Robinson+Cole

KENNETH C. BALDWIN

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Hartford, CT 06103-3597
Main (860) 275-8200
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Also admitted in Massachusetts

October 21, 2015

Melanie A. Bachman
Acting Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: **Notice of Exempt Modification – Facility Modification**
33 Janoski Road, Ashford, Connecticut

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains twelve (12) antennas at the 180-foot level of the existing 192-foot tower at 33 Janoski Road in Ashford, Connecticut (the "Property"). The tower is owned by Crown Castle ("Crown"). The Council approved Cellco's use of this tower in 2000. Cellco now intends to replace six (6) of its existing antennas with three (3) model SBNHH-1DS65B, 700 MHz antennas and three (3) model SBNHH-1DS65C, 1900/2100 MHz antennas, all at the same level on the tower. Cellco also intends to add nine (9) radio heads ("RRHs") and install two (2) HYBRIFLEX™ fiber optic antenna cables. Included in Attachment 1 are specifications for Cellco's replacement antennas, RRHs and HYBRIFLEX™ cables.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Michael J. Zambo, First Selectman for the Town of Ashford. A copy of this letter is also being sent to David H. Martin, the owner of the Property and to Crown, the tower owner.

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 RRH's will be located on its existing platform at the 180-foot level on the 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 worst-case General 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 can support Cellco's proposed modifications. (*See* Structural Analysis Report included in Attachment 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:
Michael J. Zambo, Ashford First Selectman
David H. Martin
Rebecca Klein, Crown Castle
Tim Parks

ATTACHMENT 1

Product Specifications

COMMSCOPE®

POWERED BY ANDREW.

SBNHH-1D65B

Andrew® Tri-band 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, dB	14	13	15	15	15	13
Front-to-Back Ratio at 180°, dB	27	29	28	28	28	27
CPR at Boresight, dB	20	23	20	20	17	21
CPR at Sector, dB	14	10	12	10	9	1
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, 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 Brand	Andrew®
Antenna Type	DualPol® multiband with internal RET
Band	Multiband
Brand	DualPol® | Teletilt®
Operating Frequency Band	1695 – 2360 MHz | 698 – 896 MHz
Performance Note	Outdoor usage

Product Specifications

SBNHH-1D65B

Mechanical Specifications

Color	Light gray
Lightning Protection	dc Ground
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, maximum	617.7 N @ 150 km/h 138.9 lbf @ 150 km/h
Wind Speed, maximum	241.4 km/h | 150.0 mph

Dimensions

Depth	181.0 mm | 7.1 in
Length	1851.0 mm | 72.9 in
Width	301.0 mm | 11.9 in
Net Weight	18.4 kg | 40.6 lb

Remote Electrical Tilt (RET) Information

Input Voltage	10–30 Vdc
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
RET System	Teletilt®

Packed Dimensions

Depth	299.0 mm | 11.8 in
Length	1970.0 mm | 77.6 in
Width	409.0 mm | 16.1 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

Included Products

Product Specifications

SBNHH-1D65B

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.

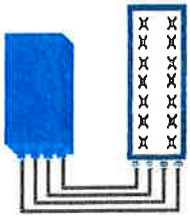
Its compactness and slim design makes the Alcatel-Lucent B13 RRH4x30-4R easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the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

PCS RF MODULES

RRH1900 2X60 - HW CHARACTERISTICS

LA6.0.1/13.3

		RRH2x60
RF Output Power		2x60W
Instantaneous Bandwidth		20MHz
Transmitter		2 TX
Receiver	1900 HW version	2 Branch RX – LA6.0.1
	1900A HW version	4 Branch RX – LR13.3
Features		AISG 2.0 for RET/TMA
		Internal Smart Bias-T
Power		-48VDC
CPRI Ports		2 CPRI Rate 3 Ports
External Alarms		4 External User Alarms
Monitor Ports		TX
Environmental		GR487 Compliance
RF Connectors		7/16 DIN (top mounted)

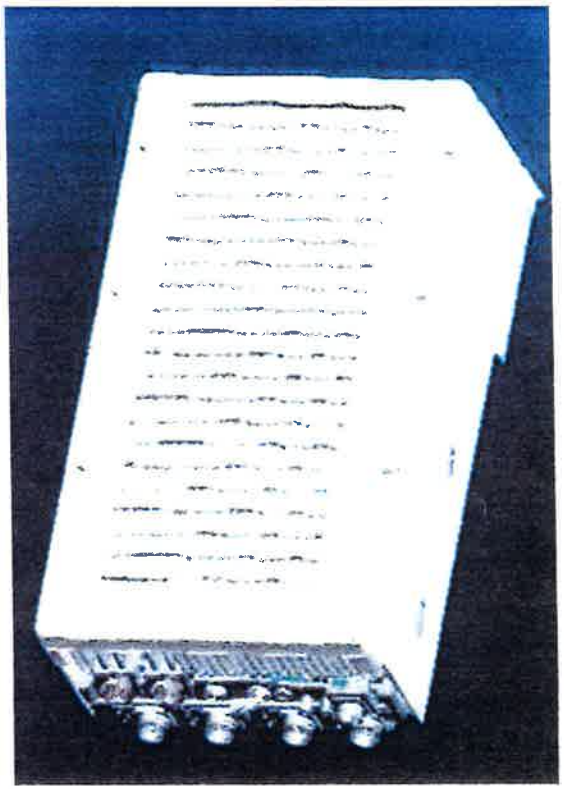
** Not a Verizon Wireless deployed product

NEW PCS RF MODULES FOR VZW

RRH2X60 - HW CHARACTERISTICS

LR14.3

	RRH2x60
RF Output Power	2x60W (4x30W HW Ready)
Instantaneous Bandwidth	60MHz
Target Reliability (Annual Return Rate)	<2%
Receiver	4 Branch Rx
Features	AISG 2.0 for RET/TMA
Power	-48VDC
	Internal Smart Bias-T
CPRI Ports	2 CPRI Rate 5 Ports
External Alarms	4 External User Alarms
Monitor Ports	TX, RX
Environmental	GR487 Compliance
RF Connectors	7/16 DIN (downward facing)
Dimensions	22"(h) x 12"(w)x 9.4" (d)**
Weight	55lb**



**- Includes solar shield but not mounting brackets (8 lbs.)

B66A RRH 4X45 – PHYSICAL CHARACTERISTICS- TARGET 15.1

B4 RRH4x45-4R (AWS-Extension Band)	
Frequency Band	LR15.1 – B4 / LR16.1 B66 (AWS 1 and 3 only)
RF Output Power	2x90W/4x45W (SW configurable)
Operational range	2110-2180 MHz, DL/ 1710-1780 MHz UL
Instantaneous Bandwidth	70MHz
Configuration (HW readiness)	LTE: 2T2R, 2T4R, 4T4R
Carrier Bandwidths	5, 10, 15 and 20 MHz
Interfaces	2x CPRI Rate 7 Ports Antenna Connectors 4.3-10
AISG Support	AISG 2.0 for RET Internal Smart Bias T
Monitor Ports	NA (Spec An to replace ports)
Environmental	GR487 Compliance / GR3178 Compliance (with exceptions)
Mounting options	Pole/Wall
Connectors location	All bottom
External Alarms	4
Annual Return Rate (Target)	<2%
Operating Temperature	-40 C to +55 C (without solar load)

- Commercial Product Will include B66 support of AWS 1 and 3.
- Lower AWS 3 UL Not in 3GPP Band 66 Definition

Physical Dimensions – Not to Exceed		
	W/O Solar Shield	With Solar Shield
Dimensions HxWxD	H = 26in (H=660mm) W = 11.4in (W=290mm) D = 5.9in (D=150mm)	H = 26.6in (H=675mm) W = 12in (W=304mm) D = 6.8n (D=173mm)
Volume	29l	35.5l
Weight		64lbs / 29kg

Product Data Sheet HB158-1-08U8-S8J18

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

Product Description

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

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

Figure 1: HYBRIFLEX Series

Features/Benefits

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

Technical Specifications

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

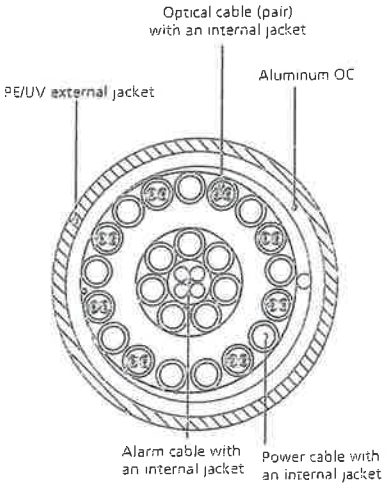


Figure 2: Construction Detail

* This data is provisional and subject to change

ATTACHMENT 2

	General	Power	Density					
Site Name: Westford (Ashford)								
Tower Height: 192ft								
CARRIER	**# OF CHAN.**	**WATTS ERP**	**HEIGHT**	**CALC. POWER DENS**	**FREQ.**	**MAX. PERMISS. EXP.**	**FRACTION MPE**	**Total**
*AT&T UMTS	2	565	141	0.0223	880	0.5867	0.38%	
*AT&T UMTS	2	1077	141	0.0425	1900	1.0000	0.43%	
*AT&T GSM	4	813	141	0.0642	1900	1.0000	0.64%	
*AT&T GSM	1	491	141	0.0097	880	0.5867	0.17%	
*AT&T LTE	1	1313	141	0.0259	734	0.4893	0.53%	
*T-Mobile	1	865	181	0.0102	700	0.4667	0.22%	
*T-Mobile	6	1102	151	0.1131	1900	1.0000	1.13%	
*Nextel	9	100	170	0.0120	851	0.5673	0.21%	
Verizon PCS	**11**	**392**	**180**	**0.0479**	**1970**	**1.0000**	**4.79%**	
Verizon Cellular	**9**	**247**	**180**	**0.0247**	**869**	**0.5793**	**4.26%**	
Verizon AWS	**1**	**2302**	**180**	**0.0255**	**2145**	**1.0000**	**2.55%**	
Verizon 700	**1**	**793**	**180**	**0.0088**	**746**	**0.4973**	**1.77%**	
								17.07%
* Source: Siting Council								

ATTACHMENT 3

September 10, 2015

Rebecca Klein
Crown Castle
525 Alderman Lane
Fort Mill, SC 29715
(704) 405-6525

B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630
btwo@btgrp.com

Subject:	**Structural Analysis Report**	
Carrier Designation:	***Verizon Wireless* Co-Locate**	
	Carrier Site Number:	118614
	Carrier Site Name:	Sky Hill
Crown Castle Designation:	**Crown Castle BU Number:**	876345
	Crown Castle Site Name:	SKY HILL
	Crown Castle JDE Job Number:	343901
	Crown Castle Work Order Number:	1115846
	Crown Castle Application Number:	307379 Rev. 4
Engineering Firm Designation:	**B+T Group Project Number:**	77921.004.01
Site Data:	**33 Janowski Road, Ashford, Windham County, CT** **Latitude *41° 57' 7.7"*, Longitude *-72° 11' 43.9"*** **192 Foot - Self Support Tower**	

Dear Rebecca Klein,

B+T Group 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 823651, in accordance with application 307379, revision 4.

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 **Sufficient Capacity**
Note: See Table 1 and Table 2 for the proposed and existing/reserved loading, respectively.

The analysis has been performed in accordance with the TIA/EIA-222-F standard and 2005 CT State Building Code requirements based upon a wind speed of 85 mph fastest mile.

All 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 *B+T Group* 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:
B+T Engineering, Inc.

Jason Brock, E.I.
Project Engineer

Chad E. Tuttle, P.E.
Engineer of Record
COA: PEC.0001564 Expires: 02/10/2016

9/11/15

tnxTower Report - version 6.1.4.1

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 192 ft. Self-Support tower designed by Rohn in December of 1996. The tower was originally designed for a wind speed of 90 mph per TIA/EIA-222-E.

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 85 mph with no ice, 37.6 mph with 1 inch ice thickness and 50 mph under service loads.

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
180.0	181.0	3	Alcatel Lucent	RRH2X60-PCS	2	1-5/8	--
		3	Alcatel Lucent	RRH2x60-700			
		3	Alcatel Lucent	RRH4x45-AWS4 B66			
		6	Commscope	SBNHH-1D65B			
		2	Rfs Celwave	DB-T1-6Z-8AB-0Z			

Table 2 - Existing and Reserved 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
190.0	192.0	6	Decibel	DB980H90E-M	6	1-5/8	1
	190.0	1	--	Sector Mount [SM 505-3]			
180.0	184.0	1	Symmetricom	58532A	--	--	1
	181	**3**	**Antel**	**BXA-70063/6CF**	**6**	**1-5/8**	**4**
		3	**Rymsa Wireless**	**MG D5-800Tx**			
		6	Antel	LPA-80080/4CF	6 1	1-5/8 1/2	1
	180.0	6	Rfs Celwave	FD9R6004/2C-3L			
		1	--	Sector Mount [SM 304-3]			
170.0	172.0	9	Allgon	7130.16.33.00	9	1-5/8	3
	170.0	1	--	Sector Mount [SM 502-3]			
160.0	160.0	3	Andrew	HBX-6516DS-VTM	6	1-5/8	1
		1	--	Sector Mount [SM 104-3]			
150.0	151.0	2	Commscope	ATBT-BOTTOM-24V	8	7/8	2
		2	Commscope	LNX-6515DS-VTM			
		2	Ems Wireless	RR90-17-02DP			
		2	Ericsson	KRY 112 144/1			
	150.0	2	--	Side Arm Mount [SO 301-1]	--	--	1
140.0	141.0	3	Communication Components Inc.	DTMABP7819VG12A	12 2 1	7/8 3/4 3/8	1
		6	Ericsson	RRUS-11			
		3	Kathrein	800 10121			
		4	Kmw Comm.	AM-X-CD-14-65-00T-RET			
		2	Kmw Comm.	AM-X-CD-16-65-00T-RET			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
		3	Powerwave Tech.	7020.00			
		3	Powerwave Tech.	LGP13519			
		1	Raycap	DC6-48-60-18-8F			
	140.0	1	--	Sector Mount [SM 504-3]			
98.0	102.0	1	Symmetricom	58532A	1	1/2	1
	98.0	1	--	Side Arm Mount [SO 301-1]			

Notes:
1) Existing Equipment
2) Reserved Equipment
3) Abandoned Equipment considered in this analysis
4) **Equipment To Be Removed ; Not Considered In This Analysis**

Table 3 - Design 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)
189	189	12	Decibel	DB980H90E-M	12	2-1/4
		3	Generic	Mounting Frame		
170	170	12	Swedcom	ALP9212	12	1-5/8
		3	Generic	Mounting Frame		
150	150	12	Swedcom	ALP9212	12	1-5/8
		3	Generic	Mounting Frame		
80	80	1	Generic	12' Gate Boom	1	7/8
		1	Generic	GPS Antenna		

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
Online Application	Verizon Wireless Co-locate, Rev# 4	307379	CCI Sites
Tower Manufacturer Drawing	Rohn, File No. 34589PH	1631630	CCI Sites
Foundation Drawing	Rohn, File No. 34589PH	1631622	CCI Sites
Geotech Report	FDH, Project No. 07-11436G	2189896	CCI Sites
Antenna Configuration	Crown CAD Package	Date : 09/04/2015	CCI Sites

3.1) Analysis Method

tnxTower (version 6.1.4.1), 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.

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.
5) Mount areas and weights are assumed based on photographs provided.

This analysis may be affected if any assumptions are not valid or have been made in error. B+T Group should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T1	192 - 180	Leg	ROHN 2.5 STD	1	-5.095	55.077	9.3	Pass
T2	180 - 160	Leg	ROHN 2.5 STD	25	-37.066	50.253	73.8	Pass
T3	160 - 140	Leg	ROHN 3 EH	55	-71.647	83.781	85.5	Pass
T4	140 - 120	Leg	ROHN 4 EH	76	-111.372	139.064	80.1	Pass
T5	120 - 100	Leg	ROHN 5 EH	97	-147.497	203.152	72.6	Pass
T6	100 - 80	Leg	ROHN 6 EHS	118	-178.470	212.190	84.1	Pass
T7	80 - 60	Leg	ROHN 6 EH	133	-212.088	264.317	80.2	Pass
T8	60 - 40	Leg	ROHN 8 EHS	148	-243.559	332.508	73.2	Pass
T9	40 - 20	Leg	ROHN 8 EHS	163	-275.336	332.551	82.8	Pass
T10	20 - 0	Leg	ROHN 8 EHS	178	-316.825	332.857	95.2	Pass
T1	192 - 180	Diagonal	L1 3/4x1 3/4x3/16	12	-1.316	7.856	16.8 24.8 (b)	Pass
T2	180 - 160	Diagonal	L2x2x3/16	35	-5.027	6.868	73.2 83.6 (b)	Pass
T3	160 - 140	Diagonal	L2 1/2x2 1/2x1/4	63	-6.963	10.897	63.9 81.1 (b)	Pass
T4	140 - 120	Diagonal	L2 1/2x2 1/2x1/4	84	-7.898	8.324	94.9	Pass
T5	120 - 100	Diagonal	L3x3x1/4	105	-8.081	11.538	70.0	Pass
T6	100 - 80	Diagonal	L3 1/2x3 1/2x1/4	126	-9.254	12.595	73.5 75.6 (b)	Pass
T7	80 - 60	Diagonal	L4x4x1/4	141	-10.004	15.987	62.6 81.2 (b)	Pass
T8	60 - 40	Diagonal	L4x4x5/16	156	-9.530	16.507	57.7 62.6 (b)	Pass
T9	40 - 20	Diagonal	L4x4x5/16	171	-11.309	14.230	79.5	Pass
T10	20 - 0	Diagonal	L4x4x3/8	186	-11.836	14.549	81.4	Pass
T1	192 - 180	Top Girt	L1 3/4x1 3/4x3/16	5	-0.091	2.721	3.3	Pass
T2	180 - 160	Top Girt	L2x2x3/16	29	-1.117	4.122	27.1	Pass
							Summary	
						Leg (T10)	95.2	Pass
						Diagonal (T4)	94.9	Pass
						Top Girt (T2)	27.1	Pass
						Bolt Checks	93.0	Pass
						RATING =	**95.2**	**Pass**

Table 6 – Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
--	Anchor Rods	Base	62.0	Pass
1	Base Foundation Structural	Base	24.3	Pass
1	Base Foundation Soil Interaction	Base	65.0	Pass

Structure Rating (max from all components) =	95.2%

Notes:
1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

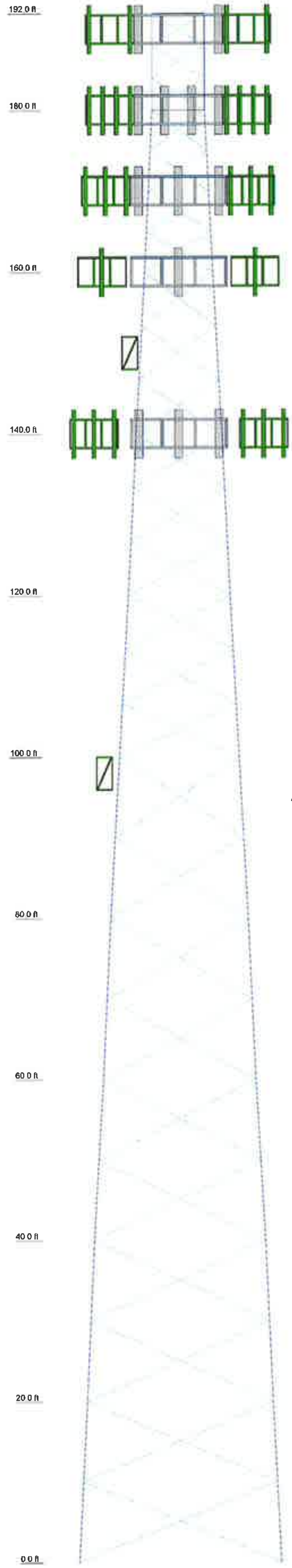
4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the existing, reserved, and proposed loads. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

Section	Legs	Leg Grade	Diagonals	Diagonal Grade	Top Girts	Face Width (ft)	# Panels @ (ft)	Weight (K)
[illegible]	ROHN 2.5 STD	A572-50	L1 3/4x1 3/4x3/16	A36	L1 3/4x1 3/4x3/16	6.58	3 @ 4	[illegible]
[illegible]			L2x2x3/16		L2x2x3/16		4 @ 5	[illegible]
[illegible]	ROHN 3 EH		L2 1/2x2 1/2x1/4		N.A.	8.54	9 @ 6.66667	[illegible]
T4	ROHN 4 EH					10.61		[illegible]
[illegible]	ROHN 5 EH		L3x3x1/4	A572-50		12.74		[illegible]
[illegible]	ROHN 6 EHS		L3 1/2x3 1/2x1/4			14.83	8 @ 10	[illegible]
[illegible]	ROHN 6 EH		L4x4x1/4			16.92		[illegible]
[illegible]	ROHN 8 EHS		L4x4x5/16			18.88		[illegible]
[illegible]						21.13		[illegible]
[illegible]			L4x4x3/8			23.05	2 @ 9.95833	[illegible]
						25.05		28.3



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
(2) DB980H90E-M w/ Mount Pipe (E)	190	6' x 2" Mount Pipe (E-Per photo)	160
(2) DB980H90E-M w/ Mount Pipe (E)	190	Sector Mount [SM 104-3] (E)	150
(2) DB980H90E-M w/ Mount Pipe (E)	190	RR90-17-02DP w/ Mount Pipe (R)	150
Sector Mount [SM 506-3] (E)	190	RR90-17-02DP w/ Mount Pipe (R)	150
(2) LPA-80080/4CF (E)	180	LNX-6515DS-VTM w/ Mount Pipe (R)	150
(2) LPA-80080/4CF (E)	180	LNX-6515DS-VTM w/ Mount Pipe (R)	150
(2) LPA-80080/4CF (E)	180	KRY 112 144/1 (R)	150
(2) FD9R6004/2C-3L (E)	180	KRY 112 144/1 (R)	150
(2) FD9R6004/2C-3L (E)	180	ATBT-BOTTOM-24V (R)	150
(2) FD9R6004/2C-3L (E)	180	ATBT-BOTTOM-24V (R)	150
58532A (E)	180	Side Arm Mount [SO 301-1] (E)	150
(2) SBNHH-1D65B w/ Mount Pipe (P)	180	Side Arm Mount [SO 301-1] (E)	150
(2) SBNHH-1D65B w/ Mount Pipe (P)	180	(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe (E)	140
(2) SBNHH-1D65B w/ Mount Pipe (P)	180	(2) AM-X-CD-14-65-00T-RET w/ Mount Pipe (E)	140
RRH4x45-AWS4 B66 (P)	180	(2) AM-X-CD-14-65-00T-RET w/ Mount Pipe (E)	140
RRH4x45-AWS4 B66 (P)	180	800 10121 w/ Mount Pipe (E)	140
RRH4x45-AWS4 B66 (P)	180	800 10121 w/ Mount Pipe (E)	140
RRH2x60-700 (P)	180	800 10121 w/ Mount Pipe (E)	140
RRH2x60-700 (P)	180	(2) RRUS-11 (E)	140
RRH2x60-700 (P)	180	(2) RRUS-11 (E)	140
RRH2X60-PCS (P)	180	(2) RRUS-11 (E)	140
RRH2X60-PCS (P)	180	7020.00 (E)	140
RRH2X60-PCS (P)	180	7020.00 (E)	140
(2) DB-T1-6Z-8AB-0Z (P)	180	7020.00 (E)	140
Sector Mount [SM 304-3] (E-4Mount Pipes included)	180	LGP13519 (E)	140
		LGP13519 (E)	140
(3) 7130.16.33.00 w/ Mount Pipe (AB)	170	LGP13519 (E)	140
(3) 7130.16.33.00 w/ Mount Pipe (AB)	170	DTMABP7819VG12A (E)	140
(3) 7130 16 33 00 w/ Mount Pipe (AB)	170	DTMABP7819VG12A (E)	140
Sector Mount [SM 502-3] (AB)	170	DTMABP7819VG12A (E)	140
HBX-6516DS-VTM w/ Mount Pipe (E)	160	DC6-48-60-18-8F (E)	140
HBX-6516DS-VTM w/ Mount Pipe (E)	160	Sector Mount [SM 504-3] (E)	140
HBX-6516DS-VTM w/ Mount Pipe (E)	160	58532A (E)	98
6' x 2" Mount Pipe (E-Per photo)	160	Side Arm Mount [SO 301-1] (E)	98
6' x 2" Mount Pipe (E-Per photo)	160		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

1. Tower is located in Windham County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 95.2%

MAX. CORNER REACTIONS AT BASE:
DOWN: 315 K
SHEAR: 36 K

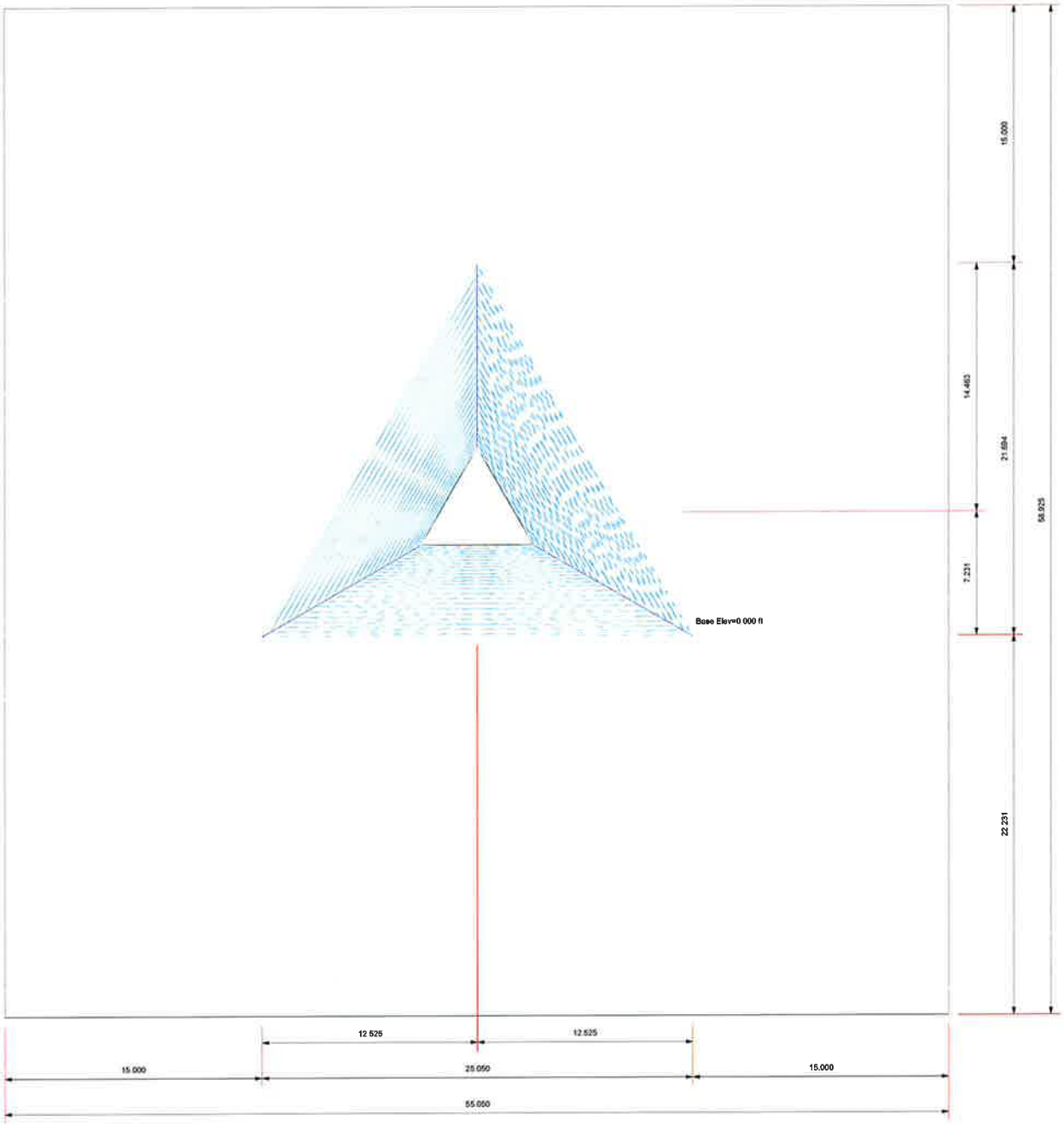
UPLIFT: -266 K
SHEAR: 31 K

AXIAL 126 K
SHEAR 18 K
MOMENT 2087 kip-ft
TORQUE 7 kip-ft
38 mph WIND - 1.000 in ICE

AXIAL 53 K
SHEAR 57 K
MOMENT 6454 kip-ft
TORQUE 31 kip-ft
REACTIONS - 85 mph WIND

B+T Group 1717 S Boulder Ave, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job: 77921.004.01 - SKY HILL, CT (BU# 87634		
	Project:		
	Client: Crown Castle	Drawn by: jbrock	App'd:
	Code: TIA/EIA-222-F	Date: 09/09/15	Scale: NTS
	Path:		Dwg No. E-1

Plot Plan
Total Area - 0.07 Acres

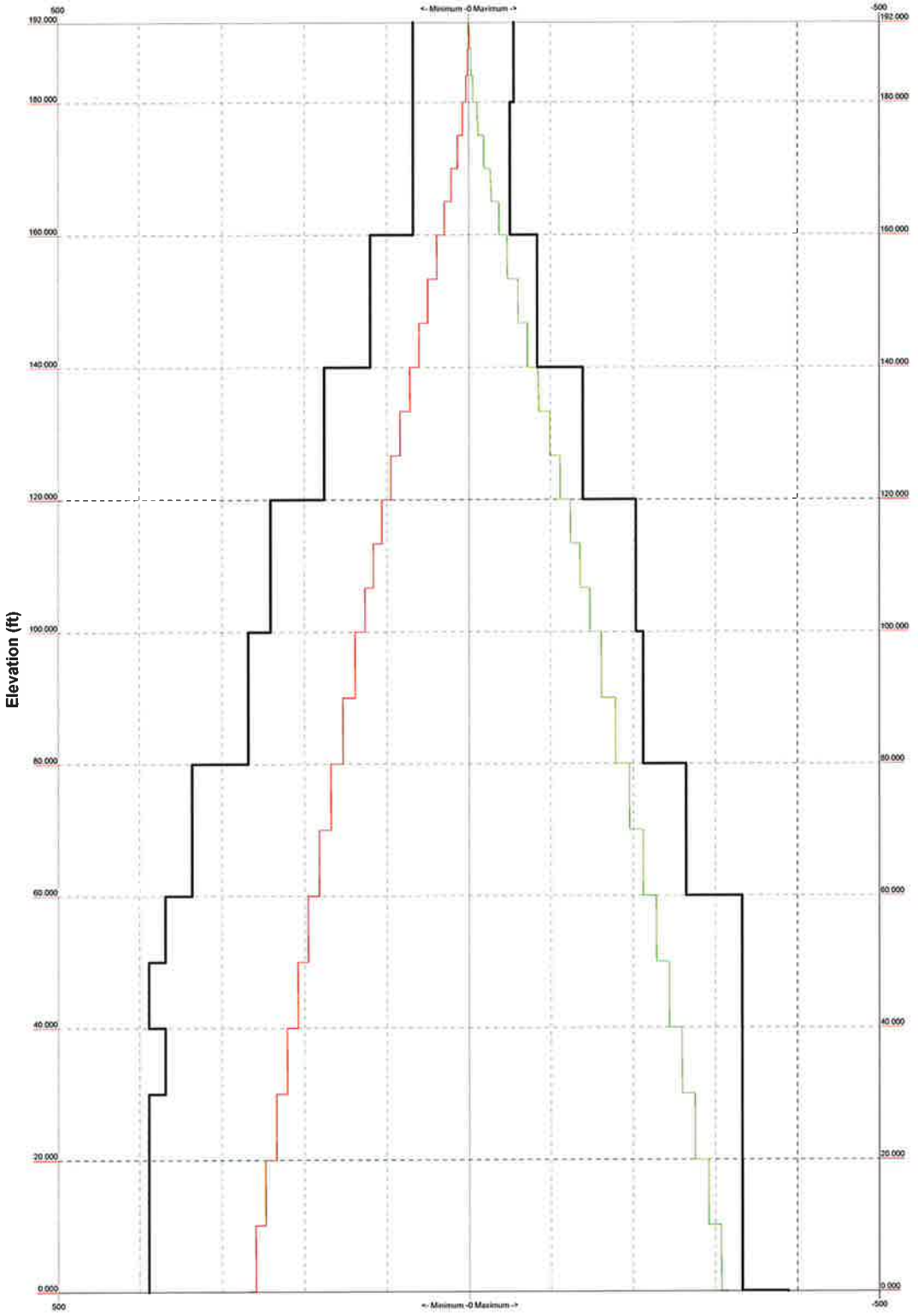


B+T Group
1717 S Boulder Ave, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: 77921.004.01 - SKY HILL, CT (BU# 876345			
Project:			
Client: Crown Castle	Drawn by: jbrock		App'd:
Code: TIA/EIA-222-F	Date: 09/09/15		Scale: NTS
Path:			Dwg No. E-2

TIA/EIA-222-F - 85 mph/38 mph 1.000 in Ice

Leg Capacity ——— Leg Compression (K)



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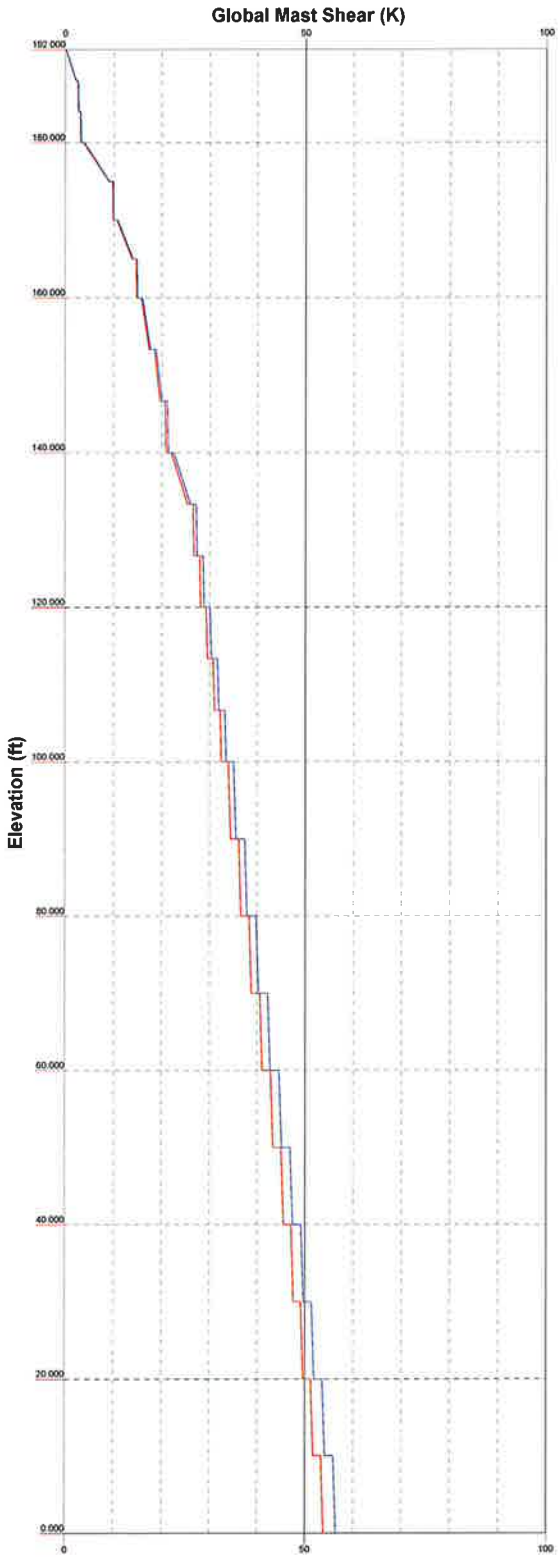
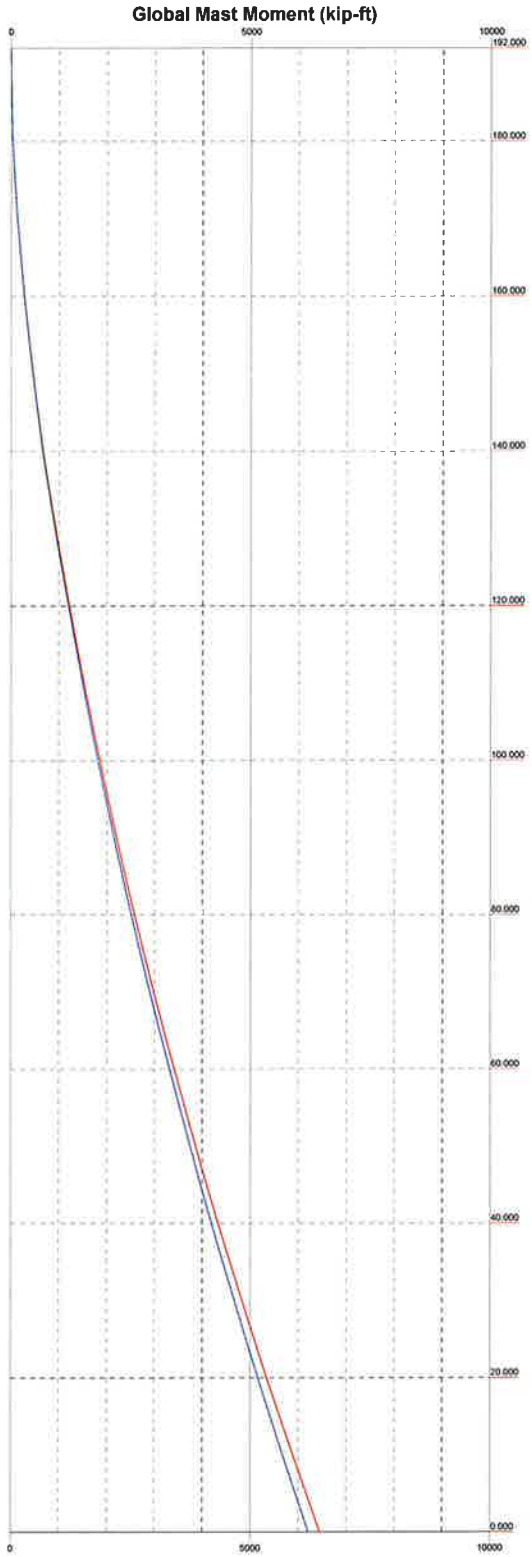
FAX: (918) 295-0265

Job: 77921.004.01 - SKY HILL, CT (BU# 876345			
Project:			
Client: Crown Castle	Drawn by: jbrock	App'd:	
Code: TIA/EIA-222-F	Date: 09/09/15	Scale: NTS	
Path:		Dwg No. E-3	





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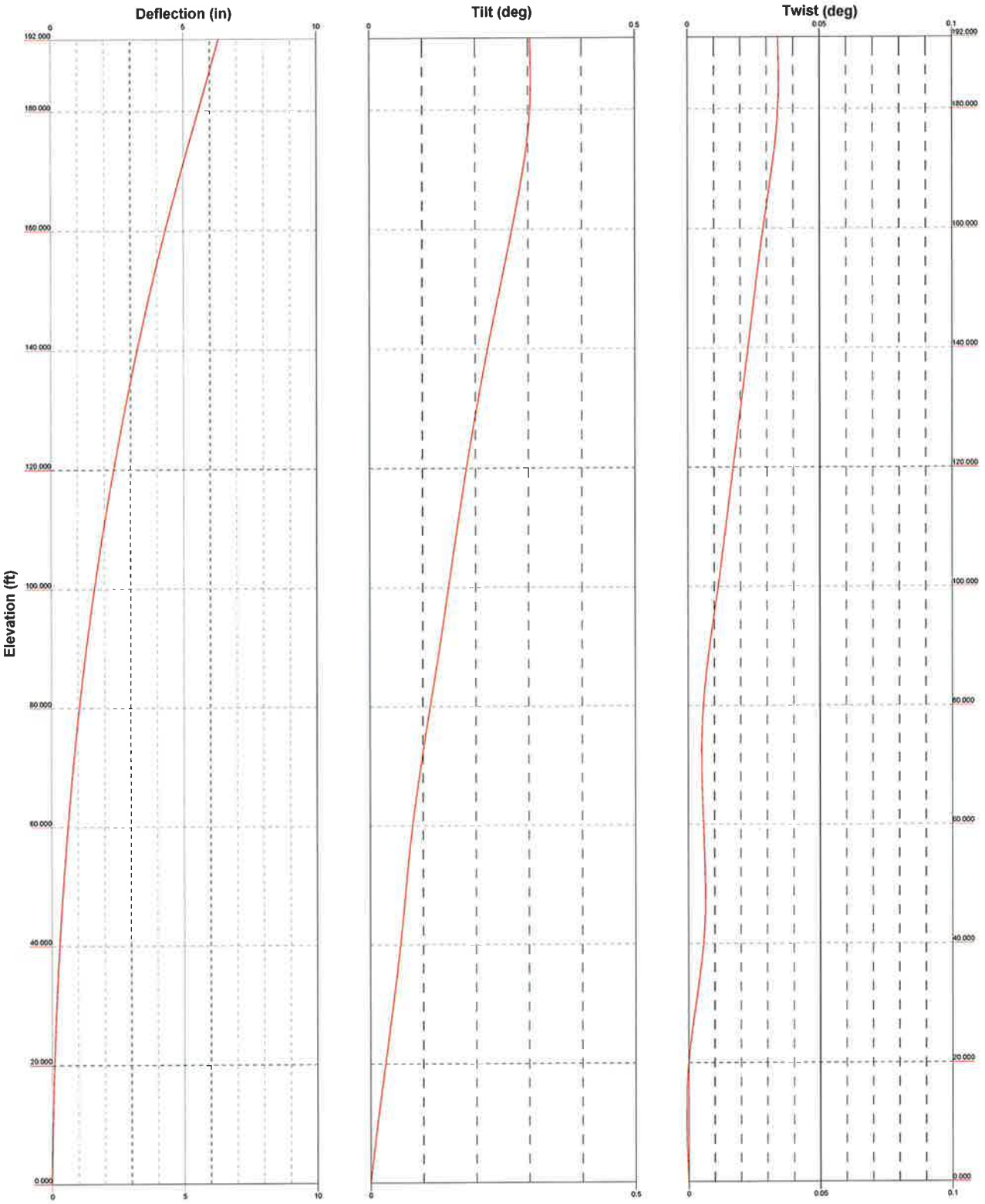
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: 77921.004.01 - SKY HILL, CT (BU# 876345			
Project:			
Client: Crown Castle	Drawn by: jbrock	App'd:	
Code: TIA/EIA-222-F	Date: 09/09/15	Scale: NTS	
Path:		Dwg No. E-4	

TIA/EIA-222-F - Service - 50 mph

Maximum Values



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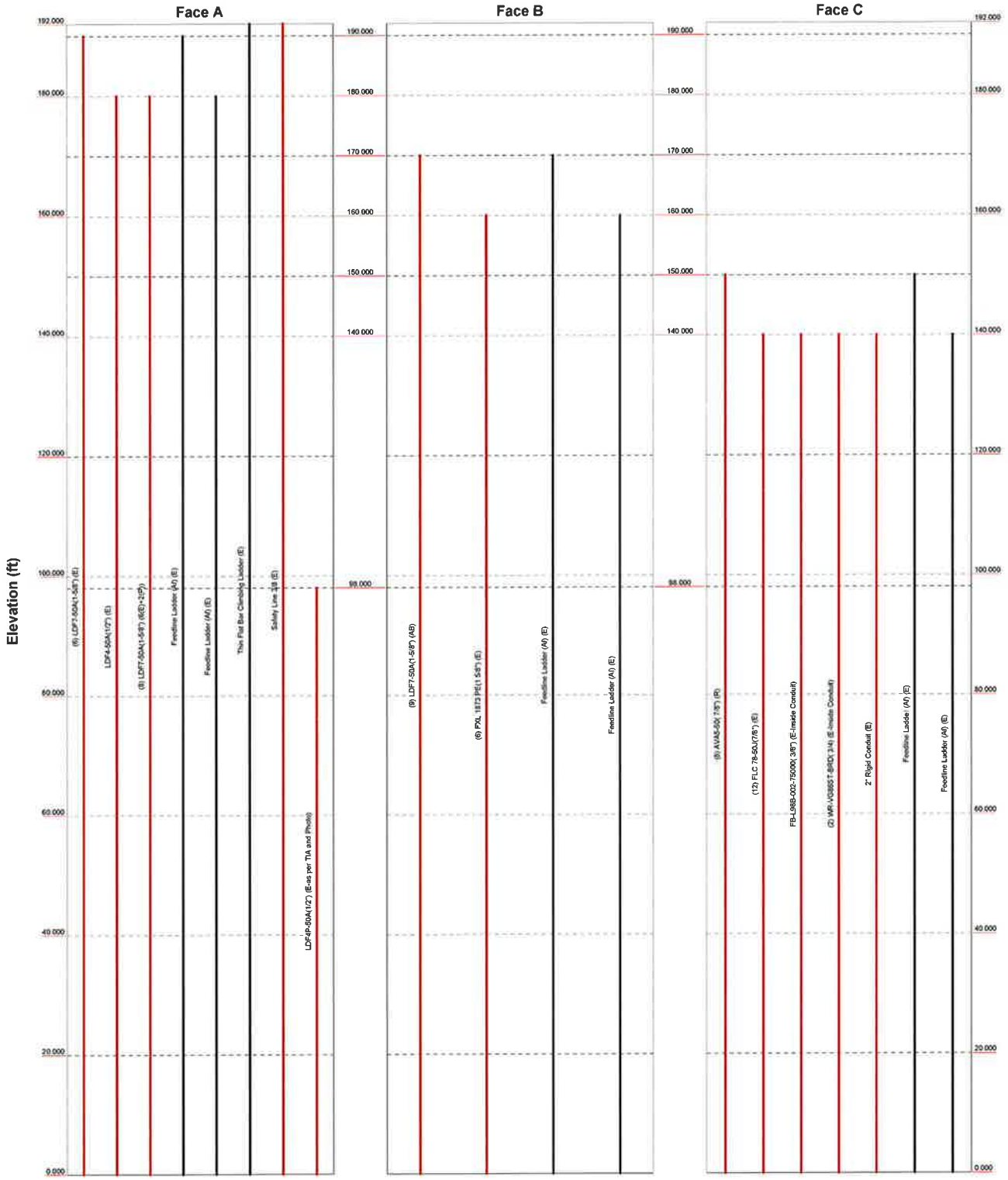
Job: 77921.004.01 - SKY HILL, CT (BU# 876345			
Project:			
Client: Crown Castle	Drawn by: jbrock	App'd:	
Code: TIA/EIA-222-F	Date: 09/09/15	Scale: NTS	
Path:		Dwg No. E-5	

0' - 192'

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



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Job: 77921.004.01 - SKY HILL, CT (BU# 876345
Project:
Client: Crown Castle | Drawn by: jbrock | App'd:
Code: TIA/EIA-222-F | Date: 09/09/15 | Scale: NTS
Path: | Dwg No. E-7

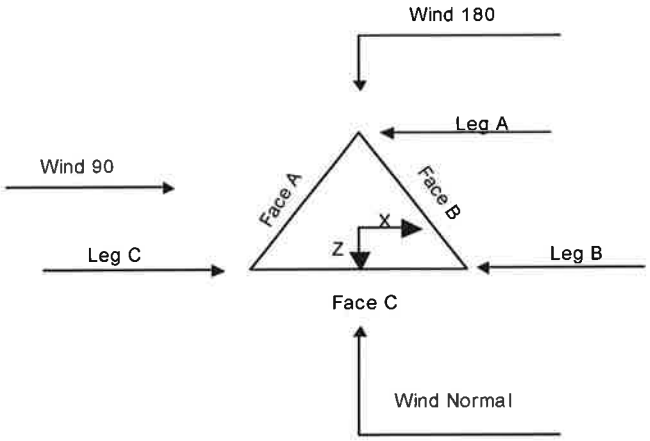
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 192.000 ft above the ground line.
The base of the tower is set at an elevation of 0.000 ft above the ground line.
The face width of the tower is 6.580 ft at the top and 25.050 ft at the base.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

Tower is located in Windham County, Connecticut.
Basic wind speed of 85 mph.
Nominal ice thickness of 1.000 in.
Ice thickness is considered to increase with height.
Ice density of 56.000 pcf.
A wind speed of 38 mph is used in combination with ice.
Temperature drop of 50.000 °F.
Deflections calculated using a wind speed of 50 mph.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.333.
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	Treat Feedline Bundles As Cylinder
Consider Moments - Horizontals	Assume Legs Pinned	Use ASCE 10 X-Brace Ly Rules
Consider Moments - Diagonals	√ Assume Rigid Index Plate	√ Calculate Redundant Bracing Forces
Use Moment Magnification	√ Use Clear Spans For Wind Area	Ignore Redundant Members in FEA
√ Use Code Stress Ratios	√ Use Clear Spans For KL/r	√ SR Leg Bolts Resist Compression
√ Use Code Safety Factors - Guys	Retension Guys To Initial Tension	All Leg Panels Have Same Allowable
√ Escalate Ice	√ Bypass Mast Stability Checks	√ Offset Girt At Foundation
Always Use Max Kz	√ Use Azimuth Dish Coefficients	√ Consider Feedline Torque
Use Special Wind Profile	√ Project Wind Area of Appurt.	√ Include Angle Block Shear Check
√ Include Bolts In Member Capacity	Autocalc Torque Arm Areas	Poles
Leg Bolts Are At Top Of Section	SR Members Have Cut Ends	Include Shear-Torsion Interaction
√ Secondary Horizontal Braces Leg	√ Sort Capacity Reports By Component	Always Use Sub-Critical Flow
Use Diamond Inner Bracing (4 Sided)	Triangulate Diamond Inner Bracing	Use Top Mounted Sockets
Add IBC .6D+W Combination	Use TIA-222-G Tension Splice Capacity Exemption	



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	192.000-180.000			6.580	1	12.000
T2	180.000-160.000			6.580	1	20.000
T3	160.000-140.000			8.540	1	20.000
T4	140.000-120.000			10.610	1	20.000
T5	120.000-100.000			12.740	1	20.000
T6	100.000-80.000			14.830	1	20.000
T7	80.000-60.000			16.920	1	20.000
T8	60.000-40.000			18.880	1	20.000
T9	40.000-20.000			21.130	1	20.000
T10	20.000-0.000			23.050	1	20.000

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	192.000-180.000	4.000	X Brace	No	No	0.000	0.000
T2	180.000-160.000	5.000	X Brace	No	No	0.000	0.000
T3	160.000-140.000	6.667	X Brace	No	No	0.000	0.000
T4	140.000-120.000	6.667	X Brace	No	No	0.000	0.000
T5	120.000-100.000	6.667	X Brace	No	No	0.000	0.000

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T6	100.000-80.000	10.000	X Brace	No	No	0.000	0.000
T7	80.000-60.000	10.000	X Brace	No	No	0.000	0.000
T8	60.000-40.000	10.000	X Brace	No	No	0.000	0.000
T9	40.000-20.000	10.000	X Brace	No	No	0.000	0.000
T10	20.000-0.000	9.958	X Brace	No	No	0.000	1.000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 192.000-180.000	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Single Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)
T2 180.000-160.000	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T3 160.000-140.000	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x1/4	A36 (36 ksi)
T4 140.000-120.000	Pipe	ROHN 4 EH	A572-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x1/4	A36 (36 ksi)
T5 120.000-100.000	Pipe	ROHN 5 EH	A572-50 (50 ksi)	Single Angle	L3x3x1/4	A572-50 (50 ksi)
T6 100.000-80.000	Pipe	ROHN 6 EHS	A572-50 (50 ksi)	Single Angle	L3 1/2x3 1/2x1/4	A572-50 (50 ksi)
T7 80.000-60.000	Pipe	ROHN 6 EH	A572-50 (50 ksi)	Single Angle	L4x4x1/4	A572-50 (50 ksi)
T8 60.000-40.000	Pipe	ROHN 8 EHS	A572-50 (50 ksi)	Single Angle	L4x4x5/16	A572-50 (50 ksi)
T9 40.000-20.000	Pipe	ROHN 8 EHS	A572-50 (50 ksi)	Single Angle	L4x4x5/16	A572-50 (50 ksi)
T10 20.000-0.000	Pipe	ROHN 8 EHS	A572-50 (50 ksi)	Single Angle	L4x4x3/8	A572-50 (50 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 192.000-180.000	Single Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)	Single Angle		A36 (36 ksi)
T2 180.000-160.000	Single Angle	L2x2x3/16	A36 (36 ksi)	Single Angle		A36 (36 ksi)

Tower Section Geometry *(cont'd)*

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
T1 192.000-180.000	0.000	0.000	A36 (36 ksi)	1.05	1	1.05	0.000	0.000
T2 180.000-160.000	0.000	0.000	A36 (36 ksi)	1.05	1	1.05	0.000	0.000
T3 160.000-140.000	0.000	0.000	A36 (36 ksi)	1.05	1	1.05	0.000	0.000
T4 140.000-120.000	0.000	0.000	A36 (36 ksi)	1.05	1	1.05	0.000	0.000
T5 120.000-100.000	0.000	0.000	A36 (36 ksi)	1.05	1	1.05	0.000	0.000
T6 100.000-80.000	0.000	0.000	A36 (36 ksi)	1.05	1	1.05	0.000	0.000
T7 80.000-60.000	0.000	0.000	A36 (36 ksi)	1.05	1	1.05	0.000	0.000
T8 60.000-40.000	0.000	0.000	A36 (36 ksi)	1.05	1	1.05	0.000	0.000
T9 40.000-20.000	0.000	0.000	A36 (36 ksi)	1.05	1	1.05	0.000	0.000
T10 20.000-0.000	0.000	0.000	A36 (36 ksi)	1.05	1	1.05	0.000	0.000

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 192.000-180.000	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T2 180.000-160.000	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T3 160.000-140.000	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T4 140.000-120.000	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T5 120.000-100.000	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T6 100.000-80.00	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X	X Brace Diags Y	K Brace Diags X	K Brace Diags Y	Single Diags X	Single Diags Y	Girts X	Girts Y	Horiz. X	Horiz. Y	Sec. Horiz. X	Sec. Horiz. Y	Inner Brace X	Inner Brace Y
0																	
T7	Yes	No	1	1		1		1		1		1		1		1	
80.000-60.000				1		1		1		1		1		1		1	
T8	Yes	No	1	1		1		1		1		1		1		1	
60.000-40.000				1		1		1		1		1		1		1	
T9	Yes	No	1	1		1		1		1		1		1		1	
40.000-20.000				1		1		1		1		1		1		1	
T10	Yes	No	1	1		1		1		1		1		1		1	
20.000-0.000				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	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
192.000-180.000														
T2	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
180.000-160.000														
T3	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
160.000-140.000														
T4	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
140.000-120.000														
T5	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
120.000-100.000														
T6	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
100.000-80.000														
T7	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
80.000-60.000														
T8	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
60.000-40.000														
T9	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
40.000-20.000														
T10	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
20.000-0.000														

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Connection Type	Leg Bolt Size in	Leg No.	Diagonal Bolt Size in	Diagonal No.	Top Girt Bolt Size in	Top Girt No.	Bottom Girt Bolt Size in	Bottom Girt No.	Mid Girt Bolt Size in	Mid Girt No.	Long Horizontal Bolt Size in	Long Horizontal No.	Short Horizontal Bolt Size in	Short Horizontal No.
T1 192.000-180.000	Flange	0.625 A325N	4	0.625 A325N	1	0.625 A325N	1	0.625 A325N	0	0.625 A325X	0	0.625 A325N	0	0.625 A325X	0
T2 180.000-160.000	Flange	0.625 A325N	4	0.625 A325N	1	0.625 A325N	1	0.625 A325N	0	0.625 A325X	0	0.625 A325N	0	0.625 A325X	0
T3 160.000-140.000	Flange	0.875 A325N	4	0.625 A325N	1	0.625 A325N	0	0.625 A325N	0	0.625 A325X	0	0.625 A325N	0	0.625 A325X	0
T4 140.000-120.000	Flange	1.000 A325N	4	0.625 A325N	1	0.625 A325N	0	0.625 A325N	0	0.625 A325X	0	0.625 A325N	0	0.625 A325X	0
T5 120.000-100.000	Flange	1.000 A325N	6	0.750 A325N	1	0.625 A325N	0	0.000 A325N	0	0.625 A325X	0	0.625 A325N	0	0.625 A325X	0
T6 100.000-80.000	Flange	1.000 A325N	6	0.750 A325N	1	0.625 A325N	0	0.000 A325N	0	0.625 A325X	0	0.625 A325N	0	0.625 A325X	0
T7 80.000-60.000	Flange	1.000 A325N	8	0.750 A325N	1	0.625 A325N	0	0.625 A325N	0	0.625 A325X	0	0.625 A325N	0	0.625 A325X	0
T8 60.000-40.000	Flange	1.000 A325N	8	0.750 A325X	1	0.625 A325N	0	0.000 A325N	0	0.625 A325X	0	0.625 A325N	0	0.625 A325X	0
T9 40.000-20.000	Flange	1.000 A325N	8	0.750 A325X	1	0.625 A325N	0	0.625 A325N	0	0.625 A325X	0	0.625 A325N	0	0.625 A325X	0
T10 20.000-0.000	Flange	1.000 A354-BC	10	0.750 A325X	1	0.625 A325N	0	0.000 A325N	0	0.625 A325X	0	0.625 A325N	0	0.625 A325X	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 klf
Face A LDF7-50A(1-5/8") (E) *-*	A	Yes	Ar (CfAe)	190.000 - 0.000	0.000	-0.45	6	6	0.850 0.750	1.980		0.001
LDF4-50A(1/2") (E)	A	Yes	Ar (CfAe)	180.000 - 0.000	0.000	0.45	1	1	0.850 0.750	0.630		0.000
LDF7-50A(1-5/8") (6(E)+2(P)) *-*	A	Yes	Ar (CfAe)	180.000 - 0.000	0.000	0.41	8	8	0.850 0.750	1.980		0.001
Face B *-*												
LDF7-50A(1-5/8") (AB) *-*	B	Yes	Ar (CfAe)	170.000 - 0.000	0.000	-0.4	9	9	0.850 75.000	1.980		0.001
FXL 1873	B	Yes	Ar (CfAe)	160.000 - 0.000	-2.000	0.45	6	3	0.850	1.980		0.000

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 klf
PE(1 5/8") (E) *_*									0.750			
Face C AVA5-50(7/8") (R) *_*	C	Yes	Ar (CfAe)	150.000 - 0.000	0.000	0.4	8	8	1.102	1.102		0.000
FLC 78-50J(7/8") (E)	C	Yes	Ar (CfAe)	140.000 - 0.000	0.000	-0.45	12	12	0.850 0.750	1.112		0.000
FB-L98B-002-75000(3/8") (E-Inside Conduit)	C	Yes	Ar (CfAe)	140.000 - 0.000	1.500	-0.46	1	1	0.394	0.000		0.000
WR-VG86ST-BRD(3/4) (E-Inside Conduit)	C	Yes	Ar (CfAe)	140.000 - 0.000	1.500	-0.47	2	2	0.774	0.000		0.001
2" Rigid Conduit (E) *_*	C	Yes	Ar (CfAe)	140.000 - 0.000	1.500	-0.47	1	1	2.000	2.000		0.003
Feedline Ladder (Af) (E)	A	Yes	Af (CfAe)	190.000 - 0.000	0.000	-0.45	1	1	3.000	3.000	12.000	0.008
Feedline Ladder (Af) (E) ***	A	Yes	Af (CfAe)	180.000 - 0.000	0.000	0.41	1	1	3.000	3.000	12.000	0.008
Feedline Ladder (Af) (E)	B	Yes	Af (CfAe)	170.000 - 0.000	0.000	-0.4	1	1	3.000	3.000	12.000	0.008
Feedline Ladder (Af) (E) ***	B	Yes	Af (CfAe)	160.000 - 0.000	-1.000	0.45	1	1	3.000	3.000	12.000	0.008
Feedline Ladder (Af) (E)	C	Yes	Af (CfAe)	150.000 - 0.000	0.000	0.4	1	1	3.000	3.000	12.000	0.008
Feedline Ladder (Af) (E) *_*	C	Yes	Af (CfAe)	140.000 - 0.000	0.000	-0.45	1	1	3.000	3.000	12.000	0.008
Thin Flat Bar Climbing Ladder (E)	A	Yes	Af (CfAe)	192.000 - 0.000	-6.000	0.45	1	1	2.000	2.000	8.000	0.004
Safety Line 3/8 (E) *_*	A	Yes	Ar (CfAe)	192.000 - 0.000	-6.000	0.45	1	1	0.375	0.375		0.000
LDF4P-50A(1 /2") (E-as per TIA and Photo)	A	Yes	Ar (CfAe)	98.000 - 0.000	0.000	-0.48	1	1	0.630	0.630		0.000

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	C_AA_A ft^2/ft	Weight klf
-							
Face B							
-							

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	192.000-180.000	A	10.275	4.500	0.000	0.000	0.184
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.000
T2	180.000-160.000	A	47.875	13.333	0.000	0.000	0.653
		B	14.850	2.500	0.000	0.000	0.158
		C	0.000	0.000	0.000	0.000	0.000
T3	160.000-140.000	A	47.875	13.333	0.000	0.000	0.653
		B	39.600	10.000	0.000	0.000	0.484
		C	7.347	2.500	0.000	0.000	0.108
T4	140.000-120.000	A	47.875	13.333	0.000	0.000	0.653
		B	39.600	10.000	0.000	0.000	0.484
		C	40.267	10.000	0.000	0.000	0.561
T5	120.000-100.000	A	47.875	13.333	0.000	0.000	0.653
		B	39.600	10.000	0.000	0.000	0.484
		C	40.267	10.000	0.000	0.000	0.561
T6	100.000-80.000	A	48.820	13.333	0.000	0.000	0.656
		B	39.600	10.000	0.000	0.000	0.484
		C	40.267	10.000	0.000	0.000	0.561
T7	80.000-60.000	A	48.925	13.333	0.000	0.000	0.656
		B	39.600	10.000	0.000	0.000	0.484
		C	40.267	10.000	0.000	0.000	0.561
T8	60.000-40.000	A	48.925	13.333	0.000	0.000	0.656
		B	39.600	10.000	0.000	0.000	0.484
		C	40.267	10.000	0.000	0.000	0.561
T9	40.000-20.000	A	48.925	13.333	0.000	0.000	0.656
		B	39.600	10.000	0.000	0.000	0.484
		C	40.267	10.000	0.000	0.000	0.561
T10	20.000-0.000	A	48.925	13.333	0.000	0.000	0.656
		B	39.600	10.000	0.000	0.000	0.484
		C	40.267	10.000	0.000	0.000	0.561

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	192.000-180.000	A	1.231	6.537	19.300	0.000	0.000	0.598
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.000
T2	180.000-160.000	A	1.217	24.507	78.049	0.000	0.000	2.258
		B		3.679	22.719	0.000	0.000	0.577
		C		0.000	0.000	0.000	0.000	0.000
T3	160.000-140.000	A	1.199	24.265	77.928	0.000	0.000	2.234

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
		B		14.595	62.497	0.000	0.000	1.845
		C		2.917	16.689	0.000	0.000	0.403
T4	140.000-120.000	A	1.179	23.993	77.792	0.000	0.000	2.206
		B		14.459	62.406	0.000	0.000	1.824
		C		26.671	78.213	0.000	0.000	2.031
T5	120.000-100.000	A	1.155	23.681	77.636	0.000	0.000	2.175
		B		14.303	62.302	0.000	0.000	1.800
		C		26.281	78.109	0.000	0.000	2.000
T6	100.000-80.000	A	1.128	27.643	77.453	0.000	0.000	2.185
		B		14.120	62.180	0.000	0.000	1.772
		C		25.822	77.986	0.000	0.000	1.965
T7	80.000-60.000	A	1.094	27.566	77.230	0.000	0.000	2.144
		B		13.896	62.031	0.000	0.000	1.739
		C		25.264	77.837	0.000	0.000	1.922
T8	60.000-40.000	A	1.051	26.844	76.941	0.000	0.000	2.085
		B		13.608	61.838	0.000	0.000	1.695
		C		24.542	77.645	0.000	0.000	1.867
T9	40.000-20.000	A	1.000	25.992	76.600	0.000	0.000	2.016
		B		13.267	61.611	0.000	0.000	1.645
		C		23.690	77.418	0.000	0.000	1.803
T10	20.000-0.000	A	1.000	25.992	76.600	0.000	0.000	2.016
		B		13.267	61.611	0.000	0.000	1.645
		C		23.690	77.418	0.000	0.000	1.803

Feed Line Shielding

Section	Elevation ft	Face	A_R ft^2	A_R Ice ft^2	A_F ft^2	A_F Ice ft^2
T1	192.000-180.000	A	0.000	3.749	1.440	2.665
		B	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000
T2	180.000-160.000	A	0.000	11.478	5.413	9.428
		B	0.000	2.915	1.534	2.394
		C	0.000	0.000	0.000	0.000
T3	160.000-140.000	A	0.000	7.770	4.668	8.099
		B	0.000	5.836	3.783	6.083
		C	0.000	1.483	0.751	1.546
T4	140.000-120.000	A	0.000	7.181	4.409	7.615
		B	0.000	5.399	3.573	5.725
		C	0.000	7.302	3.621	7.743
T5	120.000-100.000	A	0.000	6.752	5.102	8.765
		B	0.000	5.083	4.134	6.599
		C	0.000	6.867	4.190	8.914
T6	100.000-80.000	A	0.000	4.839	4.287	7.507
		B	0.000	3.503	3.421	5.435
		C	0.000	4.726	3.467	7.332
T7	80.000-60.000	A	0.000	4.533	4.755	8.283
		B	0.000	3.275	3.789	5.985
		C	0.000	4.411	3.839	8.061
T8	60.000-40.000	A	0.000	4.203	4.641	7.998
		B	0.000	3.047	3.698	5.798
		C	0.000	4.095	3.747	7.792
T9	40.000-20.000	A	0.000	3.876	4.556	7.752
		B	0.000	2.821	3.630	5.643
		C	0.000	3.781	3.679	7.562

Section	Elevation	Face	A_R	A_R Ice	A_F	A_F Ice
	ft		ft^2	ft^2	ft^2	ft^2
T10	20.000-0.000	A	0.000	3.822	4.493	7.644
		B	0.000	2.782	3.579	5.564
		C	0.000	3.728	3.627	7.457

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
T1	192.000-180.000	-7.819	2.367	-3.804	0.198
T2	180.000-160.000	-7.376	-12.718	-4.408	-9.578
T3	160.000-140.000	-4.915	-12.641	-4.188	-10.422
T4	140.000-120.000	0.679	-5.801	1.509	-3.753
T5	120.000-100.000	0.727	-6.112	1.614	-4.094
T6	100.000-80.000	0.536	-6.720	1.090	-4.345
T7	80.000-60.000	0.545	-7.115	1.067	-4.648
T8	60.000-40.000	0.566	-7.301	1.112	-4.908
T9	40.000-20.000	0.618	-7.889	1.192	-5.340
T10	20.000-0.000	0.663	-8.411	1.272	-5.701

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(2) DB980H90E-M w/ Mount Pipe	A	From Leg	4.000		0.000	190.000	No Ice	4.036	3.619	0.030
(E)			0.000				1/2" Ice	4.499	4.481	0.066
			2.000				1" Ice	4.947	5.219	0.109
							2" Ice	5.870	6.744	0.216
							4" Ice	8.046	9.995	0.549
(2) DB980H90E-M w/ Mount Pipe	B	From Leg	4.000		0.000	190.000	No Ice	4.036	3.619	0.030
(E)			0.000				1/2" Ice	4.499	4.481	0.066
			2.000				1" Ice	4.947	5.219	0.109
							2" Ice	5.870	6.744	0.216
							4" Ice	8.046	9.995	0.549
(2) DB980H90E-M w/ Mount Pipe	C	From Leg	4.000		0.000	190.000	No Ice	4.036	3.619	0.030
(E)			0.000				1/2" Ice	4.499	4.481	0.066
			2.000				1" Ice	4.947	5.219	0.109
							2" Ice	5.870	6.744	0.216
							4" Ice	8.046	9.995	0.549
Sector Mount [SM 505-3]	C	None			0.000	190.000	No Ice	34.860	34.860	1.725
(E)							1/2" Ice	49.790	49.790	2.317
							1" Ice	64.720	64.720	2.909
							2" Ice	94.580	94.580	4.092
							4" Ice	154.300	154.300	6.458
-										
(2) LPA-80080/4CF	A	From Leg	4.000		0.000	180.000	No Ice	2.619	6.057	0.012
(E)			0.000				1/2" Ice	2.922	6.453	0.045

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
			1.000			1" Ice	3.232	6.858	0.083
						2" Ice	3.959	7.692	0.172
						4" Ice	5.533	9.466	0.413
(2) LPA-80080/4CF (E)	B	From Leg	4.000 0.000 1.000	0.000	180.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.619 2.922 3.232 3.959 5.533	6.057 6.453 6.858 7.692 9.466	0.012 0.045 0.083 0.172 0.413
(2) LPA-80080/4CF (E)	C	From Leg	4.000 0.000 1.000	0.000	180.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.619 2.922 3.232 3.959 5.533	6.057 6.453 6.858 7.692 9.466	0.012 0.045 0.083 0.172 0.413
(2) FD9R6004/2C-3L (E)	A	From Leg	4.000 0.000 0.000	0.000	180.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.367 0.451 0.543 0.755 1.281	0.085 0.136 0.196 0.343 0.740	0.003 0.005 0.009 0.020 0.063
(2) FD9R6004/2C-3L (E)	B	From Leg	4.000 0.000 0.000	0.000	180.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.367 0.451 0.543 0.755 1.281	0.085 0.136 0.196 0.343 0.740	0.003 0.005 0.009 0.020 0.063
(2) FD9R6004/2C-3L (E)	C	From Leg	4.000 0.000 0.000	0.000	180.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.367 0.451 0.543 0.755 1.281	0.085 0.136 0.196 0.343 0.740	0.003 0.005 0.009 0.020 0.063
58532A (E)	C	From Leg	4.000 0.000 4.000	0.000	180.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.221 0.290 0.367 0.548 1.014	0.221 0.290 0.367 0.548 1.014	0.000 0.003 0.006 0.017 0.060
(2) SBNHH-1D65B w/ Mount Pipe (P)	A	From Leg	4.000 0.000 1.000	0.000	180.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.637 9.293 9.917 11.190 13.855	7.071 8.260 9.170 11.006 15.043	0.066 0.135 0.212 0.394 0.903
(2) SBNHH-1D65B w/ Mount Pipe (P)	B	From Leg	4.000 0.000 1.000	0.000	180.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.637 9.293 9.917 11.190 13.855	7.071 8.260 9.170 11.006 15.043	0.066 0.135 0.212 0.394 0.903
(2) SBNHH-1D65B w/ Mount Pipe (P)	C	From Leg	4.000 0.000 1.000	0.000	180.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.637 9.293 9.917 11.190 13.855	7.071 8.260 9.170 11.006 15.043	0.066 0.135 0.212 0.394 0.903
RRH4x45-AWS4 B66 (P)	A	From Leg	4.000 0.000 1.000	0.000	180.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.800 3.038 3.284 3.802 4.943	1.666 1.922 2.198 2.808 4.267	0.066 0.086 0.110 0.169 0.347
RRH4x45-AWS4 B66 (P)	B	From Leg	4.000 0.000 1.000	0.000	180.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.800 3.038 3.284 3.802	1.666 1.922 2.198 2.808	0.066 0.086 0.110 0.169

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
						4" Ice	4.943	4.267	0.347
RRH4x45-AWS4 B66 (P)	C	From Leg	4.000 0.000 1.000	0.000	180.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.800 3.038 3.284 3.802 4.943	1.666 1.922 2.198 2.808 4.267	0.066 0.086 0.110 0.169 0.347
RRH2x60-700 (P)	A	From Leg	4.000 0.000 1.000	0.000	180.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.957 4.272 4.596 5.271 6.722	1.816 2.075 2.360 2.957 4.253	0.060 0.083 0.109 0.173 0.354
RRH2x60-700 (P)	B	From Leg	4.000 0.000 1.000	0.000	180.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.957 4.272 4.596 5.271 6.722	1.816 2.075 2.360 2.957 4.253	0.060 0.083 0.109 0.173 0.354
RRH2x60-700 (P)	C	From Leg	4.000 0.000 1.000	0.000	180.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.957 4.272 4.596 5.271 6.722	1.816 2.075 2.360 2.957 4.253	0.060 0.083 0.109 0.173 0.354
RRH2X60-PCS (P)	A	From Leg	4.000 0.000 1.000	0.000	180.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.567 2.791 3.025 3.517 4.606	2.011 2.218 2.435 2.894 3.915	0.055 0.075 0.099 0.155 0.313
RRH2X60-PCS (P)	B	From Leg	4.000 0.000 1.000	0.000	180.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.567 2.791 3.025 3.517 4.606	2.011 2.218 2.435 2.894 3.915	0.055 0.075 0.099 0.155 0.313
RRH2X60-PCS (P)	C	From Leg	4.000 0.000 1.000	0.000	180.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.567 2.791 3.025 3.517 4.606	2.011 2.218 2.435 2.894 3.915	0.055 0.075 0.099 0.155 0.313
(2) DB-T1-6Z-8AB-0Z (P)	C	From Leg	4.000 0.000 1.000	0.000	180.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.600 5.915 6.240 6.914 8.365	2.333 2.558 2.791 3.284 4.373	0.044 0.080 0.120 0.213 0.455
Sector Mount [SM 304-3] (E-4Mount Pipes included)	C	None		0.000	180.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	44.820 63.480 82.140 119.460 194.100	44.820 63.480 82.140 119.460 194.100	1.920 2.772 3.624 5.328 8.736
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(3) 7130.16.33.00 w/ Mount Pipe (AB)	A	From Leg	4.000 0.000 2.000	0.000	170.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.001 6.485 6.971 7.974 10.105	7.030 7.812 8.567 10.130 13.477	0.037 0.096 0.162 0.316 0.745
(3) 7130.16.33.00 w/ Mount Pipe (AB)	B	From Leg	4.000 0.000 2.000	0.000	170.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.001 6.485 6.971 7.974 10.105	7.030 7.812 8.567 10.130 13.477	0.037 0.096 0.162 0.316 0.745

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
(3) 7130.16.33.00 w/ Mount Pipe (AB)	C	From Leg	4.000 0.000 2.000	0.000	170.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.001 6.485 6.971 7.974 10.105	7.030 7.812 8.567 10.130 13.477	0.037 0.096 0.162 0.316 0.745
Sector Mount [SM 502-3] (AB)	C	None		0.000	170.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	33.020 47.360 61.700 90.380 147.740	33.020 47.360 61.700 90.380 147.740	1.673 2.224 2.775 3.876 6.080
- HBX-6516DS-VTM w/ Mount Pipe (E)	A	From Leg	4.000 0.000 0.000	0.000	160.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.598 3.998 4.435 5.368 7.361	3.241 3.914 4.564 5.914 8.877	0.029 0.062 0.101 0.199 0.504
HBX-6516DS-VTM w/ Mount Pipe (E)	B	From Leg	4.000 0.000 0.000	0.000	160.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.598 3.998 4.435 5.368 7.361	3.241 3.914 4.564 5.914 8.877	0.029 0.062 0.101 0.199 0.504
HBX-6516DS-VTM w/ Mount Pipe (E)	C	From Leg	4.000 0.000 0.000	0.000	160.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.598 3.998 4.435 5.368 7.361	3.241 3.914 4.564 5.914 8.877	0.029 0.062 0.101 0.199 0.504
6' x 2" Mount Pipe (E-Per photo)	A	From Leg	4.000 0.000 0.000	0.000	160.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.425 1.925 2.294 3.060 4.702	1.425 1.925 2.294 3.060 4.702	0.022 0.033 0.048 0.090 0.231
6' x 2" Mount Pipe (E-Per photo)	B	From Leg	4.000 0.000 0.000	0.000	160.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.425 1.925 2.294 3.060 4.702	1.425 1.925 2.294 3.060 4.702	0.022 0.033 0.048 0.090 0.231
6' x 2" Mount Pipe (E-Per photo)	C	From Leg	4.000 0.000 0.000	0.000	160.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.425 1.925 2.294 3.060 4.702	1.425 1.925 2.294 3.060 4.702	0.022 0.033 0.048 0.090 0.231
Sector Mount [SM 104-3] (E)	C	None		0.000	160.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	30.020 40.480 50.940 71.860 113.700	30.020 40.480 50.940 71.860 113.700	0.953 1.405 1.857 2.761 4.569
- RR90-17-02DP w/ Mount Pipe (R)	A	From Leg	3.000 0.000 1.000	0.000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.593 5.088 5.578 6.588 8.731	3.319 4.089 4.784 6.225 9.308	0.034 0.072 0.115 0.224 0.557
RR90-17-02DP w/ Mount Pipe (R)	C	From Leg	3.000 0.000 1.000	-90.000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.593 5.088 5.578 6.588 8.731	3.319 4.089 4.784 6.225 9.308	0.034 0.072 0.115 0.224 0.557

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
LNX-6515DS-VTM w/ Mount Pipe (R)	A	From Leg	3.000 0.000 1.000	90.000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	11.683 12.404 13.135 14.601 17.875	9.842 11.366 12.914 15.267 20.139	0.083 0.173 0.273 0.506 1.151
LNX-6515DS-VTM w/ Mount Pipe (R)	C	From Leg	3.000 0.000 1.000	-30.000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	11.683 12.404 13.135 14.601 17.875	9.842 11.366 12.914 15.267 20.139	0.083 0.173 0.273 0.506 1.151
KRY 112 144/1 (R)	A	From Leg	3.000 0.000 1.000	0.000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.408 0.497 0.594 0.815 1.359	0.204 0.273 0.351 0.533 0.999	0.011 0.014 0.019 0.032 0.082
KRY 112 144/1 (R)	C	From Leg	3.000 0.000 1.000	0.000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.408 0.497 0.594 0.815 1.359	0.204 0.273 0.351 0.533 0.999	0.011 0.014 0.019 0.032 0.082
ATBT-BOTTOM-24V (R)	A	From Leg	3.000 0.000 1.000	0.000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.121 0.172 0.232 0.377 0.771	0.075 0.119 0.172 0.303 0.668	0.003 0.004 0.006 0.013 0.045
ATBT-BOTTOM-24V (R)	C	From Leg	3.000 0.000 1.000	0.000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.121 0.172 0.232 0.377 0.771	0.075 0.119 0.172 0.303 0.668	0.003 0.004 0.006 0.013 0.045
Side Arm Mount [SO 301-1] (E)	A	From Leg	1.500 0.000 0.000	0.000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.000 1.390 1.780 2.560 4.120	0.900 1.420 1.940 2.980 5.060	0.023 0.033 0.042 0.061 0.100
Side Arm Mount [SO 301-1] (E)	C	From Leg	1.500 0.000 0.000	0.000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.000 1.390 1.780 2.560 4.120	0.900 1.420 1.940 2.980 5.060	0.023 0.033 0.042 0.061 0.100
- (2) AM-X-CD-16-65-00T-RET w/ Mount Pipe (E)	A	From Leg	4.000 0.000 1.000	0.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.498 9.149 9.767 11.031 13.679	6.304 7.479 8.368 10.179 14.024	0.074 0.139 0.212 0.385 0.874
(2) AM-X-CD-14-65-00T-RET w/ Mount Pipe (E)	B	From Leg	4.000 0.000 1.000	0.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.744 6.198 6.661 7.618 9.668	4.015 4.633 5.276 6.678 9.744	0.035 0.080 0.131 0.254 0.610
(2) AM-X-CD-14-65-00T-RET w/ Mount Pipe (E)	C	From Leg	4.000 0.000 1.000	0.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.744 6.198 6.661 7.618 9.668	4.015 4.633 5.276 6.678 9.744	0.035 0.080 0.131 0.254 0.610
800 10121 w/ Mount Pipe	A	From Leg	4.000	0.000	140.000	No Ice	5.685	4.600	0.066

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
(E)			0.000			1/2" Ice	6.182	5.351	0.114
			1.000			1" Ice	6.676	6.046	0.168
						2" Ice	7.695	7.526	0.298
						4" Ice	9.858	10.832	0.675
800 10121 w/ Mount Pipe	B	From Leg	4.000	0.000	140.000	No Ice	5.685	4.600	0.066
(E)			0.000			1/2" Ice	6.182	5.351	0.114
			1.000			1" Ice	6.676	6.046	0.168
						2" Ice	7.695	7.526	0.298
						4" Ice	9.858	10.832	0.675
800 10121 w/ Mount Pipe	C	From Leg	4.000	0.000	140.000	No Ice	5.685	4.600	0.066
(E)			0.000			1/2" Ice	6.182	5.351	0.114
			1.000			1" Ice	6.676	6.046	0.168
						2" Ice	7.695	7.526	0.298
						4" Ice	9.858	10.832	0.675
(2) RRUS-11	A	From Leg	4.000	0.000	140.000	No Ice	3.249	1.373	0.048
(E)			0.000			1/2" Ice	3.491	1.551	0.068
			1.000			1" Ice	3.741	1.738	0.092
						2" Ice	4.268	2.138	0.150
						4" Ice	5.426	3.042	0.310
(2) RRUS-11	B	From Leg	4.000	0.000	140.000	No Ice	3.249	1.373	0.048
(E)			0.000			1/2" Ice	3.491	1.551	0.068
			1.000			1" Ice	3.741	1.738	0.092
						2" Ice	4.268	2.138	0.150
						4" Ice	5.426	3.042	0.310
(2) RRUS-11	C	From Leg	4.000	0.000	140.000	No Ice	3.249	1.373	0.048
(E)			0.000			1/2" Ice	3.491	1.551	0.068
			1.000			1" Ice	3.741	1.738	0.092
						2" Ice	4.268	2.138	0.150
						4" Ice	5.426	3.042	0.310
7020.00	A	From Leg	4.000	0.000	140.000	No Ice	0.119	0.204	0.002
(E)			0.000			1/2" Ice	0.171	0.279	0.005
			1.000			1" Ice	0.232	0.363	0.009
						2" Ice	0.380	0.556	0.022
						4" Ice	0.779	1.046	0.071
7020.00	B	From Leg	4.000	0.000	140.000	No Ice	0.119	0.204	0.002
(E)			0.000			1/2" Ice	0.171	0.279	0.005
			1.000			1" Ice	0.232	0.363	0.009
						2" Ice	0.380	0.556	0.022
						4" Ice	0.779	1.046	0.071
7020.00	C	From Leg	4.000	0.000	140.000	No Ice	0.119	0.204	0.002
(E)			0.000			1/2" Ice	0.171	0.279	0.005
			1.000			1" Ice	0.232	0.363	0.009
						2" Ice	0.380	0.556	0.022
						4" Ice	0.779	1.046	0.071
LGP13519	A	From Leg	4.000	0.000	140.000	No Ice	0.338	0.207	0.005
(E)			0.000			1/2" Ice	0.422	0.280	0.008
			1.000			1" Ice	0.515	0.362	0.012
						2" Ice	0.726	0.551	0.024
						4" Ice	1.252	1.034	0.071
LGP13519	B	From Leg	4.000	0.000	140.000	No Ice	0.338	0.207	0.005
(E)			0.000			1/2" Ice	0.422	0.280	0.008
			1.000			1" Ice	0.515	0.362	0.012
						2" Ice	0.726	0.551	0.024
						4" Ice	1.252	1.034	0.071
LGP13519	C	From Leg	4.000	0.000	140.000	No Ice	0.338	0.207	0.005
(E)			0.000			1/2" Ice	0.422	0.280	0.008
			1.000			1" Ice	0.515	0.362	0.012

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
						2" Ice	0.726	0.551	0.024
						4" Ice	1.252	1.034	0.071
DTMABP7819VG12A (E)	A	From Leg	4.000 0.000 1.000	0.000	140.000	No Ice	1.139	0.391	0.019
						1/2" Ice	1.284	0.488	0.026
						1" Ice	1.437	0.595	0.036
						2" Ice	1.769	0.833	0.060
						4" Ice	2.538	1.414	0.140
DTMABP7819VG12A (E)	B	From Leg	4.000 0.000 1.000	0.000	140.000	No Ice	1.139	0.391	0.019
						1/2" Ice	1.284	0.488	0.026
						1" Ice	1.437	0.595	0.036
						2" Ice	1.769	0.833	0.060
						4" Ice	2.538	1.414	0.140
DTMABP7819VG12A (E)	C	From Leg	4.000 0.000 1.000	0.000	140.000	No Ice	1.139	0.391	0.019
						1/2" Ice	1.284	0.488	0.026
						1" Ice	1.437	0.595	0.036
						2" Ice	1.769	0.833	0.060
						4" Ice	2.538	1.414	0.140
DC6-48-60-18-8F (E)	A	From Leg	4.000 0.000 1.000	0.000	140.000	No Ice	1.467	1.467	0.019
						1/2" Ice	1.667	1.667	0.037
						1" Ice	1.878	1.878	0.057
						2" Ice	2.333	2.333	0.105
						4" Ice	3.378	3.378	0.239
Sector Mount [SM 504-3] (E)	C	None		0.000	140.000	No Ice	34.250	34.250	1.708
						1/2" Ice	48.980	48.980	2.286
						1" Ice	63.710	63.710	2.864
						2" Ice	93.170	93.170	4.020
						4" Ice	152.090	152.090	6.333
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58532A (E)	C	From Leg	4.000 0.000 4.000	-15.000	98.000	No Ice	0.221	0.221	0.000
						1/2" Ice	0.290	0.290	0.003
						1" Ice	0.367	0.367	0.006
						2" Ice	0.548	0.548	0.017
						4" Ice	1.014	1.014	0.060
Side Arm Mount [SO 301-1] (E)	C	From Leg	2.000 0.000 0.000	0.000	98.000	No Ice	1.000	0.900	0.023
						1/2" Ice	1.390	1.420	0.033
						1" Ice	1.780	1.940	0.042
						2" Ice	2.560	2.980	0.061
						4" Ice	4.120	5.060	0.100
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Load Combinations

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

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	192 - 180	Leg	Max Tension	12	3.292	-0.054	-0.044
			Max. Compression	10	-5.095	0.035	-0.055
			Max. Mx	11	-0.686	-0.561	0.001
			Max. My	2	-0.480	-0.021	-0.565
			Max. Vy	11	-0.416	0.271	-0.027
			Max. Vx	2	-0.422	-0.021	0.247
		Diagonal	Max Tension	3	1.280	0.000	0.000
			Max. Compression	9	-1.316	0.000	0.000
			Max. Mx	24	0.167	0.015	0.000
			Max. My	13	-1.159	0.003	0.002
			Max. Vy	24	-0.017	0.015	0.000
			Max. Vx	13	0.000	0.002	0.002

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
		Top Girt	Max Tension	4	0.095	0.000	0.000
			Max. Compression	10	-0.091	0.000	0.000
			Max. Mx	14	-0.006	-0.043	0.000
			Max. Vy	14	0.026	0.000	0.000
T2	180 - 160	Leg	Max Tension	12	29.725	-0.075	-0.021
			Max. Compression	10	-37.066	0.096	-0.023
			Max. Mx	10	-37.066	0.096	-0.023
			Max. My	11	-2.842	-0.012	-0.174
			Max. Vy	4	-1.761	-0.040	0.028
			Max. Vx	7	-1.733	0.008	0.055
		Diagonal	Max Tension	9	5.078	0.000	0.000
			Max. Compression	3	-5.027	0.000	0.000
			Max. Mx	23	1.328	0.031	-0.004
			Max. My	9	-4.995	-0.005	-0.006
			Max. Vy	23	-0.024	0.031	-0.004
			Max. Vx	9	0.001	0.000	0.000
		Top Girt	Max Tension	10	1.085	0.000	0.000
			Max. Compression	4	-1.117	0.000	0.000
			Max. Mx	14	-0.039	-0.047	0.000
			Max. My	14	-0.039	0.000	0.001
			Max. Vy	14	0.028	0.000	0.000
			Max. Vx	14	-0.001	0.000	0.000
T3	160 - 140	Leg	Max Tension	12	60.763	-0.088	-0.018
			Max. Compression	10	-71.647	0.083	0.013
			Max. Mx	8	49.284	0.344	-0.146
			Max. My	10	23.395	-0.158	0.554
			Max. Vy	8	-0.503	-0.076	-0.000
			Max. Vx	5	0.495	0.007	0.026
		Diagonal	Max Tension	9	6.858	0.000	0.000
			Max. Compression	9	-6.963	0.000	0.000
			Max. Mx	15	1.709	0.059	-0.006
			Max. My	10	4.076	0.054	-0.008
			Max. Vy	25	0.038	0.051	0.007
			Max. Vx	23	0.002	0.000	0.000
T4	140 - 120	Leg	Max Tension	4	95.332	-0.216	0.009
			Max. Compression	10	-111.372	0.363	-0.025
			Max. Mx	10	-111.372	0.363	-0.025
			Max. My	11	-6.478	0.006	-0.337
			Max. Vy	8	-1.136	-0.085	0.032
			Max. Vx	11	-1.181	-0.006	-0.011
		Diagonal	Max Tension	9	7.954	0.000	0.000
			Max. Compression	9	-7.986	0.000	0.000
			Max. Mx	15	2.079	0.071	-0.008
			Max. My	23	1.579	0.065	-0.009
			Max. Vy	25	0.044	0.068	0.008
			Max. Vx	23	0.002	0.000	0.000
T5	120 - 100	Leg	Max Tension	4	127.201	-0.339	0.005
			Max. Compression	10	-147.497	0.726	-0.045
			Max. Mx	10	-147.497	0.726	-0.045
			Max. My	11	-7.869	-0.004	-0.614
			Max. Vy	8	0.103	-0.694	-0.019
			Max. Vx	11	0.114	-0.004	-0.614
		Diagonal	Max Tension	9	8.093	0.000	0.000
			Max. Compression	9	-8.112	0.000	0.000
			Max. Mx	15	2.149	0.099	0.012
			Max. My	23	-2.151	0.083	-0.014
			Max. Vy	25	0.059	0.098	-0.012
			Max. Vx	23	0.003	0.000	0.000
T6	100 - 80	Leg	Max Tension	4	154.025	-0.625	0.025
			Max. Compression	10	-178.470	0.886	-0.041
			Max. Mx	10	-178.470	0.886	-0.041

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	11	-8.936	-0.046	-1.022
			Max. Vy	10	-0.110	0.886	-0.041
			Max. Vx	11	-0.149	-0.046	-1.022
		Diagonal	Max Tension	9	9.208	0.000	0.000
			Max. Compression	9	-9.254	0.000	0.000
			Max. Mx	15	2.602	0.163	-0.020
			Max. My	23	2.337	0.162	-0.021
			Max. Vy	25	0.076	0.157	0.020
			Max. Vx	23	0.004	0.000	0.000
T7	80 - 60	Leg	Max Tension	4	182.643	-0.581	0.019
			Max. Compression	10	-212.088	1.194	-0.053
			Max. Mx	10	-212.088	1.194	-0.053
			Max. My	11	-10.867	0.022	-0.988
			Max. Vy	10	-0.142	1.194	-0.053
			Max. Vx	11	0.123	-0.052	-0.805
		Diagonal	Max Tension	9	9.890	0.000	0.000
			Max. Compression	9	-10.004	0.000	0.000
			Max. Mx	15	2.796	0.209	-0.024
			Max. My	23	2.251	0.195	-0.026
			Max. Vy	25	0.092	0.203	0.024
			Max. Vx	23	0.005	0.000	0.000
T8	60 - 40	Leg	Max Tension	4	208.307	-1.329	0.018
			Max. Compression	10	-243.559	1.111	-0.018
			Max. Mx	25	36.508	-1.996	-0.011
			Max. My	11	-12.497	-0.061	-1.235
			Max. Vy	21	0.297	-1.991	-0.000
			Max. Vx	11	0.134	-0.061	-1.235
		Diagonal	Max Tension	9	9.527	0.000	0.000
			Max. Compression	9	-9.530	0.000	0.000
			Max. Mx	25	1.618	0.261	0.032
			Max. My	23	-2.356	0.204	-0.037
			Max. Vy	25	0.110	0.252	-0.035
			Max. Vx	23	0.006	0.000	0.000
T9	40 - 20	Leg	Max Tension	4	234.202	-1.210	0.018
			Max. Compression	10	-275.336	1.757	-0.041
			Max. Mx	25	39.715	-4.072	-0.009
			Max. My	11	-14.481	-0.098	-1.523
			Max. Vy	21	0.660	-4.063	-0.001
			Max. Vx	11	-0.199	-0.098	-1.523
		Diagonal	Max Tension	9	11.084	0.000	0.000
			Max. Compression	9	-11.308	0.000	0.000
			Max. Mx	17	1.513	0.316	-0.031
			Max. My	23	3.781	0.249	-0.036
			Max. Vy	17	0.116	0.316	-0.031
			Max. Vx	23	0.006	0.000	0.000
T10	20 - 0	Leg	Max Tension	4	267.120	1.265	-0.054
			Max. Compression	10	-316.825	0.000	0.000
			Max. Mx	23	-133.819	4.274	0.010
			Max. My	11	-16.763	-0.148	-2.823
			Max. Vy	10	-17.387	0.000	0.000
			Max. Vx	5	-4.609	0.000	0.000
		Diagonal	Max Tension	9	11.615	0.000	0.000
			Max. Compression	9	-11.836	0.000	0.000
			Max. Mx	17	-0.395	0.453	0.041
			Max. My	18	5.626	0.263	0.049
			Max. Vy	17	0.143	0.453	0.041
			Max. Vx	18	-0.007	0.000	0.000

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	10	315.296	30.488	-18.433
	Max. H_x	10	315.296	30.488	-18.433
	Max. H_z	4	-265.800	-26.109	15.823
	Min. Vert	4	-265.800	-26.109	15.823
	Min. H_x	4	-265.800	-26.109	15.823
	Min. H_z	10	315.296	30.488	-18.433
Leg B	Max. Vert	6	313.646	-30.482	-18.195
	Max. H_x	12	-264.380	26.102	15.595
	Max. H_z	12	-264.380	26.102	15.595
	Min. Vert	12	-264.380	26.102	15.595
	Min. H_x	6	313.646	-30.482	-18.195
	Min. H_z	6	313.646	-30.482	-18.195
Leg A	Max. Vert	2	315.123	-0.203	35.553
	Max. H_x	11	17.600	4.607	1.471
	Max. H_z	2	315.123	-0.203	35.553
	Min. Vert	8	-263.726	0.195	-30.421
	Min. H_x	5	19.373	-4.609	1.612
	Min. H_z	8	-263.726	0.195	-30.421

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	53.444	0.000	0.000	-14.581	1.436	0.000
Dead+Wind 0 deg - No Ice	53.444	0.109	-57.319	-6449.792	-17.792	-8.658
Dead+Wind 30 deg - No Ice	53.444	27.433	-47.368	-5394.012	-3120.627	-21.690
Dead+Wind 60 deg - No Ice	53.444	46.632	-26.963	-3092.385	-5319.161	-28.577
Dead+Wind 90 deg - No Ice	53.444	54.678	-0.109	-33.809	-6209.386	-28.705
Dead+Wind 120 deg - No Ice	53.444	49.624	28.565	3186.372	-5570.919	-21.996
Dead+Wind 150 deg - No Ice	53.444	27.245	47.259	5345.622	-3087.323	-7.015
Dead+Wind 180 deg - No Ice	53.444	-0.109	53.738	6107.723	20.665	8.411
Dead+Wind 210 deg - No Ice	53.444	-27.433	47.368	5364.850	3123.500	21.690
Dead+Wind 240 deg - No Ice	53.444	-49.733	28.754	3219.677	5593.020	30.655
Dead+Wind 270 deg - No Ice	53.444	-54.678	0.109	4.647	6212.259	28.705
Dead+Wind 300 deg - No Ice	53.444	-46.523	-26.775	-3059.081	5302.806	20.166
Dead+Wind 330 deg - No Ice	53.444	-27.245	-47.259	-5374.784	3090.196	7.015
Dead+Ice+Temp	126.034	0.000	0.000	-45.209	-2.596	0.000
Dead+Wind 0 deg+Ice+Temp	126.034	0.018	-17.776	-2087.120	-5.916	-1.552
Dead+Wind 30 deg+Ice+Temp	126.034	8.256	-14.269	-1708.071	-966.104	-4.481
Dead+Wind 60 deg+Ice+Temp	126.034	13.904	-8.030	-986.559	-1632.406	-6.042
Dead+Wind 90 deg+Ice+Temp	126.034	16.481	-0.018	-48.529	-1923.862	-6.297
Dead+Wind 120 deg+Ice+Temp	126.034	15.399	8.873	972.871	-1771.947	-5.213
Dead+Wind 150 deg+Ice+Temp	126.034	8.225	14.251	1614.333	-960.354	-1.815
Dead+Wind 180 deg+Ice+Temp	126.034	-0.018	16.029	1831.741	0.724	1.535
Dead+Wind 210 deg+Ice+Temp	126.034	-8.256	14.269	1617.653	960.913	4.481
Dead+Wind 240 deg+Ice+Temp	126.034	-15.417	8.904	978.622	1770.075	6.764
Dead+Wind 270 deg+Ice+Temp	126.034	-16.481	0.018	-41.889	1918.671	6.297
Dead+Wind 300 deg+Ice+Temp	126.034	-13.886	-7.999	-980.809	1623.895	4.507
Dead+Wind 330 deg+Ice+Temp	126.034	-8.225	-14.251	-1704.750	955.162	1.815
Dead+Wind 0 deg - Service	53.444	0.038	-19.834	-2241.298	-5.217	-2.996
Dead+Wind 30 deg - Service	53.444	9.492	-16.390	-1875.976	-1078.862	-7.505
Dead+Wind 60 deg - Service	53.444	16.135	-9.330	-1079.565	-1839.601	-9.888
Dead+Wind 90 deg - Service	53.444	18.920	-0.038	-21.234	-2147.637	-9.933

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead+Wind 120 deg - Service	53.444	17.171	9.884	1093.015	-1926.714	-7.611
Dead+Wind 150 deg - Service	53.444	9.427	16.353	1840.160	-1067.338	-2.427
Dead+Wind 180 deg - Service	53.444	-0.038	18.594	2103.863	8.090	2.910
Dead+Wind 210 deg - Service	53.444	-9.492	16.390	1846.814	1081.735	7.505
Dead+Wind 240 deg - Service	53.444	-17.209	9.949	1104.539	1936.240	10.607
Dead+Wind 270 deg - Service	53.444	-18.920	0.038	-7.928	2150.510	9.933
Dead+Wind 300 deg - Service	53.444	-16.098	-9.265	-1068.041	1835.820	6.978
Dead+Wind 330 deg - Service	53.444	-9.427	-16.353	-1869.323	1070.211	2.427

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.000	-53.444	0.000	-0.000	53.444	-0.000	0.000%
2	0.109	-53.444	-57.319	-0.109	53.444	57.319	0.000%
3	27.433	-53.444	-47.368	-27.433	53.444	47.368	0.000%
4	46.632	-53.444	-26.963	-46.632	53.444	26.963	0.000%
5	54.678	-53.444	-0.109	-54.678	53.444	0.109	0.000%
6	49.624	-53.444	28.565	-49.624	53.444	-28.565	0.000%
7	27.245	-53.444	47.259	-27.245	53.444	-47.259	0.000%
8	-0.109	-53.444	53.738	0.109	53.444	-53.738	0.000%
9	-27.433	-53.444	47.368	27.433	53.444	-47.368	0.000%
10	-49.733	-53.444	28.754	49.733	53.444	-28.754	0.000%
11	-54.678	-53.444	0.109	54.678	53.444	-0.109	0.000%
12	-46.523	-53.444	-26.775	46.523	53.444	26.775	0.000%
13	-27.245	-53.444	-47.259	27.245	53.444	47.259	0.000%
14	0.000	-126.034	0.000	-0.000	126.034	-0.000	0.000%
15	0.018	-126.034	-17.776	-0.018	126.034	17.776	0.000%
16	8.256	-126.034	-14.269	-8.256	126.034	14.269	0.000%
17	13.904	-126.034	-8.030	-13.904	126.034	8.030	0.000%
18	16.481	-126.034	-0.018	-16.481	126.034	0.018	0.000%
19	15.399	-126.034	8.873	-15.399	126.034	-8.873	0.000%
20	8.225	-126.034	14.251	-8.225	126.034	-14.251	0.000%
21	-0.018	-126.034	16.029	0.018	126.034	-16.029	0.000%
22	-8.256	-126.034	14.269	8.256	126.034	-14.269	0.000%
23	-15.417	-126.034	8.904	15.417	126.034	-8.904	0.000%
24	-16.481	-126.034	0.018	16.481	126.034	-0.018	0.000%
25	-13.886	-126.034	-7.999	13.886	126.034	7.999	0.000%
26	-8.225	-126.034	-14.251	8.225	126.034	14.251	0.000%
27	0.038	-53.444	-19.834	-0.038	53.444	19.834	0.000%
28	9.492	-53.444	-16.390	-9.492	53.444	16.390	0.000%
29	16.135	-53.444	-9.330	-16.135	53.444	9.330	0.000%
30	18.920	-53.444	-0.038	-18.920	53.444	0.038	0.000%
31	17.171	-53.444	9.884	-17.171	53.444	-9.884	0.000%
32	9.427	-53.444	16.353	-9.427	53.444	-16.353	0.000%
33	-0.038	-53.444	18.594	0.038	53.444	-18.594	0.000%
34	-9.492	-53.444	16.390	9.492	53.444	-16.390	0.000%
35	-17.209	-53.444	9.949	17.209	53.444	-9.949	0.000%
36	-18.920	-53.444	0.038	18.920	53.444	-0.038	0.000%
37	-16.098	-53.444	-9.265	16.098	53.444	9.265	0.000%
38	-9.427	-53.444	-16.353	9.427	53.444	16.353	0.000%

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	192 - 180	6.337	27	0.306	0.033
T2	180 - 160	5.564	27	0.303	0.033
T3	160 - 140	4.315	27	0.268	0.029
T4	140 - 120	3.250	27	0.224	0.023
T5	120 - 100	2.357	27	0.182	0.016
T6	100 - 80	1.627	27	0.147	0.011
T7	80 - 60	1.052	27	0.112	0.008
T8	60 - 40	0.613	27	0.082	0.005
T9	40 - 20	0.297	27	0.056	0.003
T10	20 - 0	0.089	27	0.028	0.001

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
190.000	(2) DB980H90E-M w/ Mount Pipe	27	6.208	0.306	0.034	Inf
180.000	(2) LPA-80080/4CF	27	5.564	0.303	0.033	354268
170.000	(3) 7130.16.33.00 w/ Mount Pipe	27	4.925	0.289	0.032	39463
160.000	HBX-6516DS-VTM w/ Mount Pipe	27	4.315	0.268	0.029	21241
150.000	RR90-17-02DP w/ Mount Pipe	27	3.758	0.246	0.027	24340
140.000	(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe	27	3.250	0.224	0.023	29987
98.000	58532A	27	1.563	0.144	0.011	31253

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	192 - 180	18.252	10	0.883	0.097
T2	180 - 160	16.024	10	0.875	0.096
T3	160 - 140	12.427	10	0.770	0.085
T4	140 - 120	9.362	10	0.643	0.068
T5	120 - 100	6.791	10	0.525	0.047
T6	100 - 80	4.690	10	0.423	0.032
T7	80 - 60	3.033	10	0.322	0.023
T8	60 - 40	1.767	10	0.237	0.015
T9	40 - 20	0.857	10	0.160	0.010
T10	20 - 0	0.256	10	0.081	0.004

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
190.000	(2) DB980H90E-M w/ Mount Pipe	10	17.881	0.883	0.097	642045
180.000	(2) LPA-80080/4CF	10	16.024	0.875	0.096	149410
170.000	(3) 7130.16.33.00 w/ Mount Pipe	10	14.182	0.833	0.092	13905
160.000	HBX-6516DS-VTM w/ Mount Pipe	10	12.427	0.770	0.085	7407
150.000	RR90-17-02DP w/ Mount Pipe	10	10.824	0.706	0.077	8474
140.000	(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe	10	9.362	0.643	0.068	10482
98.000	58532A	10	4.505	0.413	0.031	10859

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	192	Leg	A325N	0.625	4	0.823	13.499	0.061 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.625	1	1.280	3.874	0.330 ✓	1.333	Member Block Shear
		Top Girt	A325N	0.625	1	0.095	3.874	0.024 ✓	1.333	Member Block Shear
T2	180	Leg	A325N	0.625	4	7.431	13.499	0.551 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.625	1	5.078	4.554	1.115 ✓	1.333	Member Block Shear
		Top Girt	A325N	0.625	1	1.085	4.554	0.238 ✓	1.333	Member Block Shear
T3	160	Leg	A325N	0.875	4	15.191	26.458	0.574 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.625	1	6.963	6.443	1.081 ✓	1.333	Bolt Shear
T4	140	Leg	A325N	1.000	4	23.833	34.557	0.690 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.625	1	7.986	6.443	1.240 ✓	1.333	Bolt Shear
T5	120	Leg	A325N	1.000	6	21.200	34.557	0.613 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.750	1	8.093	9.141	0.885 ✓	1.333	Member Bearing
T6	100	Leg	A325N	1.000	6	25.671	34.557	0.743 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.750	1	9.208	9.141	1.007 ✓	1.333	Member Bearing
T7	80	Leg	A325N	1.000	8	22.830	34.557	0.661 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.750	1	9.890	9.141	1.082 ✓	1.333	Member Bearing
T8	60	Leg	A325N	1.000	8	26.038	34.557	0.753 ✓	1.333	Bolt Tension
		Diagonal	A325X	0.750	1	9.527	11.426	0.834 ✓	1.333	Member Bearing
T9	40	Leg	A325N	1.000	8	29.275	34.557	0.847 ✓	1.333	Bolt Tension
		Diagonal	A325X	0.750	1	11.084	11.426	0.970 ✓	1.333	Member Bearing
T10	20	Leg	A354-BC	1.000	10	26.712	32.398	0.825 ✓	1.333	Bolt Tension
		Diagonal	A325X	0.750	1	11.836	13.254	0.893 ✓	1.333	Bolt Shear

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	192 - 180	ROHN 2.5 STD	12.000	4.000	50.7 K=1.00	24.247	1.704	-5.095	41.318	0.123 ✔
T2	180 - 160	ROHN 2.5 STD	20.032	5.008	63.4 K=1.00	22.123	1.704	-37.066	37.699	0.983 ✔
T3	160 - 140	ROHN 3 EH	20.036	6.679	70.5 K=1.00	20.840	3.016	-71.647	62.852	1.140 ✔
T4	140 - 120	ROHN 4 EH	20.038	6.679	54.3 K=1.00	23.670	4.407	-111.372	104.324	1.068 ✔
T5	120 - 100	ROHN 5 EH	20.036	6.679	44.1 K=1.00	25.242	6.038	-147.497	152.402	0.968 ✔
T6	100 - 80	ROHN 6 EHS	20.036	10.018	54.0 K=1.00	23.712	6.713	-178.470	159.182	1.121 ✔
T7	80 - 60	ROHN 6 EH	20.032	10.016	54.8 K=1.00	23.592	8.405	-212.088	198.287	1.070 ✔
T8	60 - 40	ROHN 8 EHS	20.042	10.021	41.2 K=1.00	25.665	9.719	-243.559	249.443	0.976 ✔
T9	40 - 20	ROHN 8 EHS	20.031	10.015	41.2 K=1.00	25.668	9.719	-275.336	249.476	1.104 ✔
T10	20 - 0	ROHN 8 EHS	20.033	9.975	41.0 K=1.00	25.692	9.719	-316.825	249.705	1.269 ✔

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	192 - 180	L1 3/4x1 3/4x3/16	7.700	3.590	125.4 K=1.00	9.489	0.621	-1.316	5.894	0.223 ✔
T2	180 - 160	L2x2x3/16	9.686	4.727	144.0 K=1.00	7.206	0.715	-5.027	5.152	0.976 ✔
T3	160 - 140	L2 1/2x2 1/2x1/4	12.241	6.033	147.4 K=1.00	6.869	1.190	-6.963	8.175	0.852 ✔
T4	140 - 120	L2 1/2x2 1/2x1/4	14.067	6.902	168.7 K=1.00	5.248	1.190	-7.898	6.245	1.265 ✔
T5	120 - 100	L3x3x1/4	15.944	7.776	157.6 K=1.00	6.011	1.440	-8.081	8.655	0.934 ✔
T6	100 - 80	L3 1/2x3 1/2x1/4	19.209	9.452	163.4 K=1.00	5.591	1.690	-9.254	9.449	0.979 ✔
T7	80 - 60	L4x4x1/4	20.935	10.297	155.4 K=1.00	6.182	1.940	-10.004	11.993	0.834 ✔
T8	60 - 40	L4x4x5/16	22.872	11.214	170.1 K=1.00	5.160	2.400	-9.530	12.384	0.770 ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T9	40 - 20	L4x4x5/16	24.688	12.078	183.2 K=1.00	4.448	2.400	-11.309	10.675	1.059 ✔
T10	20 - 0	L4x4x3/8	26.489	12.990	197.8 K=1.00	3.816	2.860	-11.836	10.915	1.084 ✔

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	192 - 180	L1 3/4x1 3/4x3/16	6.580	6.101	213.2 K=1.00	3.287	0.621	-0.091	2.041	0.045 ✔
T2	180 - 160	KL/R > 200 (C) - 5 L2x2x3/16	6.580	6.101	185.8 K=1.00	4.325	0.715	-1.117	3.092	0.361 ✔

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	192 - 180	ROHN 2.5 STD	12.000	4.000	50.7	30.000	1.704	3.292	51.121	0.064 ✔
T2	180 - 160	ROHN 2.5 STD	20.032	5.008	63.4	30.000	1.704	29.726	51.121	0.581 ✔
T3	160 - 140	ROHN 3 EH	20.036	6.679	70.5	30.000	3.016	60.763	90.478	0.672 ✔
T4	140 - 120	ROHN 4 EH	20.038	6.679	54.3	30.000	4.407	95.332	132.223	0.721 ✔
T5	120 - 100	ROHN 5 EH	20.036	6.679	44.1	30.000	6.038	127.201	181.132	0.702 ✔
T6	100 - 80	ROHN 6 EHS	20.036	10.018	54.0	30.000	6.713	154.025	201.398	0.765 ✔
T7	80 - 60	ROHN 6 EH	20.032	10.016	54.8	30.000	8.405	182.643	252.148	0.724 ✔
T8	60 - 40	ROHN 8 EHS	20.042	10.021	41.2	30.000	9.719	208.307	291.579	0.714 ✔
T9	40 - 20	ROHN 8 EHS	20.031	10.015	41.2	30.000	9.719	234.202	291.579	0.803 ✔
T10	20 - 0	ROHN 8 EHS	20.033	0.083	0.3	30.000	9.719	267.120	291.579	0.916 ✔

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	192 - 180	L1 3/4x1 3/4x3/16	7.700	3.590	82.9	29.000	0.360	1.280	10.450	0.122 ✔
T2	180 - 160	L2x2x3/16	9.686	4.727	94.3	29.000	0.431	5.078	12.493	0.406 ✔
T3	160 - 140	L2 1/2x2 1/2x1/4	12.241	6.033	96.0	29.000	0.752	6.858	21.804	0.315 ✔
T4	140 - 120	L2 1/2x2 1/2x1/4	12.834	6.292	100.1	29.000	0.752	7.954	21.804	0.365 ✔
T5	120 - 100	L3x3x1/4	15.944	7.776	102.1	32.500	0.916	8.093	29.768	0.272 ✔
T6	100 - 80	L3 1/2x3 1/2x1/4	19.209	9.452	105.5	32.500	1.103	9.208	35.862	0.257 ✔
T7	80 - 60	L4x4x1/4	20.935	10.297	100.1	32.500	1.291	9.890	41.956	0.236 ✔
T8	60 - 40	L4x4x5/16	22.872	11.214	109.8	32.500	1.595	9.527	51.835	0.184 ✔
T9	40 - 20	L4x4x5/16	24.688	12.078	118.2	32.500	1.595	11.084	51.835	0.214 ✔
T10	20 - 0	L4x4x3/8	26.489	12.990	128.1	32.500	1.899	11.615	61.715	0.188 ✔

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	192 - 180	L1 3/4x1 3/4x3/16	6.580	6.101	141.7	29.000	0.360	0.095	10.450	0.009 ✔
T2	180 - 160	L2x2x3/16	6.580	6.101	123.3	29.000	0.431	1.085	12.493	0.087 ✔

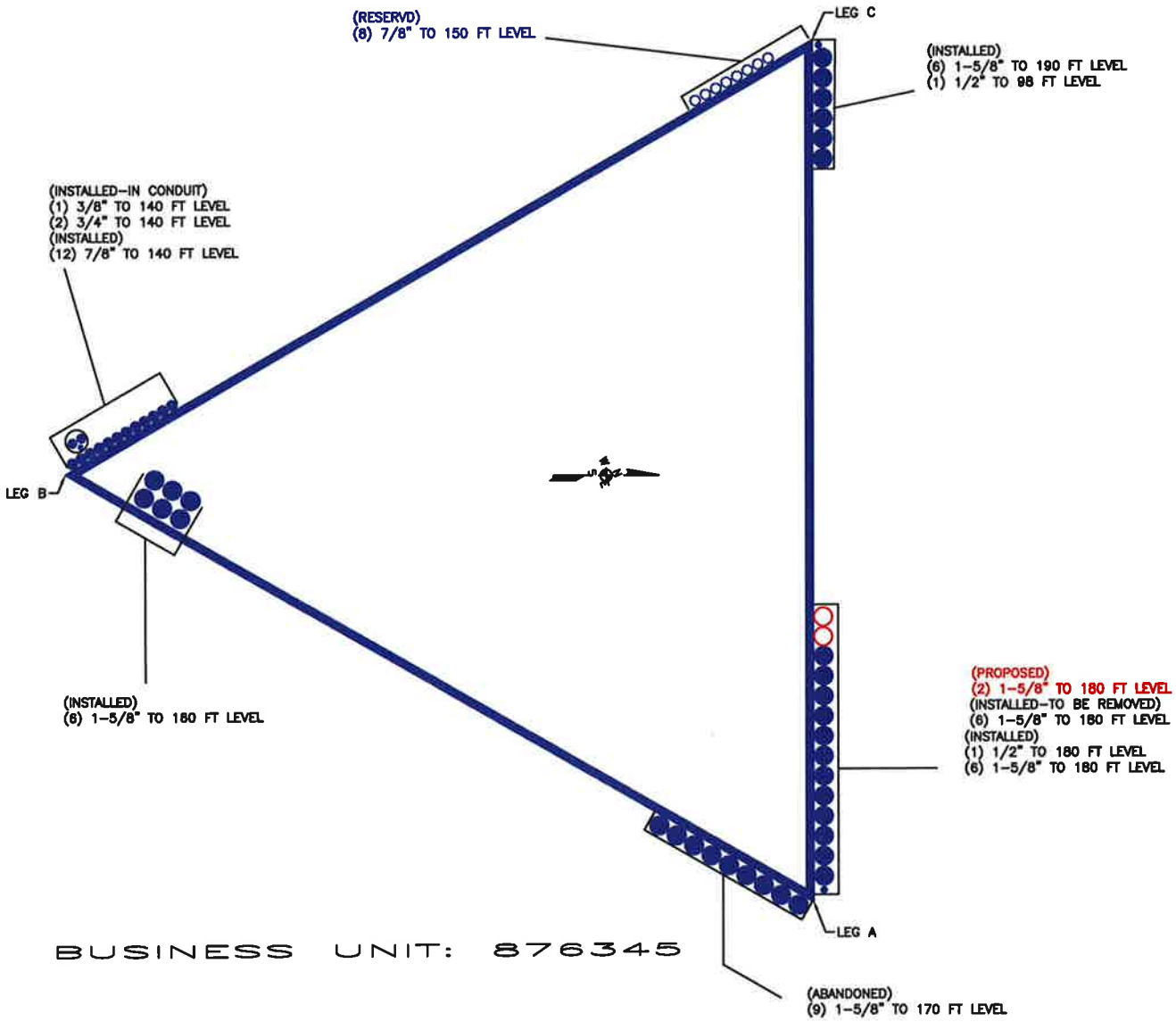
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
T1	192 - 180	Leg	ROHN 2.5 STD	1	-5.095	55.077	9.3	Pass
T2	180 - 160	Leg	ROHN 2.5 STD	25	-37.066	50.253	73.8	Pass
T3	160 - 140	Leg	ROHN 3 EH	55	-71.647	83.781	85.5	Pass
T4	140 - 120	Leg	ROHN 4 EH	76	-111.372	139.064	80.1	Pass
T5	120 - 100	Leg	ROHN 5 EH	97	-147.497	203.152	72.6	Pass
T6	100 - 80	Leg	ROHN 6 EHS	118	-178.470	212.190	84.1	Pass
T7	80 - 60	Leg	ROHN 6 EH	133	-212.088	264.317	80.2	Pass
T8	60 - 40	Leg	ROHN 8 EHS	148	-243.559	332.508	73.2	Pass
T9	40 - 20	Leg	ROHN 8 EHS	163	-275.336	332.551	82.8	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	SF*P_{allow} K	% Capacity	Pass Fail
T10	20 - 0	Leg	ROHN 8 EHS	178	-316.825	332.857	95.2	Pass
T1	192 - 180	Diagonal	L1 3/4x1 3/4x3/16	12	-1.316	7.856	16.8	Pass
							24.8 (b)	
T2	180 - 160	Diagonal	L2x2x3/16	35	-5.027	6.868	73.2	Pass
							83.6 (b)	
T3	160 - 140	Diagonal	L2 1/2x2 1/2x1/4	63	-6.963	10.897	63.9	Pass
							81.1 (b)	
T4	140 - 120	Diagonal	L2 1/2x2 1/2x1/4	84	-7.898	8.324	94.9	Pass
T5	120 - 100	Diagonal	L3x3x1/4	105	-8.081	11.538	70.0	Pass
T6	100 - 80	Diagonal	L3 1/2x3 1/2x1/4	126	-9.254	12.595	73.5	Pass
							75.6 (b)	
T7	80 - 60	Diagonal	L4x4x1/4	141	-10.004	15.987	62.6	Pass
							81.2 (b)	
T8	60 - 40	Diagonal	L4x4x5/16	156	-9.530	16.507	57.7	Pass
							62.6 (b)	
T9	40 - 20	Diagonal	L4x4x5/16	171	-11.309	14.230	79.5	Pass
T10	20 - 0	Diagonal	L4x4x3/8	186	-11.836	14.549	81.4	Pass
T1	192 - 180	Top Girt	L1 3/4x1 3/4x3/16	5	-0.091	2.721	3.3	Pass
T2	180 - 160	Top Girt	L2x2x3/16	29	-1.117	4.122	27.1	Pass
							Summary	
						Leg (T10)	95.2	Pass
						Diagonal (T4)	94.9	Pass
						Top Girt (T2)	27.1	Pass
						Bolt Checks	93.0	Pass
						RATING =	**95.2**	**Pass**

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 876345

APPENDIX C

ADDITIONAL CALCULATIONS

CCI Foundation Tool Suite - SS Drilled Pier

CCIFTS 1.2.108.14286 - Phase 1-2 Date: 9/9/2015

BU:	876345
Site Name:	SKY HILL, CT
App Number:	307379 Revision # 0
Work Order:	1109017

CROWN CASTLE

Self-Support Drilled Pier

Input

Criteria

TIA Revision:	F
ACI 318 Revision:	2002
Seismic Category:	B

Forces

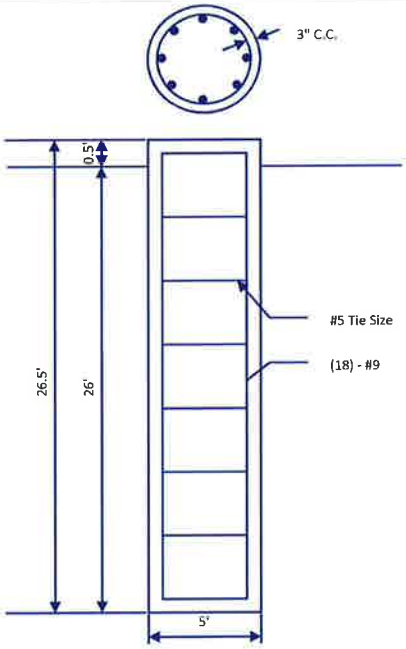
Compression	315 kips
Compression Shear	36 kips
Uplift	266 kips
Uplift Shear	31 kips
Add'l Moment	0 k-ft
Swelling Force	0 kips

Foundation Dimensions

Pier Diameter:	5 ft
Ext. above grade:	0.5 ft
Depth below grade:	26 ft
Bell Diameter:	ft
Bell Angle:	deg

Material Properties

Number of Rebar:	18
Rebar Size:	9
Tie Size	5
Rebar tensile strength:	60 ksi
Concrete Strength:	3000 psi
Ultimate Concrete Strain	0.003 in/in
Clear Cover to Ties:	3 in



Soil Profile — Soil profile per FDH.

Layer	Thickness (ft)	From (ft)	To (ft)	Unit Weight (pcf)	Cohesion (psf)	Friction Angle (deg)	Ultimate Uplift Skin Friction (ksf)	Ultimate Comp. Skin Friction (ksf)	Ultimate Bearing Capacity (ksf)	SPT 'N' Counts
1	2	0	2	120			0	0	0	
2	1.33	2	3.33	130			0	0	0	
3	1.67	3.33	5	130	3000		0	0	0	
4	21	5	26	135	5000		2.1	2.1	25.46	

Analysis Results

Soil Lateral Capacity	Uplift case	Comp. case
Depth to Zero Shear:	11.0 ft	11.0 ft
Max Moment, Mu:	246.8 k-ft	286.6 k-ft
Soil Safety Factor:	45.4	39.1
Safety Factor Req'd:	2	2
RATING:	4.41%	5.12%

Soil Axial Capacity

Concrete Weight:	62.4 kips
Skin Friction:	346.4 kips
Soil Cone:	kips
Uplift Capacity (k), ϕTn:	408.8 kips
Uplift (k), Tu:	266.0 kips
RATING:	65.07%
Skin Friction (k):	346.4 kips
End Bearing (k):	250.0 kips
Comp. Capacity (k), ϕCn:	596.3 kips
Comp. (k), Cu:	315.0 kips
RATING:	52.82%

Concrete/Steel Check	Uplift Case	Comp case
Mu (from soil analysis)	320.8 k-ft	372.5 k-ft
ϕMn	1318.6 k-ft	2608.8 k-ft
RATING:	24.33%	14.28%

rho provided	0.64	
rho required	0.33	OK
Rebar Spacing	7.9	
Spacing required	18.0	OK
Dev. Length required	14.7	
Dev. Length provided	49.4	OK

Overall Foundation Rating: 65.07%