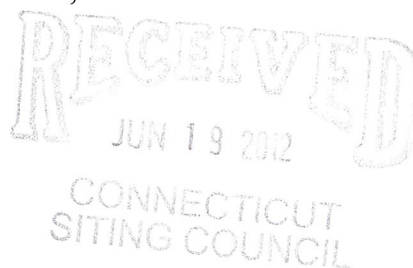


280 Trumbull Street  
 Hartford, CT 06103-3597  
 Main (860) 275-8200  
 Fax (860) 275-8299  
 kbaldwin@rc.com  
 Direct (860) 275-8345

ORIGINAL

June 18, 2012



Linda Roberts  
 Executive Director  
 Connecticut Siting Council  
 10 Franklin Square  
 New Britain, CT 06051

Re: **Notice of Exempt Modification – Antenna Swap**  
**175 Cocomo Circle (a/k/a 167 Lester Street), New Britain, Connecticut**

Dear Ms. Roberts:

Cellco Partnership d/b/a Verizon Wireless (“Cellco”) currently maintains twelve (12) wireless telecommunications antennas at the 145-foot level of the existing 188-foot tower at the above-referenced address. The tower and underlying property are owned by Crown Castle. The Council approved Cellco’s shared use of this tower in 2001. Cellco now intends to replace its six (6) existing cellular antennas with six (6) model LPA-80063-6CF cellular antennas, at the same 145-foot level. Attached behind Tab 1 are the specifications for the replacement antennas.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Timothy O’Brien, Mayor for the City of New Britain

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

1. The proposed modifications will not result in an increase in the height of the existing tower. Cellco’s replacement antennas will be located at the 145-foot level on the 188-foot tower.

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



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Linda Roberts  
June 18, 2012  
Page 2


3. The proposed modifications will not increase noise levels at the facility by six decibels or more.

4. The operation of the replacement antennas will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) adopted safety standard. A cumulative power density table for Cellco's modified facility is included behind Tab 2.

Also attached is a Structural Analysis Report confirming that the tower and foundation can support Cellco's proposed modifications. (See Tab 3).

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

Sincerely,



Kenneth C. Baldwin

Enclosures

Copy to:

Timothy O'Brien, New Britain Mayor  
Sandy M. Carter



## LPA-80063-6CF-EDIN-X

V-Pol | Log Periodic | 63° | 14.5 dBd

Replace "X" with desired electrical downtilt.

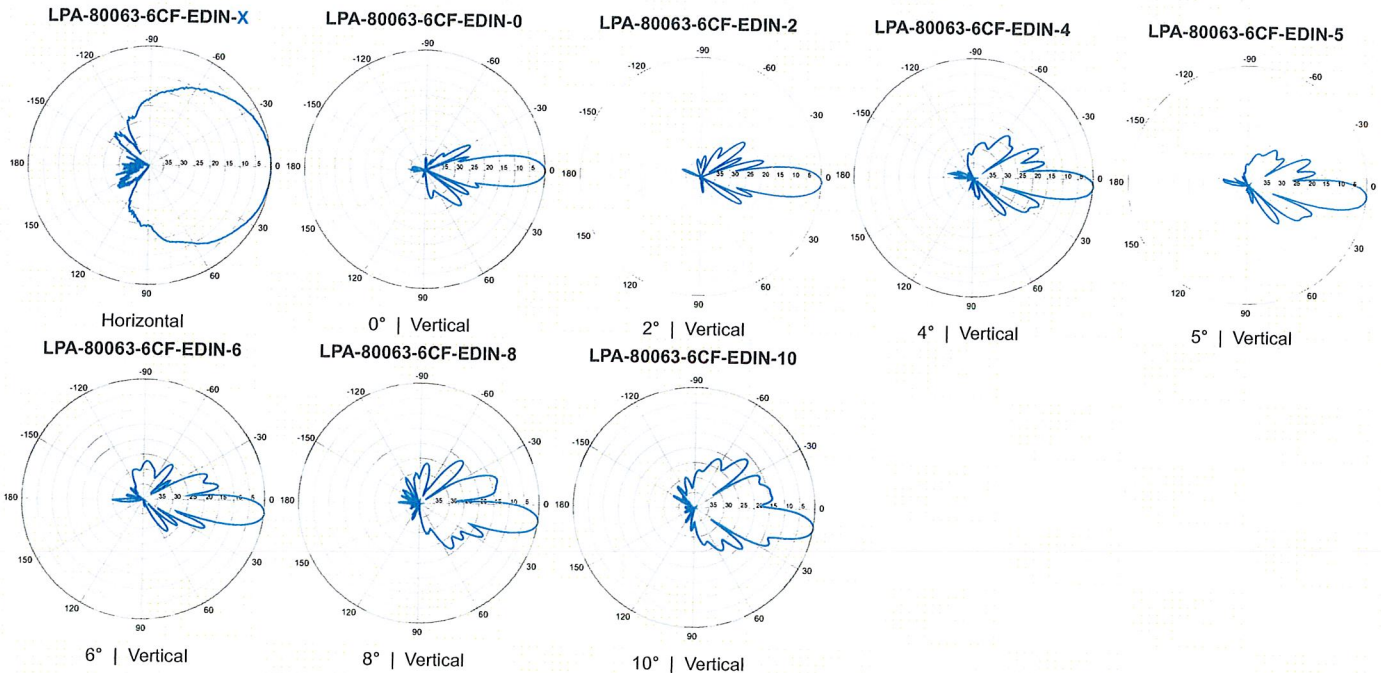
Antenna is also available with NE connector(s). Replace "EDIN" with "NE" in the model number when ordering.

Electrical Characteristics	
Frequency bands	806-960 MHz
Polarization	Vertical
Horizontal beamwidth	63°
Vertical beamwidth	10°
Gain	14.5 dBd (16.6 dBi)
Electrical downtilt (X)	0, 2, 4, 5, 6, 8, 10
Impedance	50Ω
VSWR	≤1.4:1
Null fill	5% (-26.02 dB)
Input power	500 W
Lightning protection	Direct Ground
Connector(s)	1 Port / EDIN or NE / Female / Center (Back)

Mechanical Characteristics			
Dimensions Length x Width x Depth	1805 x 385 x 332 mm	71.1 x 15.2 x 13.1 in	
Depth of antenna with z-bracket	372 mm	14.6 in	
Weight without mounting brackets	12.3 kg	27 lbs	
Survival wind speed	> 201 km/hr	> 125 mph	
Wind area	Front: 0.70 m <sup>2</sup> Side: 0.59 m <sup>2</sup>	Front: 7.5 ft <sup>2</sup> Side: 6.3 ft <sup>2</sup>	
Wind load @ 161 km/hr (100 mph)	Front: 885 N Side: 757 N	Front: 199 lbf Side: 170 lbf	

Mounting Options	Part Number	Fits Pipe Diameter	Weight
3-Point Mounting & Downtilt Bracket Kit (0-20°)	21700000	50-102 mm 2.0-4.0 in	11 kg 25 lbs

If the lock-down brace is used, the maximum diameter of the mounting pipe is 88.9 mm or 3.5 in.



Quoted performance parameters are provided to offer typical or range values only and may vary as a result of normal manufacturing and operational conditions. Extreme operational conditions and/or stress on structural supports is beyond our control. Such conditions may result in damage to this product. Improvements to product may be made without notice.

New Britain 3

		General		Power		Density					
Site Name: Darbury 2											
Tower Height: Verizon @ 145Ft.											
CARRIER	# OF CHAN.	WATTS ERP	HEIGHT	CALC. POWER DENS	FREQ.	MAX. PERMISS. EXP.	FRACTION IMPE	Total			
*Cingular GSM	5	427	186	0.0222	1900	1.0000	2.22%				
*Cingular UMTS	1	500	186	0.0052	880	0.5867	0.89%				
*T-Mobile GSM	8	195	162	0.0214	1945	1.0000	2.14%				
*T-Mobile UMTS	2	778	163	0.0211	2100	1.0000	2.11%				
Verizon PCS	7	208	145	0.0249	1970	1.0000	2.49%				
Verizon Cellular	9	390	145	0.0600	869	0.5793	10.36%				
Verizon AWS	1	521	145	0.0089	2145	1.0000	0.89%				
Verizon 700	1	644	145	0.0110	698	0.4653	2.37%				
								23.46%			
* Source: Siting Council											

Date: April 20, 2012



Veronica Harris  
Crown Castle  
1200 McArthur Boulevard  
Mahwah, NJ 07430  
(201) 236-9094

Vertical Structures, Inc  
309 Spangler Drive, Suite E  
Richmond, KY 40475  
(859) 624-8360  
csandlin@verticalstructures.com

**Subject: Structural Analysis Report**

**Carrier Designation:**

**Verizon Wireless Change-Out**

**Carrier Site Number:**

119668

**Carrier Site Name:**

New Britain 3 CT

**Crown Castle Designation:**

**Crown Castle BU Number:**

803175

**Crown Castle Site Name:**

CT NEW BRITAIN 3

CAC 803175

**Crown Castle JDE Job Number:**

183823

**Crown Castle Work Order Number:**

484302

**Crown Castle Application Number:**

146587 Rev. 1

**Engineering Firm Designation:**

**Vertical Structures, Inc Project Number:**

2012-004-022

**Site Data:**

**Lester Road, New Britain, CT, Hartford County**  
**Latitude 41° 41' 11.8", Longitude -72° 45' 27.8"**  
**188 Foot - Monopole Tower**

Dear Veronica Harris,

Vertical Structures, Inc is pleased to submit this "Structural Analysis Report" to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 459637.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

**LC7: Existing + Reserved + Proposed Equipment**

Note: See Table I and Table II for the proposed and existing/reserved loading, respectively.

**Sufficient Capacity**

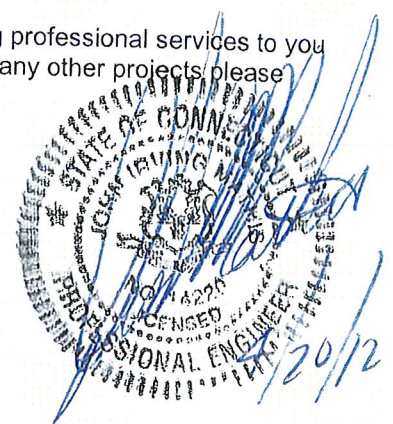
The analysis has been performed in accordance with the TIA/EIA-222-F standard and the 2005 Connecticut State Building Code based upon a wind speed of 80 mph fastest mile.

All modifications and equipment proposed in this report shall be installed in accordance with the attached drawings for the determined available structural capacity to be effective.

We at Vertical Structures, Inc appreciate the opportunity of providing our continuing professional services to you and Crown Castle. If you have any questions or need further assistance on this or any other projects please give us a call.

Respectfully submitted by:

Chris Sandlin, P.E.  
Project Engineer



**1) INTRODUCTION**

This tower is a 188 ft Monopole tower designed by Summit in 2000. The tower was originally designed for a wind speed of 85 mph per TIA/EIA-222-F.

**2) ANALYSIS CRITERIA**

The structural analysis was performed for this tower in accordance with the requirements of TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a fastest mile wind speed of 80 mph with no ice and 50 mph under service loads. Also, per Crown Castle's direction and in accordance with ASCE-7-05 we have considered a fastest mile wind speed of 38 mph with an escalating 1.0 inch ice thickness.

**Table 1 - Proposed Antenna and Cable Information**

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
145.0	145.0	6	antel	LPA-80063-6CF-EDIN w/ Mount Pipe			

### 3) ANALYSIS PROCEDURE

**Table 4 - Documents Provided**

Document	Remarks	Reference	Source
Online Application	Verizon Wireless Change-Out Revision #1	146587	CCI iSite
Tower Drawing	Summit Job No. 29200-1787	679659	CCI iSite
Foundation Drawing	TEP Project No. 100063/Summit Job No. 29200-1787	679660	CCI iSite
Geotechnical Report	CHA Project No. 8961.07.46	679661	CCI iSite

#### 3.1) Analysis Method

tnxTower (version 6.0.4.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. Crown Castle's CCIplate 1.5 analysis tool was used to evaluate the anchor bolts, base plate, and any flange splices.

#### 3.2) Assumptions

- 1) Tower and structures were built in accordance with the manufacturer's specifications.
- 2) The tower and structures have been maintained in accordance with the manufacturer's specification.
- 3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
- 4) When applicable, transmission cables are considered as structural components for calculating wind loads as allowed by TIA/EIA-222-F.

This analysis may be affected if any assumptions are not valid or have been made in error. Vertical Structures, Inc should be notified to determine the effect on the structural integrity of the tower.

**APPENDIX A**  
**TNXTOWER OUTPUT**



<b>tnxTower</b>  <b>Vertical Structures, Inc</b> 309 Spangler Drive, Suite E Richmond, KY 40475 Phone: (859) 624-8360 FAX: (859) 624-8369	<b>Job</b> New Britain 3, CT BU#803175	<b>Page</b> 1 of 9
	<b>Project</b> Vertical Structures Job No. 2012-004-022	<b>Date</b> 16:28:53 04/20/12
	<b>Client</b> Crown Castle	<b>Designed by</b> csandlin

## Tower Input Data

There is a pole section.

This tower is designed using the TIA/EIA-222-F standard.

The following design criteria apply:

Tower is located in Hartford County, Connecticut.

Basic wind speed of 80 mph.

Nominal ice thickness of 1.0000 in.

Ice thickness is considered to increase with height.

Ice density of 56 pcf.

A wind speed of 38 mph is used in combination with ice.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 50 mph.

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

Pressures are calculated at each section.

Stress ratio used in pole design is 1.333.

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

## Options

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

## 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	188.00-137.00	51.00	4.25	18	22.0000	32.7110	0.2500	1.0000	A607-65 (65 ksi)
L2	137.00-90.25	51.00	5.25	18	31.3184	42.0300	0.3125	1.2500	A607-65 (65 ksi)
L3	90.25-44.50	51.00	6.50	18	40.3023	51.0140	0.3750	1.5000	A607-65 (65 ksi)
L4	44.50-0.00	51.00		18	48.8988	59.6100	0.5000	2.0000	A607-65 (65 ksi)

<b>tnxTower</b>  <b>Vertical Structures, Inc</b> 309 Spangler Drive, Suite E Richmond, KY 40475 Phone: (859) 624-8360 FAX: (859) 624-8369	<b>Job</b> New Britain 3, CT BU#803175	<b>Page</b> 3 of 9
	<b>Project</b> Vertical Structures Job No. 2012-004-022	<b>Date</b> 16:28:53 04/20/12
	<b>Client</b> Crown Castle	<b>Designed by</b> csandlin

### Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	$A_R$ ft <sup>2</sup>	$A_F$ ft <sup>2</sup>	$C_A A_A$ In Face ft <sup>2</sup>	$C_A A_A$ Out Face ft <sup>2</sup>	Weight lb
L1	188.00-137.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	991.44
L2	137.00-90.25	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	1900.86
L3	90.25-44.50	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	1860.19
L4	44.50-0.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	1484.09

### Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	$A_R$ ft <sup>2</sup>	$A_F$ ft <sup>2</sup>	$C_A A_A$ In Face ft <sup>2</sup>	$C_A A_A$ Out Face ft <sup>2</sup>	Weight lb
L1	188.00-137.00	A	1.210	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	991.44
L2	137.00-90.25	A	1.159	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	1900.86
L3	90.25-44.50	A	1.089	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	1860.19
L4	44.50-0.00	A	1.000	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	1484.09

### Feed Line Center of Pressure

Section	Elevation ft	$CP_x$ in	$CP_z$ in	$CP_x$ Ice in	$CP_z$ Ice in
L1	188.00-137.00	0.0000	0.0000	0.0000	0.0000
L2	137.00-90.25	0.0000	0.0000	0.0000	0.0000
L3	90.25-44.50	0.0000	0.0000	0.0000	0.0000
L4	44.50-0.00	0.0000	0.0000	0.0000	0.0000

### Discrete Tower Loads

<b>inxTower</b>  <b>Vertical Structures, Inc</b> 309 Spangler Drive, Suite E Richmond, KY 40475 Phone: (859) 624-8360 FAX: (859) 624-8369	Job	New Britain 3, CT BU#803175	Page	5 of 9
	Project	Vertical Structures Job No. 2012-004-022	Date	16:28:53 04/20/12
	Client	Crown Castle	Designed by	csandlin

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	Placement	C <sub>AA</sub> Front	C <sub>AA</sub> Side	Weight
			ft ft ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	lb
w/ Mount Pipe		Centroid-Leg	5.00 -1.00			1/2" Ice 9.49 1" Ice 10.21 2" Ice 11.60 4" Ice 14.51 No Ice 8.73	7.82 8.94 10.87 14.94 6.54	142.07 219.11 400.49 910.26 77.70
AM-X-CD-16-65-00T-RET w/ Mount Pipe	B	From Centroid-Leg	3.50 5.00 -1.00	-10.0000	190.00	1/2" Ice 9.49 1" Ice 10.21 2" Ice 11.60 4" Ice 14.51 No Ice 8.73	7.82 8.94 10.87 14.94 6.54	142.07 219.11 400.49 910.26 77.70
AM-X-CD-16-65-00T-RET w/ Mount Pipe	C	From Centroid-Leg	3.50 5.00 -1.00	-10.0000	190.00	1/2" Ice 9.49 1" Ice 10.21 2" Ice 11.60 4" Ice 14.51 No Ice 8.73	7.82 8.94 10.87 14.94 6.54	142.07 219.11 400.49 910.26 77.70
DC6-48-60-18-8F	A	From Centroid-Leg	3.50 5.00 -1.00	-20.0000	190.00	1/2" Ice 9.49 1" Ice 10.21 2" Ice 11.60 4" Ice 14.51 No Ice 2.57	7.82 8.94 10.87 14.94 4.32	142.07 219.11 400.49 910.26 18.90
Side Arm Mount [SO 102-3]	C	None		0.0000	187.00	1/2" Ice 2.80 1" Ice 3.04 2" Ice 3.54 4" Ice 4.66 No Ice 3.00	4.60 4.88 5.49 6.80 3.00	50.21 85.17 166.87 382.77 81.00
(2) RRUS-11 BTS	A	From Centroid-Leg	2.00 0.00 0.00	-20.0000	187.00	1/2" Ice 3.48 1" Ice 3.96 2" Ice 4.92 4" Ice 6.84 No Ice 4.42	3.48 3.96 4.92 6.84 1.19	111.00 141.00 201.00 321.00 55.00
(2) RRUS-11 BTS	B	From Centroid-Leg	2.00 0.00 0.00	-10.0000	187.00	1/2" Ice 4.71 1" Ice 5.00 2" Ice 5.61 4" Ice 6.94 No Ice 4.42	1.35 1.53 1.90 2.75 1.19	80.77 109.98 179.45 368.09 55.00
(2) RRUS-11 BTS	C	From Centroid-Leg	2.00 0.00 0.00	-10.0000	187.00	1/2" Ice 4.71 1" Ice 5.00 2" Ice 5.61 4" Ice 6.94 No Ice 4.42	1.35 1.53 1.90 2.75 1.19	80.77 109.98 179.45 368.09 55.00
***						1/2" Ice 4.71 1" Ice 5.00 2" Ice 5.61 4" Ice 6.94	1.35 1.53 1.90 2.75	80.77 109.98 179.45 368.09
Platform Mount [LP 601-1]	A	None		0.0000	177.00	No Ice 28.47 1/2" Ice 33.59 1" Ice 38.71 2" Ice 48.95 4" Ice 69.43	28.47 33.59 38.71 48.95 69.43	1122.00 1513.66 1905.31 2688.62 4255.25
(2) 8'x2" Antenna Mount Pipe	A	From Centroid-Face	3.50 0.00 0.00	0.0000	177.00	No Ice 1.90 1/2" Ice 2.73 1" Ice 3.40 2" Ice 4.40 4" Ice 6.50	1.90 2.73 3.40 4.40 6.50	26.00 40.34 59.96 115.66 297.15
(2) 8'x2" Antenna Mount Pipe	B	From Centroid-Face	3.50 0.00 0.00	0.0000	177.00	No Ice 1.90 1/2" Ice 2.73 1" Ice 3.40 2" Ice 4.40 4" Ice 6.50	1.90 2.73 3.40 4.40 6.50	26.00 40.34 59.96 115.66 297.15
(2) 8'x2" Antenna Mount Pipe	C	From Centroid-	3.50 0.00	0.0000	177.00	No Ice 1.90 1/2" Ice 2.73	1.90 2.73	26.00 40.34

<b>tnxTower</b>  <b>Vertical Structures, Inc</b> 309 Spangler Drive, Suite E Richmond, KY 40475 Phone: (859) 624-8360 FAX: (859) 624-8369	<b>Job</b> New Britain 3, CT BU#803175	<b>Page</b> 7 of 9
	<b>Project</b> Vertical Structures Job No. 2012-004-022	<b>Date</b> 16:28:53 04/20/12
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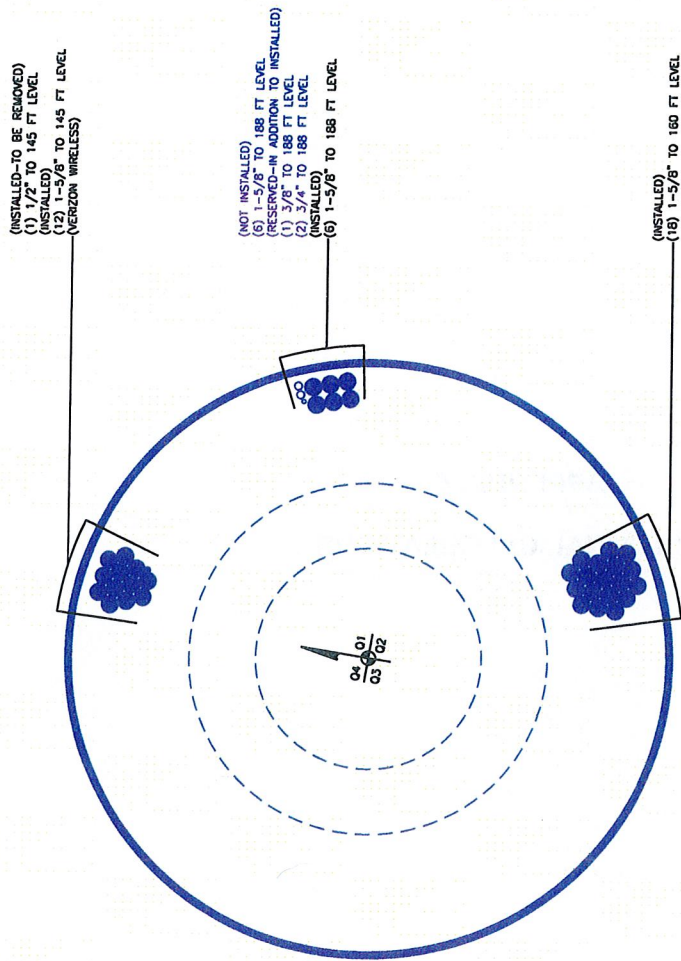
Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C <sub>AA</sub> Front ft <sup>2</sup>	C <sub>AA</sub> Side ft <sup>2</sup>	Weight lb	
BXA-185090/8CFx2 w/ Mount Pipe (VSI)	A	From Centroid-Face	3.30 1.20 0.00	20.0000	145.00	1" Ice	38.71	38.71	1905.31
						2" Ice	48.95	48.95	2688.62
						4" Ice	69.43	69.43	4255.25
						No Ice	3.87	4.04	40.20
						1/2" Ice	4.59	5.17	76.74
						1" Ice	5.27	6.15	123.93
						2" Ice	6.52	7.78	239.51
BXA-185090/8CFx2 w/ Mount Pipe (VSI)	B	From Centroid-Face	3.30 1.20 0.00	20.0000	145.00	4" Ice	9.19	11.41	593.34
						No Ice	3.87	4.04	40.20
						1/2" Ice	4.59	5.17	76.74
						1" Ice	5.27	6.15	123.93
						2" Ice	6.52	7.78	239.51
						4" Ice	9.19	11.41	593.34
						No Ice	3.87	4.04	40.20
BXA-185090/8CFx2 w/ Mount Pipe (VSI)	C	From Centroid-Face	3.30 1.20 0.00	20.0000	145.00	1/2" Ice	4.59	5.17	76.74
						1" Ice	5.27	6.15	123.93
						2" Ice	6.52	7.78	239.51
						4" Ice	9.19	11.41	593.34
						No Ice	3.87	4.04	40.20
						1/2" Ice	4.59	5.17	76.74
						1" Ice	5.27	6.15	123.93
LNX-6512DS-T4M w/Mount Pipe	A	From Centroid-Face	3.30 1.20 0.00	20.0000	145.00	4" Ice	9.19	11.41	593.34
						No Ice	6.31	5.01	53.75
						1/2" Ice	7.02	6.10	104.24
						1" Ice	7.61	6.91	165.19
						2" Ice	8.81	8.56	309.23
						4" Ice	11.38	12.09	720.18
						No Ice	6.31	5.01	53.75
LNX-6512DS-T4M w/Mount Pipe	B	From Centroid-Face	3.30 1.20 0.00	20.0000	145.00	1/2" Ice	7.02	6.10	104.24
						1" Ice	7.61	6.91	165.19
						2" Ice	8.81	8.56	309.23
						4" Ice	11.38	12.09	720.18
						No Ice	6.31	5.01	53.75
						1/2" Ice	7.02	6.10	104.24
						1" Ice	7.61	6.91	165.19
LNX-6512DS-T4M w/Mount Pipe	C	From Centroid-Face	3.30 1.20 0.00	20.0000	145.00	4" Ice	11.38	12.09	720.18
						No Ice	6.31	5.01	53.75
						1/2" Ice	7.02	6.10	104.24
						1" Ice	7.61	6.91	165.19
						2" Ice	8.81	8.56	309.23
						4" Ice	11.38	12.09	720.18
						No Ice	6.31	5.01	53.75
(2) FD9R6004/2C-3L Diplexer	A	From Centroid-Face	3.30 1.20 0.00	20.0000	145.00	4" Ice	11.38	12.09	720.18
						No Ice	0.37	0.08	3.10
						1/2" Ice	0.45	0.14	5.40
						1" Ice	0.54	0.20	8.79
						2" Ice	0.75	0.34	19.61
						4" Ice	1.28	0.74	62.87
						No Ice	0.37	0.08	3.10
(2) FD9R6004/2C-3L Diplexer	B	From Centroid-Face	3.30 1.20 0.00	20.0000	145.00	1/2" Ice	0.45	0.14	5.40
						1" Ice	0.54	0.20	8.79
						2" Ice	0.75	0.34	19.61
						4" Ice	1.28	0.74	62.87
						No Ice	0.37	0.08	3.10
						1/2" Ice	0.45	0.14	5.40
						1" Ice	0.54	0.20	8.79
(2) FD9R6004/2C-3L Diplexer	C	From Centroid-Face	3.30 1.20 0.00	20.0000	145.00	4" Ice	1.28	0.74	62.87
						No Ice	0.37	0.08	3.10
						1/2" Ice	0.45	0.14	5.40
						1" Ice	0.54	0.20	8.79
						2" Ice	0.75	0.34	19.61
						4" Ice	1.28	0.74	62.87
						No Ice	0.37	0.08	3.10
(2) LPA-80063-6CF-EDIN w/ Mount Pipe	A	From Centroid-Face	3.30 1.20 0.00	20.0000	145.00	4" Ice	1.28	0.74	62.87
						No Ice	11.00	10.96	56.20
						1/2" Ice	11.78	12.33	148.99
						1" Ice	12.53	13.57	255.08
						2" Ice	13.95	15.70	496.44
						4" Ice	16.94	20.20	1133.72
						No Ice	11.00	10.96	56.20
(2) LPA-80063-6CF-EDIN w/ Mount Pipe	B	From Centroid-Face	3.30 1.20 0.00	20.0000	145.00	1/2" Ice	11.78	12.33	148.99
						1" Ice	12.53	13.57	255.08
						2" Ice	13.95	15.70	496.44
						4" Ice	16.94	20.20	1133.72
						No Ice	11.00	10.96	56.20
						1/2" Ice	11.78	12.33	148.99
						1" Ice	12.53	13.57	255.08
2" Ice	13.95	15.70	496.44						

<b>tnxTower</b>  <b>Vertical Structures, Inc</b> 309 Spangler Drive, Suite E Richmond, KY 40475 Phone: (859) 624-8360 FAX: (859) 624-8369	<b>Job</b> New Britain 3, CT BU#803175	<b>Page</b> 9 of 9
	<b>Project</b> Vertical Structures Job No. 2012-004-022	<b>Date</b> 16:28:53 04/20/12
	<b>Client</b> Crown Castle	<b>Designed by</b> csandlin

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L2	137 - 90.25 (2)	TP42.03x31.3184x0.3125	0.011	1.081	0.000	1.092 ✓	1.333	H1-3 ✓
L3	90.25 - 44.5 (3)	TP51.014x40.3023x0.375	0.013	1.077	0.000	1.090 ✓	1.333	H1-3 ✓
L4	44.5 - 0 (4)	TP59.61x48.8988x0.5	0.013	0.880	0.000	0.893 ✓	1.333	H1-3 ✓

### Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	SF*P <sub>allow</sub> lb	% Capacity	Pass Fail	
L1	188 - 137	Pole	TP32.711x22x0.25	1	-9708.84	1302250.30	56.9	Pass	
L2	137 - 90.25	Pole	TP42.03x31.3184x0.3125	2	-17805.70	2094289.54	82.0	Pass	
L3	90.25 - 44.5	Pole	TP51.014x40.3023x0.375	3	-28959.60	3048944.11	81.8	Pass	
L4	44.5 - 0	Pole	TP59.61x48.8988x0.5	4	-47451.90	4876780.30	67.0	Pass	
							Summary		
							Pole (L2)	82.0	Pass
							<b>RATING =</b>	<b>82.0</b>	<b>Pass</b>



BUSINESS UNIT: 003175 TOWER ID: C\_BASELEVEL

**BASE LEVEL DRAWING**

SHEET NUMBER  
1

SCALE  
1" = 1'-0"

A1-0

**BASE LEVEL**

SHEET TITLE

USA

HARTFORD COUNTY

NEW BRITAIN, CT 06050

LESTER ROAD

SITE ADDRESS

803175

BUSINESS UNIT NUMBER

NEW BRITAIN 3

SITE NAME

SITE NUMBER:

DRAWING DATE: 11/05/06

DRAWN BY: CDR

11/03/06

12/01/06

01/01/07

02/01/07

03/01/07

04/01/07

05/01/07

06/01/07

07/01/07

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11/01/08

12/01/08

01/01/09

02/01/09

03/01/09

04/01/09

05/01/09

06/01/09

07/01/09

08/01/09

09/01/09

10/01/09

CROWN REGION ADDRESS  
USA

# Square, Stiffened / Unstiffened Base Plate, Any Rod Material - Rev. F / G

- Assumptions:**
- 1) Rod groups at corners. Total # rods divisible by 4. Maximum total # of rods = 48 (12 per Corner).
  - 2) Rod Spacing = Straight Center-to-Center distance between any (2) adjacent rods (same corner)
  - 3) Clear space between bottom of leveling nut and top of concrete **not** exceeding (1)\*(Rod Diameter)

## Site Data

BU#:	803175	
Site Name:	New Britain 3, CT	
App #:	146587, Rev. 1	
<b>Anchor Rod Data</b>		
Qty:	20	
Diam:	2.25	in
Rod Material:	A615-J	
Yield, Fy:	75	ksi
Strength, Fu:	100	ksi
Bolt Circle:	67	in
Anchor Spacing:	6	in

## Plate Data

W=Side:	66	in
Thick:	3	in
Grade:	50	ksi
Clip Distance:	14.4	in

## Stiffener Data (Welding at both sides)

Configuration:	Unstiffened	
Weld Type:		**
Groove Depth:		in **
Groove Angle:		degrees
Fillet H. Weld:		<-- Disregard
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

## Pole Data

Diam:	59.61	in
Thick:	0.5	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round

## Stress Increase Factor

ASD ASIF:	1.333	
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\*\* Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

## Base Reactions

TIA Revision:	F	
Unfactored Moment, M:	3909.858	ft-kips
Unfactored Axial, P:	47.468	kips
Unfactored Shear, V:	29.408	kips

## Anchor Rod Results

TIA F --> Maximum Rod Tension	137.7 Kips
Allowable Tension:	195.0 Kips
Anchor Rod Stress Ratio:	70.6% <b>Pass</b>

## Base Plate Results

Base Plate Stress:	36.2 ksi	Flexural Check
Allowable PL Bending Stress:	50.0 ksi	
Base Plate Stress Ratio:	72.3% <b>Pass</b>	

<b>PL Ref. Data</b>	
Yield Line (in):	33.73
Max PL Length:	33.73

## N/A - Unstiffened

## Stiffener Results

Horizontal Weld :	N/A
Vertical Weld:	N/A
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	N/A
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	N/A
Plate Comp. (AISC Bracket):	N/A

## Pole Results

Pole Punching Shear Check:	N/A
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