTURERS RECOMMENDATIONS.
4. TOP OF SLAB TO BE A MINIMUM OF 6' ABOVE BASE FLOOD ELEVATION AT SITE.
5. ALL FOUNDATIONS SHALL BE POURED WITHIN A 1/8" OF LEVEL IN ALL DIRECTIONS AND SMOOTH FINISHED.



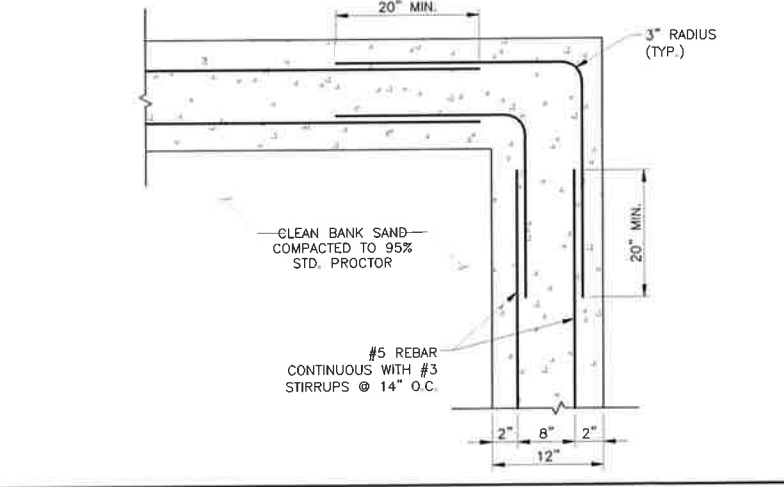
1 INTEGRATED EQUIPMENT SKID FOUNDATION PLAN

N.T.S.



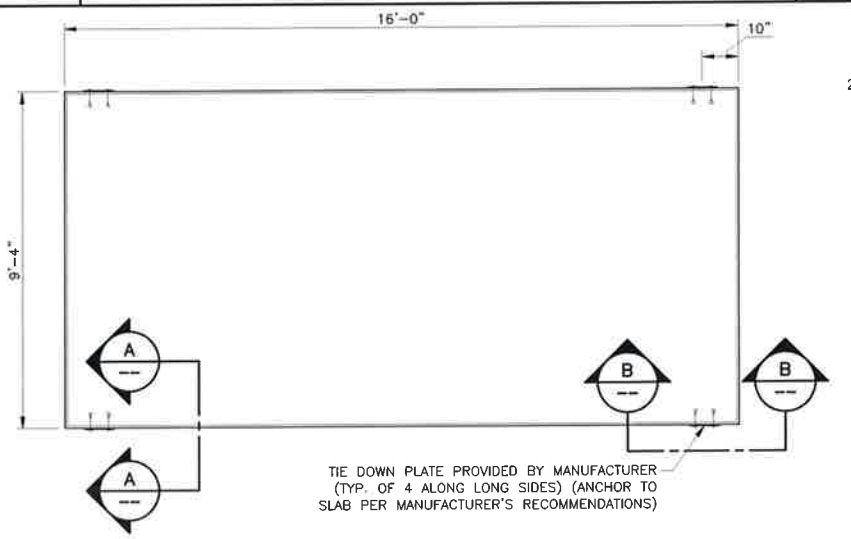
2 FOOTING DETAIL

N.T.S.



3 CORNER REINFORCING DETAIL

N.T.S.



4 SKID ATTACHMENT DETAIL

N.T.S.

5 EQUIPMENT SKID SECTION

N.T.S.

*USE APPROPRIATE BEAM DEPTH FOR SOIL CONDITIONS. SPACE INTERMEDIATE REBARS @ 12" O.C. MAXIMUM.

PLASTICITY INDEX (PI)	DEPTH OF FOOTING BELOW NATURAL GROUND	FOOTING REINFORCEMENT	SLAB THICKNESS & REINFORCEMENT	COMPACTED SAND BELOW GRADE
NONE TO LOW PI = 0 TO 15	12 IN.	(2) #4 BARS @ TOP (2) #4 BARS @ BOTTOM	6 IN. THICK #3 BARS @ 12 IN. O.C.	4 IN. MIN.
MEDIUM PI = 15 TO 25	12 IN.	(2) #5 BARS @ TOP (2) #5 BARS @ BOTTOM	6 IN. THICK #3 BARS @ 12 IN. O.C.	4 IN. MIN.
HIGH PI = 25 TO 35	12 IN.	(2) #5 BARS @ TOP (2) #5 BARS @ BOTTOM	6 IN. THICK #4 BARS @ 12 IN. O.C.	6 IN. MIN.
VERY HIGH PI > 35	18 IN.	(3) #5 BARS @ TOP (2) #5 INTERMEDIATE BARS (3) #5 BARS @ BOTTOM	6 IN. THICK #4 BARS @ 12 IN. O.C.	8 IN. MIN.

6 CONCRETE REINFORCING STEEL SCHEDULE

APPLICANT:

99 EAST RIVER DRIVE - 9th FLOOR
EAST HARTFORD, CT 06108

PREPARED BY:

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Kelly Shanahan
ENGINEER STAMP/SIGNATURE

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SUBMITTALS

NO.	DATE	DESCRIPTION	BY
0	06/13/17	FOR ZONING REVIEW	JD
1	06/29/17	PER COMMENTS	SM
2	07/12/17	PER COMMENTS	SH
3	08/24/17	REVISED PER COMMENTS	RW
4	10/02/17	REVISED PER COMMENTS	OJ

EBI JOB NO:
8116000051

SITE INFO:
**NEW BRITAIN 8 CT
20141136721
365 HARTFORD ROAD
NEW BRITAIN, CT 06050**

SHEET TITLE:
DETAILS

DRAWN BY: JD
CHECKED BY: JS
DATE: 06/2/17

SHEET NO:
Z-5

ATTACHMENT 3



SBNHH-1D65B

Multiband Antenna, 698–896 and 2x 1695–2360 MHz, 65° horizontal beamwidth, internal RET. Both high bands share the same electrical tilt.

- Interleaved dipole technology providing for attractive, low wind load mechanical package

Electrical Specifications

Frequency Band, MHz	698–806	806–896	1695–1880	1850–1990	1920–2200	2300–2360
Gain, dBi	14.9	14.7	17.7	18.2	18.6	18.6
Beamwidth, Horizontal, degrees	68	66	69	66	63	58
Beamwidth, Vertical, degrees	12.1	10.7	5.6	5.2	5.0	4.5
Beam Tilt, degrees	0–14	0–14	0–7	0–7	0–7	0–7
USLS (First Lobe), dB	14	13	15	15	15	13
Front-to-Back Ratio at 180°, dB	27	29	28	28	28	27
Isolation, dB	25	25	25	25	25	25
Isolation, Intersystem, dB	30	30	30	30	30	30
VSWR Return Loss, dB	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153	-153	-153	-153
Input Power per Port, maximum, watts	350	350	350	350	350	300
Polarization	±45°	±45°	±45°	±45°	±45°	±45°
Impedance	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm

Electrical Specifications, BASTA*

Frequency Band, MHz	698–806	806–896	1695–1880	1850–1990	1920–2200	2300–2360
Gain by all Beam Tilts, average, dBi	14.5	14.3	17.4	17.9	18.2	18.3
Gain by all Beam Tilts Tolerance, dB	±0.5	±0.8	±0.4	±0.3	±0.5	±0.3
Gain by Beam Tilt, average, dBi	0° 14.6	0° 14.5	0° 17.4	0° 17.8	0° 18.1	0° 18.2
	7° 14.6	7° 14.4	3° 17.5	3° 17.9	3° 18.3	3° 18.4
	14° 14.2	14° 13.6	7° 17.4	7° 17.9	7° 18.2	7° 18.4
Beamwidth, Horizontal Tolerance, degrees	±2.2	±3.4	±2	±4.6	±5.7	±4.3
Beamwidth, Vertical Tolerance, degrees	±0.8	±1	±0.3	±0.2	±0.3	±0.2
USLS, beampeak to 20° above beampeak, dB	16	14	16	16	16	15
Front-to-Back Total Power at 180° ± 30°, dB	25	26	27	26	26	26
CPR at Boresight, dB	22	23	21	20	20	22
CPR at Sector, dB	13	11	16	12	11	4

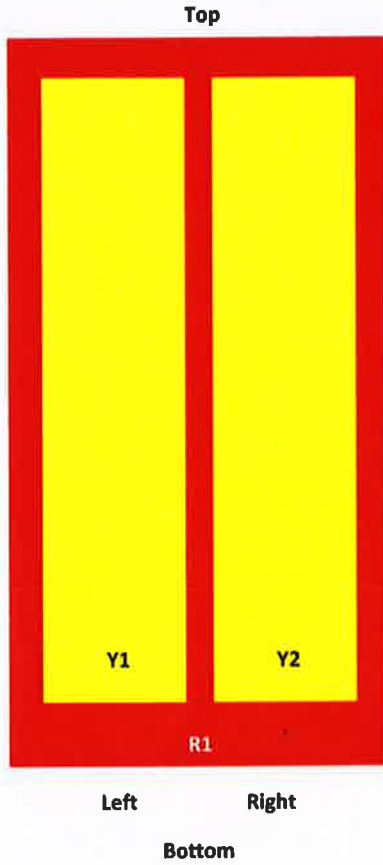
* CommScope® supports NGMN recommendations on Base Station Antenna Standards (BASTA). To learn more about the benefits of BASTA, [download the whitepaper Time to Raise the Bar on BSAs.](#)

Array Layout

SBNHH-1D65B

SBNHH 65

Array	Freq (MHz)	Conus	RET (MBET)	AISG RET UID
R1	698-896	1-2	1	AXXXXXXXXXXXXXXXXX.1
Y1	1695-2360	3-4	2	AXXXXXXXXXXXXXXXXX.2
Y2	1695-2360	5-6		



View from the front of the antenna
 (Sizes of colored boxes are not true depictions of array sizes)

General Specifications

Operating Frequency Band	1695 – 2360 MHz 698 – 896 MHz
Antenna Type	Sector
Band	Multiband
Performance Note	Outdoor usage

Mechanical Specifications

RF Connector Quantity, total	6
RF Connector Quantity, low band	2
RF Connector Quantity, high band	4
RF Connector Interface	7-16 DIN Female

SBNHH-1D65B

Color	Light gray
Grounding Type	RF connector inner conductor and body grounded to reflector and mounting bracket
Radiator Material	Aluminum Low loss circuit board
Radome Material	Fiberglass, UV resistant
Reflector Material	Aluminum
RF Connector Location	Bottom
Wind Loading, frontal	618.0 N @ 150 km/h 138.9 lbf @ 150 km/h
Wind Loading, lateral	197.0 N @ 150 km/h 44.3 lbf @ 150 km/h
Wind Loading, rear	728.0 N @ 150 km/h 163.7 lbf @ 150 km/h
Wind Speed, maximum	241 km/h 150 mph

Dimensions

Length	1851.0 mm 72.9 in
Width	301.0 mm 11.9 in
Depth	180.0 mm 7.1 in
Net Weight, without mounting kit	18.4 kg 40.6 lb

Remote Electrical Tilt (RET) Information

Input Voltage	10–30 Vdc
Internal RET	High band (1) Low band (1)
Power Consumption, idle state, maximum	2.0 W
Power Consumption, normal conditions, maximum	13.0 W
Protocol	3GPP/AISG 2.0 (Multi-RET)
RET Interface	8-pin DIN Female 8-pin DIN Male
RET Interface, quantity	1 female 1 male

Packed Dimensions

Length	2025.0 mm 79.7 in
Width	390.0 mm 15.4 in
Depth	296.0 mm 11.7 in
Shipping Weight	31.0 kg 68.3 lb

Regulatory Compliance/Certifications

Agency	Classification
RoHS 2011/65/EU	Compliant by Exemption
China RoHS SJ/T 11364-2006	Above Maximum Concentration Value (MCV)
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system



SBNHH-1D65B

Included Products

BSAMNT-1 — Wide Profile Antenna Downtilt Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Kit contains one scissor top bracket set and one bottom bracket set.

* Footnotes

Performance Note Severe environmental conditions may degrade optimum performance

ALCATEL-LUCENT B13 RRH4X30-4R

Alcatel-Lucent B13 Remote Radio Head 4x30-4R is the newest addition of Remote Radio Head to the extended product line of Alcatel-Lucent's distributed Base Station solutions, aimed at facilitating smooth RF site acquisition and related civil engineering.

Supporting 2Tx/4Tx MIMO and 4-way Rx diversity, Alcatel-Lucent B13 RRH4x30-4R allows operators to have a compact radio solution to deploy LTE in the 700U band (700 MHz, 3GPP band 13), providing them with the means to achieve high capacity, high quality and high coverage with minimum site requirements.

The Alcatel-Lucent B13 RRH4x30-4R product has four transmit RF paths, offering the possibility to **select, via software only, 2Tx or 4Tx MIMO configurations** with either 2x60 W or 4x30 W RF output power. It supports also 4-way Rx diversity and up to 10MHz instantaneous bandwidth.

The Alcatel-Lucent B13 RRH4x30-4R is a near zero-footprint solution and operates noise free, simplifying negotiations with site property owners and minimizing environmental impacts.

Its compactness and slim design makes the Alcatel-Lucent B13 RRH4x30-4R easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the RF feeder needs and installation costs.

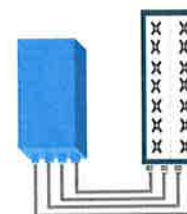


FEATURES

- Supporting LTE in 700 MHz band (700U, 3GPP band 13)
- LTE 2Tx or 4Tx MIMO (SW switchable)
- Output power: Up to 2x60W or 4x30W
- 10MHz LTE carrier with 4Rx Diversity
- Convection-cooled (fan-less)
- Supports AISG 2.0 ALD devices (RET, TMA) through RS485 or RF ports

BENEFITS

- Compact to reduce additional footprint when adding LTE in 700U band
- MIMO scheme operation selection (2Tx or 4Tx) by software only
- Improves downlink spectral efficiency through MIMO4
- Increases LTE coverage thanks to 4Rx diversity capability and best in class Rx sensitivity
- Flexible mounting options: Pole or Wall



4x30W with 4T4R
or
2x60W with 2T4R
Can be switched between
modes via SW w/o site
visit

TECHNICAL SPECIFICATIONS

Features & performance	
Number of TX/RX paths	4 duplexed (either 4T4R or 2T4R by SW)
Frequency band	U700 (C) (3GPP bands 13): DL: 746 - 756 MHz / UL: 777 - 787 MHz
Instantaneous bandwidth - #carriers	10MHz – 1 LTE carrier (In 10MHz occupied bandwidth)
LTE carrier bandwidth	10 MHz
RF output power	2x60W or 4x30W (by SW)
Noise figure – RX Diversity scheme	2 dB typ. (<2.5 dB max) – 2 or 4 way Rx diversity
Sizes (HxWxD) in mm (in.)	550 x 305 x 230 (21.6" x 12.0" x 9") (with solar shield)
Volume in L	38 (with solar shield)
Weight in kg (lb) (w/o mounting HW)	26 (57.2) (with solar shield)
DC voltage range	-40.5 to -57V at full performance, -38 to -57V with relaxation on power consumption
DC power consumption	550W typical @100% RF load (in 2Tx or 4TX mode)
Environmental conditions	-40°C (-40°F) / +55°C (+131°F) IP65
Wind load (@150km/h or 93mph)	Frontal:<200N / Lateral :<150N
Antenna ports	4 ports 7/16 DIN female (50 ohms) VSWR < 1.5
CPRI ports	2 CPRI ports (HW ready for Rate7, 9.8 Gbps) SFP single mode dual fiber
AISG interfaces	1 AISG2.0 output (RS485) Integrated Smart Bias Tees (x2)
Misc. Interfaces	4 external alarms (1 connector) – 4 RF Tx & 4 RF Rx monitor ports - 1 DC connector (2 pins)
Installation conditions	Pole and wall mounting
Regulatory compliance	3GPP 36.141 / 3GPP 36.113 / GR-1089-CORE / GR-3108-CORE / UL 60950-1 / FCC Part 27

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ALCATEL-LUCENT B25 RRH4X30

Alcatel-Lucent Band 25 Remote Radio Head 4x30W is the new addition of Remote Radio Head to the extended product line of Alcatel-Lucent's distributed Base Station solutions, aimed at facilitating smooth RF site acquisition and related civil engineering.

Supporting 2Tx/4Tx MIMO and 4-way Rx diversity, Alcatel-Lucent B25 RRH4x30 allows operators to have a compact radio solution to deploy LTE in the PCS band (1.9 GHz, 3GPP band 25), providing them with the means to achieve high capacity, high quality and high coverage with minimum site requirements.

The Alcatel-Lucent B25 RRH4x30 product has four transmit RF paths, offering the possibility to **select, via software only, 2Tx or 4Tx MIMO configurations** with either 2x60 W or 4x30 W RF output power. It supports also 4-way Rx diversity, LTE carriers from 3 MHz up to 20 MHz and up to 65 MHz instantaneous bandwidth.

The Alcatel-Lucent B25 RRH4x30 is a near zero-footprint solution and operates noise free, simplifying negotiations with site property owners and minimizing environmental impacts.

Its compactness and slim design makes the Alcatel-Lucent B25 RRH4x30 easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the RF feeder needs and installation costs.

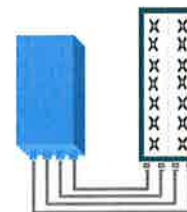


FEATURES

- Supporting LTE in 1.9 GHz band (PCS, 3GPP band 2 & 25)
- LTE 2Tx or 4Tx MIMO (SW switchable)
- Output power: Up to 2x60W or 4x30W
- Ready for 3, 5, 10, 15 or 20MHz LTE carrier operation with 4Rx Diversity
- Ready to support up to 4 carriers anywhere in 65MHz instantaneous bandwidth
- Convection-cooled (fan-less)
- Supports AISG 2.0 devices (RET, TMA) through RS485 or RF ports

BENEFITS

- Compact to reduce additional footprint when adding LTE in PCS band
- MIMO scheme operation selection (2Tx or 4Tx) by software only
- Full flexibility for multiple carriers operation over entire PCS spectrum
- Improves downlink spectral efficiency and cell edge throughput through MIMO4
- Increases LTE coverage thanks to 4-way Rx diversity capability and best in class Rx sensitivity
- Flexible mounting options (Pole or Wall)



4x30W with 4T4R
or
2x60W with 2T4R

Can be switched between modes via SW w/o site visit

TECHNICAL SPECIFICATIONS

Features & performance	
Number of TX/RX paths	4 duplexed (either 4T4R or 2T4R by SW)
Frequency band	3GPP bands 2 & 25 (PCS-G) DL: 1930 - 1995 MHz UL: 1850 - 1915 MHz
Instantaneous bandwidth - #carriers	65MHz – Up to 4 LTE carriers (in 40MHz occupied bandwidth)
LTE carrier bandwidth	3, 5, 10, 15 or 20 MHz
RF output power	2x60W or 4x30W (by SW)
Noise figure (3GPP band 2)	2.0 dB typ. (<2.5 dB max)
RX Diversity scheme	2 or 4 way Rx diversity
Sizes (HxWxD)(w/ solar shield) in mm (in.)	538 x 304 x 182 (21.2" x 12.0" x 7.2")
Volume (w/ solar shield) in L	30
Weight (w/ solar shield) in kg (lb)	24 (53)
DC voltage range	-40.5 to -57V at full performance, -38 to -57V with relaxation on power consumption
DC power consumption	580W typical @100% RF load
Environmental conditions	-40°C (-40°F) / +55°C (+131°F) IP65
Wind load (@150km/h or 93mph)	Frontal: <200N / Lateral :<150N
Antenna ports	4 ports 7/16 DIN female (50 ohms) VSWR < 1.5 (> 14dB)
CPRI ports	2 CPRI ports (HW ready for Rate7 / 9.8 Gbps)
AISG interfaces	1 AISG2.0 output (RS485), +24V/2A DC power Integrated Smart Bias Tees (x2)
Misc. Interfaces	1 external alarms connector (4 alarms) 4 RF Tx & 4 RF Rx monitor ports 1 DC connector (2 pins)
Installation conditions	Pole and wall mounting
Regulatory compliance	3GPP 36.141 / 3GPP 36.113 / GR-1089-CORE / GR-3108-CORE / UL 60950-1 / FCC Part 27

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ALCATEL-LUCENT B66A RRH4X45

The Alcatel-Lucent B66a Remote Radio Head 4x45 is the newest addition of Remote Radio Head to the extended product line of Alcatel-Lucent's distributed Base Station solutions, aimed at facilitating smooth RF site acquisition and related civil engineering. Its operational range covers beyond that of B4 (AWS) and B10 (AWS+).

Supporting 2Tx/4Tx MIMO and 2-way/4-way Rx diversity, the Alcatel-Lucent B66a RRH4x45 allows operators to have a compact radio solution to deploy LTE in the 2100 band (3GPP band 4, 10, and 66), providing them with the means to achieve high capacity, high quality, high reliability, large instantaneous bandwidth, and high coverage with minimum site requirements.

The Alcatel-Lucent B66a RRH4x45 product has four transmit RF paths, offering the possibility to **select, via software only, 2Tx or 4Tx MIMO configurations** with either 2x90W or 4x45W RF output power. It also supports 4-way Rx diversity at the 70 MHz instantaneous bandwidth.



The Alcatel-Lucent B66a RRH4x45 is a compact (near zero-footprint) solution and operates noise free, simplifying negotiations with site property owners and minimizing environmental impacts.

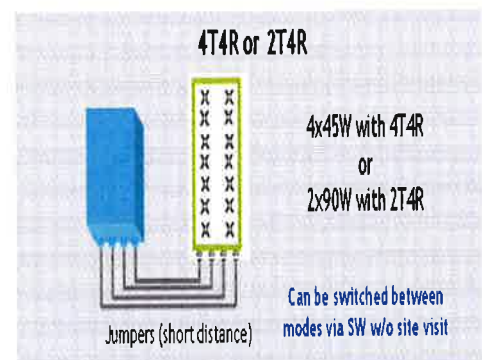
Its compactness and slim design makes the Alcatel-Lucent B66a RRH4x45 easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the RF feeder needs and installation costs.

FEATURES

- Supporting LTE in 2110 - 2180 MHz band/DL, 1710-1780MHz/UL (3GPP band 4, 10, and 66a)
- LTE 2Tx or 4Tx MIMO (SW selectable)
- Configuration: 2T2R/2T4R/4T4R
- Output power: Up to 2x90W or 4x45W (SW configurable)
- 70MHz LTE carrier with 4Rx Diversity
- Convection-cooled (fan-less)
- Supports AISG 2.0 ALD devices (RET, TMA) through RS485 or RF ports

BENEFITS

- Compact to reduce additional footprint when adding LTE in AWS 1-3 band
- Selection of MIMO configuration (2Tx or 4Tx) by software only
- Improves downlink spectral efficiency through 4Tx MIMO
- Increases LTE coverage thanks to 4Rx diversity capability and best in class Rx sensitivity
- Flexible mounting options: Pole or Wall



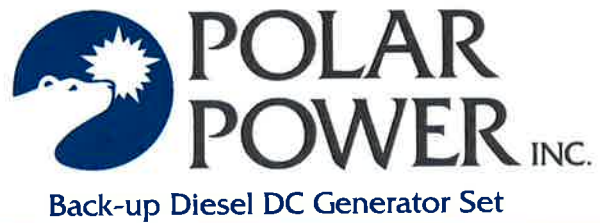
TECHNICAL SPECIFICATIONS

Features & Performance	
Number of TX/RX paths	4 duplexed (either 4T4R or 2T4R selectable by SW)
Frequency band	AWS 1-3, B4/B66a DL: 2110-2180 MHz / UL: 1710-1780 MHz
Instantaneous bandwidth - #carriers	70 MHz – 4 LTE MIMO carriers (In 70 MHz occupied bandwidth)
LTE carrier bandwidth	5, 10, 15, 20 MHz
RF output power	2x90W or 4x45W (selectable by SW)
Noise figure – RX Diversity scheme	2 dB typical (<2.5 dB max) – 2 or 4 way Rx diversity
Receiver Sensivity (FRC A1-3)	-104.5 dBm maximum
Sizes (HxWxD) in mm (in.)	655x299x182 (25.8x11.8x7.2) (with solar shield) 640x290x160 (25.2x11.4x6.3) (without solar shield)
Volume in Liters	35.5 (with solar shield) 29.7 (without solar shield)
Weight in kg (lb) (w/o mounting HW)	25.8kg (56.8lb) (with solar shield)
DC voltage range	Nominal: -48V, -40.5 to -57V at full performance, -38 to -57V with relaxation on power consumption
DC power consumption	750W typical @100% RF load (In 2Tx or 4Tx mode); Add 58W for 2A*29V for AISG
Environmental conditions	-40°C (-40°F) / +55°C (+131°F) UL50E Type 4 Enclosure
Wind load (@150km/h or 93mph)	250N (56lb) Frontal/150N (34lb) Lateral
Antenna ports	4 ports 4.3-10 female (50 ohms) VSWR < 1.5
CPRI ports	2 CPRI ports (HW ready for Rate 7, 9.8 Gbps) SFP: SMDF (HW supports also SMSF and MMDF)
AISG interfaces	1 AISG 2.0 output (RS485) Integrated Smart Bias Tees (x2)
Misc. Interfaces	4 external alarms (1 connector) 1 DC connector (2 pins)
Installation conditions	Pole and wall mounting
Regulatory compliance	3GPP 36.141 / 3GPP 36.113 / GR-487 / GR-1089-CORE / GR-3108-CORE / UL 60950-1 / FCC Part 27 / FCC Part 15 / GR-3178-CORE

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8220-603 series

Reliability through Simplicity



Founded in 1979 Polar Power specialized in solar photovoltaic systems, solar air conditioning and refrigeration. We developed and provided photovoltaic charging controls for telecommunications in the 1980s along with DC generators for the military. In 1994 we were first to provide DC generators with remote control and monitoring to the telecommunications industry.

Polar's success is based on engineering generators to meet the very specific needs of each application. Telecom site optimization is best met with the DC generator technology as the loads and batteries are DC. It makes no sense to install an AC generator and convert the output to DC. The AC generators are designed for a wide range of applications and they are not specifically produced for telecom applications so there are issues with reliability, space, and fuel efficiency.

Polar can save you considerable time and cost in permitting, installing, purchasing, and maintaining a backup generator. We reduce CAPEX and OPEX costs while improving backup reliability.

Intertek 4003706

Conforms to UL STD 2200

Certified to CSA STD C22.2 No. 100

Fuel tank is UL 142 Listed

Meets EPA Emission Regulations

CA/MA Emissions Compliant

2 year standard warranty, extended 5-10 year warranty available

Available Models:

- **8220-603-D-10** Diesel 10 kW, -48 VDC
- **8220-603-D-15** Diesel 15 kW -48 VDC



The concepts and features behind Polar's backup generator for telecommunications include:

SMALL FOOTPRINT. Polar's DC generator is considerably smaller in size than an AC generator. You can now backup sites that could not accommodate an AC generator. Smaller also means less cost for space leasing.

LONG RESERVE. 48 to 72 hour reserve. Polar's DC generator can provide long reserve times because of very low fuel consumption. This generator should be the first choice for sites exposed to natural disasters requiring backup for weeks or months at a time (fuel consumption 1.02 gallon per hour).

LOW ACOUSTIC NOISE. <66 dBA @ 7 meters, and low vibration so as not to disturb the local residents or building landlords. Quieter than other generators with lower noise ratings.

LIGHTWEIGHT. Up to 1/3 the weight of a comparable AC generator. Facilitates roof top installations.

CORROSION RESISTANT. All-aluminum enclosure with stainless hardware for low maintenance, and long service life.

RODENT RESISTANT. Small animals can quickly destroy a generator set by gnawing on wires, fuel lines, radiator hoses, etc. Cooling air inlets and outlets have perforated aluminum screens to keep small rodents and large insects out. Stainless steel wire braid is placed over fuel and radiator lines for increased reliability and safety.

SUPERCAPACITOR STARTER. Failure to start is the number one problem plaguing generator reliability. Polar's unique design has replaced the starting battery with a Super Capacitor. Capacitors are more reliable and last longer than batteries (10-15 year life).

LONG LIFE. Controls and wire harnesses are designed to exceed a 20 year life. Higher grade, longer life electrical wire (UL 3173), weather tight connectors, gold plated connector pins on signal circuits. Controls and wire harness are easily replaceable.

ADVANCED MONITORING. Remote diagnostics, control, and monitoring. Ethernet and RS232 standard, with optional SNMP.

SIMPLICITY. Transfer switch, rectifier, and starting battery are not required.

COMPARING THE COST OF AC vs DC

	AC	DC
Transfer switch required	Yes	No
Permitting costs	\$\$	\$
Shipping to site and installation cost	\$\$	\$
Site preparation/reinforcing structures	\$\$\$	\$
Ethernet/RS232 remote control and monitoring	Extra	Standard

8220 ALTERNATOR FEATURES

- No mechanical adjustments
- Very lightweight
- High quality electrical output
- Voltage and current regulation
- Up to 94% efficiency
- Class 220° C insulation
- Anodized type III process for aluminum parts
- Nickel plating for steel parts
- Stator is varnished

8220 ALTERNATOR SPECIFICATIONS

Type	Permanent Magnets, NdFeB
Weight (lb/kg)	46.5/21
Regulation Type	Variable engine speed
Stator	3 phase/32 poles
Overcurrent Protection (A)	10 kW - 250 15 kW - 350
Disconnect Means	Pull fuse block, sized for each generator kW
Voltage Range (VDC)	44 to 62
Alternator Exhaust Flow (cfm/cmm)	130 to 180 / 3.68 to 5.1
MTBF (hr)	100,000+

ENCLOSURE

Model	88-25-0603
Type	Weather Protective
Materials	Marine Grade Aluminum
Door Hardware	Three Point with Padlock Hasp, and Removable Side Panels
Mounting	Secure Mounting Tabs

WEIGHTS AND DIMENSIONS

	10 kW	15 kW
Dry Weight (lb/kg)	1106/502	1248/566
Dimensions (LxWxH) (in/cm)	32 x 50 x 72 / 81.3 x 127 x 183	

PERMITTING IS FACILITATED

- Small engine horsepower
- Small 54 gallon diesel fuel tank meets UL 142
- DC generator is fully isolated from the utility grid
- No transfer switch
- Low acoustic noise
- Incorporates all requirements made by local Fire Marshals

STARTER SUPERCAPACITOR SPECIFICATIONS

Model	20-16-0001
Storage Rating (Farads)	500
Voltage (VDC)	13-14.4
Weight (lb/kg)	12.1/5.5
Operating Temperature (°C/°F)	-40 to 65 / -40 to 149
Service Life (year)	10 to 15

CHARGER SPECIFICATIONS

Model	00-10-0015
Input Voltage (VDC)	28.8 to 60
Output Voltage (VDC)	14 to 14.4
Recharge time from 0 VDC (min)	10
Recharge time from 8 VDC (min)	2
Weight (lb/kg)	2.2/1

SOUND EMISSIONS

Contact us for current sound data.

ENGINE SPECIFICATIONS: 10 KW DIESEL

Engine Model	Isuzu 3CA1 or Yanmar 3TNV74
Cylinders	3 In-line
Displacement (L)	0.993
Bore (in./mm)	2.91/74
Stroke (in./mm)	3.03/77
Intake Air System	Naturally Aspirated
Engine HP	18
Emissions Compliance	EPA and CARB Certified
Variable RPM	2300 to 2600

ENGINE SPECIFICATIONS: 15 KW DIESEL

Engine Model	Yanmar 3TNV88
Cylinders	3 In-line
Displacement (L)	1.642
Bore (in./mm)	3.4/88
Stroke (in./mm)	3.5/90
Intake Air System	Naturally Aspirated
Engine HP	24
Emissions Compliance	EPA and CARB Certified
Variable RPM	1500 to 1850

ENVIRONMENTAL

Operating Temperature (°C/°F)	-40 to 72 / -40 to 162
Operating Humidity %	100
Cold Start Aids	Glow Plugs

ENGINE FUEL CONSUMPTION

	Output (kW)	gal/hr	L/hr
3CA1/3TNV74	4	0.35	1.32
	5	0.44	1.66
	6	0.53	2
	7	0.615	2.33
	8	0.7	2.65
	9	0.79	2.99
	10	0.88	3.33
3TNV88	15	1.02	3.86

POWER ADJUSTMENT FOR AMBIENT CONDITIONS

Temperature Deration	1% derate for every 5.6 °C (10 °F) above 25 °C (77 °F)
Altitude Deration	3% derate for every 300 m (1000 ft) above 91 m (300 ft)

ENGINE LUBRICATION SYSTEM

Oil Filter Type	Full flow spin-on canister
Oil Capacity	2.8 L - 3CA1/3TNV74 6.7 L - 3TNV88
Oil Pressure Switch	Yes
Oil Pressure Transducer	Optional

ENGINE COOLING SYSTEM

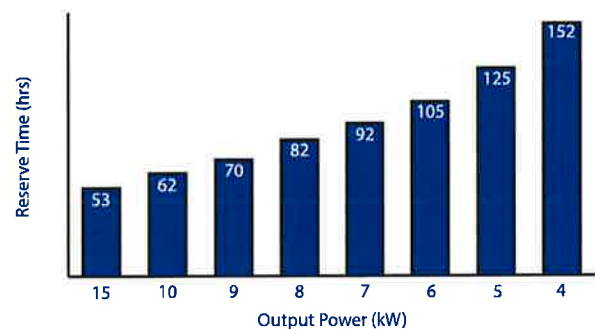
Type	Pressurized Aluminum Radiator
Water Pump	Belt-driven, Pre-lubed, self-sealing
Fan Type	Electric Fans
Airflow CFM or M³/hr	1300 or 2200
Fan Mode	Pusher
Temperature Switch	Yes

DIESEL FUEL SYSTEM

Type	Diesel
Fuel Pump Type	Electrical
Injector Type	Mechanical
Fuel Filtering	Paper element

FUEL TANK SPECIFICATIONS

UL Rated Capacity (gal/L)	54/204
Run Time	see table below
Tank Alarms	Yes
Visual Gages	Yes
Catch Basin (gal/L)	5/19
Listings	UL 142 (double wall)



ENGINE COOLING

	10 kW	15 kW
System coolant capacity (gal/L)	2.2/8.3	
Maximum operation air temperature on radiator (°C/°F)	50/122	57/135
Maximum ambient temperature (°C/°F)	60/140	60/140

COMBUSTION REQUIREMENTS

	10 kW	15 kW
Flow at rated power (cfm/cmm)	47/1.34	68/1.92

EXHAUST

	10 kW	15 kW
Exhaust flow at rated output (cfm/cmm)	90/2.55	135/3.82
Exhaust temperature at rated output (°C/°F)	480/900	

CONTROLLER FEATURES

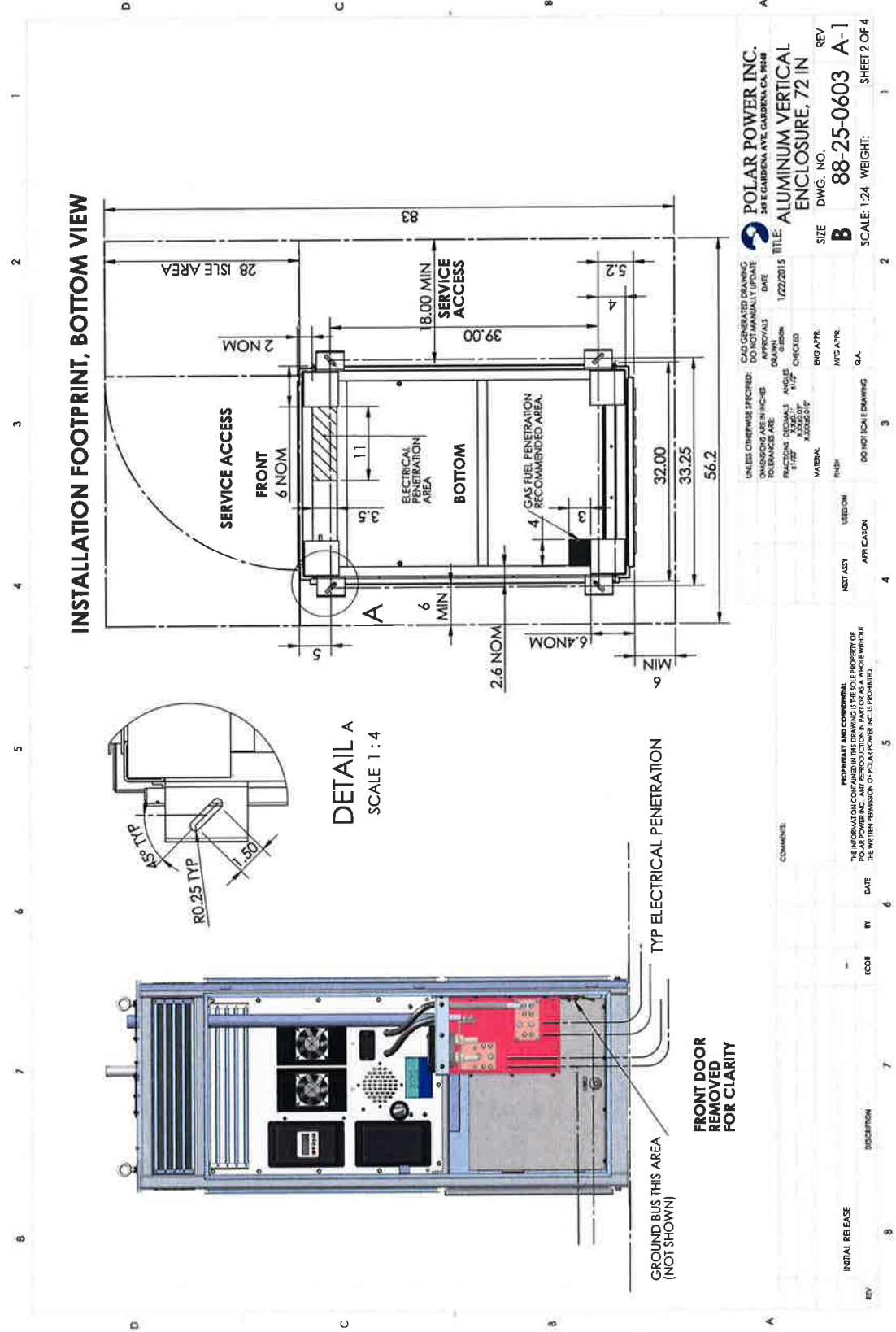
Controller Type.....	Supra Model 250
4-Line Plain Text LCD Display.....	Simple user interface for ease of operation
Engine Run Hours Indication.....	Standard
Programmable Start Delay.....	Standard
Run/Alarm/Maintenance Logs.....	Standard
Engine Start Sequence.....	Cyclic cranking: 5 sec on, 45 sec rest (3 attempts maximum)
Starter Supercapacitor Charger.....	Standard
Automatic Voltage Regulation with Over and Under Voltage Protection.....	Standard
Automatic Low Oil Pressure/High Oil Temperature Shutdown.....	Standard
Overcrank/Overspeed.....	Standard
Automatic High Engine Temperature Shutdown.....	Standard
Field Upgradeable Firmware.....	Standard
Glow Plug Delay	Automatic With Temperature
Engine Start Delay.....	Adjustable, Set at 60 sec
Return to Utility Delay.....	Adjustable, Set at 60 sec
Engine Cool-down.....	Adjustable, Set at 60 sec
Exerciser.....	Programmable, weekly/bi-weekly

WARNING ALARMS

Low Diesel Fuel Level.....	Standard
Diesel Fuel Tank Rapture Basin.....	Standard
Low/High Supercapacitor Voltage.....	Standard
High Water Temperature.....	Standard
Low Oil Pressure.....	Standard

CONTACT CLOSURE FOR REMOTE INDICATION (PN 84-12-0640)

Shutdown Alarm.....	Optional
Warning Alarm.....	Optional
Engine Run.....	Optional
Low Diesel Fuel Level.....	Optional
Diesel Fuel Leak.....	Optional
E-Stop Depressed.....	Optional
Fuel Level Over 90%.....	Optional



UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS ANGLES 1/16" 0.0312" 1/16° AS SHOWN	DATE 1/22/2015	APPROVALS DRAWN BY CHECKED BY	DATE 1/22/2015	APPROVALS ENGINEER MFG APPR	DATE 1/22/2015	APPROVALS QA	DATE
POLAR POWER INC. 340 E GARDENA AVE, GARDENA, CA, 90248				POLAR POWER INC. 340 E GARDENA AVE, GARDENA, CA, 90248			
TITLE: ALUMINUM VERTICAL ENCLOSURE, 72 IN				TITLE: ALUMINUM VERTICAL ENCLOSURE, 72 IN			
SIZE	DWG. NO.	REV	SCALE: 1:24 WEIGHT: SHEET 2 OF 4				
B	88-25-0603	A-1					
INITIAL RELEASE	DESCRIPTION	BY	DATE	ECN#	REV	DATE	DESCRIPTION

ATTACHMENT 4

TOWER STRUCTURAL ANALYSIS REPORT

June 13, 2017

Site Name: New Britain 8 CT
 Site Address: 365 Hartford Road, New Britain, CT

EBI Project Number: 8116000051
 Carrier Name: Verizon Wireless

This letter is to confirm EBI's structural analysis of the existing monopole tower at the above listed site for supporting the proposed Verizon Wireless equipment upgrade. The intent of this review is to determine if the proposed modification of antennas will exceed the structural capacity of the existing tower.

EBI Consulting has prepared this structural analysis report for the 160' monopole for additional loads imposed by the proposed antenna configuration by Verizon Wireless. This analysis has been performed in accordance with the 2016 Connecticut State Building Code and ANSI/TIA/EIA-222-Revision G, with a nominal 95 mph 3-second gust wind speed (based on 122 mph ultimate wind speed) and no ice. Also with a 50 mph wind speed with 1" ice thickness. Information from the following sources was utilized in our analysis:

- RFDS sheet, dated May 26, 2017
- Original tower design by Valmont Structures, dated May 31, 2013

By engineering analysis, the existing tower is capable of supporting the existing and proposed equipment listed herein, with a maximum usage of approximately 64.2%. This analysis did not provide for any future equipment or tower extensions.

This analysis provided herein by EBI Consulting includes the following existing and proposed equipment. Proposed equipment is underlined.

Antenna centerline elevation	Mount centerline elevation	Quantity	Manufacturer	Appurtenance model	Coax qty & size
158	154	2	-	10' OMNI	(2) 1-5/8*
150	149	1	-	2x2 Flat Panel antenna	-
150	149	1	-	6' HP Dish	(1) 1/2*
60	60	<u>12</u>	<u>Commscope</u>	<u>SBNHH-1D65B</u>	<u>(3) 1-5/8</u>
60	60	<u>9</u>	<u>Alcatel Lucent</u>	<u>RRH 2x60</u>	-

Note: *- Coax inside pole

Summary of Results: (Refer to attached TNX Tower Analysis for detailed analysis results)

Section Capacity Table									
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	θP_{oflow} K	% Capacity	Pass	Fail
L1	159 - 108.25	Pole	TP31.915x20.243x0.2188	1	-4.14	155.64	25.1	Pass	
L2	108.25 - 78.5	Pole	TP38.32x30.385x0.3125	2	-8.56	384.77	24.5	Pass	
L3	78.5 - 41.667	Pole	TP46.167x36.43x0.375	3	-20.65	811.20	29.6	Pass	
L4	41.667 - 0	Pole	TP55x43.9604x0.375	4	-34.09	1517.23	43.4	Pass	
							Summary		
							Pole (L4)	43.4	Pass
							Base Plate	41.7	Pass

The maximum stress under the proposed conditions and configurations is **43.4%** of the tower capacity, governed by section L4 of the tower. Therefore **the tower has adequate structural capacity** for the proposed conditions and configurations.

Foundation

The foundation reactions are summarized below:

Reaction	Design Loads from original tower design* (kip,kip-ft)	Current reactions from this analysis (kip,kip-ft)	Current % of original loads
Axial	<i>"see enercalc output on page 17&18"</i>		20.0%
Shear	35.8	23	64.2%
Moment	4062	1914	47.1%

**Design Loads as reported in Structural Design by Valmont Structures, dated May 31, 2013*

The foundation is sufficient for supporting the tower under the proposed loading configuration. A foundation check for axial loading is enclosed herein.

Limitations and Assumptions:

This report is based on the following:

1. Tower is properly installed and maintained.
2. All members are as specified in the original design documents and are in good condition.
3. All required members are in place.
4. All bolts are in place and are tightly fastened.
5. Tower is in plumb condition.
6. All member protective coatings are in good condition.
7. All tower members were properly designed, detailed, fabricated, and installed, and have been properly maintained since erection.
8. Foundations were properly designed and constructed to support original design loads.

EBI is not responsible for any modifications completed prior to or hereafter in which EBI is not or was not directly involved. Modifications include but are not limited to:

- A. Adding antennas
- B. Removing/replacing antennas

- C. Adding coaxial cables
- D. Extending the height of the tower

EBI hereby states that this document represents the entire report and that it assumes no liability for any factual changes that may occur after the date of this report. All representations, recommendations, and conclusions are based upon information contained and set forth herein. If you are aware of any information which conflicts with that which is contained herein, or you are aware of any defects arising from the original design, material, fabrication, or erection deficiencies, you should disregard this report and immediately contact EBI. EBI disclaims all liability for any representation, recommendation, or conclusion not expressly stated herein.

The conclusion of this tower structural analysis is that the tower DOES HAVE ADEQUATE CAPACITY for the proposed loading.

Please contact this office should you have any questions regarding this matter.

Sincerely yours,
EBI Consulting



Elezer Diaz, E.I.



Kelly Mark Shanahan, P.E.
Professional Engineer



Photo 1:

Overview of existing monopole.



Photo 2:

General view of existing equipment on tower.



Photo 3:

Monopole base plate and foundation.



STRUCTURAL DESIGN PARAMETERS

<u>BUILDING CODE:</u>	SEE LETTER	
<u>OCCUPANCY RISK CATEGORY:</u>	II	
<u>SNOW LOADS:</u>		
Ground Snow Load, Pg:	30 psf	
Thermal factor, Ct:	1.0	
Snow Load Importance Factor:	1.0	
<u>WIND LOADS:</u>		
Ultimate wind speed:	122 mph	(IBC 2012)
3-second gust wind speed:	95 mph	(TIA-222-G)
Importance Factor, I:	1.0	(where applicable)
Exposure Category:	C	
<u>SEISMIC LOADS:</u>		
Seismic Analysis Not Required		
Component Importance Factor, I _p :	1.0	
Spectral Acceleration Short Period, S _{DS} :	0.194	
Spectral Acceleration 1-Second Period, S _{D1} :	0.102	
Site class	D	
Seismic design category:	B	

Below is a screenshot taken from Google Earth, included for showing surrounding terrain





ASCE 7 Windspeed ASCE 7 Ground Snow Load Related Resources Sponsors About ATC Contact

Search Results

Query Date: Tue Jun 06 2017
Latitude: 41.7086
Longitude: -72.7632

ASCE 7-10 Windspeeds
(3-sec peak gust in mph*):

Risk Category I: 111
Risk Category II: 122
Risk Category III-IV: 131
MRI** 10-Year: 76
MRI** 25-Year: 86
MRI** 50-Year: 92
MRI** 100-Year: 99

ASCE 7-05 Windspeed:
99 (3-sec peak gust in mph)
ASCE 7-93 Windspeed:
80 (fastest mile in mph)



*Miles per hour
**Mean Recurrence Interval

Users should consult with local building officials to determine if there are community-specific wind speed requirements that govern.

 [Print your results](#)

WINDSPEED WEBSITE DISCLAIMER

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Search Result

Elevation Limitation: ASCE 7* Ground Snow Load

Query Date: June 07, 2017

Latitude: 41.70863

Longitude: -72.76318

Elevation: 147 Feet

Any elevation: Ground Snow Load is 30 psf

All loading data is in pounds per square foot.

For a site-specific case study area, a case study is required to establish ground snow loads.

*Based on Figure 7-1 Ground Snow Loads printed in ASCE 7-95 through ASCE 7-10.

Users should consult with local building officials to determine if there are community-specific snow load requirements that govern.

Red shaded area is the load specific boundaries.
Any darker red area is the overlapping load specific boundary.



GROUND SNOW LOAD WEBSITE DISCLAIMER

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USGS Design Maps Summary Report

User-Specified Input

Building Code Reference Document 2012/2015 International Building Code
(which utilizes USGS hazard data available in 2008)

Site Coordinates 41.70863°N, 72.76318°W

Site Soil Classification Site Class D - "Stiff Soil"

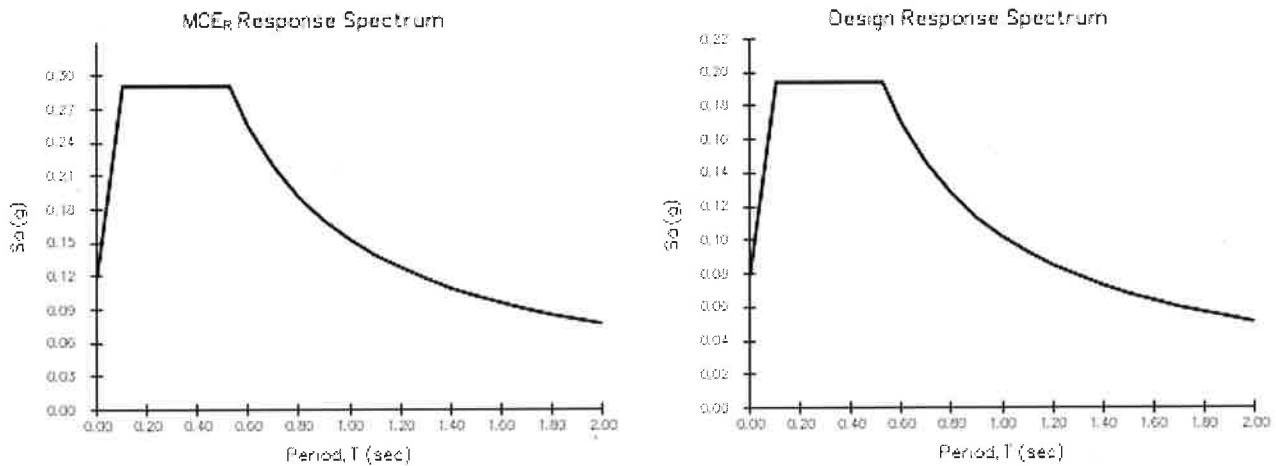
Risk Category I/II/III



USGS-Provided Output

$S_s = 0.182 \text{ g}$	$S_{M_s} = 0.291 \text{ g}$	$S_{D_s} = 0.194 \text{ g}$
$S_1 = 0.064 \text{ g}$	$S_{M_1} = 0.153 \text{ g}$	$S_{D_1} = 0.102 \text{ g}$

For information on how the S_s and S_1 values above have been calculated from probabilistic (risk-targeted) and deterministic ground motions in the direction of maximum horizontal response, please return to the application and select the "2009 NEHRP" building code reference document.



Although this information is a product of the U.S. Geological Survey, we provide no warranty, expressed or implied, as to the accuracy of the data contained therein. This tool is not a substitute for technical subject-matter knowledge.

Appendix A

TNX Tower analysis results

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod 1/2"x4' on 15' Pole	159	(4) SBNHH-1D65B w/mount pipe (VZW)	60
2" Dia 10' Omni	154	(4) SBNHH-1D65B w/mount pipe (VZW)	60
2" Dia 10' Omni	154	(3) ALU RRH_2X60 (VZW)	60
Pirol 4' Side Mount Standoff (1)	154	(3) ALU RRH_2X60 (VZW)	60
Pirol 4' Side Mount Standoff (1)	154	(3) ALU RRH_2X60 (VZW)	60
2x2 Flat Panel	150	Platform Mounl [LP 302-1] (VZW)	60
Pirol 4' Side Mount Standoff (1)	150		
Pirol 4' Side Mount Standoff (1)	150		
6" Dish	150		
(4) SBNHH-1D65B w/mount pipe (VZW)	60		

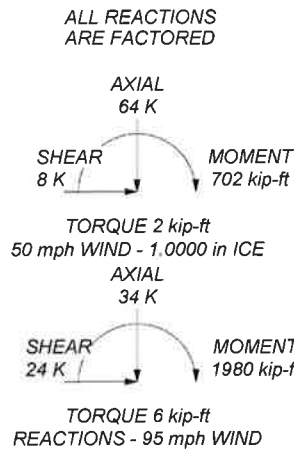
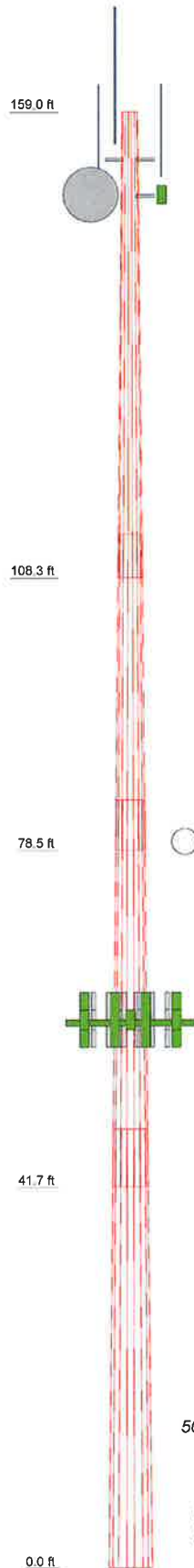
MATERIAL STRENGTH

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

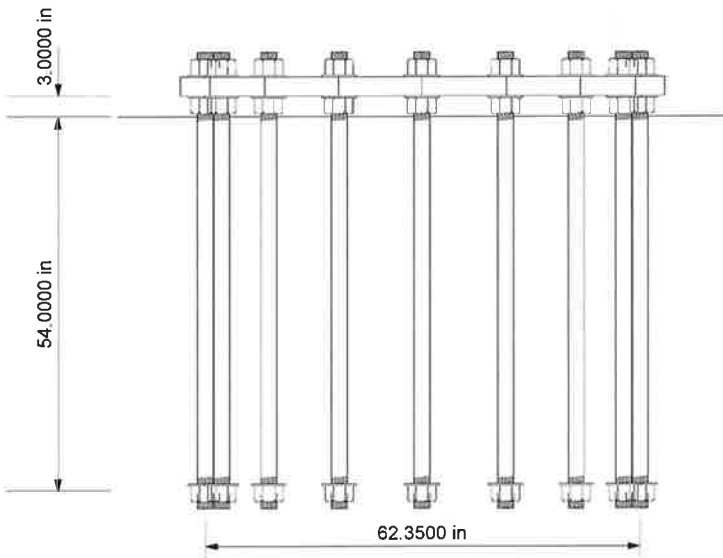
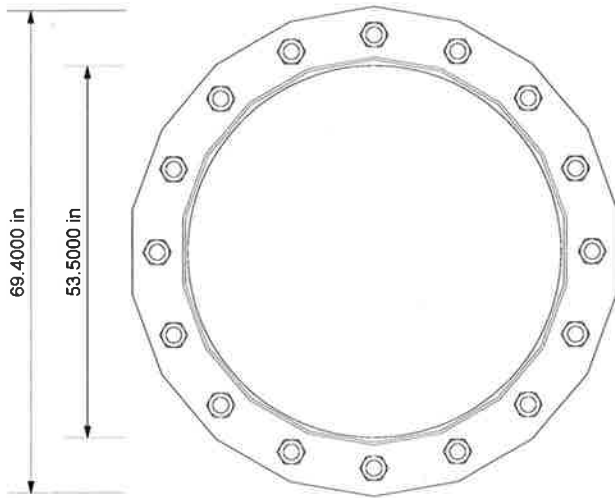
TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 95 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 43.4%

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	50.75	18	0.2188	4.75	20.2430	31.9150		3.1
2	34.50	18	0.3125	5.50	30.3850	38.3200		4.0
3	42.33	18	0.3750	6.33	36.4300	46.1670	A572-65	7.0
4	48.00	18	0.3750	43.9603	55.0000			9.5
5								23.6



<p>EBI Consulting 21 B Street Burlington, MA 01083</p> <p>Consulting Engineers Phone: (781) 273-2500 FAX: (781) 273-3311</p>		<p>Job: New Britain 8 CT</p>	
		<p>Project: 8116000051</p>	<p>Client: Verizon Wireless</p>
<p>Code: TIA-222-G</p>	<p>Date: 06/13/17</p>	<p>Drawn by: ediaz</p>	<p>App'd:</p>
<p>Path:</p>	<p>Scale: N</p>	<p>Dwg No.:</p>	<p></p>



FOUNDATION NOTES

1. Plate thickness is 2.7500 in.
2. Plate grade is A572-50.
3. Anchor bolt grade is A615-75.
4. f_c is 3 ksi.

EBI Consulting 21 B Street Burlington, MA 01083 Consulting Engineers Phone: (781) 273-2500 FAX: (781) 273-3311		Job: New Britain 8 CT Project: 811600051		
		Client: Verizon Wireless Code: TIA-222-G Path:	Drawn by: ediaz Date: 06/13/17	App'd: Scale: N Dwg No.

tnxTower EBI Consulting 21 B Street Burlington, MA 01083 Phone: (781) 273-2500 FAX: (781) 273-3311	Job New Britain 8 CT	Page 1 of 7
	Project 8116000051	Date 13:01:17 06/13/17
	Client Verizon Wireless	Designed by ediaz

Tower Input Data

There is a pole section.

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

The following design criteria apply:

Tower is located in Hartford County, Connecticut.

Basic wind speed of 95 mph.

Structure Class II.

Exposure Category C.

Topographic Category 1.

Crest Height 0.00 ft.

Nominal ice thickness of 1.0000 in.

Ice thickness is considered to increase with height.

Ice density of 56 pcf.

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

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 60 mph.

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

Pressures are calculated at each section.

Stress ratio used in pole design is 1.

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

Options

- | | | |
|--|--|---|
| <ul style="list-style-type: none"> Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification √ Use Code Stress Ratios √ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile √ Include Bolts In Member Capacity Leg Bolts Are At Top Of Section √ Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) SR Members Have Cut Ends SR Members Are Concentric | <ul style="list-style-type: none"> Distribute Leg Loads As Uniform Assume Legs Pinned √ Assume Rigid Index Plate √ Use Clear Spans For Wind Area √ Use Clear Spans For KL/r √ Retension Guys To Initial Tension Bypass Mast Stability Checks √ Use Azimuth Dish Coefficients √ Project Wind Area of Appurt. √ Autocalc Torque Arm Areas Add IBC .6D+W Combination Sort Capacity Reports By Component √ Triangulate Diamond Inner Bracing Treat Feed Line Bundles As Cylinder | <ul style="list-style-type: none"> Use ASCE 10 X-Brace Ly Rules √ Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression √ All Leg Panels Have Same Allowable Offset Girt At Foundation √ Consider Feed Line Torque Include Angle Block Shear Check Use TIA-222-G Bracing Resist. Exemption Use TIA-222-G Tension Splice Exemption <li style="text-align: center;">Poles Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets |
|--|--|---|

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	159.00-108.25	50.75	4.75	18	20.2430	31.9150	0.2188	0.8750	A572-65 (65 ksi)
L2	108.25-78.50	34.50	5.50	18	30.3850	38.3200	0.3125	1.2500	A572-65 (65 ksi)
L3	78.50-41.67	42.33	6.33	18	36.4300	46.1670	0.3750	1.5000	A572-65 (65 ksi)
L4	41.67-0.00	48.00		18	43.9603	55.0000	0.3750	1.5000	A572-65

tnxTower EBI Consulting 21 B Street Burlington, MA 01083 Phone: (781) 273-2500 FAX: (781) 273-3311	Job	New Britain 8 CT	Page	2 of 7
	Project	8116000051	Date	13:01:17 06/13/17
	Client	Verizon Wireless	Designed by	ediaz

Section	Elevation	Section Length	Splice Length	Number of Sides	Top Diameter	Bottom Diameter	Wall Thickness	Bend Radius	Pole Grade
	ft	ft	ft		in	in	in	in	(65 ksi)

Tapered Pole Properties

Section	Tip Dia.	Area	I	r	C	I/C	J	I/Q	w	w/t
	in	in ²	in ⁴	in	in	in ³	in ⁴	in ²	in	
L1	20.5553	13.9031	704.3057	7.1086	10.2834	68.4893	1409.5382	6.9529	3.1778	14.527
	32.4073	22.0071	2793.2904	11.2522	16.2128	172.2890	5590.2562	11.0056	5.2320	23.918
L2	31.9631	29.8282	3408.0427	10.6758	15.4356	220.7910	6820.5698	14.9169	4.7978	15.353
	38.9111	37.6987	6880.2197	13.4927	19.4666	353.4379	13769.4926	18.8529	6.1943	19.822
L3	38.2766	42.9145	7048.1054	12.7995	18.5064	380.8460	14105.4850	21.4613	5.7517	15.338
	46.8792	54.5039	14439.2447	16.2562	23.4528	615.6716	28897.4889	27.2571	7.4654	19.908
L4	46.1175	51.8775	12450.7999	15.4728	22.3319	557.5353	24917.9829	25.9437	7.0770	18.872
	55.8485	65.0174	24510.3769	19.3919	27.9400	877.2504	49053.0053	32.5149	9.0200	24.053

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A _f	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals	Double Angle Stitch Bolt Spacing Redundants
ft	ft ²	in					in	in	in
L1				1	1	1			
159.00-108.25									
L2				1	1	1			
108.25-78.50									
L3				1	1	1			
78.50-41.67									
L4				1	1	1			
41.67-0.00									

Monopole Base Plate Data

Base Plate Data

Base plate is square	
Base plate is grouted	
Anchor bolt grade	A615-75
Anchor bolt size	2.2500 in
Number of bolts	16
Embedment length	54.0000 in
f _c	3 ksi
Grout space	3.0000 in
Base plate grade	A572-50
Base plate thickness	2.7500 in
Bolt circle diameter	62.3500 in
Outer diameter	69.4000 in
Inner diameter	53.5000 in
Base plate type	Plain Plate

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Component Type	Placement	Total Number	Number Per Row	Start/End Position	Width or Diameter	Perimeter	Weight
			ft				in	in	plf
*** 1 5/8 (VZW)	C	Surface Ar (CaAa)	60.00 - 10.00	3	3	0.000 0.250	1.9800		1.04

tnxTower EBI Consulting 21 B Street Burlington, MA 01083 Phone: (781) 273-2500 FAX: (781) 273-3311	Job New Britain 8 CT	Page 3 of 7
	Project 8116000051	Date 13:01:17 06/13/17
	Client Verizon Wireless	Designed by ediaz

Description	Sector	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
*** Climbing pegs	A	Surface Ar (CaAa)	159.00 - 8.00	1	1	-0.050 0.050	0.1500		0.31

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C _{AA} ft ² /ft	Weight plf
1 5/8	C	No	Inside Pole	155.00 - 10.00	2	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	1.04 1.04 1.04
1/2	C	No	Inside Pole	150.00 - 10.00	1	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.25 0.25 0.25

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L1	159.00-108.25	A	0.000	0.000	0.761	0.000	0.02
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.11
L2	108.25-78.50	A	0.000	0.000	0.446	0.000	0.01
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.07
L3	78.50-41.67	A	0.000	0.000	0.552	0.000	0.01
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	10.890	0.000	0.14
L4	41.67-0.00	A	0.000	0.000	0.505	0.000	0.01
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	18.810	0.000	0.17

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L1	159.00-108.25	A	2.297	0.000	0.000	24.080	0.000	0.36
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.11
L2	108.25-78.50	A	2.218	0.000	0.000	14.116	0.000	0.21
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.07
L3	78.50-41.67	A	2.122	0.000	0.000	16.892	0.000	0.25
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	23.778	0.000	0.49
L4	41.67-0.00	A	1.911	0.000	0.000	14.796	0.000	0.21
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	40.315	0.000	0.74

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Feed Line Center of Pressure

Section	Elevation <i>ft</i>	CP _X	CP _Z	CP _X	CP _Z
		<i>in</i>	<i>in</i>	Ice <i>in</i>	Ice <i>in</i>
L1	159.00-108.25	-0.0192	-0.0111	-0.4397	-0.2538
L2	108.25-78.50	-0.0192	-0.0111	-0.4724	-0.2728
L3	78.50-41.67	-0.1368	0.4342	-0.5704	0.4682
L4	41.67-0.00	-0.1782	0.6056	-0.5464	0.7825

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L1	6	Climbing pegs	108.25 - 159.00	1.0000	1.0000
L2	4	1 5/8	78.50 - 60.00	1.0000	1.0000
L2	6	Climbing pegs	78.50 - 108.25	1.0000	1.0000
L3	4	1 5/8	41.67 - 60.00	1.0000	1.0000
L3	6	Climbing pegs	41.67 - 78.50	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement <i>ft</i>	C _A A _A		Weight <i>K</i>
			Horz <i>ft</i>	Vert <i>ft</i>			Front <i>ft²</i>	Side <i>ft²</i>	
Lightning Rod 1/2"x4' on 15' Pole	A	From Face	1.00	0.0000	159.00	No Ice	5.33	5.33	0.13
			0.00	0.0000		1/2" Ice	7.40	7.40	0.19
			4.00	0.0000		1" Ice	9.29	9.29	0.26
2" Dia 10' Omni	A	From Face	3.00	0.0000	154.00	No Ice	2.00	2.00	0.01
			0.00	0.0000		1/2" Ice	3.03	3.03	0.03
			3.00	0.0000		1" Ice	4.06	4.06	0.04
2" Dia 10' Omni	B	From Face	3.00	0.0000	154.00	No Ice	2.00	2.00	0.01
			0.00	0.0000		1/2" Ice	3.03	3.03	0.03
			3.00	0.0000		1" Ice	4.06	4.06	0.04
Pirod 4' Side Mount Standoff (1)	A	From Face	1.00	0.0000	154.00	No Ice	2.72	2.72	0.05
			0.00	0.0000		1/2" Ice	4.91	4.91	0.09
			0.00	0.0000		1" Ice	7.10	7.10	0.13
Pirod 4' Side Mount Standoff (1)	B	From Face	1.00	0.0000	154.00	No Ice	2.72	2.72	0.05
			0.00	0.0000		1/2" Ice	4.91	4.91	0.09
			0.00	0.0000		1" Ice	7.10	7.10	0.13
2x2 Flat Panel	B	From Leg	3.00	0.0000	150.00	No Ice	4.80	1.27	0.01
			0.00	0.0000		1/2" Ice	5.07	1.43	0.04
			0.00	0.0000		1" Ice	5.35	1.60	0.07
Pirod 4' Side Mount Standoff (1)	B	From Face	1.00	0.0000	150.00	No Ice	2.72	2.72	0.05
			0.00	0.0000		1/2" Ice	4.91	4.91	0.09
			0.00	0.0000		1" Ice	7.10	7.10	0.13
Pirod 4' Side Mount Standoff (1)	A	From Face	1.00	0.0000	150.00	No Ice	2.72	2.72	0.05
			0.00	0.0000		1/2" Ice	4.91	4.91	0.09
			0.00	0.0000		1" Ice	7.10	7.10	0.13

Platform Mount [LP 302-1] (VZW)	C	None		0.0000	60.00	No Ice	33.03	33.03	1.71
				0.0000		1/2" Ice	44.60	44.60	2.19

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft ft ft	Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
(4) SBNHH-1D65B w/mount pipe (VZW)	A	From Face	0.00 0.00 0.00	0.0000	60.00	No Ice 56.17 1/2" Ice 8.72 1" Ice 9.38	56.17 7.70 8.99	2.68 0.10 0.17
(4) SBNHH-1D65B w/mount pipe (VZW)	B	From Face	0.00 0.00 0.00	0.0000	60.00	No Ice 8.72 1/2" Ice 9.38 1" Ice 9.97	7.70 8.99 9.94	0.10 0.17 0.26
(4) SBNHH-1D65B w/mount pipe (VZW)	C	From Face	0.00 0.00 0.00	0.0000	60.00	No Ice 8.72 1/2" Ice 9.38 1" Ice 9.97	7.70 8.99 9.94	0.10 0.17 0.26
(3) ALU RRH_2X60 (VZW)	A	From Face	0.00 0.00 0.00	0.0000	60.00	No Ice 2.54 1/2" Ice 2.75 1" Ice 2.97	1.61 1.79 1.98	0.06 0.08 0.10
(3) ALU RRH_2X60 (VZW)	B	From Face	0.00 0.00 0.00	0.0000	60.00	No Ice 2.54 1/2" Ice 2.75 1" Ice 2.97	1.61 1.79 1.98	0.06 0.08 0.10
(3) ALU RRH_2X60 (VZW)	C	From Face	0.00 0.00 0.00	0.0000	60.00	No Ice 2.54 1/2" Ice 2.75 1" Ice 2.97	1.61 1.79 1.98	0.06 0.08 0.10

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft ft ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft	Aperture Area ft ²	Weight K
6' Dish	A	Paraboloid w/Shroud (HP)	From Face	4.00 0.00 0.00	0.0000		150.00	6.00	No Ice 28.30 1/2" Ice 29.05 1" Ice 29.80	0.44 0.59 0.74

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Dead Only	28.42	0.00	0.00	-1.13	2.20	0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	34.10	-0.68	-23.21	-1840.69	107.03	-4.40
0.9 Dead+1.6 Wind 0 deg - No Ice	25.57	-0.68	-23.21	-1832.33	105.72	-4.40
1.2 Dead+1.6 Wind 30 deg - No Ice	34.10	11.35	-20.00	-1578.78	-878.76	-6.26
0.9 Dead+1.6 Wind 30 deg - No Ice	25.57	11.35	-20.00	-1571.59	-875.69	-6.26
1.2 Dead+1.6 Wind 60 deg - No Ice	34.10	20.69	-10.75	-789.54	-1681.11	-3.71
0.9 Dead+1.6 Wind 60 deg - No Ice	25.57	20.69	-10.75	-785.94	-1674.33	-3.72

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Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
1.2 Dead+1.6 Wind 90 deg - No Ice	34.10	23.95	0.69	104.17	-1950.62	-2.37
0.9 Dead+1.6 Wind 90 deg - No Ice	25.57	23.95	0.69	103.90	-1942.55	-2.37
1.2 Dead+1.6 Wind 120 deg - No Ice	34.10	20.91	12.07	990.00	-1714.45	-0.84
0.9 Dead+1.6 Wind 120 deg - No Ice	25.57	20.91	12.07	985.94	-1707.48	-0.84
1.2 Dead+1.6 Wind 150 deg - No Ice	34.10	12.57	20.40	1637.55	-1065.44	0.91
0.9 Dead+1.6 Wind 150 deg - No Ice	25.57	12.57	20.40	1630.70	-1061.26	0.91
1.2 Dead+1.6 Wind 180 deg - No Ice	34.10	1.04	23.29	1850.61	-156.61	2.87
0.9 Dead+1.6 Wind 180 deg - No Ice	25.57	1.04	23.29	1842.99	-156.39	2.87
1.2 Dead+1.6 Wind 210 deg - No Ice	34.10	-11.64	19.83	1550.69	928.04	6.26
0.9 Dead+1.6 Wind 210 deg - No Ice	25.57	-11.64	19.83	1544.37	923.31	6.26
1.2 Dead+1.6 Wind 240 deg - No Ice	34.10	-20.44	11.01	827.90	1647.74	5.24
0.9 Dead+1.6 Wind 240 deg - No Ice	25.57	-20.44	11.01	824.80	1639.82	5.25
1.2 Dead+1.6 Wind 270 deg - No Ice	34.10	-23.58	-0.57	-89.37	1898.58	2.96
0.9 Dead+1.6 Wind 270 deg - No Ice	25.57	-23.58	-0.57	-88.49	1889.56	2.96
1.2 Dead+1.6 Wind 300 deg - No Ice	34.10	-20.59	-11.89	-964.39	1670.66	0.84
0.9 Dead+1.6 Wind 300 deg - No Ice	25.57	-20.59	-11.89	-959.76	1662.58	0.84
1.2 Dead+1.6 Wind 330 deg - No Ice	34.10	-12.28	-20.13	-1599.31	1026.85	-1.50
0.9 Dead+1.6 Wind 330 deg - No Ice	25.57	-12.28	-20.13	-1591.97	1021.53	-1.50
1.2 Dead+1.0 Ice+1.0 Temp	64.12	0.00	0.00	-3.14	7.75	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	64.12	-0.13	-8.00	-679.29	28.83	-0.95
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	64.12	3.95	-6.91	-585.60	-322.44	-1.59
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	64.12	7.04	-3.83	-314.94	-595.73	-1.27
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	64.12	8.15	0.13	17.90	-690.98	-1.03
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	64.12	7.09	4.09	349.16	-602.45	-0.61
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	64.12	4.19	6.99	591.46	-359.84	-0.03
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	64.12	0.20	8.02	675.39	-23.97	0.65
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	64.12	-4.01	6.88	574.03	347.08	1.59
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	64.12	-7.00	3.89	316.67	603.85	1.56
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	64.12	-8.07	-0.11	-20.88	695.34	1.15
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	64.12	-7.02	-4.06	-349.97	608.47	0.61
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	64.12	-4.13	-6.94	-589.74	366.91	-0.08

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Load Combination	Vertical K	Shear _x K	Shear _y K	Overturning Moment, M _x kip-ft	Overturning Moment, M _y kip-ft	Torque kip-ft
Dead+Wind 0 deg - Service	28.42	-0.15	-5.18	-410.20	25.44	-0.98
Dead+Wind 30 deg - Service	28.42	2.53	-4.46	-351.96	-193.77	-1.40
Dead+Wind 60 deg - Service	28.42	4.61	-2.40	-176.47	-372.18	-0.83
Dead+Wind 90 deg - Service	28.42	5.34	0.15	22.29	-432.23	-0.53
Dead+Wind 120 deg - Service	28.42	4.66	2.69	219.34	-379.67	-0.19
Dead+Wind 150 deg - Service	28.42	2.80	4.55	363.38	-235.30	0.20
Dead+Wind 180 deg - Service	28.42	0.23	5.19	410.75	-33.14	0.64
Dead+Wind 210 deg - Service	28.42	-2.60	4.42	344.00	208.04	1.40
Dead+Wind 240 deg - Service	28.42	-4.56	2.46	183.28	368.08	1.17
Dead+Wind 270 deg - Service	28.42	-5.26	-0.13	-20.72	423.96	0.66
Dead+Wind 300 deg - Service	28.42	-4.59	-2.65	-215.36	373.25	0.19
Dead+Wind 330 deg - Service	28.42	-2.74	-4.49	-356.59	230.04	-0.34

Base Plate Design Data

Plate Thickness	Number of Anchor Bolts	Anchor Bolt Size	Actual Allowable Ratio Bolt Tension K	Actual Allowable Ratio Bolt Compression K	Actual Allowable Ratio Plate Stress ksi	Actual Allowable Ratio Stiffener Stress ksi	Controlling Condition	Ratio
2.7500	16	2.2500	93.27	97.39	17.529		Bolt T	0.42
			223.65	371.27	45.000			✓
			0.42	0.26	0.39			

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail	
L1	159 - 108.25	Pole	TP31.915x20.243x0.2188	1	-4.14	155.64	25.1	Pass	
L2	108.25 - 78.5	Pole	TP38.32x30.385x0.3125	2	-8.56	384.77	24.5	Pass	
L3	78.5 - 41.667	Pole	TP46.167x36.43x0.375	3	-20.65	811.20	29.6	Pass	
L4	41.667 - 0	Pole	TP55x43.9604x0.375	4	-34.09	1517.23	43.4	Pass	
							Summary		
							Pole (L4)	43.4	Pass
							Base Plate	41.7	Pass
							RATING =	43.4	Pass

General Footing

File = C:\STRUCT-1\1VZW\811600-3\Analysis\Tower\MATFOU-1.EC6
ENERCALC, INC. 1983-2017, Build:6.17.3.29, Ver:6.17.3.29

Lic. #: KW-06008663

Licensee: ENVIROBUSINESS, INC.

Description: MAT FOUNDATION CHECK (50mph wind + 1.0" ICE)

Code References

Calculations per ACI 318-14, IBC 2015, CBC 2016, ASCE 7-10

Load Combinations Used: ASCE 7-10

General Information

Material Properties

f'_c : Concrete 28 day strength	=	3.0 ksi
f_y : Rebar Yield	=	60.0 ksi
E_c : Concrete Elastic Modulus	=	3,122.02 ksi
Concrete Density	=	145.0 pcf
ϕ Values Flexure	=	0.90
Shear	=	0.750

Soil Design Values

Allowable Soil Bearing	=	4.0 ksf
Increase Bearing By Footing Weight	=	No
Soil Passive Resistance (for Sliding)	=	200.0 pcf
Soil/Concrete Friction Coeff.	=	0.350

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	0.00180
Min. Overturning Safety Factor	=	1.0 : 1
Min. Sliding Safety Factor	=	1.0 : 1
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	Yes
Use Pedestal wt for stability, mom & shear	:	Yes

Increases based on footing Depth

Footing base depth below soil surface	=	5.50 ft
Allow press. increase per foot of depth when footing base is below	=	ksf ft

Increases based on footing plan dimension

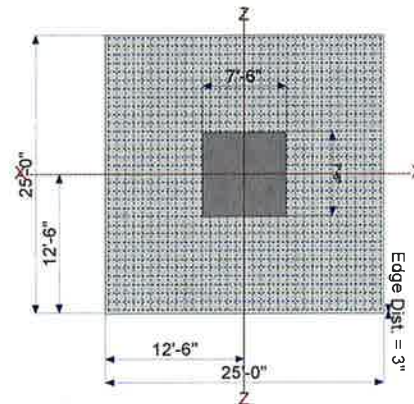
Allowable pressure increase per foot of depth when max. length or width is greater than	=	ksf ft
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Dimensions

Width parallel to X-X Axis	=	25.0 ft
Length parallel to Z-Z Axis	=	25.0 ft
Footing Thickness	=	30.0 in

Pedestal dimensions...

px: parallel to X-X Axis	=	90.0 in
pz: parallel to Z-Z Axis	=	90.0 in
Height	=	42.0 in
Rebar Centerline to Edge of Concrete... at Bottom of footing	=	3.0 in



Reinforcing

Bars parallel to X-X Axis	=	
Number of Bars	=	33.0
Reinforcing Bar Size	=	# 6
Bars parallel to Z-Z Axis	=	
Number of Bars	=	33.0
Reinforcing Bar Size	=	# 6

Bandwidth Distribution Check (ACI 15.4.4.2)

Direction Requiring Closer Separation	=	n/a
# Bars required within zone	=	n/a
# Bars required on each side of zone	=	n/a



Applied Loads

	D	Lr	L	S	W	E	H	
P: Column Load	=	53.430						k
OB: Overburden	=							ksf
M-xx	=							k-ft
M-zz	=							k-ft
V-x	=							k
V-z	=							k

General Footing

File = C:\STRUCT-1\1VZW811600-3\Analysis\Tower\MATFOU-1.EC6
 ENERCALC, INC. 1983-2017, Build:6.17.3.29, Ver:6.17.3.29

Lic. #: KW-06008663

Licensee: ENVIROBUSINESS, INC.

Description: MAT FOUNDATION CHECK (50mph wind + 1.0" ICE)

DESIGN SUMMARY

Design OK

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.1985	Soil Bearing	0.7940 ksf	4.0 ksf	+D+H about Z-Z axis
PASS	n/a	Overturning - X-X	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Overturning - Z-Z	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Sliding - X-X	0.0 k	0.0 k	No Sliding
PASS	n/a	Sliding - Z-Z	0.0 k	0.0 k	No Sliding
PASS	n/a	Uplift	0.0 k	0.0 k	No Uplift
PASS	0.0	Z Flexure (+X)	0.0 k-ft	0.0 k-ft	0.0
PASS	0.0	Z Flexure (-X)	0.0 k-ft	0.0 k-ft	0.0
PASS	0.0	X Flexure (+Z)	0.0 k-ft	0.0 k-ft	0.0
PASS	0.0	X Flexure (-Z)	0.0 k-ft	0.0 k-ft	0.0
PASS	0.0	1-way Shear (+X)	0.0 psi	0.0 psi	0.0
PASS	0.0	1-way Shear (-X)	0.0 psi	0.0 psi	0.0
PASS	0.0	1-way Shear (+Z)	0.0 psi	0.0 psi	0.0
PASS	0.0	1-way Shear (-Z)	0.0 psi	0.0 psi	0.0
PASS	0.0	2-way Punching	0.0 psi	0.0 psi	0.0

Detailed Results

Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc	Zecc (in)	Actual Soil Bearing Stress @ Location				Actual / Allow Ratio
				Bottom, -Z	Top, +Z	Left, -X	Right, +X	
X-X, +D+H	4.0	n/a	0.0	0.7940	0.7940	n/a	n/a	0.199
Z-Z, +D+H	4.0	0.0	n/a	n/a	n/a	0.7940	0.7940	0.199

Overturning Stability

Rotation Axis & Load Combination...	Overturning Moment	Resisting Moment	Stability Ratio	Status
Footing Has NO Overturning				

Sliding Stability

All units k

Force Application Axis Load Combination...	Sliding Force	Resisting Force	Stability Ratio	Status
Footing Has NO Sliding				

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
One Way Shear								

One Way Shear

Load Combination...	Vu @ -X	Vu @ +X	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
Two-Way "Punching" Shear								

All units k

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status

ATTACHMENT 5



State of Connecticut

City of New Britain

27 West Main Street, New Britain, CT 06051 Tel: (860) 826-3383



COPY

Permit No. B-13-388

PERMIT TO BUILD

FEE PAID: 0.00

DATE ISSUED 6/6/2013

Commercial: **New Construction**

This certifies that NORTHEAST TOWERS INC

has permission to erect, alter, or demolish a building

385 HARTFORD RD

as follows: **CONSTRUCT A PUBLIC SAFETY COMMUNICATION FACILITY INCLUDING A 159 RADIO TOWER.**

provided that the person accepting this permit shall in every respect conform to the terms of the application therefore on file in this office, and to the provisions of ordinances relating to the Inspection, Alteration and Construction of Buildings in the City of New Britain.

NOTE: The recipient of this permit accepts this permit on the condition that, as owner or as agent of the owner, he/she agrees to comply with all Building & Zoning Regulations of the City of New Britain & the State Statutes of the State of Connecticut regarding the use, occupancy & type of building to be constructed, added to, demolished, or altered. The recipient also agrees that this building is to be located the proper distance from all street lines, side yard lines & required distances from all other zones & is located in a zone in which the building & its use is allowed. Additional conditions listed below:

Plan Review Comments:

Restrictions:


Building Official 6/6/2013 Date

To occupy Street or Sidewalk apply at City of New Britain
27 West Main Street, New Britain, CT 06051 Tel: (860) 826-3383

**This Card Must Be Displayed in a Conspicuous Place on the Premises
and Not Torn Down or Removed**

HB 10



APPLICATION FOR ZONING / BUILDING PERMIT

Department of Licenses, Permits, and Inspections

COPY

Please print clearly and use ink

Job/Property Address: 385 Hartford Road

Owner of City of New Britain Cel Phone# n/a
 Land City of New Britain Phone # 860-826-3350
 Address 27 West Main Street City & Zip New Britain 06051

Site Plan Review Signage New Construction Remodeling Accessory Demolition
 The undersigned applies for permission to: CONSTRUCT A PUBLIC SAFETY COMMUNICATION FACILITY INCLUDING A 159' RADIO TOWER

Application Date 6/6/13 Estimated Cost \$ 235,000 Flood Zone yes no n/a

OFFICE USE ONLY:
 JS No. _____ BP No. _____ Permit Fee \$ 3,555. Building Code Year _____
 Cert. of Occupancy or Approval Fee \$ 238. Zoning Review Fee \$ _____ Fire Marshal's Review Fee \$ _____
 Threshold Review yes N/A Statement of Special Inspection Yes N/A **TOTAL \$ 3,793.** Cash Check # WAIVED.
 Zoning reviewed in substantial compliance yes no N/A Reviewer Initials _____ Building reviewed in substantial compliance yes no Reviewer Initials _____

*Name Joseph Savino Phone # 860-677-1999
 *Applicant's, * Contractor's or * Tenant's
 Business Name Northwest Towers, Inc. Cel Phone# 860-952-4896

Address 199 Brickyard Rd City & Zip Farmington, CT 06032

Contractors License # MCO-0900747 Type major contractor Building Plans Submitted yes no

Architect's Name _____ Phone # _____
 Address _____ City & Zip _____

Zone S-2 Lot Size _____ Frontage _____ Type of Construction _____ Use group _____

Dimensions of Building: _____ Bldg. Area (Sq/ ft.) _____ Height of Structure _____

No. of Stories _____ No. of Units _____ No. of Rooms _____ No. of Bedrooms _____ Required on plans, show the size of Emergency egress windows (5.7 sq. ft. openable) in the bedroom. _____ No. of Baths _____

Model Energy compliance report submitted? Yes No Required for additions, new work. (<http://www.energycodes.gov>)
REScheck/Residential or COMcheck/Commercial

Roof rafters size _____ Trusses yes no (engineered design plan must be included) inches on center _____

Necessary Fire Protection: smoke detectors _____ sprinklers _____ stand pipe _____ Aisle widths _____

ROOFING/SIDING PERMIT Strip & Reroof Reroof (2nd layer) Number of Squares _____ Mfg _____

Ice/water shield Type of roof sheathing _____ Vinyl Siding number of Squares _____

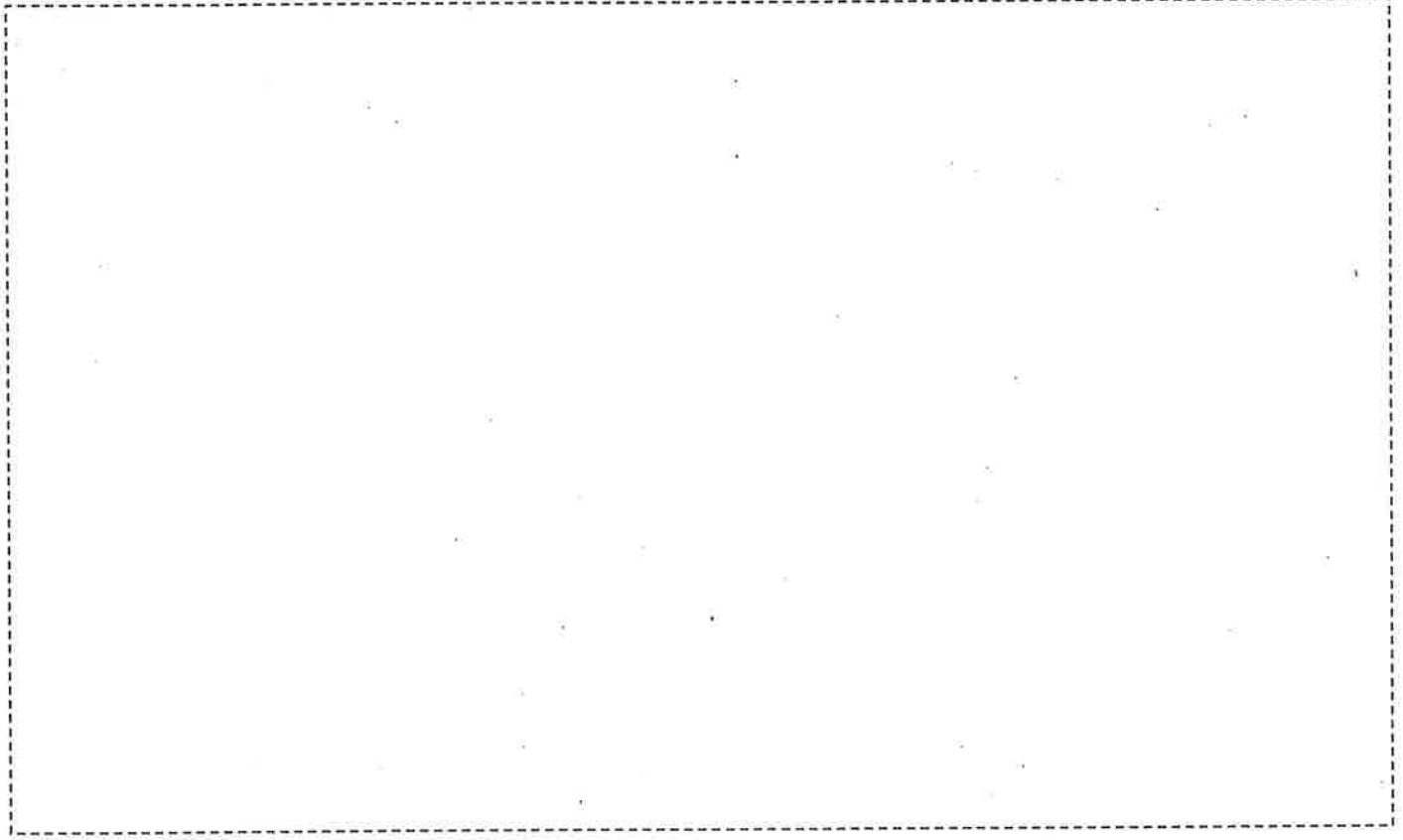
Over for Additional information and for your Signature

Building / Zoning Permit Application

CT ST. ED. FALLO 6/10 CH # 6/10

Additional Information _____

This area provided for diagram. (show lot size, building location, addition, fence, floor plan, etc.)



The laws and building regulations of the State of Connecticut and the City of New Britain shall at all times have precedence over drawings and specifications. Anything contrary to said law and regulations that may at any time appear on drawings and specifications, or in the work as executed, shall be corrected without delay upon the receipt of due notice from the Building Official. Based on the application, the permit shall be a license to proceed with the work and shall not be construed as authority to violate, cancel or set aside any of the provisions of the codes, except as specifically stipulated by legally granted modification by the State Building Inspector (104.10 Modifications).

Provide Waiver of Workmen's Compensation Form _____
OR
Workmen's Compensation Certificate _____

PERMIT SHALL BE IN POSSESSION
OF OWNER/CONTRACTOR BEFORE
WORK IS COMMENCED

Joseph A. Savino
Applicant's / Owner's Name (Print)

Date: 6/6/2013

Joseph A. Savino
*** Applicant / Owner Signature**

***IF Applicant is not the Owner of the Land, you shall Provide a Letter of Authorization and/or affidavit or signed contract from/with OWNER of Land.**

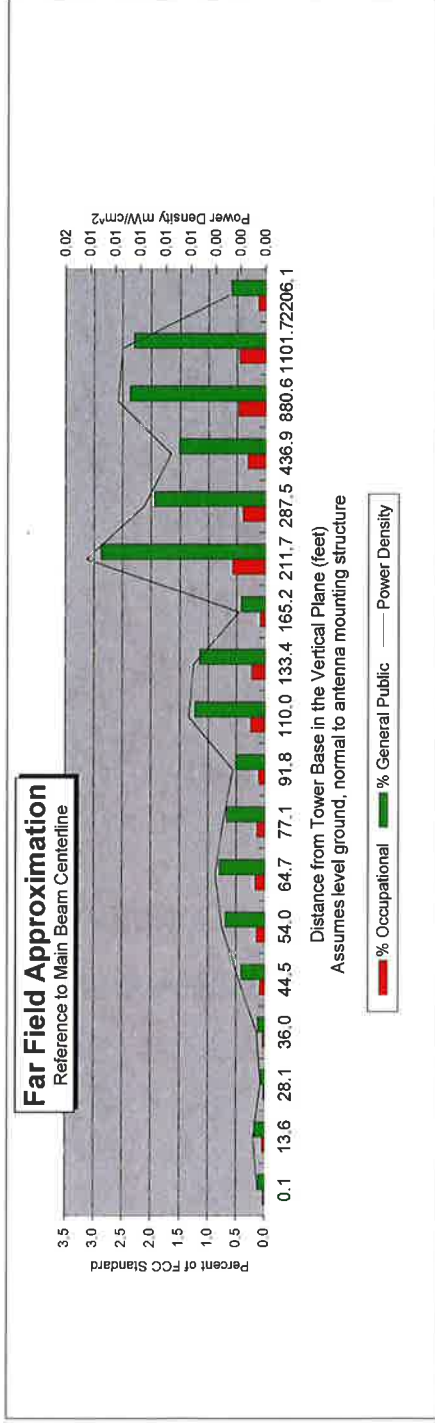
ATTACHMENT 6

Far Field Approximation
with downtilt variation

**Estimated Radiated Emission
Single Emitter Far Field Model
Dipole / Wire/ Yagi Antenna Types**



Location:	NEW BRITAIN 8, CT
Site #:	
Date:	06/07/17
Name:	Mark Brauer
File Name:	New Britain 8, CT - FF Power
Operating Freq. (MHz)	746.0
Antenna Height (ft):	80.0
Antenna Gain (dBi):	14.8
Antenna Size (in.):	72.0
Downtilt (degrees):	0.0
Feedline Loss (dB):	0.0
Power @ J4 (W):	2200.0
Number of Channels	1



		Distance in feet below:																			
Calc Angle		90.0	80.0	70.0	65.0	60.0	55.0	50.0	45.0	40.0	35.0	30.0	25.0	20.0	15.0	10.0	5.0	4.0	2.0		
Solve for r, dx to antenna		77.0	78.2	82.0	85.0	88.9	94.0	100.6	108.9	119.8	134.3	154.1	182.3	225.2	297.7	443.6	863.9	1104.4	2207.5		
Distance from Antenna Structure Base in Horizontal plane	0.1	13.6	28.1	36.0	44.5	54.0	64.7	77.1	91.8	110.0	133.4	165.2	211.7	287.5	436.9	880.6	1101.7	2206.1			
Angle from Main Beam (reference to horizontal plane)	90	80	70	65	60	55	50	45	40	35	30	25	20	15	10	5	4	2			
dB down from centerline (referenced to centerline)		36.76	34.35	38.52	35.34	29.54	26.8	25.59	25.63	25.99	21.21	20.29	23.24	13.03	12.3	9.92	2	0.2	0		
Reflection Coefficient (1 to 4, 2.56 typical)		2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56		
Power Density (mW/cm²)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.00		
Percent of Occupational Standard		0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.2	0.1	0.2	0.2	0.1	0.6	0.4	0.3	0.5	0.5	0.1		
Percent of General Population Standard		0.1	0.2	0.1	0.1	0.4	0.7	0.8	0.7	0.5	1.2	1.2	0.4	2.9	1.9	1.5	2.4	2.3	0.6		

Antenna Type: SBNHH-1D65B
Max%: 2.88%

Instructions:

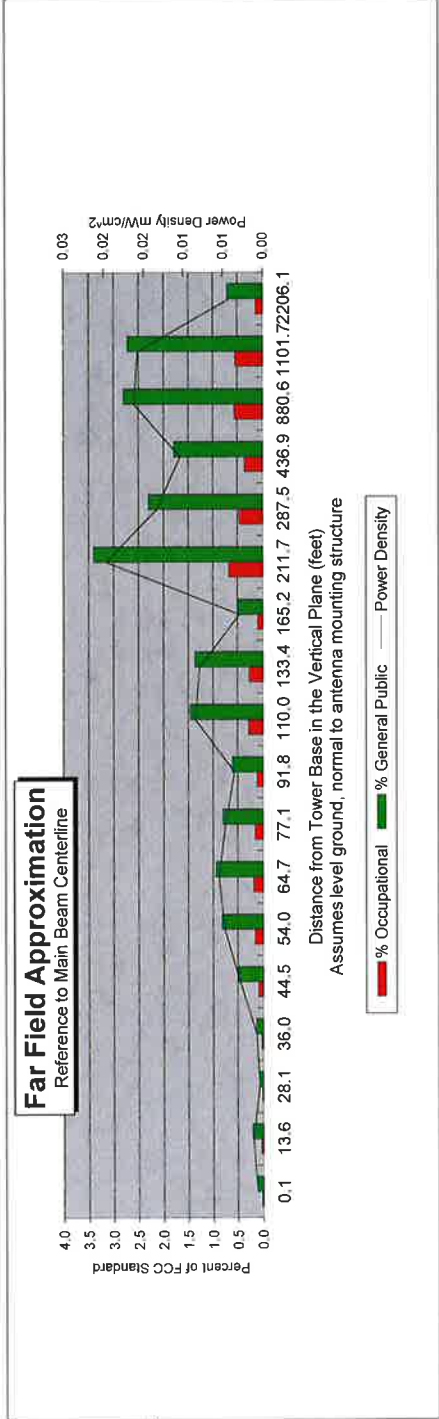
- 1) Fill in Site Location, Site number, Date, Name of Person Responsible for Date, and enter File Name to be saved as.
- 2) References to J4 refer to a point where the transmission line exits the equipment shelter and proceeds to the antenna(s). There is typically a connector located here where power measurements are made.
- 3) Enter Antenna Height (in feet to bottom of antenna), Antenna Gain (expressed as dBi, add 2.17 to dBi to obtain dBi), Antenna Size (vertical size in inches), Downtilt (in Degrees, enter zero if none), Feedline loss from J4 to Antenna, and J4 Power Density.
- 4) From manufacturer's plots, or data sheet, input Angle from mainbeam and dB below mainbeam centerline.
- 5) Enter Reflection coefficient (2.56 would be typical, 1 for free space)
- 6) Spreadsheet calculates actual power density, then relates as Occupational or General Population percentage of FCC Standard.
- 7) An odd distance may be entered in the rightmost column of the lower table.

Far Field Approximation
with downtilt variation

Estimated Radiated Emission
Single Emitter Far Field Model
Dipole / Wire/ Yagi Antenna Types



Location:	New Britain 8, CT
Site #:	
Date:	06/07/17
Name:	Mark Brauer
File Name:	NEW BRITAIN 8, CT - FF Power
Operating Freq. (MHz)	869.0
Antenna Height (ft):	80.0
Antenna Gain (dBi):	14.9
Antenna Size (in.):	72.0
Downtilt (degrees):	0.0
Feedline Loss (dB):	0.0
Power @ J4 (w):	2960.0
Number of Channels	1



Distance in feet below:

Distance (ft)	Occupational (%)	General Public (%)	Power Density (mW/cm²)
90.0	0.1	0.2	0.1
80.0	0.1	0.2	0.1
70.0	0.1	0.2	0.1
60.0	0.1	0.2	0.1
55.0	0.1	0.2	0.1
50.0	0.1	0.2	0.1
45.0	0.1	0.2	0.1
40.0	0.1	0.2	0.1
35.0	0.1	0.2	0.1
30.0	0.1	0.2	0.1
25.0	0.1	0.2	0.1
20.0	0.1	0.2	0.1
15.0	0.1	0.2	0.1
10.0	0.1	0.2	0.1
5.0	0.1	0.2	0.1
4.0	0.1	0.2	0.1
2.0	0.1	0.2	0.1

- Antenna Type: SBNHH-1D65B
Max%: 3.40%
- Instructions:
- 1) Fill in Site Location, Site number, Date, Name of Person Responsible for Date, and enter File Name to be saved as.
 - 2) References to J4 refer to a point where the transmission line exits the equipment shelter and proceeds to the antenna(s). There is typically a connector located here where power measurements are made.
 - 3) Enter Antenna Height (in feet to bottom of antenna), Antenna Gain (expressed as dBi, add 2.17 to dBi to obtain dBi), Antenna Size (vertical size in inches), Downtilt (in Degrees, enter zero if none), Feedline loss from J4 to Antenna, and J4 Power.
 - 4) From manufacturer's plots, or data sheet, input Angle from mainbeam and dB below mainbeam centerline.
 - 5) Enter Reflection coefficient (2.56 would be typical, 1 for free space)
 - 6) Spreadsheet calculates actual power density, then relates as Occupational or General Population percentage of FCC Standard.
 - 7) An odd distance may be entered in the rightmost column of the lower table.

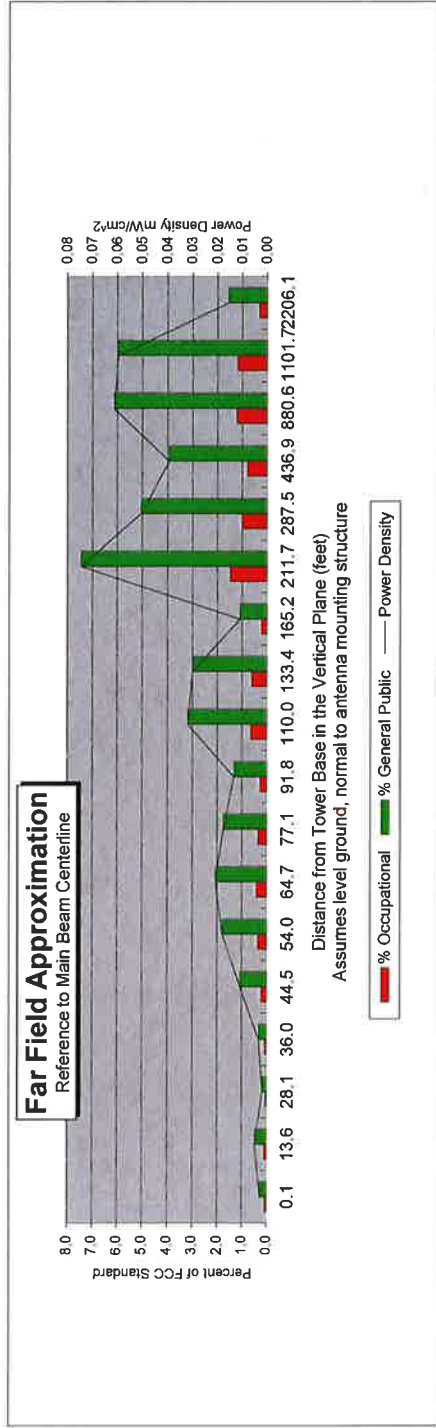
Far Field Approximation
with downtilt variation

**Estimated Radiated Emission
Single Emitter Far Field Model
Dipole / Wire/ Yagi Antenna Types**



Location:	NEW BRITAIN 8, CT
Site #:	
Date:	06/07/17
Name:	Mark Brauer
File Name:	New Britain 8, CT - FF Power

Operating Freq. (MHz)	1970.0
Antenna Height (ft)	80.0
Antenna Gain (dBi)	18.4
Antenna Size (in.)	72.0
Downtilt (degrees)	0.0
Feedline Loss (dB)	0.0
Power @ J4 (w)	5000.0
Number of Channels	1



Calc Angle	90.0	80.0	70.0	65.0	60.0	55.0	50.0	45.0	40.0	35.0	30.0	25.0	20.0	15.0	10.0	5.0	4.0	2.0
Solve for r, dx to antenna	77.0	78.2	82.0	85.0	88.9	94.0	100.6	108.9	119.8	134.3	154.1	182.3	225.2	297.7	443.6	883.9	1104.4	2207.5
Distance from Antenna Structure Base in Horizontal plane	0.1	13.6	28.1	36.0	44.5	54.0	64.7	77.1	91.8	110.0	133.4	165.2	211.7	287.5	436.9	880.6	1101.7	2206.1
Angle from Main Beam (reference to horizontal plane)	90	80	70	65	60	55	50	45	40	35	30	25	20	15	10	5	4	2
dB down from centerline (referenced to centerline)	36.76	34.35	38.52	35.34	29.54	26.8	25.59	25.63	25.99	21.21	20.29	23.24	13.03	12.3	9.92	2	0.2	0
Reflection Coefficient (1 to 4, 2.56 typical)	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56
Power Density (mW/cm²)	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.02	0.01	0.03	0.03	0.01	0.07	0.05	0.04	0.06	0.06	0.02
Percent of Occupational Standard	0.1	0.1	0.0	0.1	0.2	0.4	0.4	0.3	0.3	0.6	0.6	0.2	1.5	1.0	0.8	1.2	1.2	0.3
Percent of General Population Standard	0.3	0.5	0.2	0.3	1.1	1.8	2.1	1.7	1.3	3.2	3.0	1.1	7.4	5.0	3.9	6.1	5.9	1.6

Antenna Type: SBNHH-1D65B
Max%: 7.45%

Instructions:

- 1) Fill in Site Location, Site number, Date, Name of Person Responsible for Date, and enter File Name to be saved as.
- 2) References to J4 refer to a point where the transmission line exits the equipment shelter and proceeds to the antenna(s). There is typically a connector located here where power measurements are made.
- 3) Enter Antenna Height (in feet to bottom of antenna), Antenna Gain (expressed as dBi, add 2.17 to dBi to obtain dBi), Antenna Size (vertical size in inches), Downtilt (in Degrees, enter zero if none), Feedline loss from J4 to Antenna, and J4 Power Density.
- 4) From manufacturer's plots, or data sheet, input Angle from mainbeam and dB below mainbeam centerline.
- 5) Enter Reflection coefficient (2.56 would be typical, 1 for free space)
- 6) Spreadsheet calculates actual power density, then relates as Occupational or General Population percentage of FCC Standard.
- 7) An odd distance may be entered in the rightmost column of the lower table.

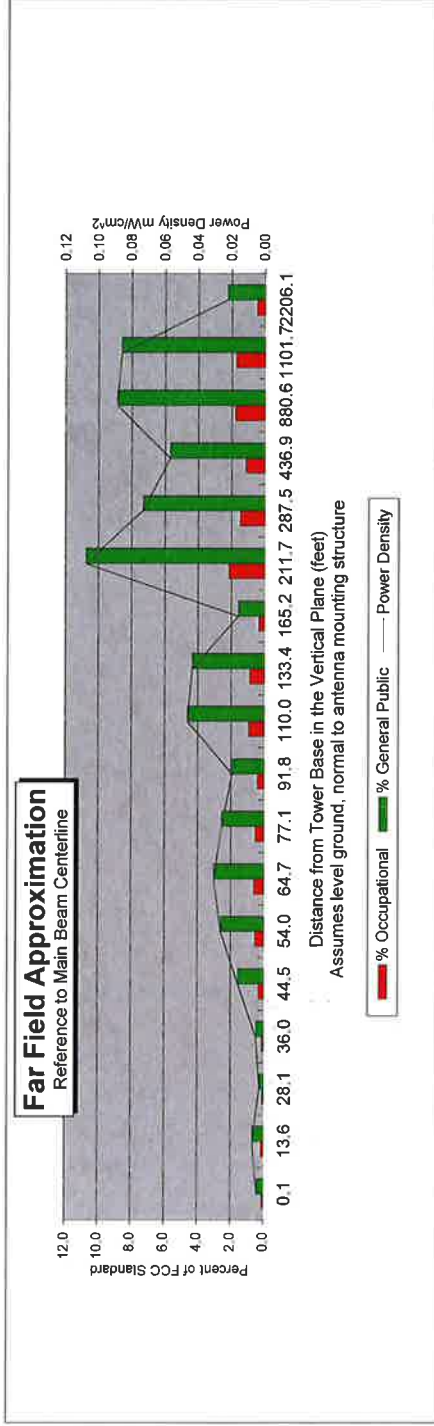
Far Field Approximation
with downtilt variation

Estimated Radiated Emission
Single Emitter Far Field Model
Dipole / Wire/ Yagi Antenna Types



Location:	NEW BRITAIN 8, CT
Site #:	
Date:	06/07/17
Name:	Mark Brauer
File Name:	New Britain 8, CT - FF Power

Operating Freq. (MHz)	2110.0
Antenna Height (ft)	80.0
Antenna Gain (dBi)	18.3
Antenna Size (in.)	72.0
Downtilt (degrees)	0.0
Feedline Loss (dB)	0.0
Power @ J4 (w)	7400.0
Number of Channels	1



Distance in feet below:

Calc Angle	90.0	80.0	70.0	65.0	60.0	55.0	50.0	45.0	40.0	35.0	30.0	25.0	20.0	15.0	10.0	5.0	4.0	2.0
Solve for r, dx to antenna	77.0	78.2	82.0	85.0	88.9	94.0	100.6	108.9	119.8	134.3	154.1	182.3	225.2	297.7	443.6	883.9	1104.4	2207.5
Distance from Antenna Structure Base in Horizontal plane	0.1	13.6	28.1	36.0	44.5	54.0	64.7	77.1	91.8	110.0	133.4	165.2	211.7	287.5	436.9	880.6	1101.7	2206.1
Angle from Main Beam (reference to horizontal plane)	90	80	70	65	60	55	50	45	40	35	30	25	20	15	10	5	4	2
dB down from centerline (referenced to centerline)	36.76	34.35	38.52	35.34	29.54	26.8	25.59	25.63	25.99	21.21	20.29	23.24	13.03	12.3	9.92	2	0.2	0
Reflection Coefficient (1 to 4, 2.56 typical)	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56
Power Density (mW/cm²)	0.00	0.01	0.00	0.00	0.02	0.03	0.03	0.03	0.02	0.05	0.04	0.02	0.11	0.07	0.06	0.09	0.09	0.02
Percent of Occupational Standard	0.1	0.1	0.0	0.1	0.3	0.5	0.6	0.5	0.4	0.9	0.9	0.3	2.2	1.5	1.1	1.8	1.7	0.5
Percent of General Population Standard	0.4	0.7	0.2	0.4	1.5	2.6	3.0	2.5	1.9	4.6	4.3	1.6	10.8	7.3	5.7	8.9	8.6	2.3

Antenna Type: SBNHH-1D65B
Max%: 10.77%

Instructions:

- 1) Fill in Site Location, Site number, Date, Name of Person Responsible for Date, and enter File Name to be saved as.
- 2) References to J4 refer to a point where the transmission line exits the equipment shelter and proceeds to the antenna(s). There is typically a connector located here where power measurements are made.
- 3) Enter Antenna Height (in feet to bottom of antenna), Antenna Gain (expressed as dBi, add 2.17 to dBd to obtain dBi), Antenna Size (vertical size in inches), Downtilt (in Degrees, enter zero if none), Feedline loss from J4 to Antenna, and J4 Power Density.
- 4) From manufacturer's plots, or data sheet, input Angle from mainbeam and dB below mainbeam centerline.
- 5) Enter Reflection coefficient (2.56 would be typical, 1 for free space)
- 6) Spreadsheet calculates actual power density, then relates as Occupational or General Population percentage of FCC Standard.
- 7) An odd distance may be entered in the rightmost column of the lower table.

ATTACHMENT 7

October 3, 2017

Via Certificate of Mailing

Erin E. Stewart, Mayor
City of New Britain
27 West Main Street
New Britain, CT 06051

Re: **Proposed Shared Use of an Existing Telecommunications Facility at 365 Hartford Road, New Britain, Connecticut**

Dear Mayor Stewart:

This firm represents Cellco Partnership d/b/a Verizon Wireless (“Cellco”). Today, Cellco filed a Sub-Petition for Declaratory Ruling (“Sub-Petition”) with the Connecticut Siting Council (“Council”) seeking approval to share the City-owned existing telecommunications facility at 365 Hartford Road in New Britain (the “Property”). Cellco intends to install twelve (12) antennas and nine (9) remote radio heads on an antenna platform at a height of 60 feet above ground level. Equipment associated with Cellco’s antennas, a battery cabinet and a diesel-fueled back-up generator will be located on a steel platform installed near the base of the tower, within the existing facility compound.

As presented in the Sub-Petition, the proposed facility modifications at the Property constitute an eligible facility request pursuant to Section 6409(a) of the Federal Middle Class Tax Relief and Job Creation act of 2012 (47 U.S.C. § 1455(a)) and the October 21, 2014 Order of the Federal Communications Commission (FCC-14-533). A copy of the full Sub-Petition is attached for your review. Landowners whose property abuts the Property were also sent notice of this filing along with a copy of the Sub-Petition.

16680915-v1

Robinson + Cole

Erin E. Stewart, Mayor
October 3, 2017
Page 2

Pursuant to its decision in Petition No. 1133, comments or concerns regarding this proposal should be submitted to the Council within thirty (30) days of the date of the attached Sub-Petition.

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

Sincerely,

A handwritten signature in black ink, appearing to read "Kenneth C. Baldwin", with a stylized flourish at the end.

Kenneth C. Baldwin

Attachment

October 3, 2017

Via Certificate of Mailing

Sergio Lupo, Director of Building
City of New Britain
27 West Main Street
New Britain, CT 06051

Re: Proposed Shared Use of an Existing Telecommunications Facility at 365 Hartford Road, New Britain, Connecticut

Dear Mr. Lupo:

This firm represents Cellco Partnership d/b/a Verizon Wireless (“Cellco”). Today, Cellco filed a Sub-Petition for Declaratory Ruling (“Sub-Petition”) with the Connecticut Siting Council (“Council”) seeking approval to share the City-owned existing telecommunications facility at 365 Hartford Road in New Britain (the “Property”). Cellco intends to install twelve (12) antennas and nine (9) remote radio heads on an antenna platform at a height of 60 feet above ground level. Equipment associated with Cellco’s antennas, a battery cabinet and a diesel-fueled back-up generator will be located on a steel platform installed near the base of the tower, within the existing facility compound.

As presented in the Sub-Petition, the proposed facility modifications at the Property constitute an eligible facility request pursuant to Section 6409(a) of the Federal Middle Class Tax Relief and Job Creation act of 2012 (47 U.S.C. § 1455(a)) and the October 21, 2014 Order of the Federal Communications Commission (FCC-14-533). A copy of the full Sub-Petition is attached for your review. Landowners whose property abuts the Property were also sent notice of this filing along with a copy of the Sub-Petition.

16680945-v1

Robinson + Cole

Sergio Lupo, Director of Building
October 3, 2017
Page 2

Pursuant to its decision in Petition No. 1133, comments or concerns regarding this proposal should be submitted to the Council within thirty (30) days of the date of the attached Sub-Petition.

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

Sincerely,

A handwritten signature in black ink, appearing to read "Kenneth C. Baldwin". The signature is fluid and cursive, with a long horizontal stroke at the end.

Kenneth C. Baldwin

Attachment

ATTACHMENT 8

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

October 3, 2017

Via Certificate of Mailing

«Name_and_Address»

Re: Proposed Shared Use of an Existing Telecommunications Facility at 365 Hartford Road, New Britain, Connecticut

Dear «Salutation»:

This firm represents Cellco Partnership d/b/a Verizon Wireless (“Cellco”). Today, Cellco filed a Sub-Petition for Declaratory Ruling (“Sub-Petition”) with the Connecticut Siting Council (“Council”) seeking approval to share the City-owned existing telecommunications facility at 365 Hartford Road in New Britain (the “Property”). Cellco intends to install twelve (12) antennas and nine (9) remote radio heads on an antenna platform at a height of 60 feet above ground level. Equipment associated with Cellco’s antennas, a battery cabinet and a diesel-fueled back-up generator will be located on a steel platform installed near the base of the tower, within the existing facility compound.

As presented in the Sub-Petition, the proposed facility modifications at the Property constitute an eligible facility request pursuant to Section 6409(a) of the Federal Middle Class Tax Relief and Job Creation act of 2012 (47 U.S.C. § 1455(a)) and the October 21, 2014 Order of the Federal Communications Commission (FCC-14-533). A copy of the full Sub-Petition is attached for your review.

October 3, 2017

Page 2

Pursuant to its decision in Petition No. 1133, comments or concerns regarding this proposal should be submitted to the Council within thirty (30) days of the date of the attached Sub-Petition.

This notice is being sent to you because you are listed as an owner of land that abuts the Property. If you have any questions regarding the Sub-Petition, the Council's process for reviewing the Sub-Petition or the details of the filing itself, please feel free to contact me at the number listed above. You may also contact the Council directly at 860-827-2935.

Sincerely,

A handwritten signature in black ink, appearing to read "Kenneth C. Baldwin". The signature is fluid and cursive, with a long horizontal stroke at the end.

Kenneth C. Baldwin

Attachment

CELLCO PARTNERSHIP D/B/A VERIZON WIRELESS

ABUTTERS LIST

**245 HARTFORD ROAD
NEW BRITAIN, CONNECTICUT**

NEW BRITAIN

	<u>Property Address</u>	<u>Owner and Mailing Address</u>
1.	475 Hartford Road	NB – BTMC LLC c/o Target Corp. T1289 Property Tax P.O. Box 9456 TPN0950 Minneapolis, MN 55440-9456
2.	405 Hartford Road	Costco Wholesale Corporation c/o Property Tax Dept. 1196 999 Lake Drive Issaquah, WA 98027
3.	2233 Stanley Street	City of New Britain – Park 27 West Main Street New Britain, CT 06051
4.	171 Hartford Road	Elk Fairway LLC 489 Fifth Avenue, 7 th Floor New York, NY 10017
5.	60 Hartford Road	City of New Britain – Fire Station 27 West Main Street New Britain, CT 06051
6.	2056 Stanley Street	Salza Enterprises LLC 2056 Stanley Street New Britain, CT 06053
7.	2086 Stanley Street	New Country Club Estates LLC 2086 Stanley Street New Britain, CT 06053
8.	2045 Stanley Street	Monty Bagdigian Est. Alice Bagdigian Exec. Problem Deed 15 Dunham Lane Farmington, CT 06032

	<u>Property Address</u>	<u>Owner and Mailing Address</u>
9.	22 Drury Lane	Mylene N. Largent 22 Drury Lane New Britain, CT 06053
10.	34 Drury Lane	Mark Degrandis 292 Monroe Street New Britain, CT 06052
11.	190 Sunny Slope Drive	City of New Britain 27 West Main Street New Britain, CT 06051
12.	31 Par Drive	Larry M. and Regina Lynch 31 Par Drive New Britain, CT 06053
13.	27 Par Drive	Sharon M. Delaney 27 Par Drive New Britain, CT 06053
14.	21 Par Drive	Krystyna and Tadeusz I Palewicz Kristof J. and Darek Palewicz 21 Par Drive New Britain, CT 06053
15.	15 Par Drive	Mary J. and Michael Gilbert 15 Par Drive New Britain, CT 06053
16.	90 Golf Boulevard	John R. and Bozena Matthieu 90 Golf Boulevard New Britain, CT 06053
17.	76 Golf Boulevard	Craig Hurd and Heather Cabral 1304 Naples Road Harrison, ME 04040
18.	60 Golf Boulevard	Susan B. Weber 60 Golf Boulevard New Britain, CT 06053
19.	48 Golf Boulevard	Patricia Misko 48 Golf Boulevard New Britain, CT 06053

	<u>Property Address</u>	<u>Owner and Mailing Address</u>
20.	156 Fairway Drive	Russell P. Carter and Tiffany Sterns 206 Kemble Road Baltimore, MD 21218
21.	150 Barbour Road	Edward J. Salgado 150 Barbour Road New Britain, CT 06053
22.	173 Fairway Drive	Donald and Phyllis Naples 143 Fairway Drive New Britain, CT 06053
23.	181 Fairway Drive	Matthew V. Dunham 181 Fairway Drive New Britain, CT 06053
24.	187 Fairway Drive	Catherine A. Feddor and Mary Feddor-Lebel 187 Fairway Drive New Britain, CT 06053
25.	195 Fairway Drive	William R. White, Jr. and Stephen P. Michelsson, Jr. 195 Fairway Drive New Britain, CT 06053
26.	203 Fairway Drive	Donald S. McCue P.O. Box 265 New Britain, CT 06050
27.	207 Fairway Drive	Donald J. Perrotta 207 Fairway Drive New Britain, CT 06053
28.	215 Fairway Drive	Anthony and Stella Wiater 215 Fairway Drive New Britain, CT 06053
29.	229 Fairway Drive	Roger L. Bogdan and Lucia Dranginis 277 Main Street, Apt. B3 Farmington, CT 06032
30.	235 Fairway Drive	Joseph J., Maryann and Gregory Forgione 235 Fairway Drive New Britain, CT 06053

	<u>Property Address</u>	<u>Owner and Mailing Address</u>
31.	243 Fairway Drive	Brian J. Tanguay 243 Fairway Drive New Britain, CT 06053
32.	249 Fairway Drive	James Bogdan 249 Fairway Drive New Britain, CT 06053
33.	255 Fairway Drive	Joanna S. Abramek and Marcin P. Pogonski 255 Fairway Drive New Britain, CT 06053
34.	263 Fairway Drive	Halina Popczak 263 Fairway Drive New Britain, CT 06053
35.	281 Fairway Drive	Henry S., Christine and David Milewski 281 Fairway Drive New Britain, CT 06053
36.	276 Fairway Drive	Henry K. and Anna Kurzyna 276 Fairway Drive New Britain, CT 06053
37.	282 Fairway Drive	Tashai and Floyd Bookal 282 Fairway Drive New Britain, CT 06053
38.	290 Fairway Drive	Peter E. and Kellie J. Maliszewski 290 Fairway Drive New Britain, CT 06053
39.	300 Barbour Road	Stanislaw and Grazyna Stachura 300 Barbour Road New Britain, CT 06053
40.	308 Barbour Road	Timothy J. Cummings, Jr. 308 Barbour Road New Britain, CT 06053
41.	316 Barbour Road	Philip A. Cormier 316 Barbour Road New Britain, CT 06053

	<u>Property Address</u>	<u>Owner and Mailing Address</u>
42.	324 Barbour Road	Denise and Clarence Woods 324 Barbour Road New Britain, CT 06053
43.	332 Barbour Road	Vincent Santoro 332 Barbour Road New Britain, CT 06053
44.	26 Volpe Court	William and Kathleen Oreilly 26 Volpe Court New Britain, CT 06053
45.	32 Volpe Court	Jerzy and Elzbieta Poniatowski 32 Volpe Court New Britain, CT 06053
46.	38 Volpe Court	William and Barbara Grim 38 Volpe Court New Britain, CT 06053
47.	29 Volpe Court	State of Connecticut – DOT 2800 Berlin Turnpike Newington, CT 06031
48.	33 Volpe Court	State of Connecticut – DOT 2800 Berlin Turnpike Newington, CT 06031

NEWINGTON

	<u>Property Address</u>	<u>Owner and Mailing Address</u>
1.	245 Hartford Road	City of New Britain Costco Wholesale Corp./New Britain Property Tax Dept. 1196 999 Lake Drive Issaquah, WA 98027
2.	412 Ella Grasso Boulevard	Connecticut State University System 450 Capitol Avenue Hartford, CT 06106