Robinson+Cole

KENNETH C. BALDWIN

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

Also admitted in Massachusetts

March 8, 2017

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

Re: **Notice of Exempt Modification – Facility Modification**
782 Old Clinton Road, Westbrook, Connecticut

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains twelve (12) antennas at the top of the existing 118-foot level on an existing 160-foot tower at 782 Old Clinton Road in Westbrook, Connecticut (the "Property"). The tower is owned by Crown Castle ("Crown"). Cellco's use of the tower was approved by the Council in 2001. Cellco now intends to replace six (6) of its existing antennas with three (3) model SBNHH-1D65B, 700/1900 MHz antennas and three (3) model SBNHH-1D65B, 2100 MHz antennas, all at the same level on the tower. Cellco also intends to install nine (9) remote radio heads ("RRHs") and 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 Noel Bishop, First Selectman of the Town of Westbrook; Meg Parulis, Westbrook's Town Planner; Catherine A. Wade, the owner of the Property; and 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 structure. Cellco's replacement antennas and new RRHs will be installed on its existing platform at the 118-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 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).

A copy of the Westbrook's parcel map and property owner information is included in Attachment 4.

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:
Noel Bishop, Westbrook First Selectman
Meg Parulis, Westbrook Town Planner
Catherine A. Wade
Crown Castle
Tim Parks

ATTACHMENT 1

Product Specifications

COMMSCOPE®

SBNHH-1D65B

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

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

Electrical Specifications

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

Electrical Specifications, BASTA*

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

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

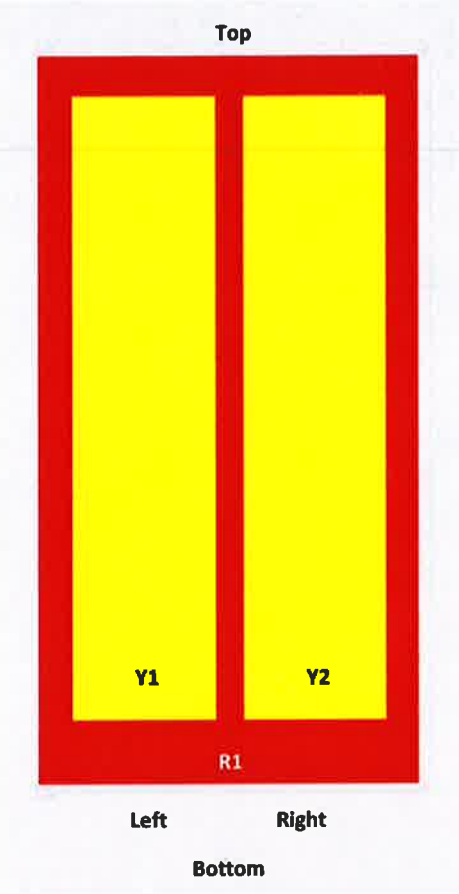
Array Layout

©2017 CommScope, Inc. All rights reserved. All trademarks identified by ® or ™ are registered trademarks, respectively, of CommScope. All specifications are subject to change without notice. See www.commscope.com for the most current information. Revised: November 28, 2016

Product Specifications

SBNHH-1D65B

SBNHH 65



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

©2017 CommScope, Inc. All rights reserved. All trademarks identified by ® or ™ are registered trademarks, respectively, of CommScope. All specifications are subject to change without notice. See www.commscope.com for the most current information. Revised: November 28, 2016

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

©2017 CommScope, Inc. All rights reserved. All trademarks identified by ® or ™ are registered trademarks, respectively, of CommScope. All specifications are subject to change without notice. See www.commscope.com for the most current information. Revised: November 28, 2016

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

©2017 CommScope, Inc. All rights reserved. All trademarks identified by ® or ™ are registered trademarks, respectively, of CommScope. All specifications are subject to change without notice. See www.commscope.com for the most current information. Revised: November 28, 2016

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.

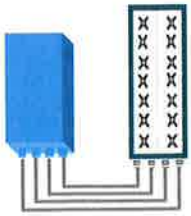
Its compactness and slim design makes the Alcatel-Lucent B13 RRH4x30-4R easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the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

TECHNICAL SPECIFICATIONS

Features & performance	
Number of TX/RX paths	4 duplexed (either 4T4R or 2T4R by SW)
Frequency band	U700 (C) (3GPP bands 13): DL: 746 - 756 MHz / UL: 777 - 787 MHz
Instantaneous bandwidth - #carriers	10MHz – 1 LTE carrier (in 10MHz occupied bandwidth)
LTE carrier bandwidth	10 MHz
RF output power	2x60W or 4x30W (by SW)
Noise figure – RX Diversity scheme	2 dB typ. (<2.5 dB max) – 2 or 4 way Rx diversity
Sizes (HxWxD) in mm (in.) **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

www.alcatel-lucent.com Alcatel, Lucent, Alcatel-Lucent and the Alcatel-Lucent logo are trademarks of Alcatel-Lucent. All other trademarks are the property of their respective owners. The information presented is subject to change without notice. Alcatel-Lucent assumes no responsibility for inaccuracies contained herein.
Copyright © 2014 Alcatel-Lucent. All Rights Reserved

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.

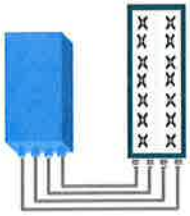
Its compactness and slim design makes the Alcatel-Lucent B25 RRH4x30 easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the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

www.alcatel-lucent.com Alcatel, Lucent, Alcatel-Lucent and the Alcatel-Lucent logo are trademarks of Alcatel-Lucent. All other trademarks are the property of their respective owners. The information presented is subject to change without notice. Alcatel-Lucent assumes no responsibility for inaccuracies contained herein.
Copyright © 2014 Alcatel-Lucent. All Rights Reserved

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.

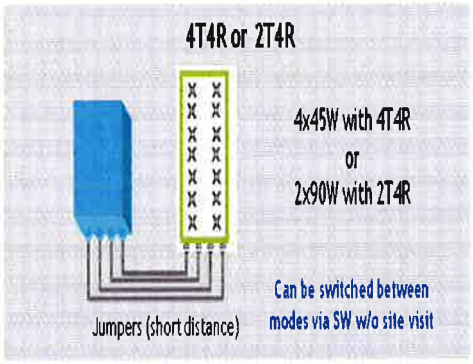
The Alcatel-Lucent B66a RRH4x45 product has four transmit RF paths, offering the possibility to **select, via software only, 2Tx or 4Tx MIMO configurations** with either 2x90W or 4x45W RF output power. It also supports 4-way Rx diversity at the 70 MHz instantaneous bandwidth.

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

www.alcatel-lucent.com Alcatel, Lucent, Alcatel-Lucent and the Alcatel-Lucent logo are trademarks of Alcatel-Lucent. All other trademarks are the property of their respective owners. The information presented is subject to change without notice. Alcatel-Lucent assumes no responsibility for inaccuracies contained herein.
Copyright © 2016 Alcatel-Lucent. All Rights Reserved

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.

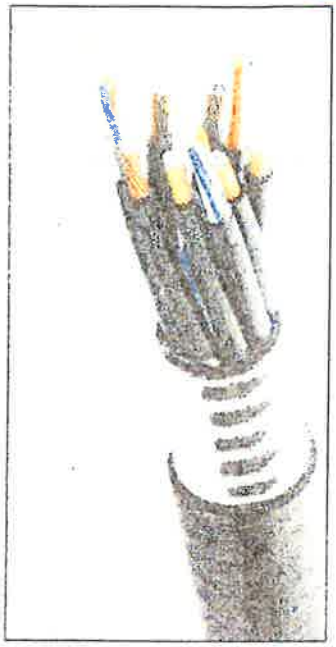


Figure 1: HYBRIFLEX Series

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)

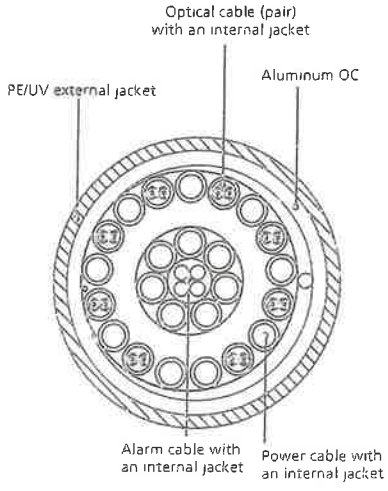


Figure 2: Construction Detail

* This data is provisional and subject to change

All information contained in the present datasheet is subject to confirmation at time of ordering.

ATTACHMENT 2

	General	Power	Density					
Site Name: Westbrook 2								
Tower Height: 160Ft								
CARRIER	**# OF CHAN.**	**WATTS ERP**	**HEIGHT**	**CALC. POWER DENS**	**FREQ.**	**MAX. PERMISS. EXP.**	**FRACTION MPE**	**Total**
*Nextel	9	100	152	851	0.0152	0.5673	0.27%	
*Sprint CDMA/LTE	3	693	160	1900	0.0315	1.0000	0.32%	
*Sprint CDMA/LTE	1	390	160	850	0.0059	0.5667	0.10%	
*Sprint CDMA/LTE	2	693	160	2500	0.0210	1.0000	0.21%	
*T-Mobile LTE	1	865	145	700	0.0161	0.4667	0.35%	
*T-Mobile GSM/UMTS	4	1167	145	1900/2100	0.0869	1.0000	0.87%	
*T-Mobile UMTS	2	2334	145	1900/2100	0.0869	1.0000	0.87%	
*Pocket (now MetroPCS)	3	631	130	2130	0.0443	1.0000	0.44%	
*AT&T GSM	6	139	96	880	0.0370	0.5867	0.63%	
*AT&T GSM	6	615	96	1900	0.1638	1.0000	1.64%	
*AT&T UMTS	1	267	96	880	0.0119	0.5867	0.20%	
*AT&T UMTS	1	406	96	1900	0.0180	1.0000	0.18%	
*AT&T LTE	1	793	96	740	0.0352	0.4933	0.71%	
*AT&T LTE	1	1734	96	1900	0.0770	1.0000	0.77%	
Verizon	**1**	**120**	**118**	**0.0031**	**1970**	**1.0000**	**0.31%**	
Verizon	**9**	**304**	**118**	**0.0707**	**869**	**0.5793**	**12.20%**	
Verizon	**1**	**6907**	**118**	**0.1784**	**2145**	**1.0000**	**17.84%**	
Verizon	**1**	**1721**	**118**	**0.0444**	**698**	**0.4653**	**9.55%**	
								47.45%
* Source: Siting Council								

ATTACHMENT 3

PJF PAUL J. FORD & COMPANY

Date: **December 15, 2016**

Sean Dempsey
Crown Castle
3530 Toringdon Way, Suite 300
Charlotte, NC 28277
704.405.6565

Paul J Ford and Company
250 E. Broad Street, Suite 600
Columbus, OH 43215
614.221.6679
rferrante@pjfweb.com

Subject: **Structural Analysis Report**

Carrier Designation:	***Verizon Wireless* Co-Locate**	
	Carrier Site Number:	119640
	Carrier Site Name:	Westbrook 2 CT
Crown Castle Designation:	**Crown Castle BU Number:**	876339
	Crown Castle Site Name:	POND MEADOW RD. STABLE
	Crown Castle JDE Job Number:	392116
	Crown Castle Work Order Number:	1335573
	Crown Castle Application Number:	353266 Rev. 5
Engineering Firm Designation:	**Paul J Ford and Company Project Number:**	37516-2880.003.7805
Site Data:	**782 Old Clinton Road, WESTBROOK, Middlesex County, CT** **Latitude *41° 17' 25.7"*, Longitude *-72° 28' 7.9"*** **160 Foot - Monopole Tower**	

Dear Sean Dempsey,

Paul J Ford and Company 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 980718, in accordance with application 353266, revision 5.

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:

LC5: Existing + Proposed Equipment **Sufficient Capacity**
Note: See Table I and Table II for the proposed and existing 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 135 mph converted to a nominal 3-second gust wind speed of 105 mph per Section 1609.3 and Appendix N as required for use in the ANSI/TIA-222-G-2005 Standard, "Structural Standard for Antenna Supporting Structures and Antennas", with ANSI/TIA-222-G-1-2007 and ANSI/TIA-222-G-2-2009 Addenda per Exception #5 of Section 1609.1.1. Risk Category II, Exposure Category B and Topographic Category 1 with a maximum Topographic Factor, Kzt, of 1.0 were used in this analysis.

We at *Paul J Ford and Company* 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:

Ryan Ferrante, EI
Structural Designer

STATE OF CONNECTICUT
JUSTIN T. KLINE
No. 30
LICENSED PROFESSIONAL

12-15-16

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 160 ft Monopole tower designed by VALMONT in July of 1998. The tower was originally designed for a wind speed of 85 mph per TIA/EIA-222-F.

2) ANALYSIS CRITERIA

This analysis has been performed in accordance with the 2016 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 135 mph converted to a nominal 3-second gust wind speed of 105 mph per Section 1609.3 and Appendix N as required for use in the ANSI/TIA-222-G-2005 Standard, "Structural Standard for Antenna Supporting Structures and Antennas", with ANSI/TIA-222-G-1-2007 and ANSI/TIA-222-G-2-2009 Addenda per Exception #5 of Section 1609.1.1. Risk Category II, Exposure Category B and Topographic Category 1 with a maximum Topographic Factor, Kzt, of 1.0 were used in this analysis.

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
116.0	118.0	3	alcatel lucent	B13 RRH 4X30	2	1-5/8	-
		3	alcatel lucent	B66A RRH4X45			
		3	alcatel lucent	RRH2X60-PCS			
		6	commscope	SBNHH-1D65B w/ Mount Pipe			
		2	rfs celwave	DB-T1-6Z-8AB-0Z			

Table 2 - Existing 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
159.0	160.0	1	rfs celwave	APXV9ERR18-C-A20 w/ Mount Pipe	3	1-1/4	1
		2	rfs celwave	APXVSPP18-C-A20 w/ Mount Pipe			
	159.0	1	tower mounts	Platform Mount [LP 602-1]			
155.0	156.0	3	alcatel lucent	PCS 1900MHz 4x45W-65MHz	-	-	1
	155.0	1	tower mounts	Side Arm Mount [SO 102-3]			
	154.0	3	alcatel lucent	800MHz 2X50W RRH W/FILTER			
142.0	145.0	3	commscope	LNX-6515DS-VTM w/ Mount Pipe	13	1-5/8	1
		3	ericsson	ERICSSON AIR 21 B2A B4P w/ Mount Pipe			
		3	ericsson	ERICSSON AIR 21 B4A B2P w/ Mount Pipe			
		3	ericsson	KRY 112 144/1			
		3	ericsson	RRUS 11 B12			
	142.0	1	tower mounts	Platform Mount [LP 602-1]			
130.0	130.0	3	rfs celwave	APXV18-206517S-ACU w/ Mount Pipe	6	1-5/8	1
		1	tower mounts	Pipe Mount [PM 601-3]			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
116.0	118.0	2	antel	BXA-171063-8BF-EDIN-2 w/ Mount Pipe	-	-	3
		3	antel	BXA-70063-6CF-EDIN-2 w/ Mount Pipe			
		6	rfs celwave	FD9R6004/2C-3L			
		1	swedcom	SPXW 8515 w/ Mount Pipe			
		4	antel	LPA-80063-4CF-EDIN-5 w/ Mount Pipe	12	1-5/8	1
		2	antel	LPA-80080-4CF-EDIN-0 w/ Mount Pipe			
	116.0	1	tower mounts	Platform Mount [LP 303-1]			
96.0	103.0	1	gps	GPS_A	1 1 2 12	3/8 1/2 3/4 1-5/8	1
	98.0	6	ericsson	RRUS-11			
		3	kmw communications	AM-X-CD-14-65-00T-RET w/ Mount Pipe			
		6	powerwave technologies	7770.00 w/ Mount Pipe			
		6	powerwave technologies	TT19-08BP111-001			
		1	raycap	DC6-48-60-18-8F			
	96.0	1	tower mounts	T-Arm Mount [TA 602-3]			
87.0	88.0	1	lucent	KS24019-L112A	1	1/2	1
	87.0	1	tower mounts	Side Arm Mount [SO 701-1]			

Notes:
1) Existing Equipment
2) Equipment to be Removed

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
GEOTECHNICAL REPORTS	FDH, 10-12295E G1, 01/10/2011	1532966	CCISITES
TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Semaan, 17818, 07/06/1998	1533020	CCISITES
TOWER MANUFACTURER DRAWINGS	Valmont, 17618-98, 07/14/1998	1531985	CCISITES
POST-MODIFICATION INSPECTION	TEP, 111347, 07/18/2011	2923975	CCISITES
POST-MODIFICATION INSPECTION	TEP, 131001.876339, 08/23/2013	4023333	CCISITES
POST-MODIFICATION INSPECTION	TEP, 128324, 1/11/2013	3366474	CCISITES
TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	PJF, 31002-0028, 5/8/2002	3682464	CCISITES

3.1) Analysis Method

tnxTower (version 7.0.5.1), 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) Monopole was modified in conformance with the referenced modification drawings.

This analysis may be affected if any assumptions are not valid or have been made in error. Paul J Ford and Company should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	160 - 117.33	Pole	TP30.46x22.35x0.2188	1	-8.01	1268.11	47.4	Pass
L2	117.33 - 94	Pole	TP34.455x29.1348x0.2813	2	-17.44	2001.25	69.1	Pass
L3	94 - 82.5	Pole	TP36.64x34.455x0.3821	3	-18.84	2342.22	67.2	Pass
L4	82.5 - 72.75	Pole	TP37.9423x34.8309x0.375	4	-23.54	3187.04	64.6	Pass
L5	72.75 - 56	Pole	TP41.1383x37.9423x0.4482	5	-28.52	3349.64	76.2	Pass
L6	56 - 40.583	Pole	TP44.08x41.1383x0.6042	6	-32.06	3750.89	75.3	Pass
L7	40.583 - 31.5	Pole	TP45.0389x41.6472x0.6915	7	-41.19	4288.66	77.7	Pass
L8	31.5 - 28.75	Pole	TP45.5593x45.0389x0.7353	8	-42.56	4609.63	74.1	Pass
L9	28.75 - 11	Pole	TP48.9183x45.5593x0.6172	9	-50.55	4732.20	82.0	Pass
L10	11 - 8.5	Pole	TP49.3914x48.9183x0.698	10	-51.84	5388.94	73.5	Pass
L11	8.5 - 0	Pole	TP51x49.3914x0.5706	11	-55.66	5005.51	83.2	Pass
							Summary	
						Pole (L11)	83.2	Pass
						Rating =	83.2	Pass

Table 5 - Tower Component Stresses vs. Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	56.5	Pass
1	Base Plate	0	35.5	Pass
1	Base Foundation Structural Steel	0	76.3	Pass
1	Base Foundation Soil Interaction	0	74.0	Pass

Structure Rating (max from all components) =	83.2%

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

4.1) Recommendations

The monopole and its foundation have sufficient capacity to carry the proposed loading configuration. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

Tower Input Data

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

1) Tower is located in Middlesex County, Connecticut.
2) ASCE 7-10 Wind Data is used (wind speeds converted to nominal values).
3) Basic wind speed of 105 mph.
4) Structure Class II.
5) Exposure Category B.
6) Topographic Category 1.
7) Crest Height 0.00 ft.
8) Nominal ice thickness of 0.7500 in.
9) Ice thickness is considered to increase with height.
10) Ice density of 56.00 pcf.
11) A wind speed of 50 mph is used in combination with ice.
12) Temperature drop of 50 °F.
13) Deflections calculated using a wind speed of 60 mph.
14) A non-linear (P-delta) analysis was used.
15) Pressures are calculated at each section.
16) Stress ratio used in pole design is 1.
17) 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	160.00-117.33	42.67	4.67	12	22.3500	30.4600	0.2188	0.8752	A572-65 (65 ksi)
L2	117.33-94.00	28.00	0.00	12	29.1348	34.4550	0.2813	1.1252	A572-65 (65 ksi)
L3	94.00-82.50	11.50	5.50	12	34.4550	36.6400	0.3821	1.5282	Reinf 47.68 ksi (48 ksi)
L4	82.50-72.75	15.25	0.00	12	34.8309	37.9423	0.3750	1.5000	A572-65 (65 ksi)
L5	72.75-56.00	16.75	0.00	12	37.9423	41.1383	0.4482	1.7928	Reinf 50.30 ksi (50 ksi)
L6	56.00-40.58	15.42	6.42	12	41.1383	44.0800	0.6042	2.4167	Reinf 40.24 ksi (40 ksi)
L7	40.58-31.50	15.50	0.00	12	41.6472	45.0389	0.6915	2.7660	Reinf 38.30 ksi (38 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
L8	31.50-28.75	2.75	0.00	12	45.0389	45.5593	0.7353	2.9414	Reinf 38.30 ksi (38 ksi)
L9	28.75-11.00	17.75	0.00	12	45.5593	48.9183	0.6172	2.4689	Reinf 43.47 ksi (43 ksi)
L10	11.00-8.50	2.50	0.00	12	48.9183	49.3914	0.6980	2.7921	Reinf 43.42 ksi (43 ksi)
L11	8.50-0.00	8.50		12	49.3914	51.0000	0.5706	2.2824	Reinf 47.64 ksi (48 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	23.1384	15.5922	974.7742	7.9230	11.5773	84.1970	1975.1568	7.6740	5.4034	24.696
	31.5345	21.3060	2487.0596	10.8263	15.7783	157.6255	5039.4571	10.4862	7.5769	34.629
L2	31.0812	26.1351	2777.2008	10.3296	15.0918	184.0202	5627.3618	12.8629	7.0542	25.077
	35.6704	30.9540	4614.0938	12.2342	17.8477	258.5263	9349.4050	15.2346	8.4800	30.146
L3	35.6704	41.9165	6211.4084	12.1981	17.8477	348.0234	12585.9975	20.6300	8.2100	21.489
	37.9325	44.6046	7484.6546	12.9803	18.9795	394.3543	15165.9394	21.9530	8.7956	23.022
L4	37.2213	41.6055	6304.6845	12.3352	18.0424	349.4371	12775.0000	20.4770	8.3297	22.212
	39.2808	45.3625	8171.5301	13.4491	19.6541	415.7668	16557.7354	22.3261	9.1635	24.436
L5	39.2808	54.1116	9709.6331	13.4229	19.6541	494.0254	19674.3492	26.6321	8.9674	20.008
	42.5895	58.7242	12410.2607	14.5671	21.3097	582.3774	25146.5529	28.9022	9.8239	21.919
L6	42.5895	78.8576	16537.5579	14.5112	21.3097	776.0594	33509.5759	38.8113	9.4059	15.568
	45.6350	84.5805	20405.7007	15.5643	22.8334	893.6761	41347.4819	41.6279	10.1942	16.873
L7	44.5701	91.1920	19524.1494	14.6622	21.5733	905.0159	39561.2199	44.8819	9.3083	13.461
	46.6277	98.7438	24787.4205	15.8764	23.3301	1062.4639	50226.0341	48.5987	10.2172	14.776
L8	46.6277	104.9016	26281.1710	15.8607	23.3301	1126.4906	53252.7776	51.6294	10.0997	13.735
	47.1664	106.1339	27218.2436	16.0470	23.5997	1153.3297	55151.5408	52.2359	10.2392	13.924
L9	47.1664	89.3215	23027.5367	16.0893	23.5997	975.7552	46660.0325	43.9613	10.5557	17.102
	50.6440	95.9975	28586.4294	17.2918	25.3397	1128.1284	57923.8561	47.2470	11.4559	18.56
L10	50.6440	108.3827	32166.6352	17.2629	25.3397	1269.4168	65178.3238	53.3427	11.2394	16.102
	51.1338	109.4461	33122.7570	17.4322	25.5848	1294.6281	67115.6856	53.8660	11.3662	16.283
L11	51.1338	89.6985	27288.6460	17.4779	25.5848	1066.5974	55294.1951	44.1469	11.7077	20.519
	52.7991	92.6539	30075.8312	18.0537	26.4180	1138.4598	60941.7881	45.6015	12.1388	21.274

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
HB114-1-08U4-M5J(1 1/4")	C	No	Inside Pole	159.00 - 0.00	3	No Ice	0.00	1.08
						1/2" Ice	0.00	1.08
						1" Ice	0.00	1.08
***								
MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	C	No	Inside Pole	142.00 - 0.00	1	No Ice	0.00	1.07
						1/2" Ice	0.00	1.07
						1" Ice	0.00	1.07
AL7-50(1 5/8)	C	No	Inside Pole	142.00 - 0.00	6	No Ice	0.00	0.52
						1/2" Ice	0.00	0.52
						1" Ice	0.00	0.52
LDF7-50A(1-5/8")	C	No	Inside Pole	142.00 - 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	130.00 - 0.00	6	No Ice	0.00	0.70
						1/2" Ice	0.00	0.70
						1" Ice	0.00	0.70
***								
LDF7-50A(1-5/8")	C	No	Inside Pole	116.00 - 0.00	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
HB158-1-08U8-S8J18(1-5/8)	C	No	Inside Pole	116.00 - 0.00	2	No Ice	0.00	1.30
						1/2" Ice	0.00	1.30
						1" Ice	0.00	1.30
***								

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
LDF7-50A(1-5/8")	C	No	CaAa (Out Of Face)	96.00 - 0.00	2	No Ice	0.20	0.82
						1/2" Ice	0.30	2.33
						1" Ice	0.40	4.46
LDF7-50A(1-5/8")	C	No	CaAa (Out Of Face)	96.00 - 0.00	10	No Ice	0.00	0.82
						1/2" Ice	0.00	2.33
						1" Ice	0.00	4.46
LDF4-50A(1/2")	C	No	CaAa (Out Of Face)	96.00 - 0.00	1	No Ice	0.00	0.15
						1/2" Ice	0.00	0.84
						1" Ice	0.00	2.14
FB-L98-002-XXX(3/8)	C	No	CaAa (Out Of Face)	96.00 - 0.00	1	No Ice	0.00	0.06
						1/2" Ice	0.00	0.61
						1" Ice	0.00	1.77
WR-VG86ST-BRD(3/4")	C	No	CaAa (Out Of Face)	96.00 - 0.00	2	No Ice	0.00	0.58
						1/2" Ice	0.00	1.38
						1" Ice	0.00	2.78
***								
LDF4-50A(1/2")	C	No	CaAa (Out Of Face)	87.00 - 0.00	1	No Ice	0.00	0.15
						1/2" Ice	0.00	0.84
						1" Ice	0.00	2.14
***								
1 1/4" Flat Reinforcement	C	No	CaAa (Out Of Face)	58.25 - 0.00	1	No Ice	0.21	0.00
						1/2" Ice	0.32	0.00
						1" Ice	0.43	0.00
3/4" Flat Reinforcement	C	No	CaAa (Out Of Face)	74.00 - 44.00	1	No Ice	0.13	0.00
						1/2" Ice	0.24	0.00
						1" Ice	0.35	0.00
1" Flat Reinforcement	C	No	CaAa (Out Of Face)	13.00 - 0.00	1	No Ice	0.17	0.00
						1/2" Ice	0.28	0.00
						1" Ice	0.39	0.00
1" Flat Reinforcement	C	No	CaAa (Out Of Face)	42.25 - 27.25	1	No Ice	0.17	0.00
						1/2" Ice	0.28	0.00
						1" Ice	0.39	0.00
1" Flat Reinforcement	C	No	CaAa (Out Of Face)	96.00 - 86.00	1	No Ice	0.17	0.00
						1/2" Ice	0.28	0.00
						1" Ice	0.39	0.00

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	160.00-117.33	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.41
L2	117.33-94.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	1.125	0.68
L3	94.00-82.50	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	5.887	0.46
L4	82.50-72.75	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	4.017	0.39
L5	72.75-56.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	9.196	0.68
L6	56.00-40.58	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	11.095	0.62
L7	40.58-31.50	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	7.003	0.37
L8	31.50-28.75	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	2.120	0.11
L9	28.75-11.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00

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
		C	0.000	0.000	0.000	11.310	0.72
L10	11.00-8.50	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	1.928	0.10
L11	8.50-0.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	6.553	0.34

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	160.00-117.33	A	1.730	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.41
L2	117.33-94.00	A	1.685	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	3.279	0.92
L3	94.00-82.50	A	1.655	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	16.442	1.76
L4	82.50-72.75	A	1.634	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	10.931	1.53
L5	72.75-56.00	A	1.603	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	26.708	2.54
L6	56.00-40.58	A	1.558	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	30.771	2.27
L7	40.58-31.50	A	1.513	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	18.952	1.34
L8	31.50-28.75	A	1.486	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	5.572	0.39
L9	28.75-11.00	A	1.425	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	28.158	2.39
L10	11.00-8.50	A	1.328	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	4.731	0.31
L11	8.50-0.00	A	1.221	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	15.320	0.98

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	160.00-117.33	0.0000	0.0000	0.0000	0.0000
L2	117.33-94.00	-0.0632	0.0365	-0.1624	0.0938
L3	94.00-82.50	-0.5493	0.3171	-1.1501	0.6640
L4	82.50-72.75	-0.4582	0.2646	-0.9794	0.5655
L5	72.75-56.00	-0.5944	0.3432	-1.2965	0.7485
L6	56.00-40.58	-0.7550	0.4359	-1.5512	0.8956
L7	40.58-31.50	-0.8042	0.4643	-1.6187	0.9346
L8	31.50-28.75	-0.8080	0.4665	-1.6072	0.9279
L9	28.75-11.00	-0.6916	0.3993	-1.3755	0.7941
L10	11.00-8.50	-0.8186	0.4726	-1.5846	0.9149
L11	8.50-0.00	-0.8212	0.4741	-1.5456	0.8924

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.00	159.00	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
APXV9ERR18-C-A20 w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.00	159.00	No Ice 1/2" Ice 1" Ice	8.26 8.82 9.35	7.47 8.66 9.56	0.09 0.16 0.24
APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.00	159.00	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
Platform Mount [LP 602-1]	C	None		0.00	159.00	No Ice 1/2" Ice 1" Ice	32.03 38.71 45.39	32.03 38.71 45.39	1.34 1.80 2.26
(2) 5'x2 1/2" Pipe Mount	A	From Leg	4.00 0.00 0.00	0.00	159.00	No Ice 1/2" Ice 1" Ice	1.33 1.63 1.95	1.33 1.63 1.95	0.03 0.04 0.05
(2) 5'x2 1/2" Pipe Mount	B	From Leg	4.00 0.00 0.00	0.00	159.00	No Ice 1/2" Ice 1" Ice	1.33 1.63 1.95	1.33 1.63 1.95	0.03 0.04 0.05
(2) 5'x2 1/2" Pipe Mount	C	From Leg	4.00 0.00 0.00	0.00	159.00	No Ice 1/2" Ice 1" Ice	1.33 1.63 1.95	1.33 1.63 1.95	0.03 0.04 0.05
****									
PCS 1900MHz 4x45W-65MHz	A	From Leg	2.00 0.00 1.00	0.00	155.00	No Ice 1/2" Ice 1" Ice	2.32 2.53 2.74	2.24 2.44 2.65	0.06 0.08 0.11
PCS 1900MHz 4x45W-65MHz	B	From Leg	2.00 0.00 1.00	0.00	155.00	No Ice 1/2" Ice 1" Ice	2.32 2.53 2.74	2.24 2.44 2.65	0.06 0.08 0.11
PCS 1900MHz 4x45W-65MHz	C	From Leg	2.00 0.00 1.00	0.00	155.00	No Ice 1/2" Ice 1" Ice	2.32 2.53 2.74	2.24 2.44 2.65	0.06 0.08 0.11
800MHz 2X50W RRH W/FILTER	A	From Leg	2.00 0.00 -1.00	0.00	155.00	No Ice 1/2" Ice 1" Ice	2.06 2.24 2.43	1.93 2.11 2.29	0.06 0.09 0.11
800MHz 2X50W RRH W/FILTER	B	From Leg	2.00 0.00 -1.00	0.00	155.00	No Ice 1/2" Ice 1" Ice	2.06 2.24 2.43	1.93 2.11 2.29	0.06 0.09 0.11
800MHz 2X50W RRH W/FILTER	C	From Leg	2.00 0.00 -1.00	0.00	155.00	No Ice 1/2" Ice 1" Ice	2.06 2.24 2.43	1.93 2.11 2.29	0.06 0.09 0.11
Side Arm Mount [SO 102-3]	C	None		0.00	155.00	No Ice 1/2" Ice 1" Ice	3.00 3.48 3.96	3.00 3.48 3.96	0.08 0.11 0.14
****									
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Leg	4.00 0.00 3.00	0.00	142.00	No Ice 1/2" Ice 1" Ice	6.33 6.78 7.21	5.64 6.43 7.13	0.11 0.17 0.23
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Leg	4.00 0.00 3.00	0.00	142.00	No Ice 1/2" Ice 1" Ice	6.33 6.78 7.21	5.64 6.43 7.13	0.11 0.17 0.23
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Leg	4.00 0.00 3.00	0.00	142.00	No Ice 1/2" Ice 1" Ice	6.33 6.78 7.21	5.64 6.43 7.13	0.11 0.17 0.23
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	A	From Leg	4.00 0.00 3.00	0.00	142.00	No Ice 1/2" Ice 1" Ice	6.32 6.76 7.20	5.63 6.42 7.12	0.11 0.17 0.23
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	B	From Leg	4.00 0.00 3.00	0.00	142.00	No Ice 1/2" Ice 1" Ice	6.32 6.76 7.20	5.63 6.42 7.12	0.11 0.17 0.23
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	C	From Leg	4.00 0.00 3.00	0.00	142.00	No Ice 1/2" Ice 1" Ice	6.32 6.76 7.20	5.63 6.42 7.12	0.11 0.17 0.23

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	A	From Leg	4.00 0.00 3.00	0.00	142.00	No Ice 1/2" Ice 1" Ice	11.68 12.40 13.14	9.84 11.37 12.91	0.08 0.17 0.27
LNX-6515DS-VTM w/ Mount Pipe	B	From Leg	4.00 0.00 3.00	0.00	142.00	No Ice 1/2" Ice 1" Ice	11.68 12.40 13.14	9.84 11.37 12.91	0.08 0.17 0.27
LNX-6515DS-VTM w/ Mount Pipe	C	From Leg	4.00 0.00 3.00	0.00	142.00	No Ice 1/2" Ice 1" Ice	11.68 12.40 13.14	9.84 11.37 12.91	0.08 0.17 0.27
KRY 112 144/1	A	From Leg	4.00 0.00 3.00	0.00	142.00	No Ice 1/2" Ice 1" Ice	0.35 0.43 0.51	0.17 0.23 0.30	0.01 0.01 0.02
KRY 112 144/1	B	From Leg	4.00 0.00 3.00	0.00	142.00	No Ice 1/2" Ice 1" Ice	0.35 0.43 0.51	0.17 0.23 0.30	0.01 0.01 0.02
KRY 112 144/1	C	From Leg	4.00 0.00 3.00	0.00	142.00	No Ice 1/2" Ice 1" Ice	0.35 0.43 0.51	0.17 0.23 0.30	0.01 0.01 0.02
RRUS 11 B12	A	From Leg	4.00 0.00 3.00	0.00	142.00	No Ice 1/2" Ice 1" Ice	2.83 3.04 3.26	1.18 1.33 1.48	0.05 0.07 0.10
RRUS 11 B12	B	From Leg	4.00 0.00 3.00	0.00	142.00	No Ice 1/2" Ice 1" Ice	2.83 3.04 3.26	1.18 1.33 1.48	0.05 0.07 0.10
RRUS 11 B12	C	From Leg	4.00 0.00 3.00	0.00	142.00	No Ice 1/2" Ice 1" Ice	2.83 3.04 3.26	1.18 1.33 1.48	0.05 0.07 0.10
Platform Mount [LP 602-1]	C	None		0.00	142.00	No Ice 1/2" Ice 1" Ice	32.03 38.71 45.39	32.03 38.71 45.39	1.34 1.80 2.26
****									
APXV18-206517S-ACU w/ Mount Pipe	A	From Leg	1.00 0.00 0.00	0.00	130.00	No Ice 1/2" Ice 1" Ice	5.40 5.96 6.48	4.70 5.86 6.73	0.05 0.10 0.15
APXV18-206517S-ACU w/ Mount Pipe	B	From Leg	1.00 0.00 0.00	0.00	130.00	No Ice 1/2" Ice 1" Ice	5.40 5.96 6.48	4.70 5.86 6.73	0.05 0.10 0.15
APXV18-206517S-ACU w/ Mount Pipe	C	From Leg	1.00 0.00 0.00	0.00	130.00	No Ice 1/2" Ice 1" Ice	5.40 5.96 6.48	4.70 5.86 6.73	0.05 0.10 0.15
Pipe Mount [PM 601-3]	C	None		0.00	130.00	No Ice 1/2" Ice 1" Ice	4.39 5.48 6.57	4.39 5.48 6.57	0.20 0.24 0.28
****									
(2) LPA-80080-4CF-EDIN-0 w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.00	116.00	No Ice 1/2" Ice 1" Ice	2.86 3.22 3.59	6.57 7.19 7.84	0.03 0.08 0.13
(2) LPA-80063-4CF-EDIN-5 w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.00	116.00	No Ice 1/2" Ice 1" Ice	6.38 6.78 7.19	6.56 7.19 7.84	0.04 0.10 0.18
(2) LPA-80063-4CF-EDIN-5 w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.00	116.00	No Ice 1/2" Ice 1" Ice	6.38 6.78 7.19	6.56 7.19 7.84	0.04 0.10 0.18
(2) SBNHH-1D65B w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.00	116.00	No Ice 1/2" Ice 1" Ice	8.40 8.96 9.49	7.07 8.26 9.18	0.07 0.14 0.21
(2) SBNHH-1D65B w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.00	116.00	No Ice 1/2" Ice 1" Ice	8.40 8.96 9.49	7.07 8.26 9.18	0.07 0.14 0.21
(2) SBNHH-1D65B w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.00	116.00	No Ice 1/2" Ice 1" Ice	8.40 8.96 9.49	7.07 8.26 9.18	0.07 0.14 0.21
RRH2X60-PCS	A	From Leg	4.00 0.00 2.00	0.00	116.00	No Ice 1/2" Ice 1" Ice	2.20 2.39 2.59	1.72 1.90 2.09	0.06 0.08 0.10

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
RRH2X60-PCS	B	From Leg	4.00 0.00 2.00	0.00	116.00	No Ice 1/2" Ice 1" Ice	2.20 2.39 2.59	1.72 1.90 2.09	0.06 0.08 0.10
RRH2X60-PCS	C	From Leg	4.00 0.00 2.00	0.00	116.00	No Ice 1/2" Ice 1" Ice	2.20 2.39 2.59	1.72 1.90 2.09	0.06 0.08 0.10
B66A RRH4X45	A	From Leg	4.00 0.00 2.00	0.00	116.00	No Ice 1/2" Ice 1" Ice	2.58 2.79 3.01	1.63 1.81 2.00	0.07 0.09 0.11
B66A RRH4X45	B	From Leg	4.00 0.00 2.00	0.00	116.00	No Ice 1/2" Ice 1" Ice	2.58 2.79 3.01	1.63 1.81 2.00	0.07 0.09 0.11
B66A RRH4X45	C	From Leg	4.00 0.00 2.00	0.00	116.00	No Ice 1/2" Ice 1" Ice	2.58 2.79 3.01	1.63 1.81 2.00	0.07 0.09 0.11
B13 RRH 4X30	A	From Leg	4.00 0.00 2.00	0.00	116.00	No Ice 1/2" Ice 1" Ice	2.06 2.24 2.43	1.32 1.48 1.64	0.06 0.07 0.09
B13 RRH 4X30	B	From Leg	4.00 0.00 2.00	0.00	116.00	No Ice 1/2" Ice 1" Ice	2.06 2.24 2.43	1.32 1.48 1.64	0.06 0.07 0.09
B13 RRH 4X30	C	From Leg	4.00 0.00 2.00	0.00	116.00	No Ice 1/2" Ice 1" Ice	2.06 2.24 2.43	1.32 1.48 1.64	0.06 0.07 0.09
DB-T1-6Z-8AB-0Z	A	From Leg	4.00 0.00 2.00	0.00	116.00	No Ice 1/2" Ice 1" Ice	4.80 5.07 5.35	2.00 2.19 2.39	0.04 0.08 0.12
DB-T1-6Z-8AB-0Z	B	From Leg	4.00 0.00 2.00	0.00	116.00	No Ice 1/2" Ice 1" Ice	4.80 5.07 5.35	2.00 2.19 2.39	0.04 0.08 0.12
Platform Mount [LP 303-1]	C	None		0.00	116.00	No Ice 1/2" Ice 1" Ice	14.66 18.87 23.08	14.66 18.87 23.08	1.25 1.48 1.71
****									
(2) 7770.00 w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.00	96.00	No Ice 1/2" Ice 1" Ice	5.83 6.27 6.70	4.71 5.51 6.21	0.09 0.14 0.21
(2) 7770.00 w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.00	96.00	No Ice 1/2" Ice 1" Ice	5.83 6.27 6.70	4.71 5.51 6.21	0.09 0.14 0.21
(2) 7770.00 w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.00	96.00	No Ice 1/2" Ice 1" Ice	5.83 6.27 6.70	4.71 5.51 6.21	0.09 0.14 0.21
AM-X-CD-14-65-00T-RET w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.00	96.00	No Ice 1/2" Ice 1" Ice	5.23 5.62 6.01	4.02 4.63 5.26	0.05 0.10 0.15
AM-X-CD-14-65-00T-RET w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.00	96.00	No Ice 1/2" Ice 1" Ice	5.23 5.62 6.01	4.02 4.63 5.26	0.05 0.10 0.15
AM-X-CD-14-65-00T-RET w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.00	96.00	No Ice 1/2" Ice 1" Ice	5.23 5.62 6.01	4.02 4.63 5.26	0.05 0.10 0.15
GPS_A	C	From Leg	4.00 0.00 7.00	0.00	96.00	No Ice 1/2" Ice 1" Ice	0.26 0.32 0.39	0.26 0.32 0.39	0.00 0.00 0.01
(2) TT19-08BP111-001	A	From Leg	4.00 0.00 2.00	0.00	96.00	No Ice 1/2" Ice 1" Ice	0.55 0.65 0.75	0.45 0.53 0.63	0.02 0.02 0.03
(2) TT19-08BP111-001	B	From Leg	4.00 0.00 2.00	0.00	96.00	No Ice 1/2" Ice 1" Ice	0.55 0.65 0.75	0.45 0.53 0.63	0.02 0.02 0.03
(2) TT19-08BP111-001	C	From Leg	4.00 0.00 2.00	0.00	96.00	No Ice 1/2" Ice 1" Ice	0.55 0.65 0.75	0.45 0.53 0.63	0.02 0.02 0.03
(2) RRUS-11	A	From Leg	4.00	0.00	96.00	No Ice	2.79	1.19	0.05

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	3.00	1.34	0.07
			2.00			1" Ice	3.21	1.50	0.09
(2) RRUS-11	B	From Leg	4.00	0.00	96.00	No Ice	2.79	1.19	0.05
			0.00			1/2" Ice	3.00	1.34	0.07
			2.00			1" Ice	3.21	1.50	0.09
(2) RRUS-11	C	From Leg	4.00	0.00	96.00	No Ice	2.79	1.19	0.05
			0.00			1/2" Ice	3.00	1.34	0.07
			2.00			1" Ice	3.21	1.50	0.09
DC6-48-60-18-8F	A	From Leg	4.00	0.00	96.00	No Ice	0.92	0.92	0.02
			0.00			1/2" Ice	1.46	1.46	0.04
			2.00			1" Ice	1.64	1.64	0.06
T-Arm Mount [TA 602-3]	C	None		0.00	96.00	No Ice	11.59	11.59	0.77
						1/2" Ice	15.44	15.44	0.99
						1" Ice	19.29	19.29	1.21
****									
KS24019-L112A	A	From Leg	2.00	30.00	87.00	No Ice	0.14	0.14	0.01
			0.00			1/2" Ice	0.20	0.20	0.01
			1.00			1" Ice	0.26	0.26	0.01
Side Arm Mount [SO 701-1]	A	None		0.00	87.00	No Ice	0.85	1.67	0.07
						1/2" Ice	1.14	2.34	0.08
						1" Ice	1.43	3.01	0.09

Tower Pressures - No Ice

$G_H = 1.100$

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft^2	Face	A_F ft^2	A_R ft^2	A_{leg} ft^2	Leg %	C_AA_A In Face ft^2	C_AA_A Out Face ft^2
L1 160.00-117.33	137.81	1.083	29.01	97.204	A	0.000	97.204	97.204	100.00	0.000	0.000
					B	0.000	97.204		100.00	0.000	0.000
					C	0.000	97.204		100.00	0.000	0.000
L2 117.33-94.00	105.40	1.003	26.90	64.888	A	0.000	64.888	64.888	100.00	0.000	0.000
					B	0.000	64.888		100.00	0.000	0.000
					C	0.000	64.888		100.00	0.000	1.125
L3 94.00-82.50	88.19	0.953	25.56	35.268	A	0.000	35.268	35.268	100.00	0.000	0.000
					B	0.000	35.268		100.00	0.000	0.000
					C	0.000	35.268		100.00	0.000	5.887
L4 82.50-72.75	77.58	0.919	24.64	31.079	A	0.000	31.079	31.079	100.00	0.000	0.000
					B	0.000	31.079		100.00	0.000	0.000
					C	0.000	31.079		100.00	0.000	4.017
L5 72.75-56.00	64.26	0.871	23.35	57.139	A	0.000	57.139	57.139	100.00	0.000	0.000
					B	0.000	57.139		100.00	0.000	0.000
					C	0.000	57.139		100.00	0.000	9.196
L6 56.00-40.58	48.20	0.802	21.51	56.673	A	0.000	56.673	56.673	100.00	0.000	0.000
					B	0.000	56.673		100.00	0.000	0.000
					C	0.000	56.673		100.00	0.000	11.095
L7 40.58-31.50	36.01	0.738	19.79	34.515	A	0.000	34.515	34.515	100.00	0.000	0.000
					B	0.000	34.515		100.00	0.000	0.000
					C	0.000	34.515		100.00	0.000	7.003
L8 31.50-28.75	30.12	0.701	18.81	10.747	A	0.000	10.747	10.747	100.00	0.000	0.000
					B	0.000	10.747		100.00	0.000	0.000
					C	0.000	10.747		100.00	0.000	2.120
L9 28.75-11.00	19.77	0.7	18.77	72.339	A	0.000	72.339	72.339	100.00	0.000	0.000
					B	0.000	72.339		100.00	0.000	0.000
					C	0.000	72.339		100.00	0.000	11.310
L10 11.00-8.50	9.75	0.7	18.77	10.602	A	0.000	10.602	10.602	100.00	0.000	0.000
					B	0.000	10.602		100.00	0.000	0.000
					C	0.000	10.602		100.00	0.000	1.928
L11 8.50-0.00	4.23	0.7	18.77	36.810	A	0.000	36.810	36.810	100.00	0.000	0.000
					B	0.000	36.810		100.00	0.000	0.000
					C	0.000	36.810		100.00	0.000	6.553

Tower Pressure - With Ice

G_H = 1.100

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1 160.00-117.33	137.81	1.083	6.58	1.7305	109.511	A	0.000	109.511	109.511	100.00	0.000	0.000
						B	0.000	109.511		100.00	0.000	0.000
						C	0.000	109.511		100.00	0.000	0.000
L2 117.33-94.00	105.40	1.003	6.10	1.6847	71.617	A	0.000	71.617	71.617	100.00	0.000	0.000
						B	0.000	71.617		100.00	0.000	0.000
						C	0.000	71.617		100.00	0.000	3.279
L3 94.00-82.50	88.19	0.953	5.80	1.6549	38.440	A	0.000	38.440	38.440	100.00	0.000	0.000
						B	0.000	38.440		100.00	0.000	0.000
						C	0.000	38.440		100.00	0.000	16.442
L4 82.50-72.75	77.58	0.919	5.59	1.6339	33.768	A	0.000	33.768	33.768	100.00	0.000	0.000
						B	0.000	33.768		100.00	0.000	0.000
						C	0.000	33.768		100.00	0.000	10.931
L5 72.75-56.00	64.26	0.871	5.30	1.6034	61.615	A	0.000	61.615	61.615	100.00	0.000	0.000
						B	0.000	61.615		100.00	0.000	0.000
						C	0.000	61.615		100.00	0.000	26.708
L6 56.00-40.58	48.20	0.802	4.88	1.5579	60.676	A	0.000	60.676	60.676	100.00	0.000	0.000
						B	0.000	60.676		100.00	0.000	0.000
						C	0.000	60.676		100.00	0.000	30.771
L7 40.58-31.50	36.01	0.738	4.49	1.5131	36.873	A	0.000	36.873	36.873	100.00	0.000	0.000
						B	0.000	36.873		100.00	0.000	0.000
						C	0.000	36.873		100.00	0.000	18.952
L8 31.50-28.75	30.12	0.701	4.26	1.4864	11.428	A	0.000	11.428	11.428	100.00	0.000	0.000
						B	0.000	11.428		100.00	0.000	0.000
						C	0.000	11.428		100.00	0.000	5.572
L9 28.75-11.00	19.77	0.7	4.26	1.4251	76.555	A	0.000	76.555	76.555	100.00	0.000	0.000
						B	0.000	76.555		100.00	0.000	0.000
						C	0.000	76.555		100.00	0.000	28.158
L10 11.00-8.50	9.75	0.7	4.26	1.3278	11.155	A	0.000	11.155	11.155	100.00	0.000	0.000
						B	0.000	11.155		100.00	0.000	0.000
						C	0.000	11.155		100.00	0.000	4.731
L11 8.50-0.00	4.23	0.7	4.26	1.2214	38.540	A	0.000	38.540	38.540	100.00	0.000	0.000
						B	0.000	38.540		100.00	0.000	0.000
						C	0.000	38.540		100.00	0.000	15.320

Tower Pressure - Service

G_H = 1.100

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1 160.00-117.33	137.81	1.083	8.47	97.204	A	0.000	97.204	97.204	100.00	0.000	0.000
					B	0.000	97.204		100.00	0.000	0.000
					C	0.000	97.204		100.00	0.000	0.000
L2 117.33-94.00	105.40	1.003	7.86	64.888	A	0.000	64.888	64.888	100.00	0.000	0.000
					B	0.000	64.888		100.00	0.000	0.000
					C	0.000	64.888		100.00	0.000	1.125
L3 94.00-82.50	88.19	0.953	7.47	35.268	A	0.000	35.268	35.268	100.00	0.000	0.000
					B	0.000	35.268		100.00	0.000	0.000
					C	0.000	35.268		100.00	0.000	5.887
L4 82.50-72.75	77.58	0.919	7.20	31.079	A	0.000	31.079	31.079	100.00	0.000	0.000
					B	0.000	31.079		100.00	0.000	0.000
					C	0.000	31.079		100.00	0.000	4.017
L5 72.75-56.00	64.26	0.871	6.82	57.139	A	0.000	57.139	57.139	100.00	0.000	0.000
					B	0.000	57.139		100.00	0.000	0.000
					C	0.000	57.139		100.00	0.000	9.196
L6 56.00-40.58	48.20	0.802	6.28	56.673	A	0.000	56.673	56.673	100.00	0.000	0.000
					B	0.000	56.673		100.00	0.000	0.000
					C	0.000	56.673		100.00	0.000	11.095

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L7 40.58-31.50	36.01	0.738	5.78	34.515	A	0.000	34.515	34.515	100.00	0.000	0.000
					B	0.000	34.515		100.00	0.000	0.000
					C	0.000	34.515		100.00	0.000	7.003
L8 31.50-28.75	30.12	0.701	5.49	10.747	A	0.000	10.747	10.747	100.00	0.000	0.000
					B	0.000	10.747		100.00	0.000	0.000
					C	0.000	10.747		100.00	0.000	2.120
L9 28.75-11.00	19.77	0.7	5.48	72.339	A	0.000	72.339	72.339	100.00	0.000	0.000
					B	0.000	72.339		100.00	0.000	0.000
					C	0.000	72.339		100.00	0.000	11.310
L10 11.00-8.50	9.75	0.7	5.48	10.602	A	0.000	10.602	10.602	100.00	0.000	0.000
					B	0.000	10.602		100.00	0.000	0.000
					C	0.000	10.602		100.00	0.000	1.928
L11 8.50-0.00	4.23	0.7	5.48	36.810	A	0.000	36.810	36.810	100.00	0.000	0.000
					B	0.000	36.810		100.00	0.000	0.000
					C	0.000	36.810		100.00	0.000	6.553

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

Comb. No.	Description
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 Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	160 - 117.33	Pole	Max Tension	20	0.00	-0.00	0.00
			Max. Compression	26	-20.14	0.00	-0.10
			Max. Mx	8	-8.00	-353.67	0.38
			Max. My	14	-8.01	0.37	-354.08
			Max. Vy	20	-14.63	353.57	-0.44
			Max. Vx	14	14.64	0.37	-354.08
			Max. Torque	17			0.12
L2	117.33 - 94	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-40.59	-0.33	-0.25
			Max. Mx	8	-17.44	-949.48	-0.41
			Max. My	2	-17.47	0.27	944.73
			Max. Vy	20	-26.56	949.02	0.49
			Max. Vx	14	26.35	-0.62	-944.59
			Max. Torque	12			0.48
L3	94 - 82.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-43.07	0.69	-0.84
			Max. Mx	8	-18.84	-1111.77	-0.69
			Max. My	2	-18.87	0.60	1105.80
			Max. Vy	20	-27.60	1111.53	0.66
			Max. Vx	14	27.39	-0.75	-1105.78
			Max. Torque	12			0.45
L4	82.5 - 72.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-51.03	3.39	-2.35
			Max. Mx	20	-23.54	1554.22	1.09
			Max. My	14	-23.56	-1.05	-1545.10
			Max. Vy	20	-30.22	1554.22	1.09
			Max. Vx	14	30.01	-1.05	-1545.10
			Max. Torque	3			0.22
L5	72.75 - 56	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-58.94	6.49	-4.15
			Max. Mx	20	-28.52	2083.80	1.54
			Max. My	14	-28.53	-1.36	-2071.00
			Max. Vy	20	-33.02	2083.80	1.54
			Max. Vx	14	32.81	-1.36	-2071.00
			Max. Torque	25			0.84
L6	56 - 40.583	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-64.08	8.22	-5.15
			Max. Mx	20	-32.06	2388.40	1.77
			Max. My	14	-32.07	-1.51	-2373.61
			Max. Vy	20	-34.66	2388.40	1.77
			Max. Vx	14	34.45	-1.51	-2373.61
			Max. Torque	25			1.26
L7	40.583 - 31.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-76.57	11.23	-6.88
			Max. Mx	20	-41.19	2949.12	2.16
			Max. My	14	-41.20	-1.76	-2930.94
			Max. Vy	20	-37.56	2949.12	2.16
			Max. Vx	14	37.34	-1.76	-2930.94
			Max. Torque	25			2.03
L8	31.5 - 28.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-78.40	11.74	-7.18
			Max. Mx	20	-42.56	3053.05	2.22
			Max. My	14	-42.57	-1.80	-3034.26
			Max. Vy	20	-38.01	3053.05	2.22
			Max. Vx	14	37.80	-1.80	-3034.26
			Max. Torque	25			2.16
L9	28.75 - 11	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-89.19	14.99	-9.05

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	20	-50.55	3750.35	2.65
			Max. My	14	-50.55	-2.05	-3727.68
			Max. Vy	20	-40.55	3750.35	2.65
			Max. Vx	14	40.34	-2.05	-3727.68
			Max. Torque	25			2.89
L10	11 - 8.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-90.85	15.42	-9.30
			Max. Mx	20	-51.84	3852.25	2.70
			Max. My	14	-51.84	-2.08	-3829.04
			Max. Vy	20	-40.96	3852.25	2.70
			Max. Vx	14	40.75	-2.08	-3829.04
			Max. Torque	25			3.02
L11	8.5 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-95.73	16.77	-10.08
			Max. Mx	20	-55.66	4205.94	2.90
			Max. My	14	-55.66	-2.19	-4180.89
			Max. Vy	20	-42.26	4205.94	2.90
			Max. Vx	14	42.05	-2.19	-4180.89
			Max. Torque	25			3.48

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	95.73	-0.00	0.00
	Max. H_x	21	41.75	42.24	0.04
	Max. H_z	2	55.67	0.04	42.03
	Max. M_x	2	4178.77	0.04	42.03
	Max. M_z	8	4202.40	-42.24	-0.04
	Max. Torsion	25	3.48	21.15	36.42
	Min. Vert	21	41.75	42.24	0.04
	Min. H_x	9	41.75	-42.24	-0.04
	Min. H_z	14	55.67	-0.04	-42.03
	Min. M_x	14	-4180.89	-0.04	-42.03
	Min. M_z	20	-4205.94	42.24	0.04
	Min. Torsion	13	-3.46	-21.15	-36.42

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	46.39	-0.00	0.00	0.86	1.45	0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	55.67	-0.04	-42.03	-4178.77	5.72	-3.04
0.9 Dead+1.6 Wind 0 deg - No Ice	41.75	-0.04	-42.03	-4144.85	5.24	-3.04
1.2 Dead+1.6 Wind 30 deg - No Ice	55.67	21.09	-36.38	-3617.03	-2097.27	-1.79
0.9 Dead+1.6 Wind 30 deg - No Ice	41.75	21.09	-36.38	-3587.87	-2080.64	-1.79
1.2 Dead+1.6 Wind 60 deg - No Ice	55.67	36.56	-20.99	-2085.55	-3637.80	-0.06
0.9 Dead+1.6 Wind 60 deg - No Ice	41.75	36.56	-20.99	-2068.84	-3608.65	-0.06
1.2 Dead+1.6 Wind 90 deg - No Ice	55.67	42.24	0.04	5.01	-4202.40	1.68
0.9 Dead+1.6 Wind 90 deg - No Ice	41.75	42.24	0.04	4.72	-4168.89	1.68
1.2 Dead+1.6 Wind 120 deg - No Ice	55.67	36.60	21.05	2094.51	-3641.74	2.96
0.9 Dead+1.6 Wind 120 deg - No Ice	41.75	36.60	21.05	2077.22	-3612.56	2.97
1.2 Dead+1.6 Wind 150 deg - No Ice	55.67	21.15	36.42	3623.09	-2104.11	3.46
0.9 Dead+1.6 Wind 150 deg - No Ice	41.75	21.15	36.42	3593.37	-2087.44	3.46
1.2 Dead+1.6 Wind 180 deg - No Ice	55.67	0.04	42.03	4180.89	-2.19	3.03
0.9 Dead+1.6 Wind 180 deg - No Ice	41.75	0.04	42.03	4146.43	-2.61	3.03
1.2 Dead+1.6 Wind 210 deg - No Ice	55.67	-21.09	36.38	3619.15	2100.80	1.80
0.9 Dead+1.6 Wind 210 deg - No Ice	41.75	-21.09	36.38	3589.45	2083.28	1.80
1.2 Dead+1.6 Wind 240 deg - No Ice	55.67	-36.56	20.99	2087.67	3641.33	0.08
0.9 Dead+1.6 Wind 240 deg - No Ice	41.75	-36.56	20.99	2070.42	3611.28	0.08
1.2 Dead+1.6 Wind 270 deg - No Ice	55.67	-42.24	-0.04	-2.90	4205.94	-1.67
0.9 Dead+1.6 Wind 270 deg - No Ice	41.75	-42.24	-0.04	-3.14	4171.53	-1.67

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
1.2 Dead+1.6 Wind 300 deg - No Ice	55.67	-36.60	-21.05	-2092.40	3645.27	-2.97
0.9 Dead+1.6 Wind 300 deg - No Ice	41.75	-36.60	-21.05	-2075.64	3615.20	-2.97
1.2 Dead+1.6 Wind 330 deg - No Ice	55.67	-21.15	-36.42	-3620.98	2107.64	-3.47
0.9 Dead+1.6 Wind 330 deg - No Ice	41.75	-21.15	-36.42	-3591.79	2090.07	-3.48
1.2 Dead+1.0 Ice+1.0 Temp	95.73	0.00	-0.00	10.08	16.77	-0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	95.73	-0.01	-8.94	-947.47	17.86	-1.22
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	95.73	4.48	-7.74	-818.74	-463.46	-0.72
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	95.73	7.77	-4.46	-467.88	-816.03	-0.04
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	95.73	8.97	0.01	11.08	-945.40	0.66
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	95.73	7.78	4.47	489.82	-816.88	1.18
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	95.73	4.49	7.74	840.05	-464.93	1.38
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	95.73	0.01	8.94	967.94	16.16	1.22
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	95.73	-4.48	7.74	839.20	497.48	0.72
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	95.73	-7.77	4.46	488.35	850.06	0.04
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	95.73	-8.97	-0.01	9.38	979.42	-0.66
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	95.73	-7.78	-4.47	-469.35	850.91	-1.18
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	95.73	-4.49	-7.74	-819.59	498.95	-1.38
Dead+Wind 0 deg - Service	46.39	-0.01	-7.67	-759.00	2.19	0.08
Dead+Wind 30 deg - Service	46.39	3.85	-6.64	-656.84	-380.11	0.04
Dead+Wind 60 deg - Service	46.39	6.68	-3.83	-378.44	-660.16	-0.01
Dead+Wind 90 deg - Service	46.39	7.71	0.01	1.60	-762.93	-0.06
Dead+Wind 120 deg - Service	46.39	6.68	3.84	381.45	-660.88	-0.09
Dead+Wind 150 deg - Service	46.39	3.86	6.65	659.32	-381.35	-0.10
Dead+Wind 180 deg - Service	46.39	0.01	7.67	760.76	0.75	-0.08
Dead+Wind 210 deg - Service	46.39	-3.85	6.64	658.60	383.05	-0.04
Dead+Wind 240 deg - Service	46.39	-6.68	3.83	380.20	663.10	0.01
Dead+Wind 270 deg - Service	46.39	-7.71	-0.01	0.16	765.87	0.06
Dead+Wind 300 deg - Service	46.39	-6.68	-3.84	-379.68	663.82	0.09
Dead+Wind 330 deg - Service	46.39	-3.86	-6.65	-657.56	384.29	0.10

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	-46.39	0.00	0.00	46.39	-0.00	0.000%
2	-0.04	-55.67	-42.03	0.04	55.67	42.03	0.003%
3	-0.04	-41.75	-42.03	0.04	41.75	42.03	0.007%
4	21.09	-55.67	-36.38	-21.09	55.67	36.38	0.000%
5	21.09	-41.75	-36.38	-21.09	41.75	36.38	0.000%
6	36.56	-55.67	-20.99	-36.56	55.67	20.99	0.000%
7	36.56	-41.75	-20.99	-36.56	41.75	20.99	0.000%
8	42.24	-55.67	0.04	-42.24	55.67	-0.04	0.008%
9	42.24	-41.75	0.04	-42.24	41.75	-0.04	0.007%
10	36.60	-55.67	21.05	-36.60	55.67	-21.05	0.000%
11	36.60	-41.75	21.05	-36.60	41.75	-21.05	0.000%
12	21.15	-55.67	36.42	-21.15	55.67	-36.42	0.000%
13	21.15	-41.75	36.42	-21.15	41.75	-36.42	0.000%
14	0.04	-55.67	42.03	-0.04	55.67	-42.03	0.003%
15	0.04	-41.75	42.03	-0.04	41.75	-42.03	0.007%
16	-21.09	-55.67	36.38	21.09	55.67	-36.38	0.000%
17	-21.09	-41.75	36.38	21.09	41.75	-36.38	0.000%
18	-36.56	-55.67	20.99	36.56	55.67	-20.99	0.000%
19	-36.56	-41.75	20.99	36.56	41.75	-20.99	0.000%
20	-42.24	-55.67	-0.04	42.24	55.67	0.04	0.008%
21	-42.24	-41.75	-0.04	42.24	41.75	0.04	0.007%
22	-36.60	-55.67	-21.05	36.60	55.67	21.05	0.000%
23	-36.60	-41.75	-21.05	36.60	41.75	21.05	0.000%
24	-21.15	-55.67	-36.42	21.15	55.67	36.42	0.000%
25	-21.15	-41.75	-36.42	21.15	41.75	36.42	0.000%
26	0.00	-95.73	0.00	-0.00	95.73	0.00	0.001%
27	-0.01	-95.73	-8.94	0.01	95.73	8.94	0.000%
28	4.48	-95.73	-7.74	-4.48	95.73	7.74	0.000%
29	7.77	-95.73	-4.46	-7.77	95.73	4.46	0.000%
30	8.97	-95.73	0.01	-8.97	95.73	-0.01	0.000%
31	7.78	-95.73	4.47	-7.78	95.73	-4.47	0.000%
32	4.49	-95.73	7.74	-4.49	95.73	-7.74	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
33	0.01	-95.73	8.94	-0.01	95.73	-8.94	0.000%
34	-4.48	-95.73	7.74	4.48	95.73	-7.74	0.000%
35	-7.77	-95.73	4.46	7.77	95.73	-4.46	0.000%
36	-8.97	-95.73	-0.01	8.97	95.73	0.01	0.000%
37	-7.78	-95.73	-4.47	7.78	95.73	4.47	0.000%
38	-4.49	-95.73	-7.74	4.49	95.73	7.74	0.000%
39	-0.01	-46.39	-7.68	0.01	46.39	7.67	0.002%
40	3.85	-46.39	-6.64	-3.85	46.39	6.64	0.002%
41	6.68	-46.39	-3.83	-6.68	46.39	3.83	0.002%
42	7.71	-46.39	0.01	-7.71	46.39	-0.01	0.002%
43	6.68	-46.39	3.84	-6.68	46.39	-3.84	0.002%
44	3.86	-46.39	6.65	-3.86	46.39	-6.65	0.002%
45	0.01	-46.39	7.68	-0.01	46.39	-7.67	0.002%
46	-3.85	-46.39	6.64	3.85	46.39	-6.64	0.002%
47	-6.68	-46.39	3.83	6.68	46.39	-3.83	0.002%
48	-7.71	-46.39	-0.01	7.71	46.39	0.01	0.002%
49	-6.68	-46.39	-3.84	6.68	46.39	3.84	0.002%
50	-3.86	-46.39	-6.65	3.86	46.39	6.65	0.002%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	6	0.00000001	0.00000001
2	Yes	14	0.00004317	0.00007662
3	Yes	13	0.00007347	0.00014740
4	Yes	18	0.00000001	0.00006307
5	Yes	17	0.00000001	0.00012015
6	Yes	18	0.00000001	0.00006359
7	Yes	17	0.00000001	0.00012111
8	Yes	13	0.00010638	0.00012172
9	Yes	13	0.00007342	0.00010818
10	Yes	18	0.00000001	0.00006457
11	Yes	17	0.00000001	0.00012297
12	Yes	18	0.00000001	0.00006303
13	Yes	17	0.00000001	0.00012000
14	Yes	14	0.00004316	0.00006926
15	Yes	13	0.00007346	0.00013572
16	Yes	18	0.00000001	0.00006404
17	Yes	17	0.00000001	0.00012199
18	Yes	18	0.00000001	0.00006361
19	Yes	17	0.00000001	0.00012110
20	Yes	13	0.00010637	0.00011011
21	Yes	13	0.00007342	0.00009986
22	Yes	18	0.00000001	0.00006320
23	Yes	17	0.00000001	0.00012028
24	Yes	18	0.00000001	0.00006465
25	Yes	17	0.00000001	0.00012317
26	Yes	9	0.00000001	0.00004558
27	Yes	16	0.00000001	0.00008148
28	Yes	16	0.00000001	0.00008907
29	Yes	16	0.00000001	0.00008929
30	Yes	16	0.00000001	0.00008152
31	Yes	16	0.00000001	0.00009074
32	Yes	16	0.00000001	0.00009050
33	Yes	16	0.00000001	0.00008275
34	Yes	16	0.00000001	0.00009228
35	Yes	16	0.00000001	0.00009235
36	Yes	16	0.00000001	0.00008335
37	Yes	16	0.00000001	0.00009126
38	Yes	16	0.00000001	0.00009120
39	Yes	13	0.00000001	0.00002389
40	Yes	13	0.00000001	0.00003589
41	Yes	13	0.00000001	0.00003544
42	Yes	13	0.00000001	0.00002396
43	Yes	13	0.00000001	0.00003401
44	Yes	13	0.00000001	0.00003724

45	Yes	13	0.00000001	0.00002395
46	Yes	13	0.00000001	0.00003463
47	Yes	13	0.00000001	0.00003538
48	Yes	13	0.00000001	0.00002401
49	Yes	13	0.00000001	0.00003728
50	Yes	13	0.00000001	0.00003376

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	160 - 117.33	18.746	48	1.03	0.00
L2	122 - 94	10.875	48	0.89	0.00
L3	94 - 82.5	6.239	48	0.66	0.00
L4	88 - 72.75	5.439	48	0.61	0.00
L5	72.75 - 56	3.646	48	0.49	0.00
L6	56 - 40.583	2.165	48	0.35	0.00
L7	47 - 31.5	1.560	48	0.29	0.00
L8	31.5 - 28.75	0.721	48	0.21	0.00
L9	28.75 - 11	0.603	48	0.20	0.00
L10	11 - 8.5	0.091	48	0.08	0.00
L11	8.5 - 0	0.055	48	0.06	0.00

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
159.00	APXVSPP18-C-A20 w/ Mount Pipe	48	18.530	1.03	0.00	63567
155.00	PCS 1900MHz 4x45W-65MHz	48	17.666	1.02	0.00	63567
142.00	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	48	14.891	0.99	0.00	17657
130.00	APXV18-206517S-ACU w/ Mount Pipe	48	12.430	0.94	0.00	10594
116.00	(2) LPA-80080-4CF-EDIN-0 w/ Mount Pipe	48	9.767	0.85	0.00	7538
96.00	(2) 7770.00 w/ Mount Pipe	48	6.520	0.68	0.00	5756
87.00	KS24019-L112A	48	5.311	0.60	0.00	9081

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	160 - 117.33	103.070	20	5.70	0.00
L2	122 - 94	59.788	20	4.90	0.00
L3	94 - 82.5	34.293	20	3.63	0.00
L4	88 - 72.75	29.899	20	3.36	0.00
L5	72.75 - 56	20.039	20	2.71	0.00
L6	56 - 40.583	11.898	20	1.93	0.00
L7	47 - 31.5	8.573	20	1.60	0.00
L8	31.5 - 28.75	3.963	20	1.18	0.00
L9	28.75 - 11	3.310	20	1.09	0.00
L10	11 - 8.5	0.502	20	0.42	0.00
L11	8.5 - 0	0.302	20	0.34	0.00

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
159.00	APXVSPP18-C-A20 w/ Mount Pipe	20	101.881	5.68	0.00	11756
155.00	PCS 1900MHz 4x45W-65MHz	20	97.130	5.63	0.00	11756
142.00	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	20	81.873	5.42	0.00	3263
130.00	APXV18-206517S-ACU w/ Mount Pipe	20	68.338	5.15	0.00	1955
116.00	(2) LPA-80080-4CF-EDIN-0 w/ Mount Pipe	20	53.698	4.66	0.00	1388
96.00	(2) 7770.00 w/ Mount Pipe	20	35.841	3.73	0.00	1055
87.00	KS24019-L112A	20	29.194	3.32	0.00	1660

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	160 - 117.33 (1)	TP30.46x22.35x0.2188	42.67	0.00	0.0	20.6807	-8.01	1268.11	0.006
L2	117.33 - 94 (2)	TP34.455x29.1348x0.2813	28.00	0.00	0.0	30.9540	-17.44	2001.25	0.009
L3	94 - 82.5 (3)	TP36.64x34.455x0.3821	11.50	0.00	0.0	43.3190	-18.84	2342.22	0.008
L4	82.5 - 72.75 (4)	TP37.9423x34.8309x0.375	15.25	0.00	0.0	45.3625	-23.54	3187.04	0.007
L5	72.75 - 56 (5)	TP41.1383x37.9423x0.4482	16.75	0.00	0.0	58.7242	-28.52	3349.64	0.009
L6	56 - 40.583 (6)	TP44.08x41.1383x0.6042	15.42	0.00	0.0	82.1984	-32.06	3750.89	0.009
L7	40.583 - 31.5 (7)	TP45.0389x41.6472x0.6915	15.50	0.00	0.0	98.7438	-41.19	4288.66	0.010
L8	31.5 - 28.75 (8)	TP45.5593x45.0389x0.7353	2.75	0.00	0.0	106.1340	-42.56	4609.63	0.009
L9	28.75 - 11 (9)	TP48.9183x45.5593x0.6172	17.75	0.00	0.0	95.9975	-50.55	4732.20	0.011
L10	11 - 8.5 (10)	TP49.3914x48.9183x0.698	2.50	0.00	0.0	109.4460	-51.84	5388.94	0.010
L11	8.5 - 0 (11)	TP51x49.3914x0.5706	8.50	0.00	0.0	92.6539	-55.66	5005.51	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	160 - 117.33 (1)	TP30.46x22.35x0.2188	354.33	758.70	0.467	0.00	758.70	0.000
L2	117.33 - 94 (2)	TP34.455x29.1348x0.2813	949.48	1392.87	0.682	0.00	1392.87	0.000
L3	94 - 82.5 (3)	TP36.64x34.455x0.3821	1111.78	1675.40	0.664	0.00	1675.40	0.000
L4	82.5 - 72.75 (4)	TP37.9423x34.8309x0.375	1554.22	2434.22	0.638	0.00	2434.22	0.000
L5	72.75 - 56 (5)	TP41.1383x37.9423x0.4482	2083.81	2768.24	0.753	0.00	2768.24	0.000
L6	56 - 40.583 (6)	TP44.08x41.1383x0.6042	2388.40	3208.37	0.744	0.00	3208.37	0.000
L7	40.583 - 31.5 (7)	TP45.0389x41.6472x0.6915	2949.13	3845.43	0.767	0.00	3845.43	0.000
L8	31.5 - 28.75 (8)	TP45.5593x45.0389x0.7353	3053.05	4174.30	0.731	0.00	4174.30	0.000
L9	28.75 - 11 (9)	TP48.9183x45.5593x0.6172	3750.35	4634.26	0.809	0.00	4634.26	0.000
L10	11 - 8.5 (10)	TP49.3914x48.9183x0.698	3852.25	5312.11	0.725	0.00	5312.11	0.000
L11	8.5 - 0 (11)	TP51x49.3914x0.5706	4205.94	5125.32	0.821	0.00	5125.32	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	160 - 117.33 (1)	TP30.46x22.35x0.2188	14.65	634.06	0.023	0.12	1538.40	0.000
L2	117.33 - 94 (2)	TP34.455x29.1348x0.2813	26.56	1000.63	0.027	0.26	2824.29	0.000
L3	94 - 82.5 (3)	TP36.64x34.455x0.3821	27.60	1171.11	0.024	0.18	3397.18	0.000
L4	82.5 - 72.75 (4)	TP37.9423x34.8309x0.375	30.22	1593.52	0.019	0.04	4935.83	0.000
L5	72.75 - 56 (5)	TP41.1383x37.9423x0.4482	33.02	1674.82	0.020	0.35	5613.13	0.000
L6	56 - 40.583 (6)	TP44.08x41.1383x0.6042	34.66	1875.45	0.018	0.56	6505.57	0.000
L7	40.583 - 31.5 (7)	TP45.0389x41.6472x0.6915	37.56	2144.33	0.018	0.95	7797.32	0.000
L8	31.5 - 28.75 (8)	TP45.5593x45.0389x0.7353	38.01	2304.81	0.016	1.01	8464.17	0.000
L9	28.75 - 11 (9)	TP48.9183x45.5593x0.6172	40.55	2366.10	0.017	1.38	9396.83	0.000
L10	11 - 8.5 (10)	TP49.3914x48.9183x0.698	40.96	2694.47	0.015	1.44	10771.25	0.000
L11	8.5 - 0 (11)	TP51x49.3914x0.5706	42.26	2502.76	0.017	1.67	10392.58	0.000

Pole Interaction Design Data

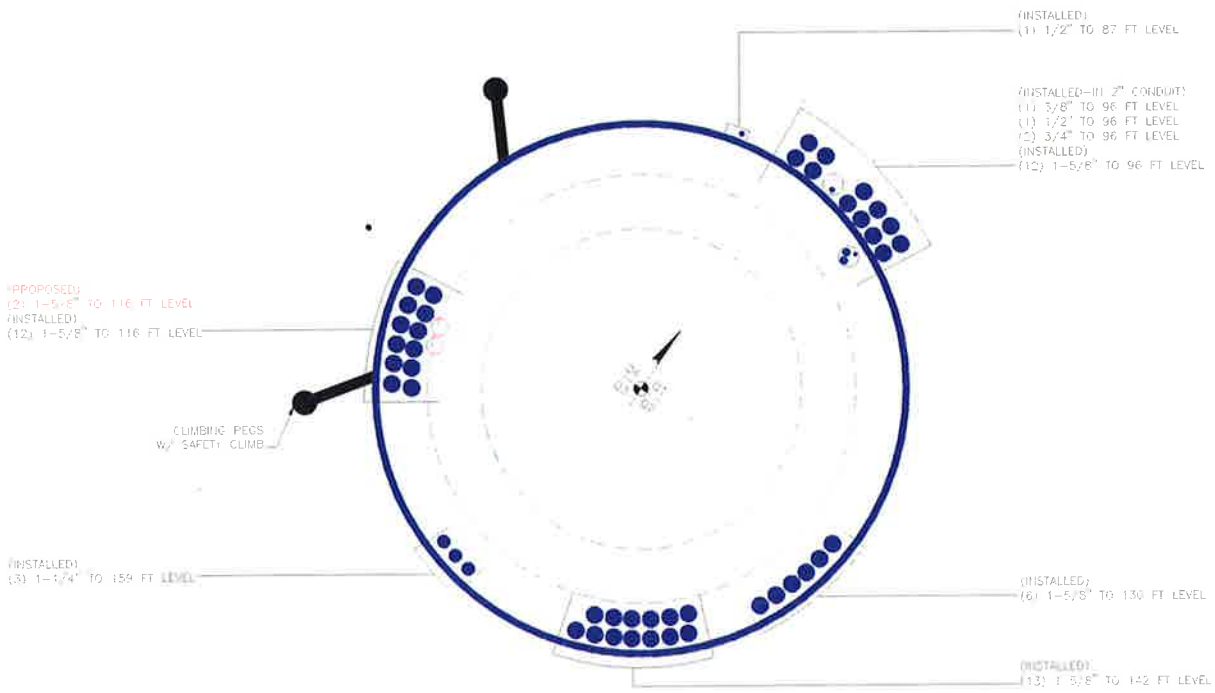
Section No.	Elevation ft	Ratio P_u / ϕP_n	Ratio M_{ux} / ϕM_{nx}	Ratio M_{uy} / ϕM_{ny}	Ratio V_u / ϕV_n	Ratio T_u / ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	160 - 117.33 (1)	0.006	0.467	0.000	0.023	0.000	0.474 ✔	1.000	4.8.2 ✔
L2	117.33 - 94 (2)	0.009	0.682	0.000	0.027	0.000	0.691 ✔	1.000	4.8.2 ✔
L3	94 - 82.5 (3)	0.008	0.664	0.000	0.024	0.000	0.672 ✔	1.000	4.8.2 ✔
L4	82.5 - 72.75 (4)	0.007	0.638	0.000	0.019	0.000	0.646 ✔	1.000	4.8.2 ✔
L5	72.75 - 56 (5)	0.009	0.753	0.000	0.020	0.000	0.762 ✔	1.000	4.8.2 ✔
L6	56 - 40.583 (6)	0.009	0.744	0.000	0.018	0.000	0.753 ✔	1.000	4.8.2 ✔
L7	40.583 - 31.5 (7)	0.010	0.767	0.000	0.018	0.000	0.777 ✔	1.000	4.8.2 ✔
L8	31.5 - 28.75 (8)	0.009	0.731	0.000	0.016	0.000	0.741 ✔	1.000	4.8.2 ✔
L9	28.75 - 11 (9)	0.011	0.809	0.000	0.017	0.000	0.820 ✔	1.000	4.8.2 ✔
L10	11 - 8.5 (10)	0.010	0.725	0.000	0.015	0.000	0.735 ✔	1.000	4.8.2 ✔
L11	8.5 - 0 (11)	0.011	0.821	0.000	0.017	0.000	0.832 ✔	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	160 - 117.33	Pole	TP30.46x22.35x0.2188	1	-8.01	1268.11	47.4	Pass
L2	117.33 - 94	Pole	TP34.455x29.1348x0.2813	2	-17.44	2001.25	69.1	Pass
L3	94 - 82.5	Pole	TP36.64x34.455x0.3821	3	-18.84	2342.22	67.2	Pass
L4	82.5 - 72.75	Pole	TP37.9423x34.8309x0.375	4	-23.54	3187.04	64.6	Pass
L5	72.75 - 56	Pole	TP41.1383x37.9423x0.4482	5	-28.52	3349.64	76.2	Pass
L6	56 - 40.583	Pole	TP44.08x41.1383x0.6042	6	-32.06	3750.89	75.3	Pass
L7	40.583 - 31.5	Pole	TP45.0389x41.6472x0.6915	7	-41.19	4288.66	77.7	Pass
L8	31.5 - 28.75	Pole	TP45.5593x45.0389x0.7353	8	-42.56	4609.63	74.1	Pass
L9	28.75 - 11	Pole	TP48.9183x45.5593x0.6172	9	-50.55	4732.20	82.0	Pass
L10	11 - 8.5	Pole	TP49.3914x48.9183x0.698	10	-51.84	5388.94	73.5	Pass
L11	8.5 - 0	Pole	TP51x49.3914x0.5706	11	-55.66	5005.51	83.2	Pass
							Summary	
						Pole (L11)	83.2	Pass
						RATING =	**83.2**	**Pass**

APPENDIX B

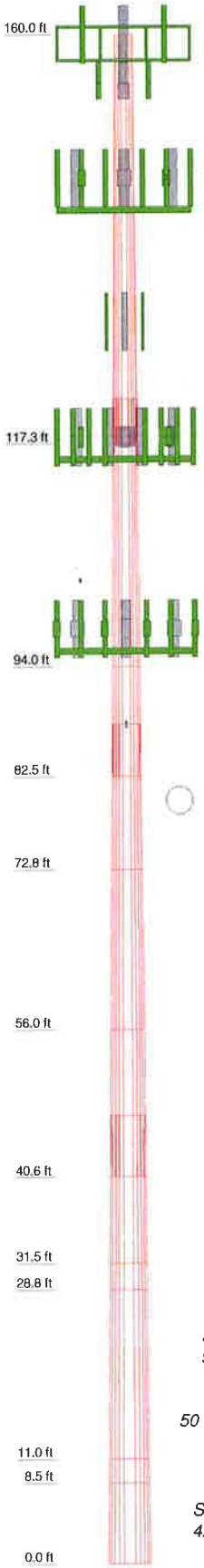
BASE LEVEL DRAWING

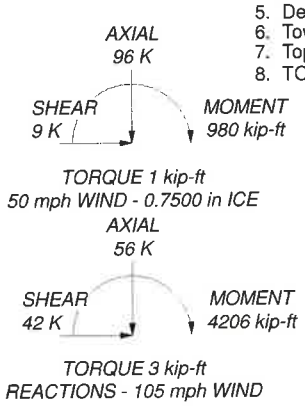


APPENDIX C

ADDITIONAL CALCULATIONS

Section	1	2	3	4	5	6	7	8	9	10	11
Length (ft)	42.67	28.00	11.50	15.25	16.75	15.42	15.50	2.75	17.75	2.50	8.50
Number of Sides	12	12	12	12	12	12	12	12	12	12	12
Thickness (in)	0.2188	0.2813	0.3821	0.3750	0.4482	0.6042	0.6915	0.7353	0.6172	0.6980	0.5706
Socket Length (ft)	4.67		5.50			6.42					
Top Dia (in)	22.3500	29.1348	34.4550	34.8309	37.9423	41.1383	41.6472	45.0389	45.5593	48.9183	49.3914
Bot Dia (in)	30.4600	34.4550	36.6400	37.9423	41.1383	44.0800	45.0389	45.5593	48.9183	49.3914	51.0000
Grade	A572-65		Reinf 47.68 ksi	A572-65	Reinf 50.30 ksi	Reinf 40.24 ksi	Reinf 38.30 ksi		Reinf 43.47 ksi	Reinf 43.42 ksi	Reinf 43.42 ksi
Weight (K)	2.7	2.7	1.7	2.3	3.2	4.3	5.0	1.0	5.6	0.9	2.6





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
APXVSPP18-C-A20 w/ Mount Pipe	159	(2) LPA-80063-4CF-EDIN-5 w/ Mount Pipe	116
APXV9ERR18-C-A20 w/ Mount Pipe	159	(2) LPA-80063-4CF-EDIN-5 w/ Mount Pipe	116
APXVSPP18-C-A20 w/ Mount Pipe	159	(2) SBNHH-1D65B w/ Mount Pipe	116
Platform Mount [LP 602-1]	159	(2) SBNHH-1D65B w/ Mount Pipe	116
(2) 5'x2 1/2" Pipe Mount	159	(2) SBNHH-1D65B w/ Mount Pipe	116
(2) 5'x2 1/2" Pipe Mount	159	RRH2X60-PCS	116
(2) 5'x2 1/2" Pipe Mount	159	RRH2X60-PCS	116
PCS 1900MHz 4x45W-65MHz	155	RRH2X60-PCS	116
PCS 1900MHz 4x45W-65MHz	155	B66A RRH4X45	116
PCS 1900MHz 4x45W-65MHz	155	B66A RRH4X45	116
800MHz 2X50W RRH W/FILTER	155	B66A RRH4X45	116
800MHz 2X50W RRH W/FILTER	155	B13 RRH 4X30	116
800MHz 2X50W RRH W/FILTER	155	B13 RRH 4X30	116
Side Arm Mount [SO 102-3]	155	B13 RRH 4X30	116
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	142	DB-T1-6Z-8AB-0Z	116
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	142	DB-T1-6Z-8AB-0Z	116
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	142	Platform Mount [LP 303-1]	116
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	142	(2) 7770.00 w/ Mount Pipe	96
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	142	(2) 7770.00 w/ Mount Pipe	96
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	142	(2) 7770.00 w/ Mount Pipe	96
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	142	AM-X-CD-14-65-00T-RET w/ Mount Pipe	96
LNX-6515DS-VTM w/ Mount Pipe	142	AM-X-CD-14-65-00T-RET w/ Mount Pipe	96
LNX-6515DS-VTM w/ Mount Pipe	142	AM-X-CD-14-65-00T-RET w/ Mount Pipe	96
LNX-6515DS-VTM w/ Mount Pipe	142	GPS_A	96
KRY 112 144/1	142	(2) TT19-08BP111-001	96
KRY 112 144/1	142	(2) TT19-08BP111-001	96
KRY 112 144/1	142	(2) TT19-08BP111-001	96
RRUS 11 B12	142	(2) RRUS-11	96
RRUS 11 B12	142	(2) RRUS-11	96
RRUS 11 B12	142	(2) RRUS-11	96
Platform Mount [LP 602-1]	142	DC6-48-60-18-8F	96
APXV18-206517S-ACU w/ Mount Pipe	130	T-Arm Mount [TA 602-3]	96
APXV18-206517S-ACU w/ Mount Pipe	130	KS24019-L112A	87
APXV18-206517S-ACU w/ Mount Pipe	130	Side Arm Mount [SO 701-1]	87
Pipe Mount [PM 601-3]	130		
(2) LPA-80080-4CF-EDIN-0 w/ Mount Pipe	116		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi	Reinf 38.30 ksi	38 ksi	48 ksi
Reinf 47.68 ksi	48 ksi	60 ksi	Reinf 43.47 ksi	43 ksi	55 ksi
Reinf 50.30 ksi	50 ksi	63 ksi	Reinf 43.42 ksi	43 ksi	55 ksi
Reinf 40.24 ksi	40 ksi	51 ksi	Reinf 47.64 ksi	48 ksi	60 ksi

TOWER DESIGN NOTES

1. Tower is located in Middlesex County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 105 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: 83.2%

Paul J Ford and Company
250 E. Broad Street Suite 600
Columbus, OH 43215
Phone: 614.221.6679
FAX: 614.448.4105

Job: 160-Ft Monopole / Pond Meadow			
Project: 37516-2880.003 / BU# 876339			
Client: Crown Castle	Drawn by: Ryan Ferrante	App'd:	
Code: TIA-222-G	Date: 12/15/16	Scale: N	
Path:		Dwg No.	

PAUL J. FORD & COMPANY
250 E Broad St, Ste 600 • Columbus, OH 43215
Phone 614.221.6679 www.pauljford.com

v4.4 - Effective 7-12-13

Date: 12/15/2016
PJF Project: 37516-2880.003
Client Ref. # BU876339
Site Name: Pond Meadow
Description: 160' MP
Owner: Crown Castle
Engineer: RMF

Asymmetric Anchor Rod Analysis

Moment =	4206	k-ft	TIA Ref.	G	Location =	Base Plate		
Axial =	56.0	kips	ASIF =	N/A	η =	0.50	for BP, Rev. G Sect. 4.9.9	
Shear =	42.0	kips	Max Ratio =	105.0%	Threads =	N/A	for FP, Rev. G	
Anchor Qty =	25							

** For Post Installed Anchors: Check anchors for embedment, epoxy/grout bond, and capacity based on proof load. **

Item	Nominal Anchor Dia, in	Spec	Fy, ksi	Fu, ksi	Location, degrees	Anchor Circle, in	Area Override, in^2	Area, in^2	Max Net Compression, kips	Max Net Tension, kips	Load for Capacity Calc, kips	Capacity Override, kips	Capacity, kips	Capacity Ratio
1	2.250	#18J A615 Gr 75	75	100	0.0	59.30	0.00	3.98	143.16	138.19	146.88	0.00	260.00	56.5%
2	2.250	#18J A615 Gr 75	75	100	22.5	59.30	0.00	3.98	143.16	138.19	146.88	0.00	260.00	56.5%
3	2.250	#18J A615 Gr 75	75	100	45.0	59.30	0.00	3.98	143.16	138.19	146.88	0.00	260.00	56.5%
4	2.250	#18J A615 Gr 75	75	100	67.5	59.30	0.00	3.98	143.16	138.19	146.88	0.00	260.00	56.5%
5	2.250	#18J A615 Gr 75	75	100	90.0	59.30	0.00	3.98	143.16	138.19	146.88	0.00	260.00	56.5%
6	2.250	#18J A615 Gr 75	75	100	112.5	59.30	0.00	3.98	143.16	138.19	146.88	0.00	260.00	56.5%
7	2.250	#18J A615 Gr 75	75	100	135.0	59.30	0.00	3.98	143.16	138.19	146.88	0.00	260.00	56.5%
8	2.250	#18J A615 Gr 75	75	100	157.5	59.30	0.00	3.98	143.16	138.19	146.88	0.00	260.00	56.5%
9	2.250	#18J A615 Gr 75	75	100	180.0	59.30	0.00	3.98	143.16	138.19	146.88	0.00	260.00	56.5%
10	2.250	#18J A615 Gr 75	75	100	202.5	59.30	0.00	3.98	143.16	138.19	146.88	0.00	260.00	56.5%
11	2.250	#18J A615 Gr 75	75	100	225.0	59.30	0.00	3.98	143.16	138.19	146.88	0.00	260.00	56.5%
12	2.250	#18J A615 Gr 75	75	100	247.5	59.30	0.00	3.98	143.16	138.19	146.88	0.00	260.00	56.5%
13	2.250	#18J A615 Gr 75	75	100	270.0	59.30	0.00	3.98	143.16	138.19	146.88	0.00	260.00	56.5%
14	2.250	#18J A615 Gr 75	75	100	292.5	59.30	0.00	3.98	143.16	138.19	146.88	0.00	260.00	56.5%
15	2.250	#18J A615 Gr 75	75	100	315.0	59.30	0.00	3.98	143.16	138.19	146.88	0.00	260.00	56.5%
16	2.250	#18J A615 Gr 75	75	100	337.5	59.30	0.00	3.98	143.16	138.19	146.88	0.00	260.00	56.5%
17	2.000	A193 Gr B7	105	125	15.0	65.80	0.00	3.14	125.17	121.25	128.11	0.00	250.00	51.2%
18	2.000	A193 Gr B7	105	125	45.0	65.80	0.00	3.14	125.17	121.25	128.11	0.00	250.00	51.2%
19	2.000	A193 Gr B7	105	125	135.0	65.80	0.00	3.14	125.17	121.25	128.11	0.00	250.00	51.2%
20	2.000	A193 Gr B7	105	125	165.0	65.80	0.00	3.14	125.17	121.25	128.11	0.00	250.00	51.2%
21	2.000	A193 Gr B7	105	125	255.0	65.80	0.00	3.14	125.17	121.25	128.11	0.00	250.00	51.2%
22	2.000	A193 Gr B7	105	125	285.0	65.80	0.00	3.14	125.17	121.25	128.11	0.00	250.00	51.2%
23	1.750	F1554 Gr 105	105	125	105.0	67.80	0.00	2.41	98.70	95.70	100.95	0.00	190.00	53.1%
24	1.750	F1554 Gr 105	105	125	225.0	67.80	0.00	2.41	98.70	95.70	100.95	0.00	190.00	53.1%
25	1.750	F1554 Gr 105	105	125	345.0	67.80	0.00	2.41	98.70	95.70	100.95	0.00	190.00	53.1%
								89.75						

© Copyright 2011, Paul J. Ford and Company, all right reserved.

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#: *876339*
Site Name:
App #:

Pole Manufacturer:	*Other*

Anchor Rod Data		
Qty:	16	
Diam:	2.25	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	59.3	in

Plate Data		
Diam:	65.3	in
Thick:	2.75	in
Grade:	60	ksi
Single-Rod B-eff:	10.25	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:	51	in
Thick:	0.4375	in
Grade:	65	ksi
# of Sides:	12	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0	"0" if None

Reactions		
Mu:	2780.7	ft-kips
Axial, Pu:	39.7	kips
Shear, Vu:	29.8	kips
Eta Factor, η	0.5	TIA G (Fig. 4-4)

Reactions adjusted to account for post installed anchor rods.

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

Anchor Rod Results

		Rigid
Max Rod (Cu+ Vu/ή):	146.9 Kips	AISC LRFD
Allowable Axial, Φ*Fu*Anet:	260.0 Kips	φ*Tn
Anchor Rod Stress Ratio:	56.5% Pass	

Base Plate Results Flexural Check

		Rigid
Base Plate Stress:	19.2 ksi	AISC LRFD
Allowable Plate Stress:	54.0 ksi	φ*Fy
Base Plate Stress Ratio:	35.5% Pass	Y.L. Length: 30.26

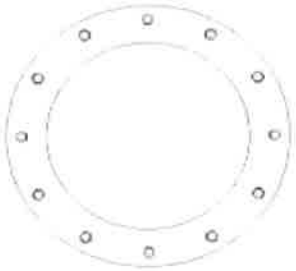
n/a

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

PJF PAUL J. FORD & COMPANY

37516-2880.003.7805
Pond Meadow Rd, Stable
BU 876339

Reactions at Pole Base*		
Moment	4206	k*ft
Axial	56	k
Shear	42	k

*From InxTower

Number of anchors:	4	Water	99	Ft
Foundation Dimensions				
Pier		Mat		
Width	7 ft	Width	23 ft	
Height	4.5 ft	Thickness	3.5 ft	
Projection	0.5 ft	Fdn Depth	7.5 ft	

Foundation Weight			Factored Weights			
			1.2 *Dead		0.9 *Dead	
Pier	33.08	k	39.69	k	29.77	k
Soil	192.00	k	230.40	k	172.80	k
Pole*	56	k	56	k	42	k
Mat	162.19	k	194.63	k	145.97	k
Total			520.72	k	390.54	k

*From TNXtower, Contains 1.2 factors from output

1.2*Dead - Tension/Compression

$$T = \frac{MY}{I} - \frac{1.2 * W_F}{N} - \frac{A_{POLE}}{N}$$

$$C = \frac{MY}{I} + \frac{1.2 * W_F}{N} + \frac{A_{POLE}}{N}$$

0.9*Dead - Tension/Compression

$$T = \frac{MY}{I} - \frac{0.9 * W_F}{N} - \frac{.9\left(\frac{A_{POLE}}{1.2}\right)}{N}$$

$$C = \frac{MY}{I} + \frac{0.9 * W_F}{N} + \frac{.9\left(\frac{A_{POLE}}{1.2}\right)}{N}$$

Check assuming wind into the corner

1.2 Axial Load Factor

	Load	Distance	Moment	
Moment	4206		4206	k*ft
Shear	42	8	336	k*ft
Total Induced Moment			4542	k*ft

Anchor Loads:

Group #	# Anchors	ybar (in)	ny^2	
1	2	161	51842	
		Total	51842	in2

				T (kips)	C (kips)
1	(MY)/I	169.27	k	39.09	299.45

Bearing Pressure:

Max Compression:	299.45	
Bearing Area:	2593.12	in2
Bearing Pressure:	16628.78	psf

0.9 Axial Load Factor

	Load	Distance	Moment	
Moment	4206		4206	k*ft
Shear	42	8	336	k*ft
Total Induced Moment			4542	k*ft

Anchor Loads:

Group #	# Anchors	ybar (in)	ny^2	
1	2	161	51842	
		Total	51842	in2

				T (kips)	C (kips)
1	(MY)/I	169.27	k	71.63	266.90

Bearing Pressure:

Max Compression:	266.90	
Bearing Area:	2593.12	in2
Bearing Pressure:	14821.51	psf

Check assuming wind into the Side

1.2 Axial Load Factor

	Load	Distance	Moment	
Moment	4206		4206	k*ft
Shear	42	8	336	k*ft
Total Induced Moment			4542.00	k*ft

Anchor Loads:

Group #	# Anchors	ybar (in)	ny^2	
1	4	114	51984	
		Total	51984	in2

				T (kips)	C (kips)
1	(MY)/I	119.526	k	-10.65	249.71

Bearing Pressure:

Max Compression:	249.71	
Bearing Area:	13248.00	in2
Bearing Pressure:	5428.40	psf

0.9 Axial Load Factor

	Load	Distance	Moment	
Moment	4206		4206	k*ft
Shear	42	8	42	k*ft
Total Induced Moment			4248.00	k*ft

Anchor Loads:

Group #	# Anchors	ybar (in)	ny^2	
1	4	114	51984	
		Total	51984	in2

				T (kips)	C (kips)
1	(MY)/I	111.789	k	14.15	209.42

Bearing Pressure:

Max Compression:	209.42	
Bearing Area:	13248.00	in2
Bearing Pressure:	4552.70	psf

Bearing Capacity:

Ultimate Capacity:	30000	psf
Factored Capacity:	22500	psf

Max Load in Anchors - 1.2*D

Tension	39.09	k
Compression	16628.78	psf

Ultimate Capacities

Tension	312	k*
Compression	22500	psf

*Based on tension capacity of the 1-3/4" Williams R71

Stress. Ratios

Tension	12.6%
Compression	74.0%

Max Load in Anchors - 0.9*D

Tension	71.63	k
Compression	5428.40	psf

Ultimate Capacities

Tension	312	k*
Compression	22500	psf

*Based on tension capacity of the 1-3/4" Williams R71

Stress. Ratios

Tension	23.0%
Compression	24.2%

Max Foundation Bending

Pier	4395	k*ft
Mat (Tension)	268.94	k*ft
Mat (Compression)	4744.42	k*ft

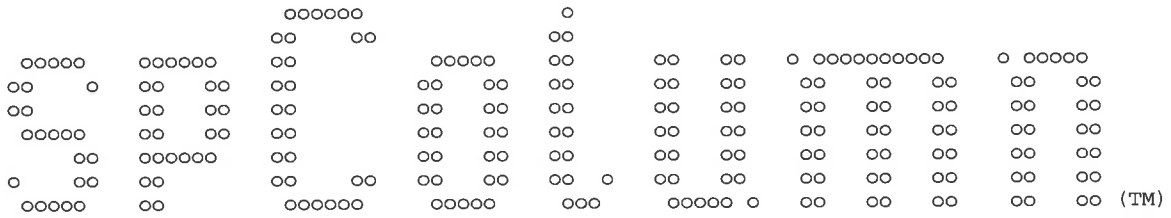
Ultimate Capacities*

Pier	8680.53	k*ft
Mat (Tension)	6221.54	k*ft
Mat (Compression)	6221.54	k*ft

*Obtained From SPColumn

Foundation Reinforcing Ratios

Pier	50.6%
Mat (Tension)	4.3%
Mat (Compression)	76.3%



spColumn v5.00 (TM)
Computer program for the Strength Design of Reinforced Concrete Sections
Copyright © 1988-2015, STRUCTUREPOINT, LLC.
All rights reserved

Licensee stated above acknowledges that STRUCTUREPOINT (SP) is not and cannot be responsible for either the accuracy or adequacy of the material supplied as input for processing by the spColumn computer program. Furthermore, STRUCTUREPOINT neither makes any warranty expressed nor implied with respect to the correctness of the output prepared by the spColumn program. Although STRUCTUREPOINT has endeavored to produce spColumn error free the program is not and cannot be certified infallible. The final and only responsibility for analysis, design and engineering documents is the licensee's. Accordingly, STRUCTUREPOINT disclaims all responsibility in contract, negligence or other tort for any analysis, design or engineering documents prepared in connection with the use of the spColumn program.

General Information:
====================
File Name: T:\375_Crown_Castle\2016\37516-2880_876339_Pond Meadow Rd. Stable\3...\37516-2880.003.col
Project:
Column: Engineer:
Code: ACI 318-11 Units: English

Run Option: Investigation Slenderness: Not considered
Run Axis: X-axis Column Type: Structural

Material Properties:
====================
Concrete: Standard Steel: Standard
f'c = 4 ksi fy = 60 ksi
Ec = 3605 ksi Es = 29000 ksi
fc = 3.4 ksi Eps_yt = 0.00206897 in/in
Eps_u = 0.003 in/in
Beta1 = 0.85

Section:
========
Circular: Diameter = 84 in

Gross section area, Ag = 5541.77 in^2
Ix = 2.44392e+006 in^4 Iy = 2.44392e+006 in^4
rx = 21 in ry = 21 in
Xo = 0 in Yo = 0 in

Reinforcement:
==============
Bar Set: ASTM A615

Size	Diam (in)	Area (in^2)	Size	Diam (in)	Area (in^2)	Size	Diam (in)	Area (in^2)
# 3	0.38	0.11	# 4	0.50	0.20	# 5	0.63	0.31
# 6	0.75	0.44	# 7	0.88	0.60	# 8	1.00	0.79
# 9	1.13	1.00	# 10	1.27	1.27	# 11	1.41	1.56
# 14	1.69	2.25	# 18	2.26	4.00			

Confinement: Tied; #3 ties with #10 bars, #5 with larger bars.
phi(a) = 0.8, phi(b) = 0.9, phi(c) = 0.65

Layout: Circular
Pattern: All Sides Equal (Cover to transverse reinforcement)
Total steel area: As = 56.16 in^2 at rho = 1.01%
Minimum clear spacing = 5.16 in

36 #11 Cover = 3 in

Factored Loads and Moments with Corresponding Capacities:
==========

No.	Pu kip	Mux k-ft	PhiMnx k-ft	PhiMn/Mu	NA depth in	Dt depth in	eps_t	Phi
1	56.00	4395.00	8680.53	1.975	15.32	79.67	0.01260	0.900

*** End of output ***

Used for Pier Bending Analysis

General Information:
==========
File Name: T:\375_Crown_Castle\2016\37516-2880_876339_Pond Meadow Rd. Stab...\37516-2880.003_PAD.col
Project:
Column:
Code: ACI 318-11
Engineer:
Units: English

Run Option: Investigation
Run Axis: X-axis
Slenderness: Not considered
Column Type: Structural

Material Properties:
==========
Concrete: Standard
f'c = 4 ksi
Ec = 3605 ksi
fc = 3.4 ksi
Eps_u = 0.003 in/in
Beta1 = 0.85

Steel: Standard
fy = 60 ksi
Es = 29000 ksi
Eps_yt = 0.00206897 in/in

Section:
========
Rectangular: Width = 276 in
Depth = 42 in

Gross section area, Ag = 11592 in^2
Ix = 1.70402e+006 in^4
rx = 12.1244 in
Xo = 0 in
Iy = 7.3586e+007 in^4
ry = 79.6743 in
Yo = 0 in

Reinforcement:
==========
Bar Set: ASTM A615

Size	Diam (in)	Area (in^2)	Size	Diam (in)	Area (in^2)	Size	Diam (in)	Area (in^2)
# 3	0.38	0.11	# 4	0.50	0.20	# 5	0.63	0.31
# 6	0.75	0.44	# 7	0.88	0.60	# 8	1.00	0.79
# 9	1.13	1.00	# 10	1.27	1.27	# 11	1.41	1.56
# 14	1.69	2.25	# 18	2.26	4.00			

Confinement: Tied; #3 ties with #10 bars, #5 with larger bars.
phi(a) = 0.8, phi(b) = 0.9, phi(c) = 0.65

Layout: Rectangular
Pattern: Sides Different (Cover to transverse reinforcement)
Total steel area: As = 74.88 in^2 at rho = 0.65% (Note: rho < 1.0%)
Minimum clear spacing = 10.21 in

	Top	Bottom	Left	Right
Bars	24 #11	24 #11	0 #11	0 #11
Cover(in)	3	3	3	3

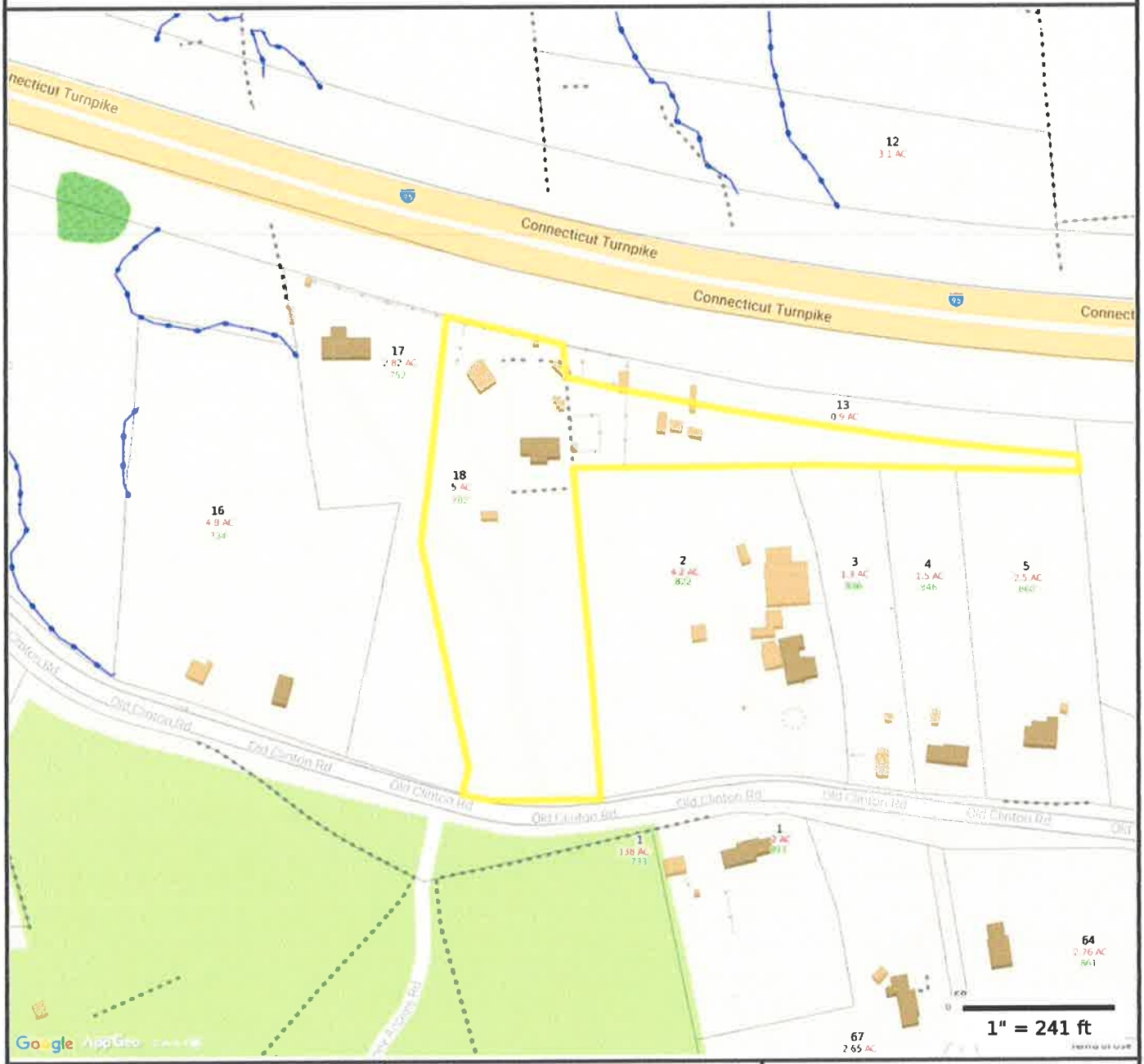
Factored Loads and Moments with Corresponding Capacities:
==========

No.	Pu kip	Mux k-ft	PhiMnx k-ft	PhiMn/Mu	NA depth in	Dt depth in	eps_t	Phi
1	0.00	4744.42	6221.54	1.311	3.62	37.67	0.02823	0.900

*** End of output ***

Used for Pad
Bending Analysis

ATTACHMENT 4



Property Information

Property ID	169/018
Location	782 OLD CLINTON RD
Owner	WADE CATHERINE A

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

Town of Westbrook, CT makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Parcels updated July 2016
Properties updated 02/09/2017

782 OLD CLINTON RD

Location	782 OLD CLINTON RD	**Mblu**	169/ / 018/ /
Acct#	E0110900	**Owner**	WADE CATHERINE A
Assessment	$469,430	**Appraisal**	$671,630
PID	1175	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$556,890	$114,740	$671,630
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$395,120	$74,310	$469,430

Owner of Record

Owner	WADE CATHERINE A
Co-Owner	
Address	782 OLD CLINTON RD WESTBROOK, CT 06498

Sale Price	$0
Certificate	
Book & Page	162/ 83
Sale Date	11/10/1993
Instrument	25

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
WADE CATHERINE A	$0		162/ 83	25	11/10/1993

Building Information

Building 1 : Section 1

Year Built:	1946
Living Area:	3,142
Replacement Cost:	$281,163
Building Percent Good:	58
Replacement Cost Less Depreciation:	$163,070

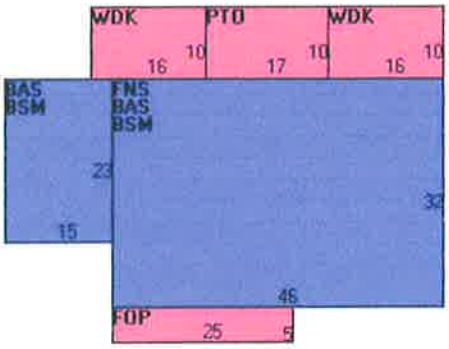
Building Attributes

Style	Colonial
Model	Residential
Grade:	C+
Stories	1.9
Occupancy	1
Exterior Wall 1	Vinyl Siding
Exterior Wall 2	
Roof Structure	Gambrel
Roof Cover	Asphalt
Interior Wall 1	Drywall
Interior Wall 2	
Interior Flr 1	Hardwood
Interior Flr 2	
Heat Fuel	Oil
Heat Type:	Hot Water
AC Type:	None
Total Bedrooms:	7
Full Bthrms:	3
Half Baths:	0
Extra Fixtures	3
Total Rooms:	10
Bath Style:	Modern
Kitchen Style:	Average
Extra Kitchens	0
Fireplace(s)	1
Gas Fireplace(s)	0
Stacks	1
Bsmt Garage(s)	0
Callback	
Fin Bsmnt	0
Bsmt Heat	
Int Vs Ext	Same

Building Photo

(http://images.vgsi.com/photos2/WestbrookCTPhotos//\00\00\!

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	1,817	1,817
FNS	Finished 90% Story	1,472	1,325
BSM	Basement	1,817	0
FOP	Open Porch	125	0
PTO	Patio	170	0
WDK	Deck	320	0
		5,721	3,142

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land Use

Use Code	101
Description	Res Dwelling
Zone	RR
Neighborhood	0045
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	5
Depth	
Assessed Value	$74,310
Appraised Value	$114,740

Special Land			
Land Use Code	**Land Use Description**	**Units**	**Unit Type**
712	490 Tillable C	2	AC

Outbuildings

Outbuildings							Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**	**Comment**
FGR1	Garage			868 S.F.	$10,850	1	2CGAR
TCB	Telecomm Bldg			216 UNITS	$59,400	1	TELCOMM BLDG
TCS	Telecomm Site			700 UNITS	$269,500	1	TELCOMM SITE
SPL1	Inground Pool - Typical			512 S.F.	$4,610	1	IG POOL
SHD1	Shed			180 S.F.	$1,800	1	SHED 2
BRN1	1 Story Barn			360 S.F.	$5,400	1	
STB	Stable			310 S.F.	$6,980	1	
LNT	Lean To			264 S.F.	$660	1	
SHD1	Shed			140 S.F.	$1,400	1	
GAZ	Gazebo			77 S.F.	$770	1	
TCM	Telecomm			100 S.F.&HGT	$2,450	1	SPRINT
TCM	Telecomm			1 S.F.&HGT	$10,000	1	VERIZEN
TCM	Telecomm			3 S.F.&HGT	$10,000	1	3 NEW ANTENNAS & 1 FIBRE CAB
TCM	Telecomm			1 S.F.&HGT	$10,000	1	ADD 3 ANT;3 RADIOHEADS;CABLE

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$556,890	$114,740	$671,630
2015	$662,200	$112,010	$774,210
2014	$657,580	$112,010	$769,590

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$395,120	$74,310	$469,430
2015	$463,550	$72,490	$536,040
2014	$460,310	$72,490	$532,800