Robinson+Cole

KENNETH C. BALDWIN

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Also admitted in Massachusetts

July 26, 2017

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

Re: **Notice of Exempt Modification – Facility Modification**
577 Bell Street, Glastonbury, Connecticut

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains twelve (12) wireless telecommunications antennas at the 102-foot level on an existing 104-foot tower at 577 Bell Street in Glastonbury, Connecticut (the "Property"). The tower is owned by Insite Wireless Group, LLC ("Insite"). The Council approved Cellco's use of the tower in 2011. Cellco now intends to modify its facility by replacing six (6) of its existing antennas with three (3) model SBNHH-1D65B, 700/2100 MHz antennas and three (3) model SBNHH-1D65B, 1900 MHz antennas, all at the same 102-foot level on the tower. Cellco also intends to replace three (3) of its existing remote radio heads ("RRHs") with three (3) newer model RRHs and install six (6) new RRHs. Included in Attachment 1 are specifications for Cellco's replacement antennas and RRHs.

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 notice is being sent to Richard M. Johnson, Glastonbury's Town Manager; Khara Dodds, Glastonbury's Director of Land Use and Planning Services; Insite, the tower owner; and 577 Bell Street LLC, the owner of the Property.

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

1. The proposed modifications will not result in an increase in the height of the

existing tower. Cellco's replacement antennas and RRHs will be installed at the 102-foot level on the existing 104-foot tower.

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

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

4. The 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) safety standard. A cumulative power density table for Cellco's modified facility is included in Attachment 2.

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

6. The tower and its foundation, with certain modifications, can support Cellco's proposed modifications. (*See* Post Modification Tower Structural Analysis included in Attachment 3).

A copy of the parcel map and property owner information is included in Attachment 4. A Certificate of Mailing verifying that this filing was sent to municipal officials and the owner of the Property is included in Attachment 5.

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

Sincerely,

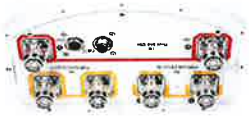
Kenneth C. Baldwin

Enclosures
Copy to:
Richard M. Johnson, Glastonbury Town Manager
Khara Dodds, Glastonbury Director of Land Use and Planning Services
Insite Wireless Group, LLC
577 Bell Street LLC
Tim Parks

ATTACHMENT 1

Product Specifications

COMMSCOPE®



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.

General Specifications

Antenna Type	Sector with internal RET
Band	Multiband
Brand	DualPol®
Operating Frequency Band	1695 – 2360 MHz | 698 – 896 MHz
Performance Note	Outdoor usage

Mechanical Specifications

Color	Light gray
Lightning Protection	dc Ground

Product Specifications

SBNHH-1D65B

Radiator Material	Aluminum | Low loss circuit board
Radome Material	Fiberglass, UV resistant
Reflector Material	Aluminum
RF Connector Interface	7-16 DIN Female
RF Connector Location	Bottom
RF Connector Quantity, total	6
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

Depth	180.0 mm | 7.1 in
Length	1851.0 mm | 72.9 in
Width	301.0 mm | 11.9 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

Depth	296.0 mm | 11.7 in
Length	2025.0 mm | 79.7 in
Width	390.0 mm | 15.4 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

Product Specifications

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.

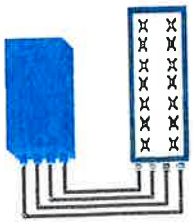
Its compactness and slim design makes the Alcatel-Lucent B13 RRH4x30-4R easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the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

Alcatel·Lucent

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.) Volume in L Weight in kg (lb) (w/o mounting HW)	550 x 305 x 230 (21.6" x 12.0" x 9") (with solar shield) 38 (with solar shield) 26 (57.2) (with solar shield)
DC voltage range DC power consumption	-40.5 to -57V at full performance, -38 to -57V with relaxation on power consumption 550W typical @100% RF load (in 2Tx or 4TX mode)
Environmental conditions Wind load (@150km/h or 93mph)	-40°C (-40°F) /+55°C (+131°F) IP65 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

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.

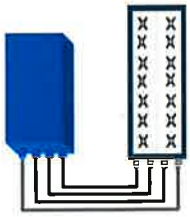
Its compactness and slim design makes the Alcatel-Lucent B25 RRH4x30 easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the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

Alcatel·Lucent

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) RX Diversity scheme	2.0 dB typ. (<2.5 dB max) 2 or 4 way Rx diversity
Sizes (HxWxD)(w/ solar shield) in mm (in.) Volume (w/ solar shield) in L Weight (w/ solar shield) in kg (lb)	538 x 304 x 182 (21.2" x 12.0" x 7.2") 30 24 (53)
DC voltage range DC power consumption	-40.5 to -57V at full performance, -38 to -57V with relaxation on power consumption 580W typical @100% RF load
Environmental conditions Wind load (@150km/h or 93mph)	-40°C (-40°F) /+55°C (+131°F) IP65 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

ATTACHMENT 2

	General	Power	Density					
Site Name: Manchester S (Glastonbury)								
Tower Height: 104Ft.								
CARRIER	**# OF CHAN.**	**WATTS ERP**	**HEIGHT**	**CALC. POWER DENS**	**FREQ.**	**MAX. PERMISS. EXP.**	**FRACTION MPE**	**Total**
*AT&T UMTS	2	817	90	1900	0.0833	1.0000	0.83%	
*AT&T UMTS	2	1239	90	700	0.1263	0.4667	2.71%	
*AT&T GSM	2	1876	90	1900	0.1912	1.0000	1.91%	
*AT&T GSM	2	971	90	850	0.0990	0.5667	1.75%	
*AT&T LTE	2	971	90	1900	0.0990	1.0000	0.99%	
*Cox	1	100	94	451	0.0046	0.3007	0.15%	
*Cox	6	100	70	452	0.0527	0.3013	1.75%	
Verizon PCS	**1**	**5000**	**102**	**0.1728**	**1970**	**1.0000**	**17.28%**	
Verizon Cellular	**9**	**414**	**102**	**0.1288**	**869**	**0.5793**	**22.23%**	
Verizon AWS	**1**	**7400**	**102**	**0.2557**	**2145**	**1.0000**	**25.57%**	
Verizon 700	**1**	**2200**	**102**	**0.0760**	**746**	**0.4973**	**15.29%**	
								90.46%
* Source: Siting Council								

ATTACHMENT 3

bennett&pless

Experience Structural Expertise

July 19, 2017

Ms. Mikala Mann
Insite Towers, LLC
1199 N. Fairfax St., Ste. 700
Alexandria, VA 22314

Re: Post Modification Tower Structural Analysis- Verizon Antenna Installation

Site Number:	CT901	**Site Address:**	577 Bell Street Glastonbury, CT
Site Name:	Glastonbury		
Tower Owner:	N/A	**Latitude:**	41.7338
Tower Type:	104-ft Self-Support Tower	**Longitude:**	-72.5497
Tower Status:	Acceptable (with Proposed Modifications) (94% Tower Capacity)	**B&P Job No:**	17004.002

We have completed our post modification structural analysis of the proposed equipment installation on the foregoing tower to determine its ability to support the new loads proposed by Verizon.

The following information was provided for our tower structural analysis:

- Tower: Member sizes and configuration were obtained from the previous structural analysis by the URS Corporation dated 9/7/2010. Previous modification drawings by Centek dated 2/22/12, post modification inspection report by ETS dated 3/31/16, and previous modification drawings by Bennett and Pless dated 4/29/16 and current modification drawings by Bennett and Pless dated 1/20/17 were also used.
- Foundation: Previous modification drawings and analysis by Centek dated 2/22/12
- Geotechnical: Previous modification drawings and analysis by Centek dated 2/22/12
- Antennas: Proposed antenna loading was obtained from the tenant application provided by Insite Towers, LLC dated 12/15/2015. Existing antenna loading was obtained from the structural analysis listed above.
- Other: General photographs of the tower

Table 1 summarizes the antenna, attachment, and transmission line loading proposed and Table 2 summarizes the design criteria used for our structural analysis. Attached is a copy of the structural calculations, which in addition to detailed results of the analysis also includes a tower profile with member sizes and configuration, and the existing/proposed equipment list with types and location.

Table 1 – Proposed Equipment Loading

Status	Antennas/Attachments					Transmission Lines	
	Carrier	Rad Center	Qty	Manufacturer	Model	# of Feed lines[2]	Feed line Size (in)
New RRH[1]	Verizon	102'	3	Alcatel Lucent	RRH 4x45 AWS	-	-
New RRH[1]			3	Alcatel Lucent	RRH 4x30 B25		
New RRH[1]			3	Alcatel Lucent	RRH 4x30 B13		
New Antenna			6	Andrew	SBNHH-1D65B		

[1]Note: Proposed (3) ALU RRH 4x45 AWS, (3) ALU RRH 4x30 B25 and (3) ALU RRH 4x30 B13 to replace existing (3) ALU RH_2X60-AW, (3) ALU RH_2X60-PCS and (3) ALU RH_2X60-700

[2]Note: No proposed change to the feed lines.

Table 2 – Design Criteria Used for Structural Analysis

Criterion	Information Used
State Building Code	2016 Connecticut State Bldg Code (IBC 2012)
Tower Standard	TIA-222-G
County	Hartford
Basic Wind Speed	125 mph (Vult) 97 mph (Vasd)
	40 mph, 1" ice
Steel Grade Assumed	50 ksi SR legs, 36 ksi all others, A325 bolts
Tower Analysis Software	tnxTower (version 7.0.7.0)

Based on the foregoing information, our post modification structural analysis determined that **the existing tower will be structurally capable of supporting the proposed equipment loads once the proposed structural modifications are installed as detailed in the 1/20/17 Bennett and Pless Tower Modification Drawings.**

The foundations were previously reinforced and the current overturning reactions at the base are 95% of the previous foundation modifications capacity.

The following assumptions were made in conducting our structural analysis:

1. The existing tower has been maintained to manufacturer's specifications and is in good condition.
2. All member connections are assumed to have been designed to meet the load carrying capacity of the connected member.
3. Antenna mount loads have been estimated based on typical industry standards.
4. The mounts for the proposed antennas have been analyzed and designed by others.
5. See additional assumptions contained in the report attached.

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

We appreciate the opportunity of providing our continuing professional services to you. If you have any questions or need further assistance on this please call us anytime.

Yours very truly,
Bennett & Pless, Inc.

STATE OF CONNECTICUT
PAUL E. GRUPE
No. 21967
LICENSED
PROFESSIONAL ENGINEER

07/20/2017

John Bozzetto, P.E.
Manager, SFL Office

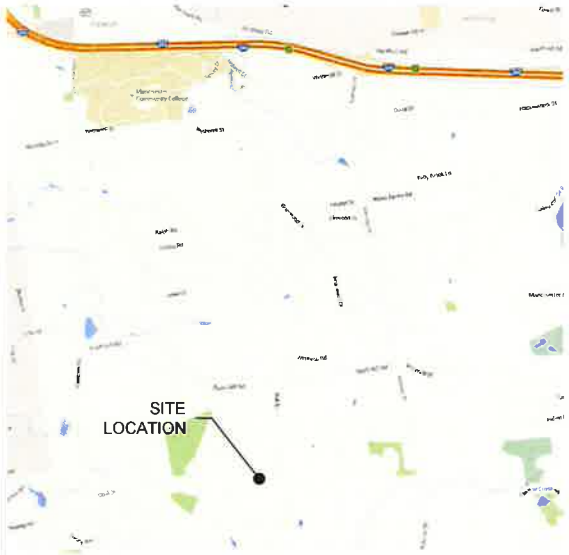
Paul Grupe, P.E.
Vice President

TOWER MODIFICATION DRAWINGS

InSite WirelessGroup, LLC

INSITE SITE NUMBER:	CT901
SITE NAME:	GLASTONBURY
ADDRESS:	577 Bell Street Glastonbury, CT

SITE MAP



CONTACTS

TOWER OWNER	InSite Wireless Group, LLC
Mikala Mann Collocation Coordinator	mmann@insitewireless.com
InSite Wireless Site Number: InSite Site Name:	CT901 Glastonbury
PROPOSED CARRIER	Verizon Wireless
Carrier Site Number Carrier Site Name	180896 Manchester South CT
ENGINEER	Bennett & Pless
Josh Turner Project Manager	jturner@bennett-pless.com
Paul Grupe, P.E.	pgrupe@bennett-pless.com
Bennett & Pless Project Number:	17004.002 CT901 Glastonbury

DRAWING LIST

T-1	COVER SHEET
SK-1	GENERAL NOTES
SK-2	TOWER SITE PLAN
SK-3	TOWER ELEVATION AND MODIFICATION SCHEDULE
SK-4	REINFORCEMENT DETAILS
SK-5	REINFORCEMENT DETAILS

InSite WirelessGroup, LLC

bennett&pless
Experience Structural Expertise
Atlanta, Georgia ◆ Chattanooga, Tennessee
47 Perimeter Center East, Suite 500
Atlanta, Georgia 30346
Tel 678 990 8700 Fax 678 990 8701

STATE OF CONNECTICUT
PAUL E. GRUPE
No. 21997
LICENSED PROFESSIONAL ENGINEER

1/20/2017

Revisions:

NO:	DESCRIPTION:	DATE:
0	CONSTRUCTION	1-20-17

DATE: 1/20/2017
SITE # (NAME): CT901 Glastonbury
JOB NAME: Tower Modification For Proposed Antenna Installation
DRAWING TITLE: Cover Sheet
SCALE: Not To Scale
DRAWN BY: JC
REVIEWED BY: PG

SHEET NUMBER:
T-1

DESIGN CRITERIA:

1. DESIGN CODE: = 2012 INTERNATIONAL BUILDING CODE
   2016 CONNECTICUT STATE BUILDING CODE

2. WIND DESIGN DATA:

ULTIMATE WIND SPEED	=	125 MPH (97 MPH ASD)
ASD WIND SPEED W/ ICE	=	40 MPH WITH 1.00" ICE
TOPOGRAPHIC CATEGORY	=	1
CREST HEIGHT	=	0 FT.
EXPOSURE CATEGORY	=	C

GENERAL NOTES:

1. ALL DIMENSIONS SHALL BE VERIFIED IN FIELD BY CONTRACTOR WITH ALL DISCREPANCIES REPORTED TO THE ENGINEER OF RECORD.
2. DO NOT MODIFY STRUCTURAL DETAILS WITHOUT APPROVAL OF THE ENGINEER OF RECORD.
3. CONTRACTOR RESPONSIBLE FOR ALL MEANS AND METHODS INCLUDING, BUT NOT LIMITED TO:
   A. PROVIDE ALL NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY.
   B. BRACE STRUCTURES UNTIL ALL STRUCTURAL ERECTION AND CONNECTIONS ARE COMPLETE.
   C. DETERMINE LOCATION OF UTILITIES AND APPURTENANCES BEFORE COMMENCING WORK.
   D. REPORT INCORRECTLY FABRICATED, DAMAGED, POORLY MAINTAINED, OR NONCONFORMING MATERIALS OR CONDITIONS TO THE ENGINEER OF RECORD PRIOR TO COMMENCING REMEDIAL OR CORRECTIVE ACTION. OBTAIN WRITTEN APPROVAL FOR REMEDIAL ACTIVITIES.
   E. COORDINATE CONSTRUCTION ACTIVITIES OF ALL PARTICIPANTS AND SUBCONTRACTORS.
   F. DO NOT INSTALL PROPOSED ANTENNAS UNTIL ALL REINFORCEMENT WORK IS COMPLETE.

EXISTING CONDITIONS:

1. MODIFICATION OF EXISTING STRUCTURES REQUIRES THOROUGH COORDINATION OF THE CONTRACT DOCUMENTS WITH EXISTING CONDITIONS. THE CONTRACTOR MUST VERIFY ALL RELEVANT EXISTING CONDITIONS, DIMENSIONS, AND DETAILS PRIOR TO BEGINNING CONSTRUCTION. REPORT ANY DEVIATIONS FROM CONDITIONS OR DIMENSIONS SHOWN ON THE CONTRACT DOCUMENTS TO THE STRUCTURAL ENGINEER OF RECORD FOR REVIEW OF THE DESIGN AND POSSIBLE REVISION OF THE CONTRACT DOCUMENTS.
2. THE NATURE OF STRUCTURAL REINFORCEMENT IS INHERENTLY UNCERTAIN. THE EXACT CONDITION AND CAPACITY OF EACH STRUCTURAL ELEMENT CANNOT BE VERIFIED PRIOR TO THE COMMENCEMENT OF WORK. AS A RESULT, IT IS IMPERATIVE TO REPORT ANY DISCREPANCIES BETWEEN THE CONTRACT DOCUMENTS AND ACTUAL FIELD CONDITIONS, AS WELL AS ANY ELEMENT OF QUESTIONABLE STRUCTURAL INTEGRITY IMMEDIATELY TO STRUCTURAL ENGINEER OF RECORD FOR REVIEW.

STRUCTURAL STEEL NOTES:

1. FABRICATE AND ERECT STRUCTURAL STEEL IN CONFORMANCE WITH THE LATEST ISSUE OF AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION OF STRUCTURAL STEEL, (AISC 360)".
2. HOT DIP GALVANIZE STEEL IN ACCORDANCE WITH ASTM A123 AFTER SHOP FABRICATION.
3. REPAIR ALL DINGS, SCRAPES, AND MARS IN THE GALVANIZED AREAS BY FIELD TOUCH-UP PRIOR TO COMPLETION OF THE WORK.
4. DO NOT PLACE HOLES THROUGH STRUCTURAL STEEL MEMBERS EXCEPT AS SHOWN AND DETAILED ON STRUCTURAL DRAWINGS.
5. CONNECTIONS:
   A. BOLTED CONNECTIONS:
      a. PROVIDE BOLTED CONNECTIONS CONFORMING TO "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR ASTM A490 BOLTS, APPROVED BY THE RESEARCH COUNCIL FOR STRUCTURAL CONNECTIONS, JUNE 30, 2004 AND ENDORSED BY THE AISC".
      b. PROVIDE GALVANIZED ASTM A325 AND A490 BOLTS.
      c. MINIMUM BOLT DIAMETER IS 3/4" Φ UNLESS NOTED OTHERWISE.
      d. TIGHTEN BOLTS TO "SNUG TIGHT" CONDITION.
   B. WELDED CONNECTIONS:
6. ALL WELDING TO BE DONE USING E70XX ELECTRODES.
7. ALL WELDING SHALL CONFORM TO AISC AND AWS D1.1 LATEST EDITION.
8. USE ONLY CERTIFIED WELDERS.
   A. AT THE COMPLETION OF CONNECTION INSTALLATION, REPAIR ALL DAMAGE TO GALVANIZED SURFACES.
   B. SUBMIT ALL CONNECTIONS DESIGNED BY THE FABRICATOR TO THE ENGINEER OF RECORD FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
9. TOUCH-UP PAINTING
   A. IMMEDIATELY AFTER ERECTION CLEAN BOLTED CONNECTIONS AND ABRADED AREAS.
   B. COAT CUTS AND DRILLED HOLES WITH (2) COATS OF ZINC RICH PAINT.
10. ALL SUBSTITUTES TO BE APPROVED, IN WRITING, BY THE ENGINEER OF RECORD.
11. UNLESS NOTED OTHERWISE PROVIDE STRUCTURAL MATERIALS CONFORMING TO:

A. FORM FIT STEEL:	GRADE A572-50 (50 KSI)
B. DIAGONAL ANGLES:	A36, (36 KSI)
C. STRUCTURAL BOLTS:	GRADE A325, OR A490 AS NOTED

CONTRACTOR NOTES:

1. IT IS ASSUMED THAT ANY STRUCTURAL MODIFICATION WORK SPECIFIED ON THESE PLANS WILL BE ACCOMPLISHED BY KNOWLEDGEABLE WORKMEN WITH TOWER CONSTRUCTION EXPERIENCE. THIS INCLUDES PROVIDING THE NECESSARY CERTIFICATIONS TO THE TOWER OWNER AND ENGINEER.
2. CONSTRUCTION WORK PRESENTS UNIQUE THREATS TO HEALTH AND SAFETY. THE CONTRACTOR IS RESPONSIBLE TO EDUCATE THEIR WORKFORCE OF THESE DANGERS AND LIMIT THEIR EXPOSURE TO HAZARDS. THIS EDUCATION SHALL INCLUDE BUT NOT BE LIMITED TO APPLICABLE TRAINING COURSES AND CERTIFICATIONS, PROPER PERSONAL PROTECTIVE EQUIPMENT USAGE, DAILY TAILGATE MEETINGS AND ANY OTHER PREVENTATIVE MEASURES WHICH MAY BE REASONABLY EXPECTED. THE CONTRACTOR AND ALL SUB-CONTRACTORS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE WORK AREA, ADJACENT WORK AREAS AND ANY PROPERTY OCCUPANTS WHO MAY BE AFFECTED BY THE WORK UNDER CONTRACT. THE CONTRACTOR SHALL REVIEW ALL LANDOWNER, PRIME CONTRACTOR, CARRIER, OSHA, AND LOCAL SAFETY GUIDELINES AND AT ALL TIMES SHALL CONFORM TO THE MOST RESTRICTIVE OF THESE STANDARDS TO ENSURE A SAFE WORKPLACE.
3. TOWER WORK PRESENTS ADDITIONAL THREATS TO HEALTH AND SAFETY. ALL TOWER WORKERS WORKING ON A TOWER MUST BE ADEQUATELY TRAINED AND MONITORED TO ENSURE THAT SAFE WORK PRACTICES ARE LEARNED AND FOLLOWED. AS REQUIRED BY OSHA, WHEN WORKING ON EXISTING COMMUNICATIONS TOWERS, EMPLOYEES MUST BE PROVIDED WITH APPROPRIATE FALL PROTECTION, TRAINED TO USE THIS FALL PROTECTION PROPERLY, AND THE USE OF FALL PROTECTION MUST BE CONSISTENTLY SUPERVISED AND ENFORCED BY THE CONTRACTOR.
4. ALL SAFETY EQUIPMENT SHALL BE INSPECTED ACCORDING TO ALL OSHA AND INDUSTRY SCHEDULED INTERVALS AND ALL INSPECTIONS SHALL BE DOCUMENTED PER APPLICABLE CODES AND STANDARDS.
5. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING. ANY PROBLEMS WITH ACCESS, INTERFERENCE, ETC. SHALL BE RESOLVED PRIOR TO MOBILIZATION. THE CONTRACTOR MUST VISIT THE SITE PRIOR TO ORDERING ANY MATERIAL AND MUST RESOLVE ALL ISSUES WITH THE OWNER PREVENTING A CONTINUOUS INSTALLATION. CONTRACTOR SHALL NOTE ALL ANTENNAS, MOUNTS, COAX, LIGHTING, CLIMBING SUPPORTS, STEP BOLTS, PORT HOLES, AND ANY OTHER TOWER APPURTENANCES IN THE REGION OF THE MODIFICATIONS.
6. CONTRACTOR IS RESPONSIBLE FOR TEMPORARILY REMOVING ALL COAX, T-BRACKETS, ANTENNA MOUNTS, AND ANY OTHER TOWER APPURTENANCES THAT MAY INTERFERE WITH THE TOWER MODIFICATIONS. ALL TOWER APPURTENANCES MUST BE REPLACED AND / OR RESTORED TO ITS ORIGINAL LOCATION. ANY CARRIER DOWNTIME MUST BE COORDINATED WITH THE TOWER OWNER IN WRITING.
7. SOME ATTACHMENTS MAY REQUIRE CUSTOM MODIFICATIONS TO PROPERLY FIT THE MODIFIED REGION OF THE STRUCTURE. THESE CUSTOMIZATIONS ARE DESIGNED BY OTHERS AND MUST BE APPROVED BY THE ENGINEER PRIOR TO REMOVING SUCH ATTACHMENTS. ANY CARRIER DOWNTIME MUST BE COORDINATED WITH THE TOWER OWNER IN WRITING.
8. CONTRACTOR SHALL ONLY WORK WITHIN THE LIMITS OF THE TOWER OWNER'S PROPERTY OR LEASE AREA AND APPROVED EASEMENTS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY WORK IS WITHIN THESE BOUNDARIES. CONTRACTOR SHALL EMPLOY A SURVEYOR AS REQUIRED. ANY WORK OUTSIDE THESE BOUNDARIES SHALL BE APPROVED IN WRITING BY THE LAND OWNER PRIOR TO MOBILIZATION. CONSTRUCTION STAKING AND BOUNDARY MARKING IS THE RESPONSIBILITY OF THE CONTRACTOR.
9. TOWERS ARE DESIGNED TO CARRY GRAVITY, WIND AND ICE LOADS. ALL MEMBERS, LEGS, DIAGONALS, STRUTS AND REDUNDANT MEMBERS PROVIDE STRUCTURAL STABILITY TO THE TOWER WITH LITTLE REDUNDANCY. ABSENCE OR REMOVAL OF A MEMBER CAN TRIGGER CATASTROPHIC FAILURE UNLESS A SUBSTITUTE IS PROVIDED BEFORE REMOVAL. LEGS CARRY AXIAL LOADS AND DERIVE THEIR STRENGTH FROM SHORTER UN-BRACED LENGTHS BY THE PRESENCE OF REDUNDANT MEMBERS AND THEIR CONNECTION TO THE DIAGONALS WITH BOLTS OR WELDS. IF THE BOLTS OR WELDS ARE REMOVED WITHOUT PROVIDING ANY SUBSTITUTE TO THE FRAME, THE LEG IS SUBJECTED TO A HIGHER UN-BRACED LENGTH THAT IMMEDIATELY REDUCES ITS LOAD CARRYING CAPACITY. IF A DIAGONAL IS ALSO REMOVED IN ADDITION TO THE CONNECTION, THE UN-BRACED LENGTH OF THE LEG IS GREATLY INCREASED, JEOPARDIZING ITS LOAD CARRYING CAPACITY. FAILURE OF ONE LEG CAN RESULT IN A TOWER COLLAPSE BECAUSE THERE IS NO REDUNDANCY. REDUNDANT MEMBERS AND DIAGONALS ARE CRITICAL TO THE STABILITY OF THE TOWER.
10. WORK SHALL BE PERFORMED DURING CALM DRY DAYS (WINDS LESS THAN 10 MPH). CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY LOCAL TOWER SHORING, TEMPORARY GLOBAL TOWER SHORING, AND ALL SHORING OF SURROUNDING BUILDINGS, PADS, AND OTHER OUTDOOR SITE OBSTRUCTIONS. ALL SHORING, TEMPORARY BRACING, AND TEMPORARY SUPPORTS ARE THE RESPONSIBILITY OF THE CONTRACTOR.
11. MODIFICATIONS SHOWN SHALL BE INSTALLED ON ALL THREE (3) TOWER LEGS / FACES.
12. ALL MODIFICATIONS PERFORMED ON THIS TOWER SHALL BE COMPLETED IN ACCORDANCE WITH THE REQUIREMENTS OF TIA-1019-A CONSTRUCTION STANDARDS.
13. ALL MANUFACTURERS HARDWARE AND ASSEMBLY INSTRUCTIONS SHALL BE FOLLOWED EXACTLY. DEVIATION FROM THE INSTRUCTIONS IS UNACCEPTABLE AND REQUIRES WRITTEN APPROVAL FROM ENGINEER.

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STATE OF CONNECTICUT PAUL E. GRUPE No. 21987 LICENSED PROFESSIONAL ENGINEER

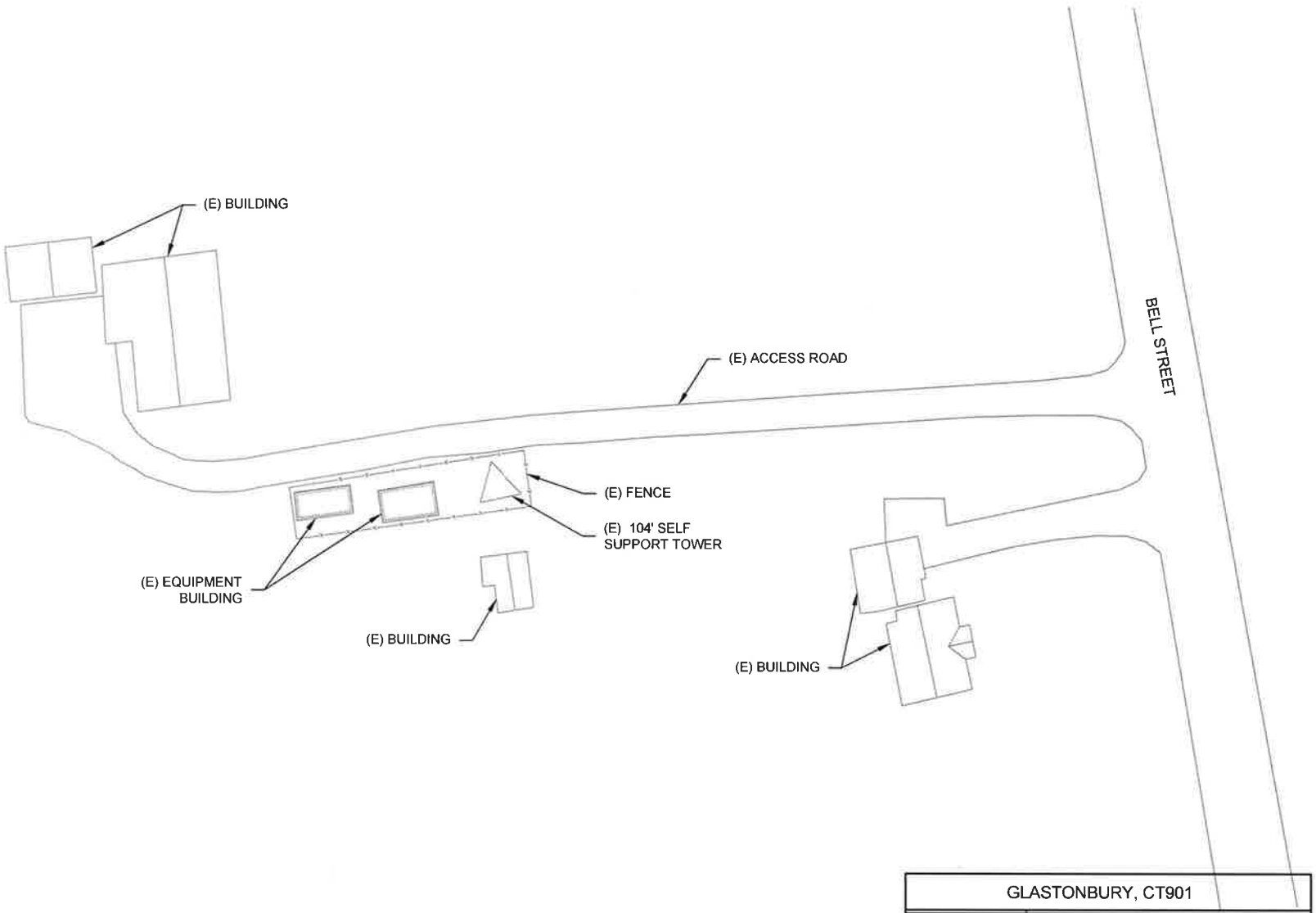
1/20/2017

Revisions:

NO:	DESCRIPTION:	DATE:
0	CONSTRUCTION	1-20-17

SITE # (NAME): CT901 Glastonbury
JOB NAME: Tower Modification For Proposed Antenna Installation
DRAWING TITLE: General Notes
DATE: 1/20/2017
SCALE: Not To Scale
DRAWN BY: JC
REVIEWED BY: PG

SHEET NUMBER:
SK-1



TOWER SITE PLAN

NORTH

GLASTONBURY, CT901	
SITE LOCATION:	577 Bell Street Glastonbury, CT
LATITUDE:	41.7338
LONGITUDE:	-72.5497

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STATE OF CONNECTICUT
PAUL E. GRUPPE
No. 21987
LICENSED PROFESSIONAL ENGINEER

1/20/2017

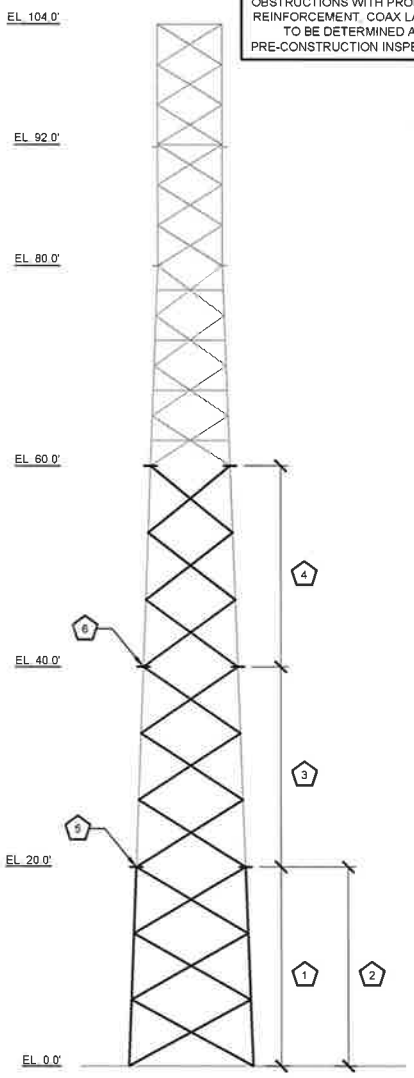
Revisions:

NO:	DESCRIPTION:	DATE:
0	CONSTRUCTION	1-20-17

SITE # (NAME): CT901 Glastonbury
JOB NAME: Tower Modification For Proposed Antenna Installation
DRAWING TITLE: Tower Site Plan
DATE: 1/20/2017
SCALE: Not To Scale
DRAWN BY: JC
REVIEWED BY: PG

SHEET NUMBER:
SK-2

SEE APPURTENANCE TABLE THIS SHEET TO COORDINATE POSSIBLE OBSTRUCTIONS WITH PROPOSED REINFORCEMENT. COAX LAYOUT TO BE DETERMINED AT PRE-CONSTRUCTION INSPECTION



TOWER ELEVATION

(3) SIDED SST

MODIFICATION SCHEDULE

MARK	ELEVATION	MODIFICATION DESCRIPTION
1	± 0' - 20'	INSTALL NEW CUSTOM FORM FIT ASSEMBLY WITH ½"Ø GALVANIZED U-BOLTS AT 12" O.C. SEE SHEET SK-4 FOR DETAILS. FORM FIT TO BE NOTCHED AT ENDS TO FIT OVER BOLTS AND THEN WELDED TO EXISTING SPLICE PLATE. REMOVE STEP PEGS ON EXISTING LEG AND SHOP WELD NEW REPLACEMENT PEGS TO FORM FIT.
2	± 0' - 20'	REPLACE EXISTING L2 ½ x 2 ½ x 3/16 DIAGONALS WITH NEW L2 ½ x 2 ½ x 3/8 DIAGONALS. REPLACE EXISTING BOLTS WITH NEW ½" Ø A325 BOLTS ((1) EACH END) AS REQUIRED.
3	± 20' - 40'	REPLACE EXISTING L2 ½ x 2 ½ x 3/16 DIAGONALS WITH NEW L2 ½ x 2 ½ x 3/8 DIAGONALS. REPLACE EXISTING BOLTS WITH NEW ½" Ø A325 BOLTS ((1) EACH END) AS REQUIRED.
4	± 40' - 60'	REPLACE EXISTING L2 x 2 x 3/16 DIAGONALS WITH NEW L2 x 2 x 3/8 DIAGONALS. REPLACE EXISTING BOLTS WITH NEW ½" Ø A325 BOLTS ((1) EACH END) AS REQUIRED.
5	± 20'	REPLACE EXISTING ¾" Ø SPLICE BOLTS ((4) EACH LEG) WITH NEW A490 BOLTS.
6	± 40'	REPLACE EXISTING ¾" Ø SPLICE BOLTS ((4) EACH LEG) WITH NEW A490 BOLTS.

NOTES:
1. ALL SIZES AND LENGTHS OF REINFORCEMENT AND REINFORCEMENT OBSTRUCTIONS SHALL BE CONFIRMED DURING A PRE-CONSTRUCTION INSPECTION.
2. ALL STEEL MEMBERS AND BOLTS TO BE GALVANIZED.
3. FOR PRICING INFORMATION FOR THE SCI FORM FIT PLEASE CONTACT: steel@structuralcomponents.net

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
BXA-70063-6CF-EDIN-0 (Verizon)	102	KMW AX-X-CD-1665-OOT (ATI)	88
BXA-70063-6CF-EDIN-0 (Verizon)	102	KMW AX-X-CD-1665-OOT (ATI)	88
BXA-70063-6CF-EDIN-0 (Verizon)	102	Andrew SBNH-1D6565C (ATI)	88
(2) SBNH-1D6565B (Verizon)	102	Andrew SBNH-1D6565C (ATI)	88
(2) SBNH-1D6565B (Verizon)	102	Andrew SBNH-1D6565C (ATI)	88
(2) SBNH-1D6565B (Verizon)	102	(2) TMA (ATI)	88
LNX-8514DS (Verizon)	102	(2) TMA (ATI)	88
LNX-8514DS (Verizon)	102	(2) TMA (ATI)	88
LNX-8514DS (Verizon)	102	(2) RRU-11 (ATI)	88
Alcatel Lucent RRH 4x45 AWS (Verizon)	102	(2) RRU-11 (ATI)	88
		(2) RRU-11 (ATI)	88
Alcatel Lucent RRH 4x45 AWS (Verizon)	102	Demarcation Box DC6-4860-188F (ATI)	88
Alcatel Lucent RRH 4x45 AWS (Verizon)	102	DB806-XT (Town of Glastonbury)	79
		PR-950 (Town of Glastonbury)	73
Alcatel Lucent RRH 4x30 B25 (Verizon)	102	PiROD 6' Side Mount Standoff (Town of Glastonbury)	73
Alcatel Lucent RRH 4x30 B25 (Verizon)	102		
Alcatel Lucent RRH 4x30 B25 (Verizon)	102	3' Stand-Off (Metro PCS)	65
Alcatel Lucent RRH 4x30 B13 (Verizon)	102	3' Stand-Off (Metro PCS)	65
Alcatel Lucent RRH 4x30 B13 (Verizon)	102	Kathrein 742-213 (Unknown)	65
Alcatel Lucent RRH 4x30 B13 (Verizon)	102	Kathrein 742-213 (Unknown)	65
Raycap DB-T1-6Z-8AB-0Z (Verizon)	102	Kathrein 742-213 (Unknown)	65
Raycap DB-T1-6Z-8AB-0Z (Verizon)	102	(2) AIR 21 (Metro PCS)	65
Pirod T-Frame Sector Mount (3) (Verizon)	102	(2) AIR 21 (Metro PCS)	65
		(2) AIR 21 (Metro PCS)	65
T-Frame Sector (ATI)	88	LNX-6515DS-VTM (Metro PCS)	65
T-Frame Sector (ATI)	88	LNX-6515DS-VTM (Metro PCS)	65
T-Frame Sector (ATI)	88	LNX-6515DS-VTM (Metro PCS)	65
Powerwave P65-17-XLH-RR (ATI)	88	Smart Bias T (Metro PCS)	65
Powerwave P65-17-XLH-RR (ATI)	88	Smart Bias T (Metro PCS)	65
Powerwave P65-17-XLH-RR (ATI)	88	Smart Bias T (Metro PCS)	65
KMW AX-X-CD-1665-OOT (ATI)	88	3' Stand-Off (Metro PCS)	65

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STATE OF CONNECTICUT PAUL E. GRUPE No. 21987 LICENSED PROFESSIONAL ENGINEER

1/20/2017

Revisions:

NO:	DESCRIPTION:	DATE:
0	CONSTRUCTION	1-20-17

DATE: 1/20/2017

SITE # (NAME): CT901 Glastonbury

JOB NAME: Tower Modification For Proposed Antenna Installation

DRAWING TITLE: Tower Elevation and Modification Schedule

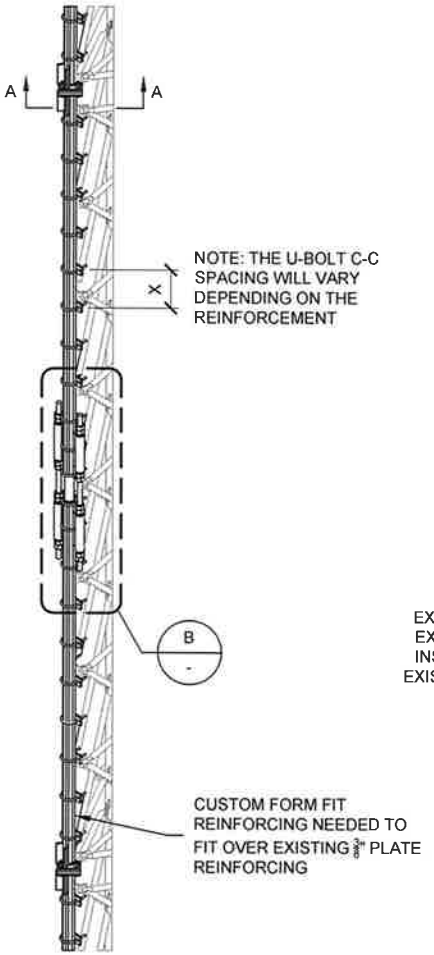
SCALE: Not To Scale

REVIEWED BY: PG

DRAWN BY: JC

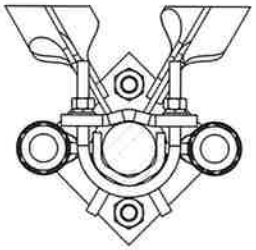
SHEET NUMBER:

SK-3

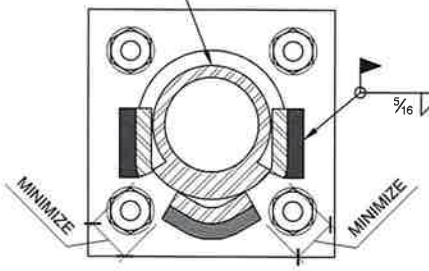


TYPICAL PANEL REINFORCEMENT DETAIL TYPE 1

FORM FIT CROSS SECTION



FOOT PLACE SPLICE

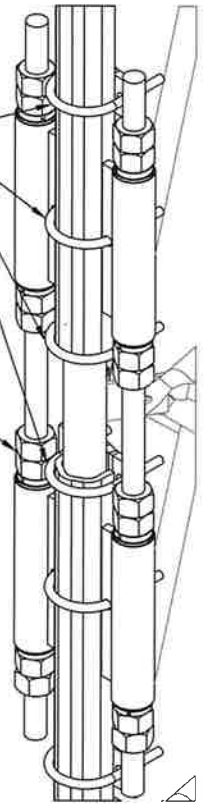


SECTION 'A'

CENTRAL ADJUSTMENT SPLICE (ALL THREAD)

NOTE: FORM FIT ATTACHMENT U-BOLTS AND HARDWARE ARE TO BE INSTALLED AT THESE FORM FIT LOCATIONS. TYP. PER LOCATION.

SPLICE TOGETHER THE TWO FORM FIT REINFORCEMENTS USING:
(2) 1 ¼"Ø x 4" ALL THREADS
(8) ¾" THICK SQUARE WASHERS
(8) 1 ¼" LOCK WASHERS
(16) 1 ¼" NUTS
TYP. PER LOCATION
NOTE: LIGHT AND HEAVY SPLICES USE DIFFERENT HARDWARE:
LIGHT = 1 ¼" Ø
HEAVY = 1 ½" Ø



DETAIL 'B'

NOTES:
1. DRAWING NOT TO SCALE, SEE TOWER ELEVATION AND SCHEDULE FOR EXISTING MEMBER SIZES AND CONFIGURATION.
2. ONLY ONE PANEL FACE SHOWN FOR CLARITY OF ILLUSTRATION (SIMILAR ALL THREE FACES).
3. ALL DIMENSIONS TO BE FIELD CONFIRMED.
4. ALL MATERIAL TO BE HOT DIP GALVANIZED PER ASTM A123 (G60 COATING).
5. ALL NEW MATERIAL TO BE SAME GRADE AS MEMBER BEING REINFORCED.

LEGEND:
(N) - NEW
(E) - EXISTING

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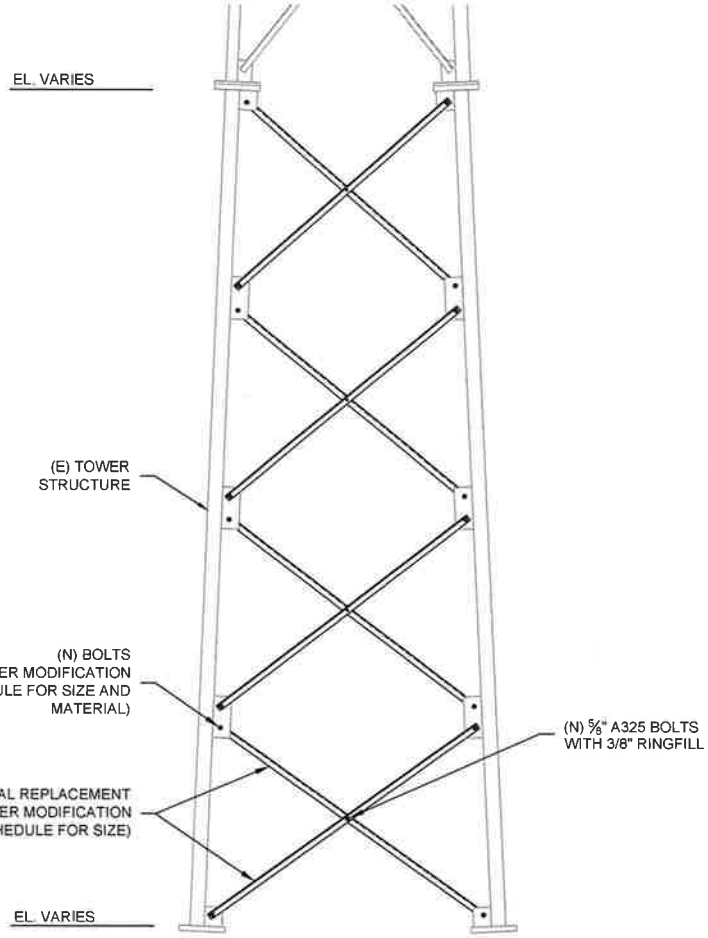
1/20/2017

Revisions:

NO:	DESCRIPTION:	DATE:
0	CONSTRUCTION	1-20-17

SITE # (NAME): CT901 Glastonbury
DATE: 1/20/2017
JOB NAME: Tower Modification For Proposed Antenna Installation
DRAWING TITLE: Reinforcement Details
SCALE: Not To Scale
DRAWN BY: JC
REVIEWED BY: PG

SHEET NUMBER:
SK-4



TYPICAL PANEL REINFORCEMENT DETAIL TYPE 2 3 4

NOTES:

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2. ONLY ONE PANEL FACE SHOWN FOR CLARITY OF ILLUSTRATION (SIMILAR ALL THREE FACES).
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4. ALL MATERIAL TO BE HOT DIP GALVANIZED PER ASTM A123 (G60 COATING).
5. ALL NEW MATERIAL TO BE SAME GRADE AS MEMBER BEING REINFORCED.

LEGEND:
(N) - NEW
(E) - EXISTING

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1/20/2017

Revisions:

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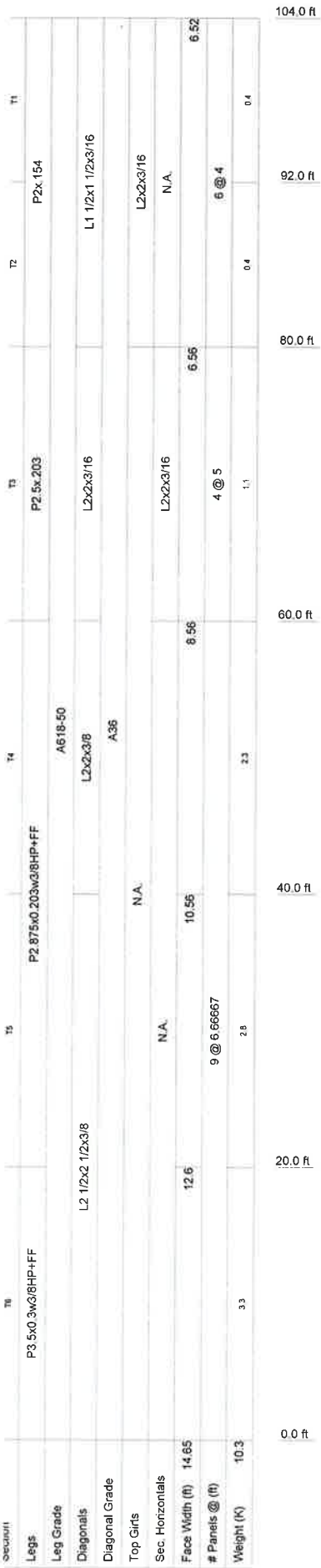
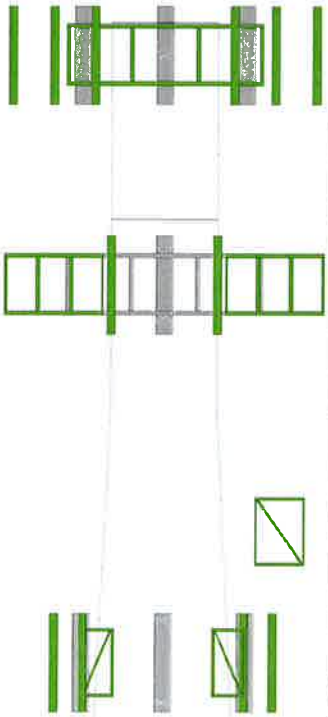
SITE # (NAME): CT901 Glastonbury
DATE: 1/20/2017
JOB NAME: Tower Modification For Proposed Antenna Installation
DRAWING TITLE: Reinforcement Details
SCALE: Not To Scale
DRAWN BY: JC
REVIEWED BY: PG

SHEET NUMBER:
SK-5





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
BXA-70063-6CF-EDIN-0 (Verizon)	102	KMW AX-X-CD-1665-OOT (ATT)	88
BXA-70063-6CF-EDIN-0 (Verizon)	102	KMW AX-X-CD-1665-OOT (ATT)	88
BXA-70063-6CF-EDIN-0 (Verizon)	102	Andrew SBNH-1D6565C (ATT)	88
(2) Andrew SBNHH-1D65B (Verizon)	102	Andrew SBNH-1D6565C (ATT)	88
(2) Andrew SBNHH-1D65B (Verizon)	102	Andrew SBNH-1D6565C (ATT)	88
(2) Andrew SBNHH-1D65B (Verizon)	102	(2) TMA (ATT)	88
LNX-8514DS (Verizon)	102	(2) TMA (ATT)	88
LNX-8514DS (Verizon)	102	(2) TMA (ATT)	88
LNX-8514DS (Verizon)	102	(2) RRU-11 (ATT)	88
Alcatel Lucent RRH 4x45 AWS (Verizon)	102	(2) RRU-11 (ATT)	88
		(2) RRU-11 (ATT)	88
Alcatel Lucent RRH 4x45 AWS (Verizon)	102	Demarcation Box DC6-4860-188F (ATT)	88
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		PR-950 (Town of Glastonbury)	73
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Alcatel Lucent RRH 4x30 B25 (Verizon)	102		
Alcatel Lucent RRH 4x30 B25 (Verizon)	102	3' Stand-Off (Metro PCS)	65
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Alcatel Lucent RRH 4x30 B13 (Verizon)	102	Kathrein 742-213 (Unknown)	65
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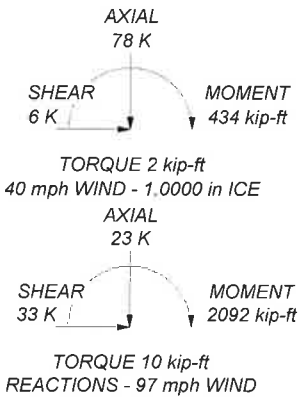
Pirod T-Frame Sector Mount (3) (Verizon)	102	(2) AIR 21 (Metro PCS)	65
		(2) AIR 21 (Metro PCS)	65
T-Frame Sector (ATT)	88	LNX-6515DS-VTM (Metro PCS)	65
T-Frame Sector (ATT)	88	LNX-6515DS-VTM (Metro PCS)	65
T-Frame Sector (ATT)	88	LNX-6515DS-VTM (Metro PCS)	65
Powerwave P65-17-XLH-RR (ATT)	88	Smart Bias T (Metro PCS)	65
Powerwave P65-17-XLH-RR (ATT)	88	Smart Bias T (Metro PCS)	65
Powerwave P65-17-XLH-RR (ATT)	88	Smart Bias T (Metro PCS)	65
KMW AX-X-CD-1665-OOT (ATT)	88	3' Stand-Off (Metro PCS)	65

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A618-50	50 ksi	70 ksi	A36	36 ksi	58 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 97 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 40 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. Weld together tower sections have flange connections.
9. Connections use galvanized A325 bolts, nuts and locking devices. Installation per TIA/EIA-222 and AISC Specifications.
10. Tower members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
11. Welds are fabricated with ER-70S-6 electrodes.
12. TOWER RATING: 93.6%
    UPLIFT: -153 K
    SHEAR: 18 K



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Experience Structural Expertise

Bennett & Pless
750 Park of Commerce Dr Ste 200
Boca Raton, Florida
Phone: 605-540-4623
FAX: 678-990-8701

Job: **CT901 Glastonbury**			
Project: **SST Analysis**			
Client: Insite Towers, LLC	Drawn by: Chunhui Song	App'd:	
Code: TIA-222-G	Date: 07/19/17	Scale: N	
Path:		Dwg No.	

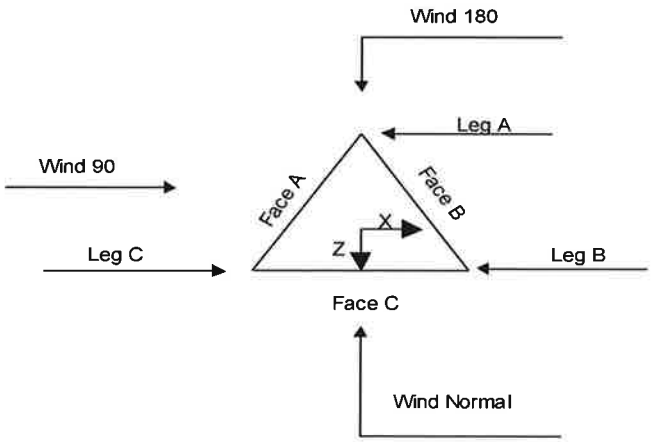
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 104.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 6.52 ft at the top and 14.65 ft at the base.
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 97 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 40 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
Weld together tower sections have flange connections..
Connections use galvanized A325 bolts, nuts and locking devices. Installation per TIA/EIA-222 and AISC Specifications..
Tower members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards..
Welds are fabricated with ER-70S-6 electrodes..
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs	Distribute Leg Loads As Uniform	Use ASCE 10 X-Brace Ly Rules
Consider Moments - Horizontals	Assume Legs Pinned	√ Calculate Redundant Bracing Forces
Consider Moments - Diagonals	√ Assume Rigid Index Plate	Ignore Redundant Members in FEA
Use Moment Magnification	√ Use Clear Spans For Wind Area	SR Leg Bolts Resist Compression
√ Use Code Stress Ratios	√ Use Clear Spans For KL/r	All Leg Panels Have Same Allowable
√ Use Code Safety Factors - Guys	Retension Guys To Initial Tension	Offset Girt At Foundation
Escalate Ice	Bypass Mast Stability Checks	√ Consider Feed Line Torque
Always Use Max Kz	√ Use Azimuth Dish Coefficients	Include Angle Block Shear Check
Use Special Wind Profile	√ Project Wind Area of Appurt.	Use TIA-222-G Bracing Resist. Exemption
√ Include Bolts In Member Capacity	Autocalc Torque Arm Areas	Use TIA-222-G Tension Splice Exemption
Leg Bolts Are At Top Of Section	Add IBC .6D+W Combination	Poles
√ Secondary Horizontal Braces Leg	√ Sort Capacity Reports By Component	Include Shear-Torsion Interaction
Use Diamond Inner Bracing (4 Sided)	Triangulate Diamond Inner Bracing	Always Use Sub-Critical Flow
SR Members Have Cut Ends	Treat Feed Line Bundles As Cylinder	Use Top Mounted Sockets
SR Members Are Concentric		



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	104.00-92.00			6.52	1	12.00
T2	92.00-80.00			6.52	1	12.00
T3	80.00-60.00			6.56	1	20.00
T4	60.00-40.00			8.56	1	20.00
T5	40.00-20.00			10.56	1	20.00
T6	20.00-0.00			12.60	1	20.00

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T1	104.00-92.00	4.00	X Brace	No	No	0.0000	0.0000
T2	92.00-80.00	4.00	X Brace	No	No	0.0000	0.0000
T3	80.00-60.00	5.00	X Brace	No	Yes	0.0000	0.0000
T4	60.00-40.00	6.67	X Brace	No	No	0.0000	0.0000
T5	40.00-20.00	6.67	X Brace	No	No	0.0000	0.0000
T6	20.00-0.00	6.67	X Brace	No	No	0.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 104.00-92.00	Pipe	P2x.154	A618-50 (50 ksi)	Single Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)
T2 92.00-80.00	Pipe	P2x.154	A618-50 (50 ksi)	Single Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)
T3 80.00-60.00	Pipe	P2.5x.203	A618-50 (50 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T4 60.00-40.00	Arbitrary Shape	P2.875x0.203w3/8HP+FF	A618-50 (50 ksi)	Single Angle	L2x2x3/8	A36 (36 ksi)
T5 40.00-20.00	Arbitrary Shape	P2.875x0.203w3/8HP+FF	A618-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x3/8	A36 (36 ksi)
T6 20.00-0.00	Arbitrary Shape	P3.5x0.3w3/8HP+FF	A618-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x3/8	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 104.00-92.00	Single Angle	L2x2x3/16	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T2 92.00-80.00	Single Angle	L2x2x3/16	A36 (36 ksi)	Solid Round		A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T3 80.00-60.00	Equal Angle	L2x2x3/16	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 104.00-92.00	0.00	0.2500	A36 (36 ksi)	1.02	1	1	36.0000	36.0000	36.0000
T2 92.00-80.00	0.00	0.2500	A36 (36 ksi)	1.02	1	1	36.0000	36.0000	36.0000
T3 80.00-60.00	0.00	0.2500	A36	1.02	1	1	36.0000	36.0000	36.0000

Tower Elevation ft	Gusset Area (per face) ft²	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T4 60.00-40.00	0.00	0.2500	(36 ksi) A36 (36 ksi)	1.02	1	1	36.0000	36.0000	36.0000
T5 40.00-20.00	0.00	0.2500	(36 ksi) A36 (36 ksi)	1.02	1	1	36.0000	36.0000	36.0000
T6 20.00-0.00	0.00	0.2500	(36 ksi) A36 (36 ksi)	1.02	1	1	36.0000	36.0000	36.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1	Yes	Yes	1	1	1	1	1	1	1	1
104.00-92.00				1	1	1	1	1	1	1
T2	Yes	Yes	1	1	1	1	1	1	1	1
92.00-80.00				1	1	1	1	1	1	1
T3	Yes	Yes	1	1	1	1	1	1	1	1
80.00-60.00				1	1	1	1	1	1	1
T4	Yes	Yes	1.2	1	1	1	1	1	1	1
60.00-40.00				1	1	1	1	1	1	1
T5	Yes	Yes	1.18	1	1	1	1	1	1	1
40.00-20.00				1	1	1	1	1	1	1
T6 20.00-0.00	Yes	Yes	1.28	1	1	1	1	1	1	1
				1	1	1	1	1	1	1

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

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Net Width Deduct in	Leg U	Diagonal Net Width Deduct in	Diagonal U	Top Girt Net Width Deduct in	Top Girt U	Bottom Girt Net Width Deduct in	Bottom Girt U	Mid Girt Net Width Deduct in	Mid Girt U	Long Horizontal Net Width Deduct in	Long Horizontal U	Short Horizontal Net Width Deduct in	Short Horizontal U
T1 104.00-92.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 92.00-80.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 80.00-60.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 60.00-40.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 40.00-20.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 20.00-0.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 104.00-92.00	Flange	0.6250 A325N	4	0.5000 A325N	1	0.5000 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T2 92.00-80.00	Flange	0.6250 A325N	4	0.5000 A325N	1	0.5000 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T3 80.00-60.00	Flange	0.6250 A325N	4	0.5000 A325N	1	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T4 60.00-40.00	Flange	0.6250 A490N	4	0.5000 A325N	1	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T5 40.00-20.00	Flange	0.7500 A490N	4	0.5000 A325N	1	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T6 20.00-0.00	Flange	0.8750 A354-BC	4	0.5000 A325N	1	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
1/2 (Town of Glastonbury)	A	No	Ar (CaAa)	73.00 - 6.00	-8.0000	0.27	1	1	0.5000	0.5800		0.25
1/2 (Town of Glastonbury)	A	No	Ar (CaAa)	79.00 - 6.00	-8.0000	0.26	1	1	0.5000	0.5800		0.25
Feedline Ladder (Tower)	B	No	Ar (CaAa)	65.00 - 6.00	0.0000	0.4	1	1	0.5000	1.5000		8.00
LDF7-50A (1 5/8 FOAM) (Verizon)	A	No	Ar (CaAa)	100.00 - 6.00	-2.0000	0.2	18	9	0.5000	1.9800		0.82
Feedline Ladder (Tower)	A	No	Ar (CaAa)	100.00 - 6.00	0.0000	0.2	1	1	0.5000	1.5000		8.00
LDF7-50A (1 5/8 FOAM) (AT&T)	A	No	Ar (CaAa)	88.00 - 6.00	-8.0000	0.2	3	3	0.5000	1.9800		0.82
LDF7-50A (1 5/8 FOAM) (AT&T)	A	No	Ar (CaAa)	88.00 - 6.00	-4.0000	0.43	3	1	0.5000	1.9800		0.82
LDF7-50A (1 5/8 FOAM) (AT&T)	B	No	Ar (CaAa)	88.00 - 6.00	-4.0000	0.43	3	3	0.5000	1.9800		0.82
LDF7-50A (1 5/8 FOAM) (AT&T)	C	No	Ar (CaAa)	88.00 - 6.00	-4.0000	0.43	3	3	0.5000	1.9800		0.82
Hybrid Flex (1 5/8 Fiber) (Metro PCS)	B	No	Ar (CaAa)	65.00 - 6.00	0.0000	0.43	3	3	0.5000	1.9800		0.82
AVA5-50(7/8 ") (Metro PCS)	B	No	Ar (CaAa)	65.00 - 6.00	0.0000	0.4	6	6	0.5000	1.1020		0.30

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	104.00-92.00	A	0.000	0.000	29.712	0.000	0.18
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
T2	92.00-80.00	A	0.000	0.000	54.072	0.000	0.31
		B	0.000	0.000	4.752	0.000	0.02
		C	0.000	0.000	4.752	0.000	0.02
T3	80.00-60.00	A	0.000	0.000	99.896	0.000	0.56
		B	0.000	0.000	18.906	0.000	0.11
		C	0.000	0.000	11.880	0.000	0.05
T4	60.00-40.00	A	0.000	0.000	100.360	0.000	0.56
		B	0.000	0.000	39.984	0.000	0.29
		C	0.000	0.000	11.880	0.000	0.05
T5	40.00-20.00	A	0.000	0.000	100.360	0.000	0.56
		B	0.000	0.000	39.984	0.000	0.29
		C	0.000	0.000	11.880	0.000	0.05
T6	20.00-0.00	A	0.000	0.000	70.252	0.000	0.39
		B	0.000	0.000	27.989	0.000	0.21
		C	0.000	0.000	8.316	0.000	0.03

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	104.00-92.00	A	2.230	0.000	0.000	32.520	0.000	0.79
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
T2	92.00-80.00	A	2.201	0.000	0.000	74.630	0.000	1.66
		B		0.000	0.000	13.014	0.000	0.19
		C		0.000	0.000	13.014	0.000	0.19
T3	80.00-60.00	A	2.156	0.000	0.000	160.656	0.000	3.34
		B		0.000	0.000	52.242	0.000	0.79
		C		0.000	0.000	32.231	0.000	0.46
T4	60.00-40.00	A	2.085	0.000	0.000	162.292	0.000	3.29
		B		0.000	0.000	110.555	0.000	1.72
		C		0.000	0.000	31.746	0.000	0.45
T5	40.00-20.00	A	1.981	0.000	0.000	158.980	0.000	3.13
		B		0.000	0.000	108.057	0.000	1.64
		C		0.000	0.000	31.041	0.000	0.42
T6	20.00-0.00	A	1.775	0.000	0.000	106.694	0.000	1.98
		B		0.000	0.000	72.180	0.000	1.03
		C		0.000	0.000	20.752	0.000	0.26

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
T1	104.00-92.00	-1.8826	-4.3790	-1.0852	-2.4698
T2	92.00-80.00	-1.5609	-3.7706	-0.8860	-2.5955
T3	80.00-60.00	-0.9022	-3.4186	-0.3891	-2.6843
T4	60.00-40.00	0.6787	-3.0098	0.7881	-2.4476
T5	40.00-20.00	0.7418	-3.5872	0.8950	-2.9306
T6	20.00-0.00	0.7453	-3.8150	0.9360	-3.1008

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	4	LDF7-50A (1 5/8 FOAM)	92.00 - 100.00	1.0000	1.0000
T1	5	Feedline Ladder	92.00 - 100.00	1.0000	1.0000
T2	4	LDF7-50A (1 5/8 FOAM)	80.00 - 92.00	1.0000	1.0000
T2	5	Feedline Ladder	80.00 - 92.00	1.0000	1.0000
T2	7	LDF7-50A (1 5/8 FOAM)	80.00 - 88.00	1.0000	1.0000
T2	8	LDF7-50A (1 5/8 FOAM)	80.00 - 88.00	1.0000	1.0000
T2	9	LDF7-50A (1 5/8 FOAM)	80.00 - 88.00	1.0000	1.0000
T2	10	LDF7-50A (1 5/8 FOAM)	80.00 - 88.00	1.0000	1.0000
T3	1	1/2	60.00 - 73.00	1.0000	1.0000
T3	2	1/2	60.00 - 79.00	1.0000	1.0000
T3	3	Feedline Ladder	60.00 - 65.00	1.0000	1.0000
T3	4	LDF7-50A (1 5/8 FOAM)	60.00 - 80.00	1.0000	1.0000
T3	5	Feedline Ladder	60.00 - 80.00	1.0000	1.0000
T3	7	LDF7-50A (1 5/8 FOAM)	60.00 - 80.00	1.0000	1.0000
T3	8	LDF7-50A (1 5/8 FOAM)	60.00 - 80.00	1.0000	1.0000
T3	9	LDF7-50A (1 5/8 FOAM)	60.00 - 80.00	1.0000	1.0000
T3	10	LDF7-50A (1 5/8 FOAM)	60.00 - 80.00	1.0000	1.0000
T3	11	Hybrid Flex (1 5/8 Fiber)	60.00 - 65.00	1.0000	1.0000
T3	12	AVA5-50(7/8")	60.00 - 65.00	1.0000	1.0000
T4	1	1/2	40.00 - 60.00	1.0000	1.0000
T4	2	1/2	40.00 - 60.00	1.0000	1.0000
T4	3	Feedline Ladder	40.00 - 60.00	1.0000	1.0000
T4	4	LDF7-50A (1 5/8 FOAM)	40.00 - 60.00	1.0000	1.0000
T4	5	Feedline Ladder	40.00 - 60.00	1.0000	1.0000
T4	7	LDF7-50A (1 5/8 FOAM)	40.00 - 60.00	1.0000	1.0000
T4	8	LDF7-50A (1 5/8 FOAM)	40.00 - 60.00	1.0000	1.0000
T4	9	LDF7-50A (1 5/8 FOAM)	40.00 - 60.00	1.0000	1.0000
T4	10	LDF7-50A (1 5/8 FOAM)	40.00 - 60.00	1.0000	1.0000
T4	11	Hybrid Flex (1 5/8 Fiber)	40.00 - 60.00	1.0000	1.0000
T4	12	AVA5-50(7/8")	40.00 - 60.00	1.0000	1.0000
T5	1	1/2	20.00 - 40.00	1.0000	1.0000
T5	2	1/2	20.00 - 40.00	1.0000	1.0000
T5	3	Feedline Ladder	20.00 - 40.00	1.0000	1.0000
T5	4	LDF7-50A (1 5/8 FOAM)	20.00 - 40.00	1.0000	1.0000
T5	5	Feedline Ladder	20.00 - 40.00	1.0000	1.0000
T5	7	LDF7-50A (1 5/8 FOAM)	20.00 - 40.00	1.0000	1.0000
T5	8	LDF7-50A (1 5/8 FOAM)	20.00 - 40.00	1.0000	1.0000
T5	9	LDF7-50A (1 5/8 FOAM)	20.00 - 40.00	1.0000	1.0000
T5	10	LDF7-50A (1 5/8 FOAM)	20.00 - 40.00	1.0000	1.0000
T5	11	Hybrid Flex (1 5/8 Fiber)	20.00 - 40.00	1.0000	1.0000
T5	12	AVA5-50(7/8")	20.00 - 40.00	1.0000	1.0000
T6	1	1/2	6.00 - 20.00	1.0000	1.0000
T6	2	1/2	6.00 - 20.00	1.0000	1.0000
T6	3	Feedline Ladder	6.00 - 20.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T6	4	LDF7-50A (1 5/8 FOAM)	6.00 - 20.00	1.0000	1.0000
T6	5	Feedline Ladder	6.00 - 20.00	1.0000	1.0000
T6	7	LDF7-50A (1 5/8 FOAM)	6.00 - 20.00	1.0000	1.0000
T6	8	LDF7-50A (1 5/8 FOAM)	6.00 - 20.00	1.0000	1.0000
T6	9	LDF7-50A (1 5/8 FOAM)	6.00 - 20.00	1.0000	1.0000
T6	10	LDF7-50A (1 5/8 FOAM)	6.00 - 20.00	1.0000	1.0000
T6	11	Hybrid Flex (1 5/8 Fiber)	6.00 - 20.00	1.0000	1.0000
T6	12	AVA5-50(7/8")	6.00 - 20.00	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
***									
BXA-70063-6CF-EDIN-0 (Verizon)	A	From Leg	4.00 0.00 0.00	0.0000	102.00	No Ice 1/2" Ice 1" Ice	7.57 8.02 8.47	4.16 4.60 5.04	0.02 0.06 0.11
BXA-70063-6CF-EDIN-0 (Verizon)	B	From Leg	4.00 0.00 0.00	0.0000	102.00	No Ice 1/2" Ice 1" Ice	7.57 8.02 8.47	4.16 4.60 5.04	0.02 0.06 0.11
BXA-70063-6CF-EDIN-0 (Verizon)	C	From Leg	4.00 0.00 0.00	0.0000	102.00	No Ice 1/2" Ice 1" Ice	7.57 8.02 8.47	4.16 4.60 5.04	0.02 0.06 0.11
(2) Andrew SBNHH-1D65B (Verizon)	A	From Leg	4.00 0.00 0.00	0.0000	102.00	No Ice 1/2" Ice 1" Ice	8.08 8.53 9.00	5.34 5.79 6.26	0.05 0.10 0.16
(2) Andrew SBNHH-1D65B (Verizon)	B	From Leg	4.00 0.00 0.00	0.0000	102.00	No Ice 1/2" Ice 1" Ice	8.08 8.53 9.00	5.34 5.79 6.26	0.05 0.10 0.16
(2) Andrew SBNHH-1D65B (Verizon)	C	From Leg	4.00 0.00 0.00	0.0000	102.00	No Ice 1/2" Ice 1" Ice	8.08 8.53 9.00	5.34 5.79 6.26	0.05 0.10 0.16
LNX-8514DS (Verizon)	A	From Leg	4.00 0.00 0.00	0.0000	102.00	No Ice 1/2" Ice 1" Ice	11.45 12.06 12.69	7.70 8.29 8.89	0.05 0.12 0.19
LNX-8514DS (Verizon)	B	From Leg	4.00 0.00 0.00	0.0000	102.00	No Ice 1/2" Ice 1" Ice	11.45 12.06 12.69	7.70 8.29 8.89	0.05 0.12 0.19
LNX-8514DS (Verizon)	C	From Leg	4.00 0.00 0.00	0.0000	102.00	No Ice 1/2" Ice 1" Ice	11.45 12.06 12.69	7.70 8.29 8.89	0.05 0.12 0.19
Alcatel Lucent RRH 4x45 AWS (Verizon)	A	From Leg	3.00 0.00 0.00	0.0000	102.00	No Ice 1/2" Ice 1" Ice	2.16 2.36 2.57	1.42 1.59 1.77	0.04 0.06 0.08
Alcatel Lucent RRH 4x45 AWS (Verizon)	B	From Leg	3.00 0.00 0.00	0.0000	102.00	No Ice 1/2" Ice 1" Ice	2.16 2.36 2.57	1.42 1.59 1.77	0.04 0.06 0.08
Alcatel Lucent RRH 4x45 AWS (Verizon)	C	From Leg	3.00 0.00 0.00	0.0000	102.00	No Ice 1/2" Ice 1" Ice	2.16 2.36 2.57	1.42 1.59 1.77	0.04 0.06 0.08

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Alcatel Lucent RRH 4x30	A	From Leg	3.00		0.0000	102.00	No Ice	2.12	1.29	0.05
B25			0.00				1/2" Ice	2.31	1.45	0.07
(Verizon)			0.00				1" Ice	2.50	1.61	0.09
Alcatel Lucent RRH 4x30	B	From Leg	3.00		0.0000	102.00	No Ice	2.12	1.29	0.05
B25			0.00				1/2" Ice	2.31	1.45	0.07
(Verizon)			0.00				1" Ice	2.50	1.61	0.09
Alcatel Lucent RRH 4x30	C	From Leg	3.00		0.0000	102.00	No Ice	2.12	1.29	0.05
B25			0.00				1/2" Ice	2.31	1.45	0.07
(Verizon)			0.00				1" Ice	2.50	1.61	0.09
Alcatel Lucent RRH 4x30	A	From Leg	3.00		0.0000	102.00	No Ice	3.36	1.99	0.06
B13			0.00				1/2" Ice	3.61	2.22	0.08
(Verizon)			0.00				1" Ice	3.88	2.46	0.10
Alcatel Lucent RRH 4x30	B	From Leg	3.00		0.0000	102.00	No Ice	3.36	1.99	0.06
B13			0.00				1/2" Ice	3.61	2.22	0.08
(Verizon)			0.00				1" Ice	3.88	2.46	0.10
Alcatel Lucent RRH 4x30	C	From Leg	3.00		0.0000	102.00	No Ice	3.36	1.99	0.06
B13			0.00				1/2" Ice	3.61	2.22	0.08
(Verizon)			0.00				1" Ice	3.88	2.46	0.10
Raycap DB-T1-6Z-8AB-0Z	A	None			0.0000	102.00	No Ice	4.80	2.00	0.04
(Verizon)							1/2" Ice	5.07	2.19	0.08
							1" Ice	5.35	2.39	0.12
Raycap DB-T1-6Z-8AB-0Z	B	None			0.0000	102.00	No Ice	4.80	2.00	0.04
(Verizon)							1/2" Ice	5.07	2.19	0.08
							1" Ice	5.35	2.39	0.12
Pirod T-Frame Sector Mount	C	None			0.0000	102.00	No Ice	38.60	38.60	1.00
(3)							1/2" Ice	57.40	57.40	1.65
(Verizon)							1" Ice	76.20	76.20	2.24
***										
T-Frame Sector	A	From Leg	4.00		0.0000	88.00	No Ice	9.00	9.00	0.47
(AT&T)			0.00				1/2" Ice	9.30	9.30	0.61
			0.00				1" Ice	8.60	8.60	0.75
T-Frame Sector	B	From Leg	4.00		0.0000	88.00	No Ice	9.00	9.00	0.47
(AT&T)			0.00				1/2" Ice	9.30	9.30	0.61
			0.00				1" Ice	8.60	8.60	0.75
T-Frame Sector	C	From Leg	4.00		0.0000	88.00	No Ice	9.00	9.00	0.47
(AT&T)			0.00				1/2" Ice	9.30	9.30	0.61
			0.00				1" Ice	8.60	8.60	0.75
DB806-XT	B	From Leg	4.00		0.0000	79.00	No Ice	1.14	1.14	0.02
(Town of Glastonbury)			0.00				1/2" Ice	1.68	1.68	0.03
			0.00				1" Ice	2.22	2.22	0.04
PR-950	B	From Leg	4.00		0.0000	73.00	No Ice	6.35	6.35	0.04
(Town of Glastonbury)			0.00				1/2" Ice	11.43	11.43	0.05
			0.00				1" Ice	16.51	16.51	0.06
PiROD 6' Side Mount	B	From Leg	4.00		0.0000	73.00	No Ice	4.97	4.97	0.07
Standoff			0.00				1/2" Ice	6.12	6.12	0.13
(Town of Glastonbury)			0.00				1" Ice	7.27	7.27	0.19
Kathrein 742-213	A	From Leg	1.00		0.0000	65.00	No Ice	3.12	2.94	0.05
(Unknown)			0.00				1/2" Ice	3.45	3.52	0.08
			0.00				1" Ice	3.79	4.12	0.11
Kathrein 742-213	B	From Leg	1.00		0.0000	65.00	No Ice	3.12	2.94	0.05
(Unknown)			0.00				1/2" Ice	3.45	3.52	0.08
			0.00				1" Ice	3.79	4.12	0.11
Kathrein 742-213	C	From Leg	1.00		0.0000	65.00	No Ice	3.12	2.94	0.05
(Unknown)			0.00				1/2" Ice	3.45	3.52	0.08
			0.00				1" Ice	3.79	4.12	0.11
***										
(2) AIR 21	A	From Leg	3.00		0.0000	65.00	No Ice	6.05	4.36	0.09

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(Metro PCS)			0.00			1/2" Ice	6.42	4.70	0.13
			0.00			1" Ice	6.80	5.06	0.18
(2) AIR 21	A	From Leg	3.00	0.0000	65.00	No Ice	6.05	4.36	0.09
(Metro PCS)			0.00			1/2" Ice	6.42	4.70	0.13
			0.00			1" Ice	6.80	5.06	0.18
(2) AIR 21	A	From Leg	3.00	0.0000	65.00	No Ice	6.05	4.36	0.09
(Metro PCS)			0.00			1/2" Ice	6.42	4.70	0.13
			0.00			1" Ice	6.80	5.06	0.18
LNX-6515DS-VTM	A	From Leg	3.00	0.0000	65.00	No Ice	11.45	7.70	0.05
(Metro PCS)			0.00			1/2" Ice	12.06	8.29	0.12
			0.00			1" Ice	12.69	8.89	0.19
LNX-6515DS-VTM	B	From Leg	3.00	0.0000	65.00	No Ice	11.45	7.70	0.05
(Metro PCS)			0.00			1/2" Ice	12.06	8.29	0.12
			0.00			1" Ice	12.69	8.89	0.19
LNX-6515DS-VTM	C	From Leg	3.00	0.0000	65.00	No Ice	11.45	7.70	0.05
(Metro PCS)			0.00			1/2" Ice	12.06	8.29	0.12
			0.00			1" Ice	12.69	8.89	0.19
Smart Bias T	A	From Leg	3.00	0.0000	65.00	No Ice	0.20	0.11	0.00
(Metro PCS)			0.00			1/2" Ice	0.27	0.16	0.00
			0.00			1" Ice	0.34	0.23	0.01
Smart Bias T	B	From Leg	3.00	0.0000	65.00	No Ice	0.20	0.11	0.00
(Metro PCS)			0.00			1/2" Ice	0.27	0.16	0.00
			0.00			1" Ice	0.34	0.23	0.01
Smart Bias T	C	From Leg	3.00	0.0000	65.00	No Ice	0.20	0.11	0.00
(Metro PCS)			0.00			1/2" Ice	0.27	0.16	0.00
			0.00			1" Ice	0.34	0.23	0.01
3' Stand-Off	A	From Leg	0.00	0.0000	65.00	No Ice	0.50	0.50	0.01
(Metro PCS)			0.00			1/2" Ice	0.70	0.70	0.01
			0.00			1" Ice	0.90	0.90	0.02
3' Stand-Off	B	From Leg	0.00	0.0000	65.00	No Ice	0.50	0.50	0.01
(Metro PCS)			0.00			1/2" Ice	0.70	0.70	0.01
			0.00			1" Ice	0.90	0.90	0.02
3' Stand-Off	C	From Leg	0.00	0.0000	65.00	No Ice	0.50	0.50	0.01
(Metro PCS)			0.00			1/2" Ice	0.70	0.70	0.01
			0.00			1" Ice	0.90	0.90	0.02
***									
Powerwave P65-17-XLH-RR	A	From Leg	0.00	0.0000	88.00	No Ice	11.47	6.80	0.06
(AT&T)			0.00			1/2" Ice	12.08	7.38	0.12
			0.00			1" Ice	12.71	7.98	0.19
Powerwave P65-17-XLH-RR	B	From Leg	0.00	0.0000	88.00	No Ice	11.47	6.80	0.06
(AT&T)			0.00			1/2" Ice	12.08	7.38	0.12
			0.00			1" Ice	12.71	7.98	0.19
Powerwave P65-17-XLH-RR	C	From Leg	0.00	0.0000	88.00	No Ice	11.47	6.80	0.06
(AT&T)			0.00			1/2" Ice	12.08	7.38	0.12
			0.00			1" Ice	12.71	7.98	0.19
KMW AX-X-CD-1665-OOT	A	From Leg	0.00	0.0000	88.00	No Ice	8.50	6.30	0.07
(AT&T)			0.00			1/2" Ice	9.15	7.48	0.09
			0.00			1" Ice	9.80	8.66	0.11
KMW AX-X-CD-1665-OOT	B	From Leg	0.00	0.0000	88.00	No Ice	8.50	6.30	0.07
(AT&T)			0.00			1/2" Ice	9.15	7.48	0.09
			0.00			1" Ice	9.80	8.66	0.11
KMW AX-X-CD-1665-OOT	C	From Leg	0.00	0.0000	88.00	No Ice	8.50	6.30	0.07
(AT&T)			0.00			1/2" Ice	9.15	7.48	0.09
			0.00			1" Ice	9.80	8.66	0.11
Andrew SBNH-1D6565C	A	From Leg	0.00	0.0000	88.00	No Ice	11.64	9.84	0.09
(AT&T)			0.00			1/2" Ice	12.37	11.37	0.18
			0.00			1" Ice	13.09	12.89	0.27

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Andrew SBNH-1D6565C (AT&T)	B	From Leg	0.00	0.0000	88.00	No Ice	11.64	9.84	0.09
			0.00			1/2" Ice	12.37	11.37	0.18
			0.00			1" Ice	13.09	12.89	0.27
Andrew SBNH-1D6565C (AT&T)	C	From Leg	0.00	0.0000	88.00	No Ice	11.64	9.84	0.09
			0.00			1/2" Ice	12.37	11.37	0.18
			0.00			1" Ice	13.09	12.89	0.27
(2) TMA (AT&T)	A	From Leg	0.00	0.0000	88.00	No Ice	1.95	0.52	0.03
			0.00			1/2" Ice	2.13	0.64	0.04
			0.00			1" Ice	2.31	0.76	0.05
(2) TMA (AT&T)	B	From Leg	0.00	0.0000	88.00	No Ice	1.95	0.52	0.03
			0.00			1/2" Ice	2.13	0.64	0.04
			0.00			1" Ice	2.31	0.76	0.05
(2) TMA (AT&T)	C	From Leg	0.00	0.0000	88.00	No Ice	1.95	0.52	0.03
			0.00			1/2" Ice	2.13	0.64	0.04
			0.00			1" Ice	2.31	0.76	0.05
(2) RRU-11 (AT&T)	A	From Leg	0.00	0.0000	88.00	No Ice	1.64	1.26	0.04
			0.00			1/2" Ice	1.80	1.41	0.06
			0.00			1" Ice	1.97	1.57	0.08
(2) RRU-11 (AT&T)	B	From Leg	0.00	0.0000	88.00	No Ice	1.64	1.26	0.04
			0.00			1/2" Ice	1.80	1.41	0.06
			0.00			1" Ice	1.97	1.57	0.08
(2) RRU-11 (AT&T)	C	From Leg	0.00	0.0000	88.00	No Ice	1.64	1.26	0.04
			0.00			1/2" Ice	1.80	1.41	0.06
			0.00			1" Ice	1.97	1.57	0.08
Demarcation Box DC6-4860-188F (AT&T)	C	From Leg	0.00	0.0000	88.00	No Ice	4.45	0.89	0.02
			0.00			1/2" Ice	4.76	1.04	0.05
			0.00			1" Ice	5.07	1.19	0.08

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load K	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	104	Leg	A325N	0.6250	4	1.69	20.71	0.082 ✔	1	Bolt Tension
		Diagonal	A325N	0.5000	1	2.22	6.20	0.358 ✔	1	Member Bearing
		Top Girt	A325N	0.5000	1	0.12	6.20	0.019 ✔	1	Member Bearing
T2	92	Leg	A325N	0.6250	4	5.87	20.71	0.283 ✔	1	Bolt Tension
		Diagonal	A325N	0.5000	1	4.39	6.20	0.708 ✔	1	Member Bearing
		Top Girt	A325N	0.5000	1	0.46	6.20	0.074 ✔	1	Member Bearing
T3	80	Leg	A325N	0.6250	4	13.90	20.71	0.671 ✔	1	Bolt Tension
		Diagonal	A325N	0.5000	1	5.39	6.20	0.869 ✔	1	Member Bearing
T4	60	Leg	A490N	0.6250	4	22.14	26.00	0.852 ✔	1	Bolt Tension
		Diagonal	A325N	0.5000	1	6.37	7.95	0.801 ✔	1	Bolt Shear
T5	40	Leg	A490N	0.7500	4	29.96	37.44	0.800 ✔	1	Bolt Tension

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load K	Ratio Load / Allowable	Allowable Ratio	Criteria
		Diagonal	A325N	0.5000	1	6.78	7.95	0.853 ✔	1	Bolt Shear
T6	20	Leg	A354-BC	0.8750	4	37.09	42.28	0.877 ✔	1	Bolt Tension
		Diagonal	A325N	0.5000	1	7.08	7.95	0.890 ✔	1	Bolt Shear

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $P_u / \phi P_n$
T1	104 - 92	P2x.154	12.00	4.00	61.0 K=1.00	1.0745	-8.62	36.84	0.234 [1] ✔
T2	92 - 80	P2x.154	12.00	4.00	61.0 K=1.00	1.0745	-27.96	36.84	0.759 [1] ✔
T3	80 - 60	P2.5x.203	20.03	2.58	32.7 K=1.00	1.7040	-63.35	70.92	0.893 [1] ✔
T4	60 - 40	P2.875x0.203w3/8HP+FF	20.03	6.68	100.7 K=1.20	6.5580	-99.72	140.62	0.709 [1] ✔
T5	40 - 20	P2.875x0.203w3/8HP+FF	20.03	6.68	99.0 K=1.18	6.5580	-134.89	144.09	0.936 [1] ✔
T6	20 - 0	P3.5x0.3w3/8HP+FF	20.03	6.68	84.6 K=1.28	8.1008	-167.52	216.06	0.775 [1] ✔

[1] $P_u / \phi P_n$ controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $P_u / \phi P_n$
T1	104 - 92	L1 1/2x1 1/2x3/16	7.65	3.60	147.4 K=1.00	0.5273	-2.19	5.48	0.399 [1] ✔
T2	92 - 80	L1 1/2x1 1/2x3/16	7.68	3.62	148.2 K=1.00	0.5273	-4.50	5.42	0.830 [1] ✔
T3	80 - 60	L2x2x3/16	9.70	4.75	144.7 K=1.00	0.7150	-5.50	7.71	0.713 [1] ✔
T4	60 - 40	L2x2x3/8	12.21	5.98	184.5 K=1.00	1.3600	-6.37	9.02	0.706 [1] ✔
T5	40 - 20	L2 1/2x2 1/2x3/8	13.96	6.86	169.0 K=1.00	1.7300	-6.78	13.68	0.496 [1] ✔
T6	20 - 0	L2 1/2x2 1/2x3/8	15.79	7.76	191.2	1.7300	-7.08	10.69	0.662 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
					K=1.00				✔

[1] P_u / ϕP_n controls

Secondary Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T3	80 - 60	L2x2x3/16	8.30	8.06	142.6 K=0.91	0.7150	-1.10	7.94	0.138 [1] ✔

[1] P_u / ϕP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	104 - 92	L2x2x3/16	6.52	6.11	186.2 K=1.00	0.7150	-0.11	4.66	0.023 [1] ✔
T2	92 - 80	L2x2x3/16	6.52	6.11	186.2 K=1.00	0.7150	-0.35	4.66	0.075 [1] ✔

[1] P_u / ϕP_n controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	104 - 92	P2x.154	12.00	4.00	61.0	1.0745	6.75	48.35	0.140 [1] ✔
T2	92 - 80	P2x.154	12.00	4.00	61.0	1.0745	23.48	48.35	0.486 [1] ✔
T3	80 - 60	P2.5x.203	20.03	2.43	30.8	1.7040	55.65	76.68	0.726 [1] ✔
T4	60 - 40	P2.875x0.203w3/8HP+FF	20.03	6.68	83.9	6.5580	88.57	295.11	0.300 [1] ✔
T5	40 - 20	P2.875x0.203w3/8HP+FF	20.03	6.68	83.9	6.5580	119.83	295.11	0.406 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T6	20 - 0	P3.5x0.3w3/8HP+FF	20.03	6.68	66.1	8.1008	148.38	364.54	0.407 [1]

[1] P_u / ϕP_n controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	104 - 92	L1 1/2x1 1/2x3/16	7.65	3.60	97.4	0.3076	2.22	13.38	0.166 [1]
T2	92 - 80	L1 1/2x1 1/2x3/16	7.68	3.62	97.9	0.3076	4.39	13.38	0.328 [1]
T3	80 - 60	L2x2x3/16	9.70	4.75	94.4	0.4484	5.39	19.50	0.276 [1]
T4	60 - 40	L2x2x3/8	12.21	5.98	122.9	0.8442	6.27	36.72	0.171 [1]
T5	40 - 20	L2 1/2x2 1/2x3/8	13.96	6.86	111.0	1.1217	6.67	48.79	0.137 [1]
T6	20 - 0	L2 1/2x2 1/2x3/8	15.79	7.76	125.3	1.1217	6.93	48.79	0.142 [1]

[1] P_u / ϕP_n controls

Secondary Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T3	80 - 60	L2x2x3/16	8.30	8.06	156.8	0.7150	1.10	23.17	0.047 [1]

[1] P_u / ϕP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	104 - 92	L2x2x3/16	6.52	6.11	123.0	0.4484	0.12	19.50	0.006 [1]
T2	92 - 80	L2x2x3/16	6.52	6.11	123.0	0.4484	0.46	19.50	0.023 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
									✓

[1] P_u / ϕP_n controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	104 - 92	Leg	P2x.154	3	-8.62	36.84	23.4	Pass
T2	92 - 80	Leg	P2x.154	27	-27.96	36.84	75.9	Pass
T3	80 - 60	Leg	P2.5x.203	51	-63.35	70.92	89.3	Pass
T4	60 - 40	Leg	P2.875x0.203w3/8HP+FF	90	-99.72	140.62	70.9 85.2 (b)	Pass
T5	40 - 20	Leg	P2.875x0.203w3/8HP+FF	111	-134.89	144.09	93.6	Pass
T6	20 - 0	Leg	P3.5x0.3w3/8HP+FF	132	-167.52	216.06	77.5 87.7 (b)	Pass
T1	104 - 92	Diagonal	L1 1/2x1 1/2x3/16	18	-2.19	5.48	39.9	Pass
T2	92 - 80	Diagonal	L1 1/2x1 1/2x3/16	36	-4.50	5.42	83.0	Pass
T3	80 - 60	Diagonal	L2x2x3/16	54	-5.50	7.71	71.3 86.9 (b)	Pass
T4	60 - 40	Diagonal	L2x2x3/8	93	-6.37	9.02	70.6 80.1 (b)	Pass
T5	40 - 20	Diagonal	L2 1/2x2 1/2x3/8	114	-6.78	13.68	49.6 85.3 (b)	Pass
T6	20 - 0	Diagonal	L2 1/2x2 1/2x3/8	135	-7.08	10.69	66.2 89.0 (b)	Pass
T3	80 - 60	Secondary Horizontal	L2x2x3/16	60	-1.10	7.94	13.8	Pass
T1	104 - 92	Top Girt	L2x2x3/16	4	-0.11	4.66	2.3	Pass
T2	92 - 80	Top Girt	L2x2x3/16	29	-0.35	4.66	7.5	Pass
							Summary	
						Leg (T5)	93.6	Pass
						Diagonal (T6)	89.0	Pass
						Secondary Horizontal (T3)	13.8	Pass
						Top Girt (T2)	7.5	Pass
						Bolt Checks	89.0	Pass
						RATING =	**93.6**	**Pass**

WORKSHEET 1 OF 2 (COMPLETE BOTH WORKSHEET TABS)

InSite Towers, LLC

CUSTOMER APPLICATION

DATE SUBMITTED: 11/19/15

A Site Application Fee to be paid upon submission of this Customer Application.

CUSTOMER INFORMATION

COMPANY NAME:	Cellco Parntership DBA Verizon Wireless	PHONE:	866-862-4404
ENTITY Type: i.e. Inc., LLP	Partnership	FAX:	
STATE of Inc.	Delaware	SERVICE (PCS, SMR):	

CUSTOMER ADDRESSES

COMPANY Address:	One Verizon Way, Mail Stop 4AW100	CITY/STATE:	Basking Ridge/NJ	ZIP :	7920
BILLING Address:	180 Washington Valley Rd	CITY/STATE:	Bedminster/NJ	ZIP :	7921
NOTICE Address 1:	180 Washington Valley Rd	CITY/STATE:	Bedminster/NJ	ZIP :	7921
NOTICE Address 2:		CITY/STATE:		ZIP :	

CUSTOMER CONTACTS

PRIMARY CONTACT:	Chris Bisson	PHONE:	203-217-6200
TITLE:	Real Estate	E-MAIL Address:	cbisson@vssinc.net
SIGNATORY NAME:	David R Heverling	PHONE:	
TITLE:	Area Vice President	E-MAIL Address:	
EMERGENCY CONTACT:		PHONE:	
TITLE:		E-MAIL Address:	
TECHNICAL/OPS:		PHONE:	
TITLE:		E-MAIL Address:	
RF ENGINEER:		PHONE:	
TITLE:		E-MAIL Address:	
BILLING CONTACT:		PHONE:	
TITLE:		E-MAIL Address:	
LEGAL CONTACT:		PHONE:	
TITLE:		E-MAIL Address:	

SITE INFORMATION

CUSTOMER Site # / Name:	180896 / Manchester South CT	INSITE Site # and Name:	CT901 / Glastonbury
SITE LATITUDE:	41-43-55	SITE LONGITUDE:	72-32-55
SITE ADDRESS:	577 Bell St.	CITY:	Glastonbury
STATE:	CT ZIP: 6033	STRUCTURE TYPE:	Lattice

USE THIS SECTION TO PROVIDE A DESCRIPTION OF COLOCATION OR MODIFICATION REQUEST

Replacing (6) exisitng panels antennas with (6) new antennas. Adding (6) RRHs and (1) main distribution box to Verizon's existing array. No change to ground equipment.

USE THIS SECTION TO LIST EQUIPMENT TO BE REMOVED

(6) existing Andrew HBXX-6517DS-A2M panel antennas to be removed.

APPLICATION PREPARED BY

NAME:	Chris Bisson	PHONE:	203-217-6200
COMPANY:	VitalServices Inc.	ADDRESS:	99 East River Dr. 9th Fl.
TITLE:	Real Estate	E-MAIL Address:	cbisson@vssinc.net

EXHIBIT
Equipment

Site Name and #: **CT901 / Glastonbury** **Licensee Name:** **Cellco Parntership DBA Verizon Wireless**

The mounting method and exact location of the space and equipment listed herein shall be subject to InSite's approval.

SYSTEM REQUIREMENTS											
POWER provided by:	Utility Company direct					TELCO provided by:	POTS				
Power Requirements:	Amps:	200	Volts:	240		No. of Outlets:	N/A				
Generator Provided by:	Licensee	Make:	Unknown	Model:	Unknown		Fuel Type:	Diesel	Capacity:	Unknown	
Batteries:	Quantity:	N/A	Make:	N/A		Model:	N/A				
Note: audible alarms related to generator and other equipment shall be permanently disabled at unmanned sites											
SPACE REQUIREMENTS & RADIO INVENTORY											
Type of Space Required:	Ground:	Existing	Floor:	N/A		Total Square Feet:	300 sq ft				
Dimensions of Equipment Floor/Ground Space:	12' x 20'					Equipment Height:	N/A				
Dimensions of Generator Ground Space:	5' x 12'					Dimensions of Fuel Tank Ground Space:	Included				
No. of Transmitters (Tx):	N/A	Transmitter Make/Model:	N/A				Transmitter Power Output	N/A			
No. of Receivers (Rx):	N/A	Receiver Make/Model:	N/A				Transmitter ERP:	N/A			

EQUIPMENT LOADING DESCRIPTION (FINAL CONFIGURATION)					
	Sector 1	Sector 2	Sector 3	DISH(ES)	OTHER
Antenna Type (1):	Panel	Panel	Panel	N/A	N/A
# of Antennas (1)/ Sector:	Two (2)	Two (2)	Two (2)	None	None
Tx, Rx or Both:	Both	Both	Both	N/A	N/A
Antenna Manufacturer (1):	Andrew	Andrew	Andrew	N/A	N/A
Antenna Model (1):	SBNHH-1D65B	SBNHH-1D65B	SBNHH-1D65B	N/A	N/A
Antenna Dimensions (1):	72.9" x 11.9" x 7.1"	72.9" x 11.9" x 7.1"	72.9" x 11.9" x 7.1"	N/A	N/A
Antenna Weight (1):	41 lbs	41 lbs	41 lbs	N/A	N/A
Antenna RAD Ctr (1):	102 ft	102 ft	102 ft	N/A	N/A
Antenna Type (2):	Panel	Panel	Panel	N/A	N/A
# of Antennas (2)/ Sector:	One (1)	One (1)	One (1)	None	None
Tx, Rx or Both:	Both	Both	Both	N/A	N/A
Antenna Manufacturer (2):	Antel	Antel	Antel	N/A	N/A
Antenna Model (2):	BXA-70063-6CF	BXA-70063-6CF	BXA-70063-6CF	N/A	N/A
Antenna Dimensions (2):	71" x 11" x 5"	71" x 11" x 5"	71" x 11" x 5"	N/A	N/A
Antenna Weight (2):	15 lbs	15 lbs	15 lbs	N/A	N/A
Antenna RAD Ctr (2):	102 ft	102 ft	102 ft	N/A	N/A
Antenna Type (3):	Panel	Panel	Panel	N/A	N/A
# of Antennas (3)/ Sector:	One (1)	One (1)	One (1)	None	None
Tx, Rx or Both:	Both	Both	Both	N/A	N/A
Antenna Manufacturer (3):	Andrew	Andrew	Andrew	N/A	N/A
Antenna Model (3):	LNX-8514DS	LNX-8514DS	LNX-8514DS	N/A	N/A
Antenna Dimensions (3):	96.4" x 11.9" x 7.1"	96.4" x 11.9" x 7.1"	96.4" x 11.9" x 7.1"	N/A	N/A
Antenna Weight (3):	50 lbs	50 lbs	50 lbs	N/A	N/A
Antenna RAD Ctr (3):	102 ft	102 ft	102 ft	N/A	N/A
# of RRU/RRHs/ Sector (1):	One (1)	One (1)	One (1)		
RRU/RRH Manufacturer (1):	ALU	ALU	ALU		
RRU/RRH Model (1):	RRH4X45-AWS	RRH4X45-AWS	RRH4X45-AWS		
RRU/RRH Dimensions (1):	24.4" x 10.63" x 6.7"	24.4" x 10.63" x 6.7"	24.4" x 10.63" x 6.7"		
RRU/RRH Weight (1):	44 lbs	44 lbs	44 lbs		
RRU/RRH RAD Ctr (1):	102 ft	102 ft	102 ft		
# of RRU/RRHs/ Sector (2):	One (1)	One (1)	One (1)		
RRU/RRH Manufacturer (2):	ALU	ALU	ALU		
RRU/RRH Model (2):	RRH4X30 - B25	RRH4X30 - B25	RRH4X30 - B25		
RRU/RRH Dimension (2):	21.2" x 12" x 7.2"	21.2" x 12" x 7.2"	21.2" x 12" x 7.2"		
RRU/RRH Weight (2):	53 lbs	53 lbs	53 lbs		
RRU/RRH RAD Ctr (2):	102 ft	102 ft	102 ft		
# of RRU/RRHs/ Sector (3):	One (1)	One (1)	One (1)		
RRU/RRH Manufacturer (3):	ALU	ALU	ALU		
RRU/RRH Model (3):	RRH4X30 - B13	RRH4X30 - B13	RRH4X30 - B13		
RRU/RRH Dimension (3):	36.6" x 10.63" x 5.7"	36.6" x 10.63" x 5.7"	36.6" x 10.63" x 5.7"		
RRU/RRH Weight (3):	55 lbs	55 lbs	55 lbs		
RRU/RRH RAD Ctr (3):	102 ft	102 ft	102 ft		
# of TMAs/ Sector:	None	None	None		
# of Diplexers/ Sector:	None	None	None		
# of Surge Suppressors/Sctr:	Two (2)	None	None		
Surge Suppressor Make:	Raycap	N/A	N/A		
Surge Suppressor Model:	DB-T1-6Z-8AB-0Z	N/A	N/A		
Surge Supressor Dimensions:	24" x 24" x 10"	N/A	N/A		

EQUIPMENT LOADING DESCRIPTION (FINAL CONFIGURATION)					
	Sector 1	Sector 2	Sector 3	DISH(ES)	OTHER
Surge Supressor Weight:	44 lbs	N/A	N/A	Please include microwave dish frequencies below:	Please include microwave dish frequencies below:
Surge Supressors RAD Ctr:	102 ft	N/A	N/A		
OTHER:	None	None	None		
Transmit Frequencies:	746-757, 869-880, 890-891.5, 1970-1975, 2145-2155 MHz			N/A	N/A
Receive Frequencies:	776-787, 824-835, 845-846.5, 1890-1895, 1745-1755 MHz			N/A	N/A
# of Lines:	Six (6)	Six (6)	Six (6)	None	None
Line Size:	1-5/8"	1-5/8"	1-5/8"	N/A	N/A
# of Lines:	One (1)	None	One (1)	None	None
Line Size:	1-5/8"	N/A	1-5/8"	N/A	N/A
Mount Type:	T-Arm	T-Arm	T-Arm	N/A	N/A
Mount Size:	N/A	N/A	N/A	N/A	N/A

ATTACHMENT 4

Town of Glastonbury GIS

263 0 132 263 Feet

NAD_1983_StatePlane_Connecticut_FIPS_0600_Feet

This map is a user generated static output from an Internet mapping site and is for reference only.
Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

THIS MAP IS NOT TO BE USED FOR NAVIGATION

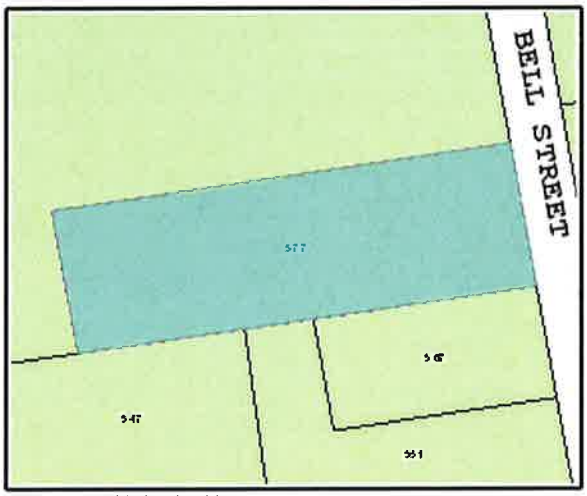
Town of Glastonbury GIS Parcel Report

Report Generated 7/25/2017 2:37:09 PM

Owner of Record

GIS ID: 03200577
Owner: 577 BELL STREET LLC
Co-Owner:
Address: 499 BELL ST
City, State ZIP: GLASTONBURY, CT 06033-1419

Account Number: 03200577
Property Address: 577 BELL ST



Property highlighted in blue

Parcel Information

Map/Street/Lot H3 / 0320 / W0011A **Property ID:** 12497
Developer Lot ID: 0001 **Water:** Well
Parcel Acreage: 1.20 **Sewer:** Septic
Zoning Code: RR **Census:** 5201

Valuation Summary

Item	Appraised Value	Assessed Value
Buildings	115700	81000
Land	151600	106100
Appurtenances	1800	1300
Total	**269100**	**188400**

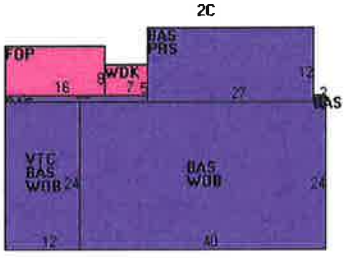
Owner of Record	Deed / Page	Sale Date	Sale Price
577 BELL STREET LLC	3312/0219	01/21/2016	0
SPENCER JOHN B IRREV TRUST	2938/0349	01/19/2012	0
SPENCER JOHN B REV TRUST	2400/0050	12/14/2006	0
SPENCER JOHN	0311/1146	12/19/1985	0

Building Information

Building ID 12497

Year Constructed : 1977
Building Type : Residential
Style : Ranch
Occupany : Single Family
Stories : 1
Building Zone : RR
Roof Type : Gable
Roof Material : Asphalt Shingl
Est. Gross S.F. : 3620
Est. Living S.F. : 1597

Number of Rooms : 4
Number of Bedrooms : 02
Number of Bathrooms : 1
Number of Half-Baths : 0
Exterior Wall : Vinyl
Interior Wall : Drywall
Interior Floor : Pine
Interior Floor #2 : No entry
Air Conditioning Type : None
Heat Type : Forced Air
Fuel Type : Oil



Subarea Type	Est. Gross S.F.	Est. Living S.F.
First Floor	1597	1597
Porch, Open	128	0
Piers	324	0
Vaulted Ceiling	288	0
Wood Deck	35	0
Walk out basement	1248	0

Outbuilding Type	Est. Gross S.F.	Comments
Shed-Wood/Comp	560.00	

ATTACHMENT 5

UNITED STATES POSTAL SERVICE®

Certificate of Mailing — Firm

Name and Address of Sender	TOTAL NO. of Pieces Listed by Sender	TOTAL NO. of Pieces Received at Post Office™	Affix Stamp Here ***Postmark with Date of Receipt.***
Kenneth C. Baldwin, Esq. Robinson & Cole LLP 280 Trumbull Street Hartford, CT 06103	3	3	neopost 07/26/2017 US POSTAGE $002.38⁰ ZIP 06103 041L12203360
	Postmaster, per *(name of receiving employee)*		

USPS® Tracking Number / Firm-specific Identifier	Address (Name, Street, City, State, and ZIP Code™)	Postage	Fee	Special Handling	Parcel Airlift
1.	Richard M. Johnson, Town Manager Town of Glastonbury 2155 Main Street Glastonbury, CT 06033				
2.	Khara Dodds, Director of Land Use and Planning Services Town of Glastonbury 2155 Main Street Glastonbury, CT 06033	OLD STATE HOUSE STA 06103 JUL 26 2017 USPS			
3.	577 Bell Street LLC 577 Bell Street Glastonbury, CT 06033				
4.					
5.					
6.					