Robinson+Cole

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Also admitted in Massachusetts

January 26, 2018

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**
425 Indian Park Ledge Road, Trumbull, Connecticut

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains fifteen (15) antennas at the 155-foot level of the existing 195-foot tower at 425 Indian Park Ledge Road in Trumbull, Connecticut (the "Property"). The tower is owned by Crown Atlantic Company LLC ("Crown"). The Council approved Cellco's use of this tower in 2002. Cellco now intends to replace nine (9) of its existing antennas with three (3) model SBNHH-1D65B, 700 MHz antennas; three (3) model SBNHH-1D65B, 1900 MHz antennas; and three (3) model SBNHH-1D65B, 2100 MHz antennas, all at the same level on the tower. Cellco also intends to replace three (3) remote radio heads ("RRHs") and install six (6) new RRHs, all located behind Cellco's replacement antennas, and install one (1) HYBRIFLEX™ fiber optic antenna cable. Included in Attachment 1 are specifications for Cellco's replacement antennas, RRHs and HYBRIFLEX™ cable.

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 Vicki A. Tesoro, Trumbull's First Selectman; Rina Bakalar, Trumbull's Director Economic and Community Development; and Crown, the owner of the tower. The Town of Trumbull is 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 RRH's will remain at the 155-foot level of 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 General Power Density table for Cellco's modified facility is included behind 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).

A copy of the parcel map and owner information for the Property is included in Attachment 4. A Certificate of Mailing verifying that this filing was sent to municipal officials 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:
Vicki A. Tesoro, Trumbull First Selectman
Rina Bakalar, Trumbull Director Economic and Community Development
Crown
Tim Parks

ATTACHMENT 1

Product Specifications

COMMSCOPE®

SBNHH-1D65B

6-port sector antenna, 2x 698–896 and 4x 1695–2360 MHz, 65° HPBW, 2x 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
	0 ° | 14.6	0 ° | 14.5	0 ° | 17.4	0 ° | 17.8	0 ° | 18.1	0 ° | 18.2
Gain by Beam Tilt, average, dBi	7 ° | 14.6	7 ° | 14.4	3 ° | 17.5	3 ° | 17.9	3 ° | 18.3	3 ° | 18.4
	14 ° | 14.2	14 ° | 13.6	7 ° | 17.4	7 ° | 17.9	7 ° | 18.2	7 ° | 18.4
Beamwidth, Horizontal Tolerance, degrees	±2.2	±3.4	±2	±4.6	±5.7	±4.3
Beamwidth, Vertical Tolerance, degrees	±0.8	±1	±0.3	±0.2	±0.3	±0.2
USLS, beampeak to 20° above beampeak, dB	16	14	16	16	16	15
Front-to-Back Total Power at 180° ± 30°, dB	25	26	27	26	26	26
CPR at Boresight, dB	22	23	21	20	20	22
CPR at Sector, dB	13	11	16	12	11	4

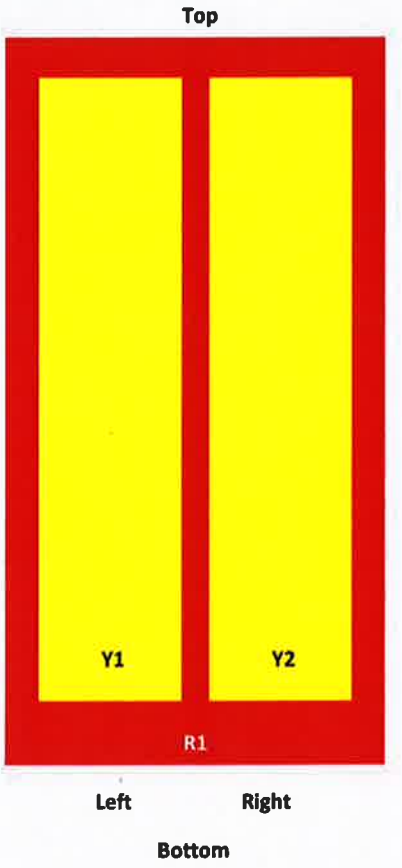
* CommScope® supports NGMN recommendations on Base Station Antenna Standards (BASTA). To learn more about the benefits of BASTA, download the whitepaper Time to Raise the Bar on BSAs.

Array Layout

Product Specifications

SBNHH-1D65B

SBNHH 65



Array	Freq (MHz)	Conns	RET (MRET)	AISG RET UID
R1	698-896	1-2	1	ANxxxxxxxxxxxxxxx.1
Y1	1695-2360	3-4	2	ANxxxxxxxxxxxxxxx.2
Y2	1695-2360	5-6		

View from the front of the antenna

(Sizes of colored boxes are not true depictions of array sizes)

General Specifications

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

Mechanical Specifications

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

Product Specifications

SBNHH-1D65B

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

Dimensions

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

Remote Electrical Tilt (RET) Information

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

Packed Dimensions

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

Regulatory Compliance/Certifications

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

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.

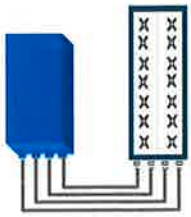
Its compactness and slim design makes the Alcatel-Lucent B13 RRH4x30-4R easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the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

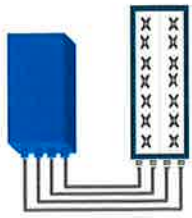
Its compactness and slim design makes the Alcatel-Lucent B25 RRH4x30 easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the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

ALCATEL-LUCENT B66A RRH4X45

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

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

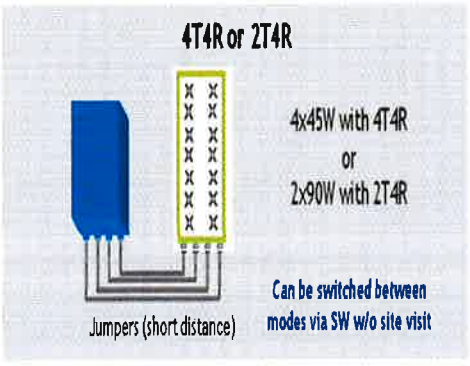
The Alcatel-Lucent B66a RRH4x45 product has four transmit RF paths, offering the possibility to **select, via software only, 2Tx or 4Tx MIMO configurations** with either 2x90W or 4x45W RF output power. It also supports 4-way Rx diversity at the 70 MHz instantaneous bandwidth.

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

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

FEATURES

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



BENEFITS

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

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

Alcatel·Lucent

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)

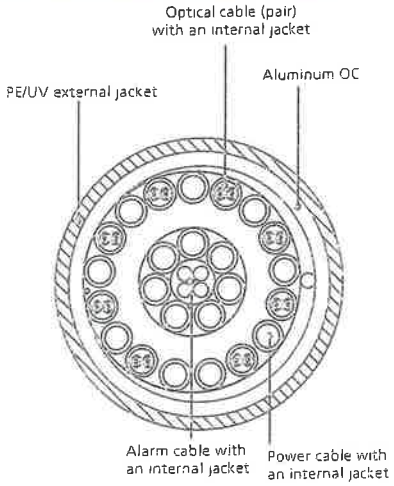


Figure 2: Construction Detail

* This data is provisional and subject to change

ATTACHMENT 2

	General	Power	Density					
Site Name: Trumbull 3								
Tower Height: 195'								
CARRIER	# OF CHAN.	WATTS ERP	HEIGHT	CALC. POWER DENS	FREQ.	MAX. PERMISS. EXP.	FRACTION MPE	Total
*Town Antennas (cum.)							4.80%	
*AT&T	2	414	187	850	0.0091	0.5667	0.16%	
*AT&T	2	657	187	1900	0.0144	1.0000	0.14%	
*AT&T	2	414	187	850	0.0091	0.5667	0.16%	
*AT&T	2	1791	187	1900	0.0393	1.0000	0.39%	
*AT&T	2	940	187	700	0.0206	0.4667	0.44%	
*Sprint	1	438	166	850	0.0061	0.5667	0.11%	
*Sprint	2	438	166	850	0.0123	0.5667	0.22%	
*Sprint	5	622	166	1900	0.0437	1.0000	0.44%	
*Sprint	2	1556	166	1900	0.0437	1.0000	0.44%	
*Sprint	8	778	166	2500	0.0874	1.0000	0.87%	
*Clearwire	2	153	164	2496	0.0044	1.0000	0.04%	
*Clearwire	1	211	164	11 GHz	0.0030	1.0000	0.03%	
*T-Mobile	2	2033	145	2100	0.0757	1.0000	0.76%	
*T-Mobile	2	1168	145	1900	0.0435	1.0000	0.43%	
*T-Mobile	2	1168	145	2100	0.0435	1.0000	0.43%	
*T-Mobile	1	687	145	700	0.0128	0.4667	0.27%	
Verizon PCS	**1**	**4511**	**155**	**0.0675**	**1970**	**1.0000**	**6.75%**	
Verizon Cellular	**3**	**476**	**155**	**0.0214**	**869**	**0.5793**	**3.69%**	
Verizon Cellular	**0**	**3709**	**155**	**0.0000**	**880**	**0.5866**	**0.00%**	
Verizon AWS	**1**	**7251**	**155**	**0.1085**	**2145**	**1.0000**	**10.85%**	
Verizon 700	**1**	**1969**	**155**	**0.0295**	**746**	**0.4973**	**5.93%**	
								37.4%
* Source: Siting Council								

ATTACHMENT 3

Date: **February 15, 2017**

Charles Trask
Crown Castle
3530 Toringdon Way, Suite 300
Charlotte, NC 28277

JACOBS
Jacobs Engineering Group, Inc.
5449 Bells Ferry Road
Acworth, GA 30102
770-701-2500

Subject:	**Structural Analysis Report**	
Carrier Designation:	***Verizon Wireless* Co-Locate**	
	Carrier Site Number:	118114
	Carrier Site Name:	Trumbull 3 CT
Crown Castle Designation:	**Crown Castle BU Number:**	881535
	Crown Castle Site Name:	TRUMBULL TOWER
	Crown Castle JDE Job Number:	419582
	Crown Castle Work Order Number:	1361285
	Crown Castle Application Number:	377588 Rev. 0
Engineering Firm Designation:	**Jacobs Engineering Group, Inc. Project Number:**	1361285
Site Data:	**425 Indian Ledge Park Rd, Trumbull, Fairfield County, CT** **Latitude *41° 16' 23.81"*, Longitude *-73° 12' 47.18"*** **195 Foot - Monopole Tower**	

Dear Charles Trask,

Jacobs Engineering Group, Inc. is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 1000823, in accordance with application 377588, revision 0.

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

This analysis has been performed in accordance with the 2016 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 125 mph converted to a nominal 3-second gust wind speed of 97 mph per Section 1609.3 and Appendix N as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1. Exposure Category B with a maximum topographic factor, Kzt, of 1 and Risk Category II were used in this analysis.

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

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

Structural analysis prepared by:

Kristi Holder

Kristi Holder, E.I.
Tower Structural Engineer

Reviewed by:

Matthew E. Watkins, P.E.
Engineering Project Manager

tnxTower Report - version 7.0.7.0

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 195 ft Monopole tower designed by ENGINEERED ENDEAVORS, INC. in July of 2001. The tower was originally designed for a wind speed of 85 mph per TIA/EIA-222-F.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA-222-G Structural Standard for Antenna Supporting Structures and Antennas using a 3-second gust wind speed of 97 mph with no ice, 50 mph with 0.75 inch ice thickness and 60 mph under service loads, exposure category B with topographic category 1 and crest height of 0 feet.

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
154.0	155.0	3	alcatel lucent	RRH2X60-PCS	1	1-5/8	-
		3	alcatel lucent	RRH2x60-700			
		3	alcatel lucent	RRH4X45-AWS4 B66			
		9	andrew	SBNHH-1D65B w/ Mount Pipe			
		2	rfs celwave	DB-B1-6C-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
193.0	195.0	1	Icom	HG2409U-PRO	1	1-5/8	2
	193.0	1	tower mounts	Side Arm Mount [SO 305-1]			
185.0	187.0	3	cci antennas	HPA-65R-BUU-H6 w/ Mount Pipe	-	-	2
		3	ericsson	RRUS12/RRUS A2			
		6	powerwave technologies	7770.00 w/ Mount Pipe	12 2 1	1-1/4 5/8 3/8	1
	185.0	6	ericsson	RRUS-11			
		12	powerwave technologies	LGP21401			
		1	raycap	DC6-48-60-18-8F			
		1	tower mounts	Platform Mount [LP 601-1]			
175.0	175.0	1	tower mounts	Platform Mount [LP 601-1]	-	-	5

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
164.0	166.0	1	dragonwave	A-ANT-23G-2-C	3 6 2	1-1/4 5/16 1/2	1
		3	argus technologies	LLPX310R w/ Mount Pipe			
		3	rfs celwave	APXVSPP18-C-A20 w/ Mount Pipe			
	164.0	3	alcatel lucent	1900MHz RRH (65MHz)			
		3	alcatel lucent	800 EXTERNAL NOTCH FILTER			
		3	alcatel lucent	800MHZ RRH			
		9	rfs celwave	ACU-A20-N			
		3	samsung telecommunications	FDD_R6_RRH			
		1	tower mounts	Platform Mount [LP 601-1]			
154.0	155.0	3	alcatel lucent	RRH2x40-AWS	-	-	3
		3	antel	BXA-70063/6CF w/ Mount Pipe			
		3	kathrein	742 213 w/ Mount Pipe			
		1	rfs celwave	DB-B1-6C-8AB-0Z			
		3	rymsa wireless	MG D3-800TV w/ Mount Pipe			
		2	antel	LPA-4016 w/ Mount Pipe	19	1-5/8	1
		4	decibel	DB844G65ZAXY w/ Mount Pipe			
	154.0	1	tower mounts	Platform Mount [LP 601-1]			
144.0	145.0	3	commscope	SBNH-1D65C-SR w/ Mount Pipe	12 1	1-5/8 1-1/4	1
		3	ericsson	ERICSSON AIR 21 B4A B2P w/ Mount Pipe			
		3	ericsson	KRY 112 144/1			
		3	ericsson	RRUS 11 B12			
		3	ericsson	RRUS 11 B2			
	144.0	1	tower mounts	Platform Mount [LP 601-1]			
134.0	135.0	12	decibel	DB844H90E-XY w/ Mount Pipe	9 6	1-1/4 1-5/8	4
	134.0	1	tower mounts	Platform Mount [LP 303-1]			

Notes:
1) Existing Equipment
2) Reserved Equipment
3) Equipment To Be Removed; Not Considered In This Analysis
4) Abandoned Equipment; Considered In This Analysis
5) Empty mount; considered in 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)
195.0	195.0	2	Generic	Omni Whip Antenna	-	-
185.0	185.0	12	Allgon	7120.16	-	-
175.0	175.0	12	Allgon	7120.16	-	-
165.0	165.0	12	Allgon	7120.16	-	-
155.0	155.0	12	Allgon	7120.16	-	-
145.0	145.0	12	Allgon	7120.16	-	-
135.0	135.0	12	Allgon	7120.16	-	-
125.0	125.0	12	Allgon	7120.16	-	-

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Clarence Welti Assoc., Inc.	1406210	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Engineered Endeavors Inc.	1405798	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Engineered Endeavors Inc.	1405789	CCISITES

3.1) Analysis Method

tnxTower (version 7.0.7.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

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) The existing base plate grout was not considered in this analysis.

This analysis may be affected if any assumptions are not valid or have been made in error. Jacobs Engineering Group, Inc. 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
L1	195 - 157.648	Pole	TP33.875x25x0.25	1	-9.74	1772.14	17.9	Pass
L2	157.648 - 117.083	Pole	TP42.9063x32.2501x0.3125	2	-25.14	2794.77	50.6	Pass
L3	117.083 - 81.0937	Pole	TP50.75x40.9017x0.375	3	-36.82	3988.09	59.3	Pass
L4	81.0937 - 40.0391	Pole	TP59.6563x48.3897x0.5	4	-55.70	6508.62	50.5	Pass
L5	40.0391 - 0	Pole	TP68x56.7861x0.5	5	-82.44	7261.40	58.1	Pass
							Summary	
						Pole (L3)	59.3	Pass
						RATING =	59.3	Pass

Table 6 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	60.4	Pass
1	Base Plate	0	53.3	Pass
1	Base Foundation Structural	0	60.9	Pass
1	Base Foundation Soil Interaction	0	52.2	Pass

Structure Rating (max from all components) =	60.9%

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

4.1) Recommendations

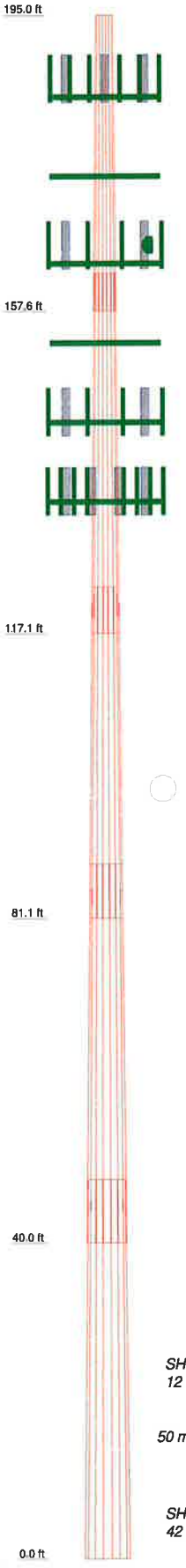
The tower and its foundation have sufficient capacity to carry the existing, reserved and proposed loads. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

Section	1	2	3	4	5
Length (ft)	37.35	45.30	41.85	47.90	47.99
Number of Sides	18	18	18	18	18
Thickness (in)	0.2500	0.3125	0.3750	0.5000	0.5000
Socket Length (ft)	4.73	5.86	6.84	7.95	
Top Dia (in)	25.0000	32.2501	40.9017	48.3897	56.7861
Bot Dia (in)	33.8750	42.9063	50.7500	59.6563	68.0000
Grade			A572-65		
Weight (K)	2.9	5.7	7.7	13.8	16.0

46.2



ALL REACTIONS ARE FACTORED

AXIAL 133 K

SHEAR 12 K *MOMENT 1753 kip-ft*

TORQUE 1 kip-ft
50 mph WIND - 0.7500 in ICE

AXIAL 82 K

SHEAR 42 K *MOMENT 5744 kip-ft*

TORQUE 1 kip-ft
REACTIONS - 97 mph WIND

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
HG2409U-PRO	193	8' x 2" Mount Pipe	164
Side Arm Mount [SO 305-1]	193	(2) 8' x 2" Mount Pipe	164
(2) 7770.00 w/ Mount Pipe	185	8' x 2" Mount Pipe	164
(2) 7770.00 w/ Mount Pipe	185	A-ANT-23G-2-C	164
(2) 7770.00 w/ Mount Pipe	185	6' Climbing Ladder (Flat)	162
(4) LGP21401	185	(2) LPA-4016 w/ Mount Pipe	154
(4) LGP21401	185	(2) DB844G65ZAXY w/ Mount Pipe	154
(4) LGP21401	185	(3) SBNHH-1D65B w/ Mount Pipe	154
(2) RRUS-11	185	(3) SBNHH-1D65B w/ Mount Pipe	154
(2) RRUS-11	185	(3) SBNHH-1D65B w/ Mount Pipe	154
(2) RRUS-11	185	RRH4X45-AWS4 B66	154
DC6-48-60-18-8F	185	RRH4X45-AWS4 B66	154
HPA-65R-BUU-H6 w/ Mount Pipe	185	RRH4X45-AWS4 B66	154
HPA-65R-BUU-H6 w/ Mount Pipe	185	RRH2X60-PCS	154
HPA-65R-BUU-H6 w/ Mount Pipe	185	RRH2X60-PCS	154
RRUS12/RRUS A2	185	RRH2X60-PCS	154
RRUS12/RRUS A2	185	RRH2x60-700	154
RRUS12/RRUS A2	185	RRH2x60-700	154
Platform Mount [LP 601-1]	185	RRH2x60-700	154
6' Climbing Ladder (Flat)	183	(2) DB-B1-6C-8AB-0Z	154
Platform Mount [LP 601-1]	175	Platform Mount [LP 601-1]	154
(4) 8' x 2" Mount Pipe	175	(2) DB844G65ZAXY w/ Mount Pipe	154
(4) 8' x 2" Mount Pipe	175	6' Climbing Ladder (Flat)	152
(4) 8' x 2" Mount Pipe	175	SBNH-1D65C-SR w/ Mount Pipe	144
6' Climbing Ladder (Flat)	172	SBNH-1D65C-SR w/ Mount Pipe	144
APXVSPP18-C-A20 w/ Mount Pipe	164	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	144
APXVSPP18-C-A20 w/ Mount Pipe	164	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	144
APXVSPP18-C-A20 w/ Mount Pipe	164	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	144
LLPX310R w/ Mount Pipe	164	RRUS 11 B2	144
LLPX310R w/ Mount Pipe	164	RRUS 11 B2	144
LLPX310R w/ Mount Pipe	164	RRUS 11 B2	144
(3) ACU-A20-N	164	RRUS 11 B12	144
(3) ACU-A20-N	164	RRUS 11 B12	144
(3) ACU-A20-N	164	RRUS 11 B12	144
800MHZ RRH	164	KRY 112 144/1	144
800MHZ RRH	164	KRY 112 144/1	144
800MHZ RRH	164	KRY 112 144/1	144
800 EXTERNAL NOTCH FILTER	164	Platform Mount [LP 601-1]	144
800 EXTERNAL NOTCH FILTER	164	SBNH-1D65C-SR w/ Mount Pipe	144
800 EXTERNAL NOTCH FILTER	164	6' Climbing Ladder (Flat)	142
1900MHz RRH (65MHz)	164	(4) DB844H90E-XY w/ Mount Pipe	134
1900MHz RRH (65MHz)	164	(4) DB844H90E-XY w/ Mount Pipe	134
1900MHz RRH (65MHz)	164	Platform Mount [LP 303-1]	134
FDD_R6_RRH	164	(4) DB844H90E-XY w/ Mount Pipe	134
FDD_R6_RRH	164		
FDD_R6_RRH	164		
Platform Mount [LP 601-1]	164		

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure B 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 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 59.3%

JACOBS
Jacobs Engineering Group, Inc.
5449 Bells Ferry Road
Acworth, GA 30102
Phone: 770-701-2500
FAX: 770-701-2501

Job: *TRUMBULL TOWER*			
Project: *BU 881535 WO 1361285*			
Client: Crown Castle	Drawn by: HolderKG	App'd:	
Code: TIA-222-G	Date: 02/15/17	Scale: N	
Path:		Dwg No.	

Tower Input Data

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

Tower is located in Fairfield County, Connecticut.
Basic wind speed of 97 mph.
Structure Class II.
Exposure Category B.
Topographic Category 1.
Crest Height 0.00 ft.
Nominal ice thickness of 0.7500 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		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				

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	195.00-157.65	37.35	4.73	18	25.0000	33.8750	0.2500	1.0000	A572-65 (65 ksi)
L2	157.65-117.08	45.30	5.86	18	32.2501	42.9063	0.3125	1.2500	A572-65 (65 ksi)

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L3	117.08-81.09	41.85	6.84	18	40.9017	50.7500	0.3750	1.5000	A572-65 (65 ksi)
L4	81.09-40.04	47.90	7.95	18	48.3897	59.6563	0.5000	2.0000	A572-65 (65 ksi)
L5	40.04-0.00	47.99		18	56.7861	68.0000	0.5000	2.0000	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	25.3857	19.6391	1519.8824	8.7863	12.7000	119.6758	3041.7647	9.8214	3.9600	15.84
	34.3976	26.6814	3811.2835	11.9369	17.2085	221.4768	7627.5821	13.3433	5.5220	22.088
L2	33.8785	31.6781	4082.2569	11.3378	16.3830	249.1758	8169.8853	15.8421	5.1260	16.403
	43.5681	42.2477	9683.4926	15.1208	21.7964	444.2708	19379.7271	21.1279	7.0015	22.405
L3	42.9339	48.2369	10009.1822	14.3870	20.7781	481.7190	20031.5347	24.1230	6.5387	17.437
	51.5329	59.9588	19222.9846	17.8831	25.7810	745.6260	38471.2633	29.9851	8.2720	22.059
L4	50.7708	76.0009	22021.1305	17.0008	24.5819	895.8253	44071.2370	38.0077	7.6366	15.273
	60.5765	93.8810	41506.5163	21.0005	30.3054	1369.6091	83067.6479	46.9494	9.6195	19.239
L5	59.5486	89.3261	35753.5214	19.9816	28.8474	1239.4036	71554.0883	44.6715	9.1144	18.229
	69.0490	107.1225	61663.1484	23.9625	34.5440	1785.0610	123407.434 8	53.5714	11.0880	22.176

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
L1 195.00-157.65				1	1	1			
L2 157.65-117.08				1	1	1			
L3 117.08-81.09				1	1	1			
L4 81.09-40.04				1	1	1			
L5 40.04-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
HJ7-50A(1-5/8")	B	Surface Ar (CaAa)	154.00 - 0.00	2	2	-0.130 -0.100	1.9800		1.04
HJ7-50A(1-5/8")	B	Surface Ar (CaAa)	154.00 - 0.00	5	5	-0.200 -0.140	0.0000		1.04
HB158-1-08U8-S8J18(1-5/8)	B	Surface Ar (CaAa)	154.00 - 0.00	1	1	-0.090 -0.080	1.9800		1.30
***									
Safety Line 3/8	A	Surface Ar (CaAa)	195.00 - 0.00	1	1	0.000 0.000	0.3750		0.22

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 plf
LDF6-50A(1-1/4")	C	No	Inside Pole	185.00 - 0.00	12	No Ice	0.00	0.66
						1/2" Ice	0.00	0.66
						1" Ice	0.00	0.66
FB-L98B-002-75000(3/8")	C	No	Inside Pole	185.00 - 0.00	1	No Ice	0.00	0.06
						1/2" Ice	0.00	0.06
						1" Ice	0.00	0.06
WR-VG82ST-BRDA(5/8)	C	No	Inside Pole	185.00 - 0.00	2	No Ice	0.00	0.31
						1/2" Ice	0.00	0.31
						1" Ice	0.00	0.31
2" Rigid Conduit	C	No	Inside Pole	185.00 - 0.00	1	No Ice	0.00	2.80
						1/2" Ice	0.00	2.80
						1" Ice	0.00	2.80
***								
HB114-1-0813U4-M5J(1 -1/4")	B	No	Inside Pole	164.00 - 0.00	3	No Ice	0.00	1.20
						1/2" Ice	0.00	1.20
						1" Ice	0.00	1.20
9207(5/16")	B	No	Inside Pole	164.00 - 0.00	6	No Ice	0.00	0.60
						1/2" Ice	0.00	0.60
						1" Ice	0.00	0.60
2" Rigid Conduit	B	No	Inside Pole	164.00 - 0.00	1	No Ice	0.00	2.80
						1/2" Ice	0.00	2.80
						1" Ice	0.00	2.80
FSJ4-50B(1/2")	B	No	Inside Pole	164.00 - 0.00	2	No Ice	0.00	0.14
						1/2" Ice	0.00	0.14
						1" Ice	0.00	0.14
***								
AL7-50(1-5/8")	B	No	Inside Pole	154.00 - 0.00	3	No Ice	0.00	0.52
						1/2" Ice	0.00	0.52
						1" Ice	0.00	0.52
HB158-1-08U8-S8J18(1-5/8")	B	No	Inside Pole	154.00 - 0.00	1	No Ice	0.00	1.30
						1/2" Ice	0.00	1.30
						1" Ice	0.00	1.30
HJ7-50A(1-5/8")	B	No	Inside Pole	154.00 - 0.00	8	No Ice	0.00	1.04
						1/2" Ice	0.00	1.04
						1" Ice	0.00	1.04
***								
LDF7-50A(1-5/8")	A	No	Inside Pole	144.00 - 0.00	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
MLE Hybrid 3Power/6Fiber RL 2(1-1/4")	A	No	Inside Pole	144.00 - 0.00	1	No Ice	0.00	0.68
						1/2" Ice	0.00	0.68
						1" Ice	0.00	0.68
LDF6-50A(1-1/4")	A	No	Inside Pole	134.00 - 0.00	9	No Ice	0.00	0.66
						1/2" Ice	0.00	0.66
						1" Ice	0.00	0.66
LDF7-50A(1-5/8")	A	No	Inside Pole	134.00 - 0.00	6	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
***								
AVA7-50(1-5/8)	C	No	Inside Pole	193.00 - 0.00	1	No Ice	0.00	0.70
						1/2" Ice	0.00	0.70
						1" Ice	0.00	0.70

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
L1	195.00-157.65	A	0.000	0.000	1.401	0.000	0.01
		B	0.000	0.000	0.000	0.000	0.07
		C	0.000	0.000	0.000	0.000	0.34
L2	157.65-117.08	A	0.000	0.000	1.521	0.000	0.48
		B	0.000	0.000	21.929	0.000	1.15
		C	0.000	0.000	0.000	0.000	0.49
L3	117.08-81.09	A	0.000	0.000	1.350	0.000	0.78
		B	0.000	0.000	21.378	0.000	1.08
		C	0.000	0.000	0.000	0.000	0.44
L4	81.09-40.04	A	0.000	0.000	1.540	0.000	0.89
		B	0.000	0.000	24.386	0.000	1.23
		C	0.000	0.000	0.000	0.000	0.50
L5	40.04-0.00	A	0.000	0.000	1.501	0.000	0.86
		B	0.000	0.000	23.783	0.000	1.20
		C	0.000	0.000	0.000	0.000	0.48

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
L1	195.00-157.65	A	1.773	0.000	0.000	14.644	0.000	0.18
		B		0.000	0.000	0.000	0.000	0.07
		C		0.000	0.000	0.000	0.000	0.34
L2	157.65-117.08	A	1.729	0.000	0.000	15.904	0.000	0.66
		B		0.000	0.000	71.397	0.000	2.00
		C		0.000	0.000	0.000	0.000	0.49
L3	117.08-81.09	A	1.674	0.000	0.000	13.796	0.000	0.94
		B		0.000	0.000	68.502	0.000	1.88
		C		0.000	0.000	0.000	0.000	0.44
L4	81.09-40.04	A	1.594	0.000	0.000	15.283	0.000	1.06
		B		0.000	0.000	76.553	0.000	2.11
		C		0.000	0.000	0.000	0.000	0.50
L5	40.04-0.00	A	1.423	0.000	0.000	14.263	0.000	1.02
		B		0.000	0.000	72.413	0.000	2.00
		C		0.000	0.000	0.000	0.000	0.48

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	195.00-157.65	-0.0479	-0.0276	-0.3981	-0.2298
L2	157.65-117.08	0.4887	-0.5109	0.6970	-1.0560
L3	117.08-81.09	0.5384	-0.5574	0.8174	-1.1909
L4	81.09-40.04	0.5463	-0.5660	0.8707	-1.2653
L5	40.04-0.00	0.5524	-0.5726	0.9101	-1.3153

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	26	Safety Line 3/8	157.65 - 195.00	1.0000	1.0000
L1	15	HJ7-50A(1-5/8")	157.65 - 154.00	1.0000	1.0000
L1	16	HJ7-50A(1-5/8")	157.65 - 154.00	1.0000	1.0000
L1	17	HB158-1-08U8-S8J18(1-5/8)	157.65 - 154.00	1.0000	1.0000
L2	15	HJ7-50A(1-5/8")	117.08 - 154.00	1.0000	1.0000
L2	16	HJ7-50A(1-5/8")	117.08 - 154.00	1.0000	1.0000
L2	17	HB158-1-08U8-S8J18(1-5/8)	117.08 - 154.00	1.0000	1.0000
L2	26	Safety Line 3/8	117.08 - 157.65	1.0000	1.0000
L3	15	HJ7-50A(1-5/8")	81.09 - 117.08	1.0000	1.0000
L3	16	HJ7-50A(1-5/8")	81.09 - 117.08	1.0000	1.0000
L3	17	HB158-1-08U8-S8J18(1-5/8)	81.09 - 117.08	1.0000	1.0000
L3	26	Safety Line 3/8	81.09 - 117.08	1.0000	1.0000
L4	15	HJ7-50A(1-5/8")	40.04 - 81.09	1.0000	1.0000
L4	16	HJ7-50A(1-5/8")	40.04 - 81.09	1.0000	1.0000
L4	17	HB158-1-08U8-S8J18(1-5/8)	40.04 - 81.09	1.0000	1.0000
L4	26	Safety Line 3/8	40.04 - 81.09	1.0000	1.0000

Discrete Tower Loads

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
HG2409U-PRO	B	From Leg	3.00 0.00 2.00	0.0000	193.00	No Ice 1/2" Ice 1" Ice	0.63 0.83 1.03	0.63 0.83 1.03	0.00 0.01 0.01
Side Arm Mount [SO 305-1]	B	From Leg	1.50 0.00 0.00	0.0000	193.00	No Ice 1/2" Ice 1" Ice	0.94 1.48 2.02	1.41 2.17 2.93	0.03 0.04 0.06
***									
(2) 7770.00 w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	185.00	No Ice 1/2" Ice 1" Ice	5.75 6.18 6.61	4.25 5.01 5.71	0.06 0.10 0.16
(2) 7770.00 w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	185.00	No Ice 1/2" Ice 1" Ice	5.75 6.18 6.61	4.25 5.01 5.71	0.06 0.10 0.16
(2) 7770.00 w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	185.00	No Ice 1/2" Ice 1" Ice	5.75 6.18 6.61	4.25 5.01 5.71	0.06 0.10 0.16
(4) LGP21401	A	From Leg	4.00	0.0000	185.00	No Ice	1.10	0.21	0.01

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
			0.00			1/2" Ice	1.24	0.27	0.02
			0.00			1" Ice	1.38	0.35	0.03
(4) LGP21401	B	From Leg	4.00	0.0000	185.00	No Ice	1.10	0.21	0.01
			0.00			1/2" Ice	1.24	0.27	0.02
			0.00			1" Ice	1.38	0.35	0.03
(4) LGP21401	C	From Leg	4.00	0.0000	185.00	No Ice	1.10	0.21	0.01
			0.00			1/2" Ice	1.24	0.27	0.02
			0.00			1" Ice	1.38	0.35	0.03
(2) RRUS-11	A	From Leg	4.00	0.0000	185.00	No Ice	2.52	1.07	0.06
			0.00			1/2" Ice	2.72	1.21	0.07
			0.00			1" Ice	2.92	1.36	0.10
(2) RRUS-11	B	From Leg	4.00	0.0000	185.00	No Ice	2.52	1.07	0.06
			0.00			1/2" Ice	2.72	1.21	0.07
			0.00			1" Ice	2.92	1.36	0.10
(2) RRUS-11	C	From Leg	4.00	0.0000	185.00	No Ice	2.52	1.07	0.06
			0.00			1/2" Ice	2.72	1.21	0.07
			0.00			1" Ice	2.92	1.36	0.10
DC6-48-60-18-8F	A	From Leg	4.00	0.0000	185.00	No Ice	0.92	0.92	0.03
			0.00			1/2" Ice	1.46	1.46	0.05
			0.00			1" Ice	1.64	1.64	0.07
HPA-65R-BUU-H6 w/ Mount Pipe	A	From Leg	4.00	0.0000	185.00	No Ice	9.90	8.11	0.08
			0.00			1/2" Ice	10.47	9.30	0.16
			2.00			1" Ice	11.01	10.21	0.25
HPA-65R-BUU-H6 w/ Mount Pipe	B	From Leg	4.00	0.0000	185.00	No Ice	9.90	8.11	0.08
			0.00			1/2" Ice	10.47	9.30	0.16
			2.00			1" Ice	11.01	10.21	0.25
HPA-65R-BUU-H6 w/ Mount Pipe	C	From Leg	4.00	0.0000	185.00	No Ice	9.90	8.11	0.08
			0.00			1/2" Ice	10.47	9.30	0.16
			2.00			1" Ice	11.01	10.21	0.25
RRUS12/RRUS A2	A	From Leg	4.00	0.0000	185.00	No Ice	3.14	1.84	0.07
			0.00			1/2" Ice	3.36	2.01	0.10
			2.00			1" Ice	3.59	2.20	0.13
RRUS12/RRUS A2	B	From Leg	4.00	0.0000	185.00	No Ice	3.14	1.84	0.07
			0.00			1/2" Ice	3.36	2.01	0.10
			2.00			1" Ice	3.59	2.20	0.13
RRUS12/RRUS A2	C	From Leg	4.00	0.0000	185.00	No Ice	3.14	1.84	0.07
			0.00			1/2" Ice	3.36	2.01	0.10
			2.00			1" Ice	3.59	2.20	0.13
Platform Mount [LP 601-1]	C	None		0.0000	185.00	No Ice	28.47	28.47	1.12
						1/2" Ice	33.59	33.59	1.51
						1" Ice	38.71	38.71	1.91
***									
6' Climbing Ladder (Flat)	C	From Leg	2.00	0.0000	183.00	No Ice	5.84	5.84	0.05
			0.00			1/2" Ice	10.30	10.30	0.07
			0.00			1" Ice	14.76	14.76	0.09
***									
Platform Mount [LP 601-1]	C	None		0.0000	175.00	No Ice	28.47	28.47	1.12
						1/2" Ice	33.59	33.59	1.51
						1" Ice	38.71	38.71	1.91
(4) 8' x 2" Mount Pipe	A	From Leg	4.00	0.0000	175.00	No Ice	1.90	1.90	0.03
			0.00			1/2" Ice	2.73	2.73	0.04
			0.00			1" Ice	3.40	3.40	0.06
(4) 8' x 2" Mount Pipe	B	From Leg	4.00	0.0000	175.00	No Ice	1.90	1.90	0.03
			0.00			1/2" Ice	2.73	2.73	0.04
			0.00			1" Ice	3.40	3.40	0.06
(4) 8' x 2" Mount Pipe	C	From Leg	4.00	0.0000	175.00	No Ice	1.90	1.90	0.03
			0.00			1/2" Ice	2.73	2.73	0.04

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
			0.00			1" Ice	3.40	3.40	0.06
***									
6' Climbing Ladder (Flat)	C	From Leg	2.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice	5.84 10.30 14.76	5.84 10.30 14.76	0.05 0.07 0.09
***									
APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	164.00	No Ice 1/2" Ice 1" Ice	8.26 8.82 9.35	6.95 8.13 9.02	0.08 0.15 0.23
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	164.00	No Ice 1/2" Ice 1" Ice	8.26 8.82 9.35	6.95 8.13 9.02	0.08 0.15 0.23
APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	164.00	No Ice 1/2" Ice 1" Ice	8.26 8.82 9.35	6.95 8.13 9.02	0.08 0.15 0.23
LLPX310R w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	164.00	No Ice 1/2" Ice 1" Ice	4.54 4.89 5.25	2.98 3.53 4.09	0.05 0.08 0.13
LLPX310R w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	164.00	No Ice 1/2" Ice 1" Ice	4.54 4.89 5.25	2.98 3.53 4.09	0.05 0.08 0.13
LLPX310R w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	164.00	No Ice 1/2" Ice 1" Ice	4.54 4.89 5.25	2.98 3.53 4.09	0.05 0.08 0.13
(3) ACU-A20-N	A	From Leg	4.00 0.00 0.00	0.0000	164.00	No Ice 1/2" Ice 1" Ice	0.07 0.10 0.15	0.12 0.16 0.21	0.00 0.00 0.00
(3) ACU-A20-N	B	From Leg	4.00 0.00 0.00	0.0000	164.00	No Ice 1/2" Ice 1" Ice	0.07 0.10 0.15	0.12 0.16 0.21	0.00 0.00 0.00
(3) ACU-A20-N	C	From Leg	4.00 0.00 0.00	0.0000	164.00	No Ice 1/2" Ice 1" Ice	0.07 0.10 0.15	0.12 0.16 0.21	0.00 0.00 0.00
800MHZ RRH	A	From Leg	4.00 0.00 0.00	0.0000	164.00	No Ice 1/2" Ice 1" Ice	2.13 2.32 2.51	1.77 1.95 2.13	0.05 0.07 0.10
800MHZ RRH	B	From Leg	4.00 0.00 0.00	0.0000	164.00	No Ice 1/2" Ice 1" Ice	2.13 2.32 2.51	1.77 1.95 2.13	0.05 0.07 0.10
800MHZ RRH	C	From Leg	4.00 0.00 0.00	0.0000	164.00	No Ice 1/2" Ice 1" Ice	2.13 2.32 2.51	1.77 1.95 2.13	0.05 0.07 0.10
800 EXTERNAL NOTCH FILTER	A	From Leg	4.00 0.00 0.00	0.0000	164.00	No Ice 1/2" Ice 1" Ice	0.66 0.76 0.87	0.32 0.40 0.48	0.01 0.02 0.02
800 EXTERNAL NOTCH FILTER	B	From Leg	4.00 0.00 0.00	0.0000	164.00	No Ice 1/2" Ice 1" Ice	0.66 0.76 0.87	0.32 0.40 0.48	0.01 0.02 0.02
800 EXTERNAL NOTCH FILTER	C	From Leg	4.00 0.00 0.00	0.0000	164.00	No Ice 1/2" Ice 1" Ice	0.66 0.76 0.87	0.32 0.40 0.48	0.01 0.02 0.02
1900MHz RRH (65MHz)	A	From Leg	4.00 0.00 0.00	0.0000	164.00	No Ice 1/2" Ice 1" Ice	2.31 2.52 2.73	2.38 2.58 2.79	0.06 0.08 0.11
1900MHz RRH (65MHz)	B	From Leg	4.00 0.00 0.00	0.0000	164.00	No Ice 1/2" Ice 1" Ice	2.31 2.52 2.73	2.38 2.58 2.79	0.06 0.08 0.11

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
1900MHz RRH (65MHz)	C	From Leg	4.00	0.0000	164.00	No Ice	2.31	2.38	0.06
			0.00			1/2" Ice	2.52	2.58	0.08
			0.00			1" Ice	2.73	2.79	0.11
FDD_R6_RRH	A	From Leg	4.00	0.0000	164.00	No Ice	1.53	0.68	0.03
			0.00			1/2" Ice	1.69	0.80	0.04
			0.00			1" Ice	1.85	0.92	0.06
FDD_R6_RRH	B	From Leg	4.00	0.0000	164.00	No Ice	1.53	0.68	0.03
			0.00			1/2" Ice	1.69	0.80	0.04
			0.00			1" Ice	1.85	0.92	0.06
FDD_R6_RRH	C	From Leg	4.00	0.0000	164.00	No Ice	1.53	0.68	0.03
			0.00			1/2" Ice	1.69	0.80	0.04
			0.00			1" Ice	1.85	0.92	0.06
Platform Mount [LP 601-1]	C	None		0.0000	164.00	No Ice	28.47	28.47	1.12
						1/2" Ice	33.59	33.59	1.51
						1" Ice	38.71	38.71	1.91
8' x 2" Mount Pipe	A	From Leg	4.00	0.0000	164.00	No Ice	1.90	1.90	0.03
			0.00			1/2" Ice	2.73	2.73	0.04
			0.00			1" Ice	3.40	3.40	0.06
(2) 8' x 2" Mount Pipe	B	From Leg	4.00	0.0000	164.00	No Ice	1.90	1.90	0.03
			0.00			1/2" Ice	2.73	2.73	0.04
			0.00			1" Ice	3.40	3.40	0.06
8' x 2" Mount Pipe	C	From Leg	4.00	0.0000	164.00	No Ice	1.90	1.90	0.03
			0.00			1/2" Ice	2.73	2.73	0.04
			0.00			1" Ice	3.40	3.40	0.06
***									
6' Climbing Ladder (Flat)	C	From Leg	2.00	0.0000	162.00	No Ice	5.84	5.84	0.05
			0.00			1/2" Ice	10.30	10.30	0.07
			0.00			1" Ice	14.76	14.76	0.09
***									
(2) DB844G65ZAXY w/ Mount Pipe	A	From Leg	4.00	0.0000	154.00	No Ice	4.58	4.80	0.03
			0.00			1/2" Ice	4.96	5.42	0.08
			1.00			1" Ice	5.34	6.04	0.13
(2) LPA-4016 w/ Mount Pipe	B	From Leg	4.00	0.0000	154.00	No Ice	8.62	6.75	0.04
			0.00			1/2" Ice	9.06	7.38	0.12
			1.00			1" Ice	9.51	8.02	0.21
(2) DB844G65ZAXY w/ Mount Pipe	C	From Leg	4.00	0.0000	154.00	No Ice	4.58	4.80	0.03
			0.00			1/2" Ice	4.96	5.42	0.08
			1.00			1" Ice	5.34	6.04	0.13
(3) SBNHH-1D65B w/ Mount Pipe	A	From Leg	4.00	0.0000	154.00	No Ice	8.62	7.30	0.07
			0.00			1/2" Ice	9.28	8.58	0.14
			1.00			1" Ice	9.91	9.72	0.22
(3) SBNHH-1D65B w/ Mount Pipe	B	From Leg	4.00	0.0000	154.00	No Ice	8.62	7.30	0.07
			0.00			1/2" Ice	9.28	8.58	0.14
			1.00			1" Ice	9.91	9.72	0.22
(3) SBNHH-1D65B w/ Mount Pipe	C	From Leg	4.00	0.0000	154.00	No Ice	8.62	7.30	0.07
			0.00			1/2" Ice	9.28	8.58	0.14
			1.00			1" Ice	9.91	9.72	0.22
RRH4X45-AWS4 B66	A	From Leg	4.00	0.0000	154.00	No Ice	2.66	1.59	0.06
			0.00			1/2" Ice	2.88	1.77	0.08
			1.00			1" Ice	3.10	1.96	0.11
RRH4X45-AWS4 B66	B	From Leg	4.00	0.0000	154.00	No Ice	2.66	1.59	0.06
			0.00			1/2" Ice	2.88	1.77	0.08
			1.00			1" Ice	3.10	1.96	0.11
RRH4X45-AWS4 B66	C	From Leg	4.00	0.0000	154.00	No Ice	2.66	1.59	0.06
			0.00			1/2" Ice	2.88	1.77	0.08
			1.00			1" Ice	3.10	1.96	0.11
RRH2X60-PCS	A	From Leg	4.00	0.0000	154.00	No Ice	2.20	1.72	0.06

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
			0.00			1/2" Ice	2.39	1.90	0.08
			1.00			1" Ice	2.59	2.09	0.10
RRH2X60-PCS	B	From Leg	4.00	0.0000	154.00	No Ice	2.20	1.72	0.06
			0.00			1/2" Ice	2.39	1.90	0.08
			1.00			1" Ice	2.59	2.09	0.10
RRH2X60-PCS	C	From Leg	4.00	0.0000	154.00	No Ice	2.20	1.72	0.06
			0.00			1/2" Ice	2.39	1.90	0.08
			1.00			1" Ice	2.59	2.09	0.10
RRH2x60-700	A	From Leg	4.00	0.0000	154.00	No Ice	3.50	1.82	0.06
			0.00			1/2" Ice	3.76	2.05	0.08
			1.00			1" Ice	4.03	2.29	0.11
RRH2x60-700	B	From Leg	4.00	0.0000	154.00	No Ice	3.50	1.82	0.06
			0.00			1/2" Ice	3.76	2.05	0.08
			1.00			1" Ice	4.03	2.29	0.11
RRH2x60-700	C	From Leg	4.00	0.0000	154.00	No Ice	3.50	1.82	0.06
			0.00			1/2" Ice	3.76	2.05	0.08
			1.00			1" Ice	4.03	2.29	0.11
(2) DB-B1-6C-8AB-0Z	C	From Leg	4.00	0.0000	154.00	No Ice	4.80	2.00	0.04
			0.00			1/2" Ice	5.07	2.19	0.08
			1.00			1" Ice	5.35	2.39	0.12
Platform Mount [LP 601-1]	C	None		0.0000	154.00	No Ice	28.47	28.47	1.12
						1/2" Ice	33.59	33.59	1.51
						1" Ice	38.71	38.71	1.91
***									
6' Climbing Ladder (Flat)	A	From Leg	2.00	0.0000	152.00	No Ice	5.84	5.84	0.05
			0.00			1/2" Ice	10.30	10.30	0.07
			0.00			1" Ice	14.76	14.76	0.09
***									
SBNH-1D65C-SR w/ Mount Pipe	A	From Leg	4.00	0.0000	144.00	No Ice	11.68	9.84	0.08
			0.00			1/2" Ice	12.40	11.37	0.17
			1.00			1" Ice	13.14	12.91	0.27
SBNH-1D65C-SR w/ Mount Pipe	B	From Leg	4.00	0.0000	144.00	No Ice	11.68	9.84	0.08
			0.00			1/2" Ice	12.40	11.37	0.17
			1.00			1" Ice	13.14	12.91	0.27
SBNH-1D65C-SR w/ Mount Pipe	C	From Leg	4.00	0.0000	144.00	No Ice	11.68	9.84	0.08
			0.00			1/2" Ice	12.40	11.37	0.17
			1.00			1" Ice	13.14	12.91	0.27
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	A	From Leg	4.00	0.0000	144.00	No Ice	6.33	5.64	0.11
			0.00			1/2" Ice	6.78	6.43	0.17
			1.00			1" Ice	7.21	7.13	0.23
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	B	From Leg	4.00	0.0000	144.00	No Ice	6.33	5.64	0.11
			0.00			1/2" Ice	6.78	6.43	0.17
			1.00			1" Ice	7.21	7.13	0.23
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	C	From Leg	4.00	0.0000	144.00	No Ice	6.33	5.64	0.11
			0.00			1/2" Ice	6.78	6.43	0.17
			1.00			1" Ice	7.21	7.13	0.23
RRUS 11 B2	A	From Leg	4.00	0.0000	144.00	No Ice	2.83	1.18	0.05
			0.00			1/2" Ice	3.04	1.33	0.07
			1.00			1" Ice	3.26	1.48	0.10
RRUS 11 B2	B	From Leg	4.00	0.0000	144.00	No Ice	2.83	1.18	0.05
			0.00			1/2" Ice	3.04	1.33	0.07
			1.00			1" Ice	3.26	1.48	0.10
RRUS 11 B2	C	From Leg	4.00	0.0000	144.00	No Ice	2.83	1.18	0.05
			0.00			1/2" Ice	3.04	1.33	0.07
			1.00			1" Ice	3.26	1.48	0.10
RRUS 11 B12	A	From Leg	4.00	0.0000	144.00	No Ice	2.83	1.18	0.05
			0.00			1/2" Ice	3.04	1.33	0.07

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
			1.00			1" Ice	3.26	1.48	0.10
RRUS 11 B12	B	From Leg	4.00	0.0000	144.00	No Ice	2.83	1.18	0.05
			0.00			1/2" Ice	3.04	1.33	0.07
			1.00			1" Ice	3.26	1.48	0.10
RRUS 11 B12	C	From Leg	4.00	0.0000	144.00	No Ice	2.83	1.18	0.05
			0.00			1/2" Ice	3.04	1.33	0.07
			1.00			1" Ice	3.26	1.48	0.10
KRY 112 144/1	A	From Leg	4.00	0.0000	144.00	No Ice	0.35	0.16	0.01
			0.00			1/2" Ice	0.43	0.22	0.01
			1.00			1" Ice	0.51	0.28	0.02
KRY 112 144/1	B	From Leg	4.00	0.0000	144.00	No Ice	0.35	0.16	0.01
			0.00			1/2" Ice	0.43	0.22	0.01
			1.00			1" Ice	0.51	0.28	0.02
KRY 112 144/1	C	From Leg	4.00	0.0000	144.00	No Ice	0.35	0.16	0.01
			0.00			1/2" Ice	0.43	0.22	0.01
			1.00			1" Ice	0.51	0.28	0.02
Platform Mount [LP 601-1]	C	None		0.0000	144.00	No Ice	28.47	28.47	1.12
						1/2" Ice	33.59	33.59	1.51
						1" Ice	38.71	38.71	1.91
***									
6' Climbing Ladder (Flat)	A	From Leg	2.00	0.0000	142.00	No Ice	5.84	5.84	0.05
			0.00			1/2" Ice	10.30	10.30	0.07
			0.00			1" Ice	14.76	14.76	0.09
***									
(4) DB844H90E-XY w/ Mount Pipe	A	From Leg	4.00	0.0000	134.00	No Ice	3.30	4.80	0.03
			0.00			1/2" Ice	3.67	5.42	0.07
			1.00			1" Ice	4.03	6.04	0.12
(4) DB844H90E-XY w/ Mount Pipe	B	From Leg	4.00	0.0000	134.00	No Ice	3.30	4.80	0.03
			0.00			1/2" Ice	3.67	5.42	0.07
			1.00			1" Ice	4.03	6.04	0.12
(4) DB844H90E-XY w/ Mount Pipe	C	From Leg	4.00	0.0000	134.00	No Ice	3.30	4.80	0.03
			0.00			1/2" Ice	3.67	5.42	0.07
			1.00			1" Ice	4.03	6.04	0.12
Platform Mount [LP 303-1]	C	None		0.0000	134.00	No Ice	14.66	14.66	1.25
						1/2" Ice	18.87	18.87	1.48
						1" Ice	23.08	23.08	1.71
***									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
A-ANT-23G-2-C	B	Paraboloid w/Shroud (HP)	From Leg	4.00	40.0000		164.00	2.17	No Ice	3.72	0.01
				0.00					1/2" Ice	4.01	0.03
				2.00					1" Ice	4.30	0.05
***											

Load Combinations

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

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	28	132.76	-6.24	10.82
	Max. H_x	20	82.46	42.10	0.05
	Max. H_z	2	82.46	0.01	42.03
	Max. M_x	2	5734.75	0.01	42.03
	Max. M_z	8	5743.92	-42.10	-0.02
	Max. Torsion	24	1.06	21.05	36.39
	Min. Vert	13	61.85	-21.04	-36.35
	Min. H_x	8	82.46	-42.10	-0.02
	Min. H_z	14	82.46	-0.00	-41.98
	Min. M_x	14	-5721.89	-0.00	-41.98
	Min. M_z	20	-5740.21	42.10	0.05
	Min. Torsion	12	-1.23	-21.04	-36.35

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	68.72	0.00	0.00	-1.97	-1.44	0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	82.46	-0.01	-42.03	-5734.75	0.45	-0.92
0.9 Dead+1.6 Wind 0 deg - No Ice	61.85	-0.01	-42.03	-5676.80	0.88	-0.92
1.2 Dead+1.6 Wind 30 deg - No Ice	82.46	21.00	-36.42	-4971.19	-2865.02	-0.46
0.9 Dead+1.6 Wind 30 deg - No Ice	61.85	21.00	-36.42	-4920.86	-2835.94	-0.46
1.2 Dead+1.6 Wind 60 deg - No Ice	82.46	36.45	-21.01	-2868.62	-4973.31	0.10
0.9 Dead+1.6 Wind 60 deg - No Ice	61.85	36.45	-21.01	-2839.33	-4923.14	0.10
1.2 Dead+1.6 Wind 90 deg - No Ice	82.46	42.10	0.02	1.63	-5743.92	0.54
0.9 Dead+1.6 Wind 90 deg - No Ice	61.85	42.10	0.02	2.22	-5686.06	0.54
1.2 Dead+1.6 Wind 120 deg - No Ice	82.46	36.43	21.02	2864.28	-4970.22	0.90
0.9 Dead+1.6 Wind 120 deg - No Ice	61.85	36.43	21.02	2836.23	-4920.09	0.90
1.2 Dead+1.6 Wind 150 deg - No Ice	82.46	21.04	36.35	4954.20	-2870.76	1.23
0.9 Dead+1.6 Wind 150 deg - No Ice	61.85	21.04	36.35	4905.26	-2841.62	1.23
1.2 Dead+1.6 Wind 180 deg - No Ice	82.46	0.00	41.98	5721.89	-1.95	1.07
0.9 Dead+1.6 Wind 180 deg - No Ice	61.85	0.00	41.98	5665.28	-1.50	1.06
1.2 Dead+1.6 Wind 210 deg - No Ice	82.46	-21.02	36.38	4960.10	2864.00	0.55
0.9 Dead+1.6 Wind 210 deg - No Ice	61.85	-21.02	36.38	4911.09	2835.80	0.55
1.2 Dead+1.6 Wind 240 deg - No Ice	82.46	-36.45	21.03	2865.90	4969.61	-0.16
0.9 Dead+1.6 Wind 240 deg - No Ice	61.85	-36.45	21.03	2837.83	4920.34	-0.16
1.2 Dead+1.6 Wind 270 deg - No Ice	82.46	-42.10	-0.05	-10.77	5740.21	-0.39

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
0.9 Dead+1.6 Wind 270 deg - No Ice	61.85	-42.10	-0.05	-10.06	5683.26	-0.39
1.2 Dead+1.6 Wind 300 deg - No Ice	82.46	-36.45	-21.05	-2874.85	4970.33	-0.77
0.9 Dead+1.6 Wind 300 deg - No Ice	61.85	-36.45	-21.05	-2845.49	4921.06	-0.76
1.2 Dead+1.6 Wind 330 deg - No Ice	82.46	-21.05	-36.39	-4966.47	2869.89	-1.06
0.9 Dead+1.6 Wind 330 deg - No Ice	61.85	-21.05	-36.39	-4916.19	2841.63	-1.06
1.2 Dead+1.0 Ice+1.0 Temp	132.76	0.00	0.00	-6.78	-5.43	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	132.76	-0.00	-12.49	-1750.36	-5.70	-1.05
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	132.76	6.24	-10.82	-1518.00	-876.33	-0.91
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	132.76	10.82	-6.25	-879.12	-1515.93	-0.53
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	132.76	12.50	0.00	-6.68	-1749.66	-0.02
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	132.76	10.82	6.25	864.18	-1514.84	0.50
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	132.76	6.25	10.81	1500.54	-876.91	0.94
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	132.76	-0.00	12.48	1734.22	-5.43	1.09
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	132.76	-6.24	10.82	1502.25	865.31	0.93
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	132.76	-10.82	6.25	865.24	1504.33	0.51
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	132.76	-12.50	-0.01	-8.64	1738.06	0.06
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	132.76	-10.82	-6.25	-879.82	1504.09	-0.47
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	132.76	-6.25	-10.82	-1516.56	865.93	-0.90
Dead+Wind 0 deg - Service	68.72	-0.00	-8.99	-1221.44	-0.99	-0.20
Dead+Wind 30 deg - Service	68.72	4.49	-7.79	-1059.01	-610.56	-0.10
Dead+Wind 60 deg - Service	68.72	7.80	-4.50	-611.74	-1059.05	0.02
Dead+Wind 90 deg - Service	68.72	9.01	0.01	-1.16	-1222.99	0.12
Dead+Wind 120 deg - Service	68.72	7.79	4.50	607.81	-1058.39	0.19
Dead+Wind 150 deg - Service	68.72	4.50	7.78	1052.38	-611.78	0.27
Dead+Wind 180 deg - Service	68.72	0.00	8.98	1215.70	-1.51	0.23
Dead+Wind 210 deg - Service	68.72	-4.50	7.78	1053.64	608.16	0.12
Dead+Wind 240 deg - Service	68.72	-7.80	4.50	608.15	1056.08	-0.04
Dead+Wind 270 deg - Service	68.72	-9.01	-0.01	-3.79	1220.01	-0.08
Dead+Wind 300 deg - Service	68.72	-7.80	-4.50	-613.06	1056.23	-0.16
Dead+Wind 330 deg - Service	68.72	-4.50	-7.79	-1058.00	609.41	-0.23

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.00	-68.72	0.00	0.00	68.72	0.00	0.000%
2	-0.01	-82.46	-42.03	0.01	82.46	42.03	0.000%
3	-0.01	-61.85	-42.03	0.01	61.85	42.03	0.000%
4	21.00	-82.46	-36.42	-21.00	82.46	36.42	0.000%
5	21.00	-61.85	-36.42	-21.00	61.85	36.42	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
6	36.45	-82.46	-21.01	-36.45	82.46	21.01	0.000%
7	36.45	-61.85	-21.01	-36.45	61.85	21.01	0.000%
8	42.10	-82.46	0.02	-42.10	82.46	-0.02	0.000%
9	42.10	-61.85	0.02	-42.10	61.85	-0.02	0.000%
10	36.43	-82.46	21.02	-36.43	82.46	-21.02	0.000%
11	36.43	-61.85	21.02	-36.43	61.85	-21.02	0.000%
12	21.04	-82.46	36.35	-21.04	82.46	-36.35	0.000%
13	21.04	-61.85	36.35	-21.04	61.85	-36.35	0.000%
14	0.00	-82.46	41.98	-0.00	82.46	-41.98	0.000%
15	0.00	-61.85	41.98	-0.00	61.85	-41.98	0.000%
16	-21.02	-82.46	36.38	21.02	82.46	-36.38	0.000%
17	-21.02	-61.85	36.38	21.02	61.85	-36.38	0.000%
18	-36.45	-82.46	21.03	36.45	82.46	-21.03	0.000%
19	-36.45	-61.85	21.03	36.45	61.85	-21.03	0.000%
20	-42.10	-82.46	-0.05	42.10	82.46	0.05	0.000%
21	-42.10	-61.85	-0.05	42.10	61.85	0.05	0.000%
22	-36.45	-82.46	-21.05	36.45	82.46	21.05	0.000%
23	-36.45	-61.85	-21.05	36.45	61.85	21.05	0.000%
24	-21.05	-82.46	-36.39	21.05	82.46	36.39	0.000%
25	-21.05	-61.85	-36.39	21.05	61.85	36.39	0.000%
26	0.00	-132.76	0.00	0.00	132.76	0.00	0.000%
27	-0.00	-132.76	-12.49	0.00	132.76	12.49	0.000%
28	6.24	-132.76	-10.82	-6.24	132.76	10.82	0.000%
29	10.82	-132.76	-6.25	-10.82	132.76	6.25	0.000%
30	12.50	-132.76	0.00	-12.50	132.76	-0.00	0.000%
31	10.82	-132.76	6.25	-10.82	132.76	-6.25	0.000%
32	6.25	-132.76	10.81	-6.25	132.76	-10.81	0.000%
33	-0.00	-132.76	12.48	0.00	132.76	-12.48	0.000%
34	-6.24	-132.76	10.82	6.24	132.76	-10.82	0.000%
35	-10.82	-132.76	6.25	10.82	132.76	-6.25	0.000%
36	-12.50	-132.76	-0.01	12.50	132.76	0.01	0.000%
37	-10.82	-132.76	-6.25	10.82	132.76	6.25	0.000%
38	-6.25	-132.76	-10.82	6.25	132.76	10.82	0.000%
39	-0.00	-68.72	-8.99	0.00	68.72	8.99	0.000%
40	4.49	-68.72	-7.79	-4.49	68.72	7.79	0.000%
41	7.80	-68.72	-4.50	-7.80	68.72	4.50	0.000%
42	9.01	-68.72	0.01	-9.01	68.72	-0.01	0.000%
43	7.79	-68.72	4.50	-7.79	68.72	-4.50	0.000%
44	4.50	-68.72	7.78	-4.50	68.72	-7.78	0.000%
45	0.00	-68.72	8.98	-0.00	68.72	-8.98	0.000%
46	-4.50	-68.72	7.78	4.50	68.72	-7.78	0.000%
47	-7.80	-68.72	4.50	7.80	68.72	-4.50	0.000%
48	-9.01	-68.72	-0.01	9.01	68.72	0.01	0.000%
49	-7.80	-68.72	-4.50	7.80	68.72	4.50	0.000%
50	-4.50	-68.72	-7.79	4.50	68.72	7.79	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00051532
3	Yes	4	0.00000001	0.00030636
4	Yes	5	0.00000001	0.00084208
5	Yes	5	0.00000001	0.00038780
6	Yes	5	0.00000001	0.00084521

7	Yes	5	0.00000001	0.00038923
8	Yes	4	0.00000001	0.00045949
9	Yes	4	0.00000001	0.00026515
10	Yes	5	0.00000001	0.00085631
11	Yes	5	0.00000001	0.00039503
12	Yes	5	0.00000001	0.00083118
13	Yes	5	0.00000001	0.00038268
14	Yes	4	0.00000001	0.00054733
15	Yes	4	0.00000001	0.00033035
16	Yes	5	0.00000001	0.00084895
17	Yes	5	0.00000001	0.00039156
18	Yes	5	0.00000001	0.00084929
19	Yes	5	0.00000001	0.00039147
20	Yes	4	0.00000001	0.00036910
21	Yes	4	0.00000001	0.00019373
22	Yes	5	0.00000001	0.00084012
23	Yes	5	0.00000001	0.00038658
24	Yes	5	0.00000001	0.00085902
25	Yes	5	0.00000001	0.00039624
26	Yes	4	0.00000001	0.00000001
27	Yes	5	0.00000001	0.00053389
28	Yes	5	0.00000001	0.00066026
29	Yes	5	0.00000001	0.00066622
30	Yes	5	0.00000001	0.00053232
31	Yes	5	0.00000001	0.00066283
32	Yes	5	0.00000001	0.00065539
33	Yes	5	0.00000001	0.00053067
34	Yes	5	0.00000001	0.00066155
35	Yes	5	0.00000001	0.00065541
36	Yes	5	0.00000001	0.00052980
37	Yes	5	0.00000001	0.00065845
38	Yes	5	0.00000001	0.00066590
39	Yes	4	0.00000001	0.00006001
40	Yes	4	0.00000001	0.00023879
41	Yes	4	0.00000001	0.00024090
42	Yes	4	0.00000001	0.00005883
43	Yes	4	0.00000001	0.00025094
44	Yes	4	0.00000001	0.00023094
45	Yes	4	0.00000001	0.00006073
46	Yes	4	0.00000001	0.00024459
47	Yes	4	0.00000001	0.00024360
48	Yes	4	0.00000001	0.00005789
49	Yes	4	0.00000001	0.00023594
50	Yes	4	0.00000001	0.00025296

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	195 - 157.648 (1)	TP33.875x25x0.25	37.35	0.00	0.0	25.7888	-9.74	1772.14	0.005
L2	157.648 - 117.083 (2)	TP42.9063x32.2501x0.3125	45.30	0.00	0.0	40.8793	-25.14	2794.77	0.009
L3	117.083 -	TP50.75x40.9017x0.375	41.85	0.00	0.0	58.0421	-36.82	3988.09	0.009

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L4	81.0937 (3) 81.0937 - 40.0391 (4)	TP59.6563x48.3897x0.5	47.90	0.00	0.0	90.9131	-55.70	6508.62	0.009
L5	40.0391 - 0 (5)	TP68x56.7861x0.5	47.99	0.00	0.0	107.1220	-82.44	7261.40	0.011

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	195 - 157.648 (1)	TP33.875x25x0.25	205.07	1184.53	0.173	0.00	1184.53	0.000
L2	157.648 - 117.083 (2)	TP42.9063x32.2501x0.3125	1175.90	2369.21	0.496	0.00	2369.21	0.000
L3	117.083 - 81.0937 (3)	TP50.75x40.9017x0.375	2333.53	3999.78	0.583	0.00	3999.78	0.000
L4	81.0937 - 40.0391 (4)	TP59.6563x48.3897x0.5	3801.70	7660.50	0.496	0.00	7660.50	0.000
L5	40.0391 - 0 (5)	TP68x56.7861x0.5	5743.92	10083.50	0.570	0.00	10083.50	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	195 - 157.648 (1)	TP33.875x25x0.25	14.27	886.07	0.016	0.45	2371.97	0.000
L2	157.648 - 117.083 (2)	TP42.9063x32.2501x0.3125	31.32	1397.38	0.022	0.77	4744.22	0.000
L3	117.083 - 81.0937 (3)	TP50.75x40.9017x0.375	34.74	1994.04	0.017	0.77	8009.33	0.000
L4	81.0937 - 40.0391 (4)	TP59.6563x48.3897x0.5	38.58	3254.31	0.012	0.54	15339.75	0.000
L5	40.0391 - 0 (5)	TP68x56.7861x0.5	42.14	3630.70	0.012	0.54	20191.67	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	195 - 157.648 (1)	0.005	0.173	0.000	0.016	0.000	0.179 ✔	1.000	4.8.2 ✔
L2	157.648 - 117.083 (2)	0.009	0.496	0.000	0.022	0.000	0.506 ✔	1.000	4.8.2 ✔

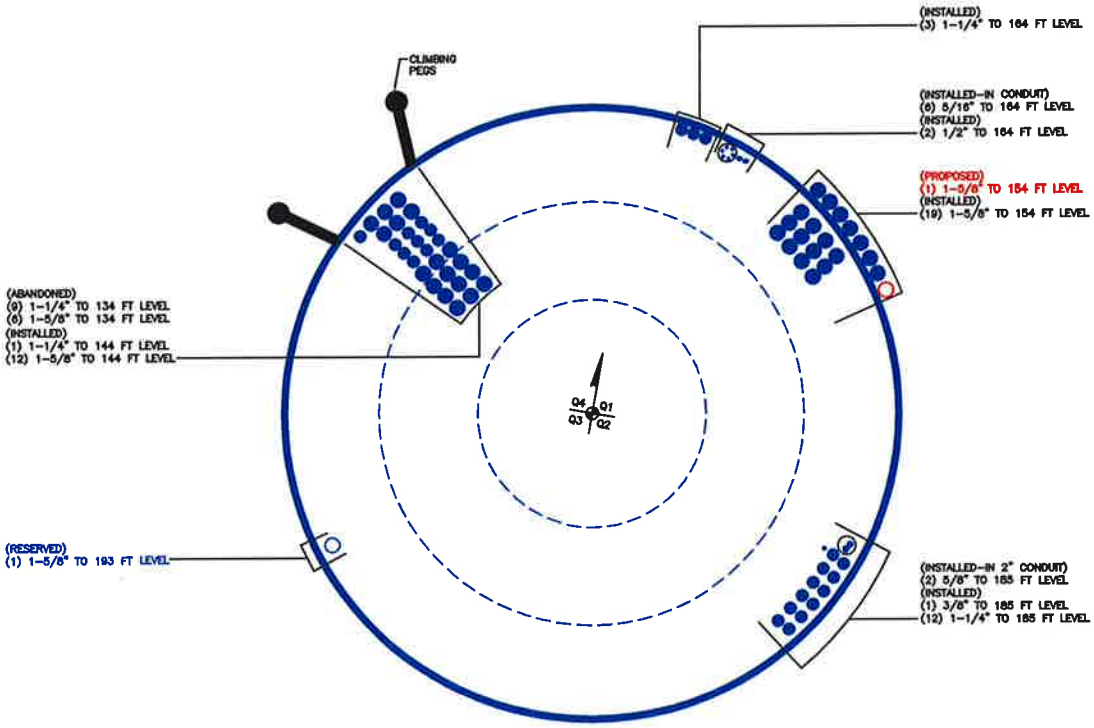
Section No.	Elevation ft	Ratio $P_u/\phi P_n$	Ratio $M_{ux}/\phi M_{nx}$	Ratio $M_{uy}/\phi M_{ny}$	Ratio $V_u/\phi V_n$	Ratio $T_u/\phi T_n$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L3	117.083 - 81.0937 (3)	0.009	0.583	0.000	0.017	0.000	0.593 ✔	1.000	4.8.2 ✔
L4	81.0937 - 40.0391 (4)	0.009	0.496	0.000	0.012	0.000	0.505 ✔	1.000	4.8.2 ✔
L5	40.0391 - 0 (5)	0.011	0.570	0.000	0.012	0.000	0.581 ✔	1.000	4.8.2 ✔

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	195 - 157.648	Pole	TP33.875x25x0.25	1	-9.74	1772.14	17.9	Pass
L2	157.648 - 117.083	Pole	TP42.9063x32.2501x0.3125	2	-25.14	2794.77	50.6	Pass
L3	117.083 - 81.0937	Pole	TP50.75x40.9017x0.375	3	-36.82	3988.09	59.3	Pass
L4	81.0937 - 40.0391	Pole	TP59.6563x48.3897x0.5	4	-55.70	6508.62	50.5	Pass
L5	40.0391 - 0	Pole	TP68x56.7861x0.5	5	-82.44	7261.40	58.1	Pass
							Summary	
						Pole (L3)	59.3	Pass
						RATING =	**59.3**	**Pass**

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 881535 TOWER ID: C_BASELEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

Stiffened or Unstiffened, Ungrouted, Circular Base Plate - Any Rod Material

TIA Rev G Assumption: Clear space between bottom of leveling nut and top of concrete **not** exceeding (1)*(Rod Diameter)

Site Data

BU#: *881535*
Site Name: *TRUMBULL TOWER*
App #: *377588 Rev. 0*

Pole Manufacturer:	*Other*

Reactions		
Mu:	5744	ft-kips
Axial, Pu:	82	kips
Shear, Vu:	42	kips
Eta Factor, η	0.5	TIA G (Fig. 4-4)

If No stiffeners, Criteria:	AISC LRFD	<-Only Applcable to Unstiffened Cases

Anchor Rod Data		
Qty:	24	
Diam:	2.25	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	76.5	in

Plate Data		
Diam:	82.5	in
Thick:	2.5	in
Grade:	60	ksi
Single-Rod B-eff:	8.99	in

Stiffener Data (Welding at both sides)		
Config:	0	*
Weld Type:		
Groove Depth:		in **
Groove Angle:		degrees
Fillet H. Weld:		<-- Disregard
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

Pole Data		
Diam:	68	in
Thick:	0.5	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0	"0" if None

Anchor Rod Results

		Rigid
Max Rod (Cu+ Vu/ή):	157.1 Kips	AISC LRFD
Allowable Axial, Φ*Fu*Anet:	260.0 Kips	φ*Tn
Anchor Rod Stress Ratio:	60.4% **Pass**	

Base Plate Results

	Flexural Check	Rigid
Base Plate Stress:	28.8 ksi	AISC LRFD
Allowable Plate Stress:	54.0 ksi	φ*Fy
Base Plate Stress Ratio:	53.3% **Pass**	Y.L. Length: 35.05

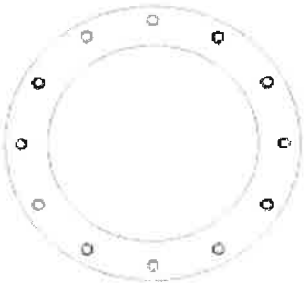
n/a

Stiffener Results

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

Pole Results

Pole Punching Shear Check: n/a



* 0 = none, 1 = every bolt, 2 = every 2 bolts, 3 = 2 per bolt

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

(Bearing and Stability Checks) Tool for TIA Rev F or G - Application (MP, SST with unitbase)

Site Data

BU#: *881535*
Site Name: *TRUMBULL TOWER*
App #: *377588 Rev. 0*

Loads Already Factored		
For P (DL)	1.2	<----Disregard
For P,V, and M (WL)	1.35	<----Disregard

Pad & Pier Data		
Base PL Dist. Above Pier:	3	in
Pier Dist. Above Grade:	12	in
Pad Bearing Depth, D:	7	ft
Pad Thickness, T:	3	ft
Pad Width=Length, L:	29	ft
Pier Cross Section Shape:	Square	<--Pull Down
Enter Pier Side Width:	9	ft
Concrete Density:	150.0	pcf
Pier Cross Section Area:	81.00	ft^2
Pier Height:	5.00	ft
Soil (above pad) Height:	4.00	ft

Soil Parameters		
Unit Weight, γ:	125.0	pcf
Ultimate Bearing Capacity, qn:	12.00	ksf
Strength Reduct. factor, ϕ:	0.75	
Angle of Friction, Φ:	34.0	degrees
Undrained Shear Strength, Cu:	0.00	ksf
Allowable Bearing: ϕ*qn:	9.00	ksf
Passive Pres. Coeff., Kp	3.54	

Forces/Moments due to Wind and Lateral Soil		
Minimum of (φ*Ultimate Pad Passive Force, Vu):	42.0	kips
Pad Force Location Above D:	1.36	ft
ϕ(Passive Pressure Moment):	57.27	ft-kips
Factored O.T. M(WL), "1.6W":	6090.5	ft-kips
Factored OT (MW-Msoil), M1	6033.23	ft-kips

Resistance due to Foundation Gravity		
Soil Wedge Projection grade, a:	2.70	ft
Sum of Soil Wedges Wt:	40.09	kips
Soil Wedges ecc, K1:	11.97	ft
Ftg+Soil above Pad wt:	819.2	kips
Unfactored (Total ftg-soil Wt):	859.29	kips
1.2D. **No Soil Wedges.**	1065.04	kips
0.9D. **With Soil Wedges**	834.86	kips

Resistance due to Cohesion (Vertical)		
ϕ*(1/2*Cu)(Total Vert. Planes)	0.00	kips
Cohesion Force Eccentricity, K2	0.00	ft

Monopole Base Reaction Forces		
TIA Revision:	G	<--Pull Down
Factored DL Axial, PDu:	82	kips
Factored WL Axial, PWu:	0	kips
Factored WL Shear, Vu:	42	kips
Factored WL Moment, Mu:	5744	ft-kips

Load Factor	Shaft Factored Loads		
1.00	1.2D+1.6W, Pu:	82	kips
0.90	0.9D+1.6W, Pu:	61.5	kips
1.00	Vu:	42	kips
	Mu:	5744	ft-kips

1.2D+1.6W Load Combination, Bearing Results:

(**No Soil Wedges**) [Reaction+Conc+Soil]	1065.04	P1="1.2D+1.6W" (Kips)
Factored "1.6W" Overturning Moment (MW-Msoil), M1	6033.23	ft-kips

Orthogonal Direction:

ecc1 = M1/P1 =	5.66	ft
Orthogonal qu=	2.26	ksf
qu/ϕ*qn Ratio=	**25.07%**	**Pass**

Diagonal Direction:

ecc2 = (0.707M1)/P1 =	4.01	ft
Diagonal qu=	2.42	ksf
qu/ϕ*qn Ratio=	**26.86%**	**Pass**

Run <-- Press Upon Completing All Input

Overturning Stability Check

0.9D+1.6W Load Combination, Bearing Results:

(**w/ Soil Wedges**) [Reaction+Conc+Soil]	834.86	P2="0.9D+1.6W" (Kips)
Factored "1.6W" Overturning Moment (MW-Msoil) - 0.9(M of Wedge + M of Cohesion), M2	5601.33	ft-kips

Orthogonal ecc3 = M2/P2 =	6.71	ft
Ortho Non Bearing Length,NBL=	13.42	ft
Orthogonal qu=	1.91	ksf
Diagonal qu=	2.19	ksf

Max Reaction Moment (ft-kips) so that qu=φ*qn = 100% Capacity Rating			
Actual M:	5744.00		
M Orthogonal:	11005.56	**52.19%**	**Pass**
M Diagonal:	11005.56	**52.19%**	**Pass**

Project Name:	TRUMBULL TOWER	JACOBS® Jacobs Engineering Group, Inc.	Created On: 6/3/2014
Project Number:	BU 881535		Checked By: DW
Job Number:	WO 1361285		Revised On: 12/1/2016
Date:	2/15/2017		Revision No.: 1.7

Monopole Pad & Pier Foundation

Foundation Parameters

Load		
Code	G	
Axial	82	kips
Shear	42	kips
Moment	5744	k-ft
Soil Unit Weight	125	pcf
Friction Angle	34	
Cohesion	0	psf

Material		
Concrete Strength (F'c)	4000	psi
Concrete Density	150	pcf
Rebar Tensile (Fy)	60	ksi
Clear Cover	3	in

Pad		
Thickness	3	ft
Bearing Depth	7	ft
Width	29	ft
Rebar Size	8	
Rebar Quantity	55	

Pier		
Pier type	Square	
Width	9	ft
Height above Grade	1	ft
Rebar Size	8	
Rebar Quantity	54	
Tie Size	4	
Tie C/C Spacing	6	in

Structural Checks

Pad Beam Shear Capacity	1039.9	kips
Pad Beam Shear	439.7	kips
Pad Beam Shear Check	42.3%	Pass

Pad Bending Moment Capacity	5943.6	k-ft
Pad Bending Moment	2577.7	k-ft
Pad Bending Moment Check	43.4%	Pass

Punching Shear Capacity	3335.0	kips
Punching Shear	511.2	kips
Punching Shear Check	15.3%	Pass

Pad-Pier Bearing Capacity	51554.9	kips
Pad-Pier Bearing	1065.0	kips
Pad-Pier Bearing Check	2.1%	Pass

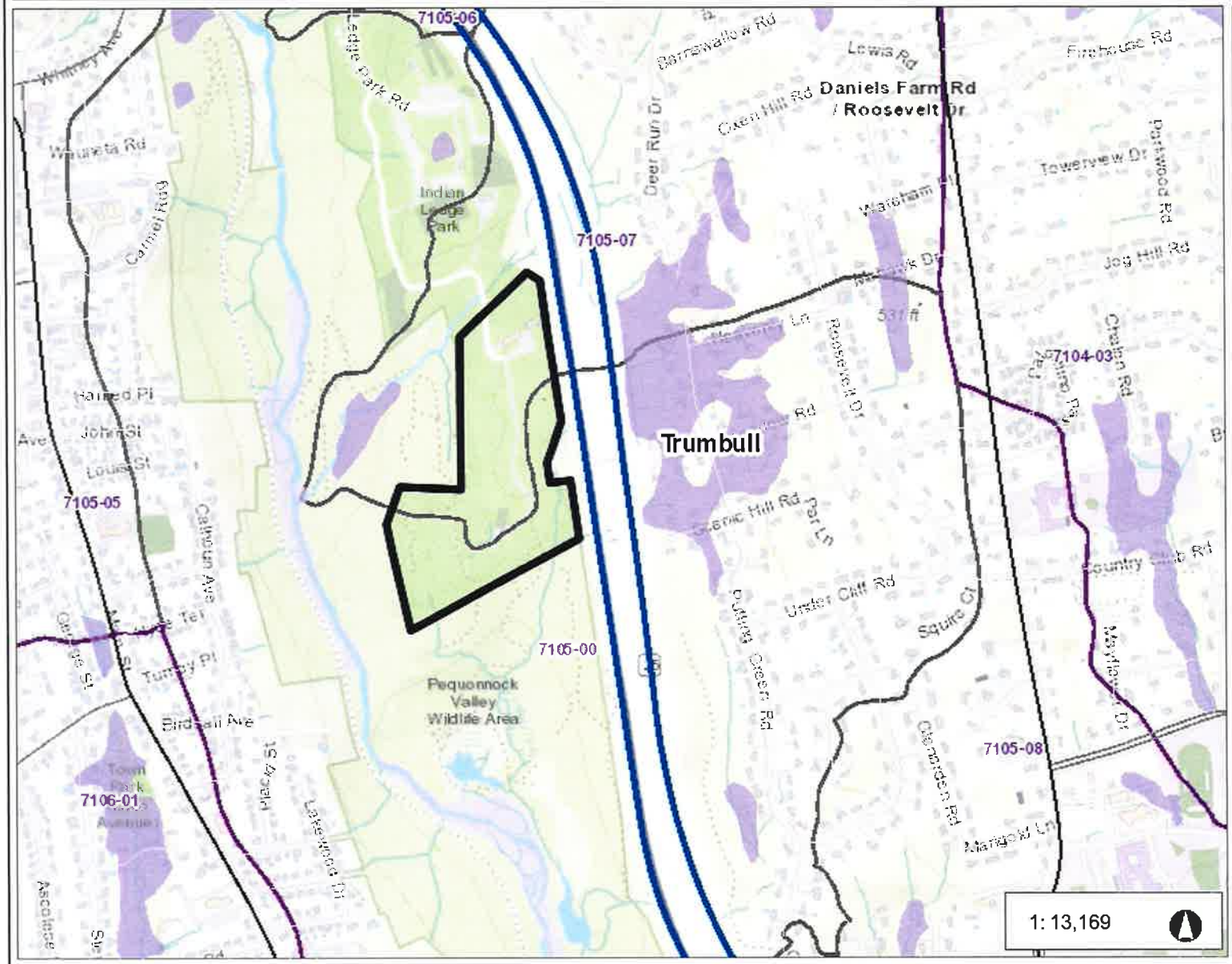
Pier Beam Shear Capacity	1273.6	kips
Pier Beam Shear	42.0	kips
Pier Beam Shear Check	3.3%	Pass

Pier Bending Moment Capacity	9749.4	k-ft
Pier Bending Moment	5940.5	k-ft
Pier Bending Moment Check	60.9%	Pass

ATTACHMENT 4

Town of Trumbull

Map Title



Legend

- Streetname
- Roadways
  - Local
  - Collector
  - Minor Collector
  - Minor Arterial
  - Major Collector
  - PA Other
  - PA Other Expwy
  - PA Interstate
- Inland Wetland Soils
  - Poorly Drained and Very Poorly Dra
  - Alluvial and Floodplain Soils
- Local Basin Boundary
  - Major
  - Regional
  - Subregional
  - Local
- Local Basin Area
- Town Boundary
- Citations

2,194.9 0 1,097.45 2,194.9 Feet

WGS_1984_Web_Mercator_Auxiliary_Sphere
Created by Greater Bridgeport Regional Council

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

METROCOG
Connecticut Metropolitan Council of Governments

425 INDIAN LEDGE PARK ROAD

Location	425 INDIAN LEDGE PARK ROAD	**Mblu**	F/05 / 00096/ 000/
		Acct#	01095300
Owner	TRUMBULL TOWN OF	**Assessment**	$1,320,620
Appraisal	$1,886,600	**PID**	12730
Building Count	1	**Fire District**	T

Current Value

Appraisal	
Valuation Year	**Total**
2015	$1,886,600
Assessment	
Valuation Year	**Total**
2015	$1,320,620

Owner of Record

Owner	TRUMBULL TOWN OF	**Sale Price**	$0
Co-Owner		**Book & Page**	1/ 466
Address	5866 MAIN STREET TRUMBULL, CT 06611	**Sale Date**	06/15/1989

Ownership History

Ownership History			
Owner	**Sale Price**	**Book & Page**	**Sale Date**
TRUMBULL TOWN OF	$0	1/ 466	06/15/1989

Building Information

Building 1 : Section 1

Year Built:
Living Area: 0

Building Attributes	
Field	**Description**
Style	Outbuildings
Stories:	

Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Floor Covering	
Alt. Floor Cover	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
Total Xtra Fixtrs:	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Total Kitchens	
Total Elec Meters	

Building Photo

F05-96 05/04/2015

(http://images.vgsi.com/photos2/TrumbullCTPhotos//\00\02\19

Building Layout

Building Layout

Building Sub-Areas (sq ft)	Legend
No Data for Building Sub-Areas	

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code 921
Description Mun Lnd Res
Zone AA
Neighborhood 320
Alt Land Appr No
Category

Land Line Valuation

Size (Acres) 46.5
Frontage
Depth

Outbuildings

Outbuildings					Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Bldg #**
BHS1	Comm Bth Hse	CB	CindBk/Frame	200 S.F.	1

Valuation History

Appraisal	
Valuation Year	**Total**
2015	$1,886,600
2014	$1,972,000
2013	$1,972,000

Assessment	
Valuation Year	**Total**
2015	$1,320,620
2014	$1,380,400
2013	$1,380,400

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	2	2	neopost 01/26/2018 US POSTAGE $002.38 ZIP 06103 041L12203380
	Postmaster, per *(name of receiving employee)* Y.P		

USPS® Tracking Number Firm-specific Identifier	Address (Name, Street, City, State, and ZIP Code™)	Postage	Fee	Special Handling	Parcel Airlift
1.	Vicki A. Tesoro, First Selectman Town of Trumbull 5866 Main Street Trumbull, CT 06611				
2.	Rina Bakalar, Director of Economic and Community Development Town of Trumbull 5866 Main Street Trumbull, CT 06611	OLD STATE HOUSE STATION 06103 JAN 26 2018 USPS			
3.					
4.					
5.					
6.					

PS Form **3665**, January 2017 (Page ___ of ___) PSN 7530-17-000-5549

See Reverse for Instructions