Filed by:
Kri Pelletier, Property Specialist - SBA Communications
134 Flanders Rd., Suite 125, Westborough, MA 01581
508.251.0720 x 3804 - kpelletier@sbasite.com

February 22, 2016

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

Notice of Exempt Modification
1 Hartford Square, New Britain, CT 06052
41.6663919 N
-72.8127989 W
AT&T #: 10071149_LTE

Dear Ms. Bachman:

AT&T currently maintains nine (9) antennas at the 162-foot level of the existing 176-foot Self-Support Tower at 1 Hartford Square. The tower is owned by SBA Towers. The property is owned by Hartford Square Associates. AT&T now intends to replace (3) existing antennas at the 162' level of the tower. AT&T also intends to:

Remove:

- None

Remove and Replace:

- Remove (3) Kathrein 800 10121 Panel Antennas and replace with (3) Quintel Technology QS6651 Panel Antnenas
- Remove (3) Ericsson RRUS-11 Remote Radio Unit and replace with (3) Ericsson RRU A2 Remote Radio Unit

Install:

- (3) Ericsson RRUS-32 Remote Radio Unit
- (1) 1/2" Fiber Cable
- (2) 3/4" DC Power Cables
- (1) DUS installed in existing equipment rack inside existing equipment shelter

Existing Equipment to Remain (Entitlements):

- (3) Kathrein 800 10121 Panel Antennas
- (3) KMW AM-X-CD Panel Antennas
- (3) KMW AM-X-CD Panel Antennas (Reserved Entitlement)

- (6) Powerwave LPG21401 Tower Mounted Amplifiers
- (6) Powerwave LPG13519 Tower Mounted Amplifiers
- (3) Ericsson RRUS-11 Remote Radio Unit
- (1) Raycap DC6 Surge Suppressor
- (12) 1-5/8" Coax Lines
- (1) 1/2" Fiber Cable
- (2) 3/4" DC Power Cable
- (1) 3" Flex Conduit
- (1) Equipment shelter with existing equipment installed inside

This facility was approved by the Department of Municipal Development for the City of New Britain on 7/17/00. Associated construction drawings state tenants are to have a maximum of four panel antennas per sector. This modification complies with the aforementioned condition.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §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 the Honorable Erin Stewart, Mayor of the City of New Britain, , as well as the property owner. (Separate notice is not being sent to tower owner, as it belongs to SBA.)

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.
2. The proposed modification 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 emissions at the facility to a level at or above the Federal Communications Commission safety standard.
5. The proposed modification will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, AT&T respectfully submits that the proposed modifications to the above-referenced telecommunication facility constitute an exempt modifications under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Kri Pelletier
Property Specialist
SBA COMMUNICATIONS CORPORATION
134 Flanders Rd., Suite 125
Westborough, MA 01581

508.251.0720 x3804 + T
508.366.2610 + F
203.446.7700 + C
kpelletier@sbasite.com

Attachments

cc: The Honorable Erin Stewart, Mayor of the City of New Britain–as elected official
City Hall Room 204, 27 West Main St., New Britain, CT 06051
Hartford Square Associates, LLC– as property owner
1 Hartford Square Door #19, New Britain, CT 06052

POWER DENSITY

AT&T Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Kathrein 800-10121	Make / Model:	Kathrein 800-10121	Make / Model:	Kathrein 800-10121
Gain:	11.45 / 14.35 dBd	Gain:	11.45 / 14.35 dBd	Gain:	11.45 / 14.35 dBd
Height (AGL):	1620 feet	Height (AGL):	1620 feet	Height (AGL):	1620 feet
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	120	Total TX Power(W):	120	Total TX Power(W):	120
ERP (W):	2,471.44	ERP (W):	2,471.44	ERP (W):	2,471.44
Antenna A1 MPE%	**0.46**	Antenna B1 MPE%	**0.46**	Antenna C1 MPE%	**0.46**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	KMD AM-X-CD-16-65-00T-RET	Make / Model:	KMD AM-X-CD-16-65-00T-RET	Make / Model:	KMD AM-X-CD-16-65-00T-RET
Gain:	15.25 dBd	Gain:	15.25 dBd	Gain:	15.25 dBd
Height (AGL):	162 feet	Height (AGL):	162 feet	Height (AGL):	162 feet
Frequency Bands	1900 MHz (PCS)	Frequency Bands	1900 MHz (PCS)	Frequency Bands	1900 MHz (PCS)
Channel Count	1	Channel Count	1	Channel Count	1
Total TX Power(W):	120	Total TX Power(W):	120	Total TX Power(W):	120
ERP (W):	4,019.59	ERP (W):	4,019.59	ERP (W):	4,019.59
Antenna A2 MPE%	**0.59**	Antenna B2 MPE%	**0.59**	Antenna C2 MPE%	**0.59**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Commscope SBNHH-1D65A	Make / Model:	Commscope SBNHH-1D65A	Make / Model:	Commscope SBNHH-1D65A
Gain:	10.85 / 14.85 dBd	Gain:	10.85 / 14.85 dBd	Gain:	10.85 / 14.85 dBd
Height (AGL):	162 feet	Height (AGL):	162 feet	Height (AGL):	162 feet
Frequency Bands	700 MHz / 1900 MHz (PCS)	Frequency Bands	700 MHz / 1900 MHz (PCS)	Frequency Bands	700 MHz / 1900 MHz (PCS)
Channel Count	2	Channel Count	2	Channel Count	2
Total TX Power(W):	240	Total TX Power(W):	240	Total TX Power(W):	240
ERP (W):	6,958.29	ERP (W):	6,958.29	ERP (W):	6,958.29
Antenna A3 MPE%	**1.00**	Antenna B3 MPE%	**1.00**	Antenna C3 MPE%	**1.00**

Site Composite MPE%	
Carrier	MPE%
AT&T – Max per sector	**2.06 %**
Nextel	0.21 %
Clearwire	0.07 %
T-Mobile	1.89 %
MetroPCS	0.79 %
Verizon Wireless	2.90 %
Site Total MPE %:	**7.92 %**

AT&T Sector 1 Total:	2.06 %
AT&T Sector 2 Total:	2.06 %
AT&T Sector 3 Total:	2.06 %
Site Total:	7.92 %

AT&T _ Max Per Sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
AT&T 850 MHz UMTS	2	418.91	162	1.24	850	567	0.22 %
AT&T 1900 MHz (PCS) UMTS	2	816.81	162	2.41	1900	1000	0.24 %
AT&T 2300 MHz (WPCS) LTE	2	2009.79	162	5.94	2300	1000	0.59 %
AT&T 700 MHz LTE	2	3,292.38	162	2.16	700	467	0.46 %
AT&T 1900 MHz (PCS) LTE	2	1,832.95	162	5.42	1900	1000	0.54 %
						Total:	1.79 %

EBI Consulting
environmental | engineering | due diligence

RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

AT&T Existing Facility

Site ID: CT5254

New Britain West
1 Hartford Square
New Britain, CT 6052

February 22, 2016

EBI Project Number: 6216000632

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	7.92 %

21 B Street · Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

EBI Consulting
environmental | engineering | due diligence

February 22, 2016

AT&T Mobility – New England
Attn: Cameron Syme, RF Manager
550 Cochituate Road
Suite 550 – 13&14
Framingham, MA 06040

Emissions Analysis for Site: **CT5254 – New Britain West**

EBI Consulting was directed to analyze the proposed AT&T facility located at **1 Hartford Square, New Britain, CT**, for the purpose of determining whether the emissions from the Proposed AT&T Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 700 and 850 MHz Bands are approximately 467 $\mu W/cm^2$ and 567 $\mu W/cm^2$ respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 2300 MHz (WCS) bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed AT&T Wireless antenna facility located at **1 Hartford Square, New Britain, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6 foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

1) 2 UMTS channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 2 UMTS channels (PCS Band – 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

3) 2 LTE channels (WCS Band – 2300 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

4) 2 LTE channels (700 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

5) 2 LTE channels (PCS Band – 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

6) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

7) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

8) The antennas used in this modeling are the **Kathrein 800-10121, KMW AM-X-CD-16-65-00T-RET and the Commscope SBNHH-1D65A** for transmission in the 700 MHz, 850 MHz, 1900 MHz (PCS) and 2300 MHz (WCS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

9) The antenna mounting height centerline of the proposed antennas is **162 feet** above ground level (AGL).

10) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

All calculations were done with respect to uncontrolled / general public threshold limits.

EBI Consulting
environmental | engineering | due diligence

AT&T Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	Kathrein 800-10121	Make / Model:	Kathrein 800-10121	Make / Model:	Kathrein 800-10121
Gain:	11.45 / 14.35 dBd	Gain:	11.45 / 14.35 dBd	Gain:	11.45 / 14.35 dBd
Height (AGL):	1620 feet	Height (AGL):	1620 feet	Height (AGL):	1620 feet
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	120	Total TX Power(W):	120	Total TX Power(W):	120
ERP (W):	2,471.44	ERP (W):	2,471.44	ERP (W):	2,471.44
Antenna A1 MPE%	**0.46**	Antenna B1 MPE%	**0.46**	Antenna C1 MPE%	**0.46**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	KMD AM-X-CD-16-65-00T-RET	Make / Model:	KMD AM-X-CD-16-65-00T-RET	Make / Model:	KMD AM-X-CD-16-65-00T-RET
Gain:	15.25 dBd	Gain:	15.25 dBd	Gain:	15.25 dBd
Height (AGL):	162 feet	Height (AGL):	162 feet	Height (AGL):	162 feet
Frequency Bands	1900 MHz (PCS)	Frequency Bands	1900 MHz (PCS)	Frequency Bands	1900 MHz (PCS)
Channel Count	1	Channel Count	1	Channel Count	1
Total TX Power(W):	120	Total TX Power(W):	120	Total TX Power(W):	120
ERP (W):	4,019.59	ERP (W):	4,019.59	ERP (W):	4,019.59
Antenna A2 MPE%	**0.59**	Antenna B2 MPE%	**0.59**	Antenna C2 MPE%	**0.59**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Commscope SBNHH-1D65A	Make / Model:	Commscope SBNHH-1D65A	Make / Model:	Commscope SBNHH-1D65A
Gain:	10.85 / 14.85 dBd	Gain:	10.85 / 14.85 dBd	Gain:	10.85 / 14.85 dBd
Height (AGL):	162 feet	Height (AGL):	162 feet	Height (AGL):	162 feet
Frequency Bands	700 MHz / 1900 MHz (PCS)	Frequency Bands	700 MHz / 1900 MHz (PCS)	Frequency Bands	700 MHz / 1900 MHz (PCS)
Channel Count	2	Channel Count	2	Channel Count	2
Total TX Power(W):	240	Total TX Power(W):	240	Total TX Power(W):	240
ERP (W):	6,958.29	ERP (W):	6,958.29	ERP (W):	6,958.29
Antenna A3 MPE%	**1.00**	Antenna B3 MPE%	**1.00**	Antenna C3 MPE%	**1.00**

Site Composite MPE%	
Carrier	**MPE%**
AT&T – Max per sector	**2.06 %**
Nextel	0.21 %
Clearwire	0.07 %
T-Mobile	1.89 %
MetroPCS	0.79 %
Verizon Wireless	2.90 %
Site Total MPE %:	**7.92 %**

AT&T Sector 1 Total:	2.06 %
AT&T Sector 2 Total:	2.06 %
AT&T Sector 3 Total:	2.06 %
Site Total:	7.92 %

AT&T _ Max Per Sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
AT&T 850 MHz UMTS	2	418.91	162	1.24	850	567	0.22 %
AT&T 1900 MHz (PCS) UMTS	2	816.81	162	2.41	1900	1000	0.24 %
AT&T 2300 MHz (WPCS) LTE	2	2009.79	162	5.94	2300	1000	0.59 %
AT&T 700 MHz LTE	2	3,292.38	162	2.16	700	467	0.46 %
AT&T 1900 MHz (PCS) LTE	2	1,832.95	162	5.42	1900	1000	0.54 %
						Total:	1.79 %

EBI Consulting
environmental | engineering | due diligence

Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general public exposure to RF Emissions.

The anticipated maximum composite contributions from the AT&T facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general public exposure to RF Emissions are shown here:

AT&T Sector	Power Density Value (%)
Sector 1:	2.06 %
Sector 2:	2.06 %
Sector 3 :	2.06 %
AT&T Maximum Total (per sector):	2.06 %
Site Total:	7.92 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **7.92%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.

Scott Heffernan
RF Engineering Director

EBI Consulting
21 B Street
Burlington, MA 01803

FDH VELOCITEL
ENGINEERING INNOVATION

Structural Analysis for
SBA Network Services, Inc.

176.0' Self-Support Tower (176.0' AGL)

SBA Site Name: New Britain 2, CT
SBA Site ID: CT04382-S-02
AT&T Site ID: 15210 / FA# 10071149
Site Address: 1 Hartford Square, New Britain, CT 06052-1161

FDH Velocitel Project Number 16BBAF1400

Analysis Results

Tower Components	93.8%	Sufficient
Foundation	73.5%	Sufficient

Prepared By:

Mark S. Girgis, EI
Project Engineer II

Reviewed By:

Dennis D. Abel, PE
Director of Structural Engineering
CT License No. 23247

Velocitel, Inc., d.b.a. FDH Velocitel
6521 Meridien Drive
Raleigh, NC, 27616
(919) 755-1012

STATE OF CONNECTICUT
DENNIS D. ABEL
No. 23247
LICENSED
PROFESSIONAL ENGINEER

January 21, 2016

01-21-2016

Prepared pursuant to the TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures and 2005 Connecticut Building Code

TABLE OF CONTENTS

EXECUTIVE SUMMARY

At the request of SBA Network Services, Inc., FDH Velocitel performed a structural analysis of the existing Self-Support Tower located in New Britain, CT to determine whether the tower is structurally adequate to support the antenna configuration in place per **Table 1** pursuant to the *TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures and 2005 Connecticut Building Code*. Information pertaining to the antenna loading, current tower geometry, member sizes, and below grade parameters was obtained from:

Source	Document Type	Reference	Date
Rohn Industries, Inc.	Tower Drawings	Eng. File No 44545AE	August 18, 2000
Rohn Industries, Inc.	Foundation Drawings	Eng. File No 44545AE	July 26, 2000
SBA Network Services, Inc.	-	-	-

The *basic design wind speed* per *TIA/EIA-222-F* standards and the *2005 Connecticut Building Code* is 80 mph without ice and 38 mph with 1" radial ice. Ice is considered to increase in thickness with height.

Conclusions

With the antenna configuration in place per **Table 1** we have determined the tower stress level to be sufficient and the foundation to be sufficient pursuant to the requirements stipulated by *TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures* and the *2005 Connecticut Building Code* provided the **Recommendations** listed below are satisfied. For a more detailed description of the analysis of the tower, see the **Results** section of this report.

Our structural analysis has been performed assuming all information provided to FDH Velocitel is accurate (i.e., the structure member information, tower layout, existing antenna loading, and proposed antenna loading) and that the tower has been properly erected and maintained per the original design drawings.

Recommendations

To ensure the requirements of the current analysis standards are met with the antenna configuration in place per **Table 1**, we have the following recommendations:

1. Feed lines to be installed as shown in **Figure 1** in the Appendix.
2. RRU/RRH Stipulation: The equipment may be installed in any arrangement as determined by the client.

APPURTENANCE LISTING

The antennas and equipment, with their corresponding feed lines, considered for this analysis are shown in **Table 1**. *If the actual layout determined in the field deviates from the layout, FDH Velocitel should be contacted to perform a revised analysis.*

Table 1 - Appurtenance Loading

Existing Loading:

Antenna Elevation (ft.)	Description	Feed Lines[1]	Carrier	Mount Elevation (ft.)	Mount Type
172	(3) Kathrein 840-10054 (4) Andrew VHLP2.5 (3) Samsung U-RAS Flexible RRH (3) Dragonwave Horizon Duo	(6) 5/16" Fiber	Clearwire	172	(3) T-Frames
162	(6) KMW AM-X-CD-16-65-00T (6) Powerwave 7770 (6) Powerwave LGP21401 (6) Powerwave LGP13519 (6) Ericsson RRUS-11 (1) Raycap DC6-48-60-18-8F	(12) 1-5/8" (1) 1/2" Fiber (2) 3/4" DC Power (1) 3" Flex Conduit	AT&T	162	(3) T-Frames
152	(3) Commscope LNX-6515DS-A1M (3) Ericsson S11B12 (3) Ericsson AIR 21 B2A/B4P (3) Ericsson AIR 21 B4A/B2P (3) Ericsson KRY 112 144/1	(12) 1-5/8" (1) 1-5/8" Fiber	T-Mobile	152	(3) T-Frames
140	(6) Andrew SBNHH-1D65B (3) Kathrein 800 10735v01 (3) Antel BXA-80080/4CF (3) Alcatel Lucent RRH-2x60-AWS (3) Alcatel Lucent RRH-2x60-PCS (3) Alcatel Lucent RRH-2X60W-700U (1) RFS DB-T1-6Z-8AB-0Z	(12) 1-5/8" (2) 1-5/8" Hybrid	Verizon	140	(3) T-Frames
130	(3) Kathrein 742 213	(6) 1-5/8"	Metro PCS	130	(3) Pipe Mounts

1. The (1) 1/2" Fiber cable and (2) 3/4" DC Power cable for AT&T are installed in (1) 3" flex conduit.

Proposed Carrier Final Loading:

Antenna Elevation (ft.)	Description	Feed Lines[1]	Carrier	Mount Elevation (ft.)	Mount Type
162	(3) Kathrein 800 10121 (3) Quintel Technology QS6651-3 (6) KMW AM-X-CD-16-65-00T (3) Ericsson RRUS-32 (3) Ericsson RRU A2 (3) Ericsson RRUS-11 (6) Powerwave LGP21401 (6) Powerwave LGP13519 (2) Raycap DC6-48-60-18-8F	(12) 1-5/8" (2) 1/2" Fiber (4) 3/4" DC Power (1) 3" Flex Conduit	AT&T	162	(3) T-Frames

1. The (2) 1/2" Fiber cable and (4) 3/4" DC Power cable for AT&T will be installed in (1) 3" flex conduit.

RESULTS

The following material grades for individual members were used for analysis:

Table 2 - Material Grade

Member Type	Material Grade
Legs	A572-50
Bracing	A572-50 & A36
Anchor Rods	A354-BC

Table 3 and **Table 4** display the summary of capacities for the analyzed structure and its additional components. Values greater than 100% indicate locations where the maximum force in the member exceeds its capacity. **Table 5** displays the maximum dish rotations at service winds speeds.

If the assumptions outlined in this report differ from actual field conditions, FDH Velocitel should be contacted to perform a revised analysis. Furthermore, as no information pertaining to the allowable twist and sway requirements for the appurtenances was provided, deflection and rotation were not taken into consideration when performing this analysis.

See the **Appendix** for detailed modeling information.

Table 3 - Structure Member Capacities

Section No.	Elevation (ft.)	Component Type	Size	% Capacity	Pass / Fail
T1	176 - 160	Leg	ROHN 3 EH	9.4	Pass
T2	160 - 140	Leg	ROHN 4 EH	29.4	Pass
T3	140 - 120	Leg	ROHN 5 EH	40.3	Pass
T4	120 - 100	Leg	ROHN 6 EHS	51.4	Pass
T5	100 - 80	Leg	ROHN 6 EH	51.4	Pass
T6	80 - 60	Leg	ROHN 6 EH	60.7	Pass
T7	60 - 40	Leg	ROHN 8 EHS	59.8	Pass
T8	40 - 20	Leg	ROHN 8 X-STR	52.2 52.8 (b)	Pass
T9	20 - 0	Leg	ROHN 8 EH	57.7	Pass
T1	176 - 160	Diagonal	L2x2x1/4	14.6 29.3 (b)	Pass
T2	160 - 140	Diagonal	L2x2x3/16	38.5 68.7 (b)	Pass
T3	140 - 120	Diagonal	L2x2x3/16	79.0 93.8 (b)	Pass
T4	120 - 100	Diagonal	L2 1/2x2 1/2x3/16	68.0 87.9 (b)	Pass
T5	100 - 80	Diagonal	L2 1/2x2 1/2x3/16	89.0	Pass
T6	80 - 60	Diagonal	L3x3x1/4	51.7	Pass
T7	60 - 40	Diagonal	L3 1/2x3 1/2x1/4	54.5 57.1 (b)	Pass
T8	40 - 20	Diagonal	L3 1/2x3 1/2x1/4	67.6	Pass
T9	20 - 0	Diagonal	L4x4x1/4	57.5 63.4 (b)	Pass
T1	176 - 160	Top Girt	L2x2x1/4	2.6 3.4 (b)	Pass

1. Capacities include 1/3 allowable stress increase for wind, per *TIA/EIA-222-F* standards.

Table 4 - Additional Structure Component Capacities

Elevation (ft.)	Component	% Capacity	Pass / Fail	Notes
0	Anchor Rods	65.9	Pass	1
0	Base Foundation (Reaction Comparison)	73.5	Pass	-

1. Capacities include 1/3 allowable stress increase for wind, per *TIA/EIA-222-F* standards.

Table 5 - Maximum Dish Rotations at Service Wind Speeds

Centerline Elevation (ft.)	Dish	Tilt (deg)*	Twist (deg)*
172	(4) Andrew VHLP2.5 Dish	0.2542	0.0346

*Allowable tilt and twist to be reviewed by the carrier.

GENERAL COMMENTS

This engineering analysis is based upon the theoretical capacity of the structure. It is not a condition assessment of the tower and its foundation. It is the responsibility of SBA Network Services, Inc. to verify that the tower modeled and analyzed is the correct structure (with accurate antenna loading information) modeled. If there are substantial modifications to be made or the assumptions made in this analysis are not accurate, FDH Velocitel should be notified immediately to perform a revised analysis.

LIMITATIONS

All opinions and conclusions are considered accurate to a reasonable degree of engineering certainty based upon the evidence available at the time of this report. All opinions and conclusions are subject to revision based upon receipt of new or additional/updated information. All services are provided exercising a level of care and diligence equivalent to the standard and care of our profession. No other warranty or guarantee, expressed or implied, is offered. Our services are confidential in nature and we will not release this report to any other party without the client's consent. The use of this engineering work is limited to the express purpose for which it was commissioned and it may not be reused, copied, or distributed for any other purpose without the written consent of FDH Velocitel.

APPENDIX

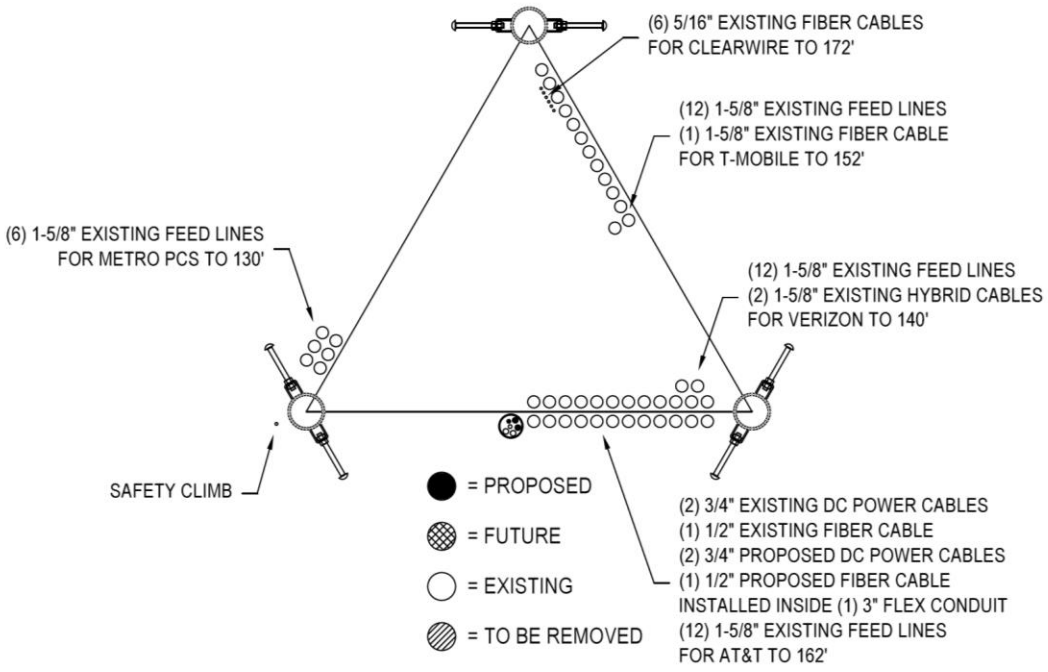
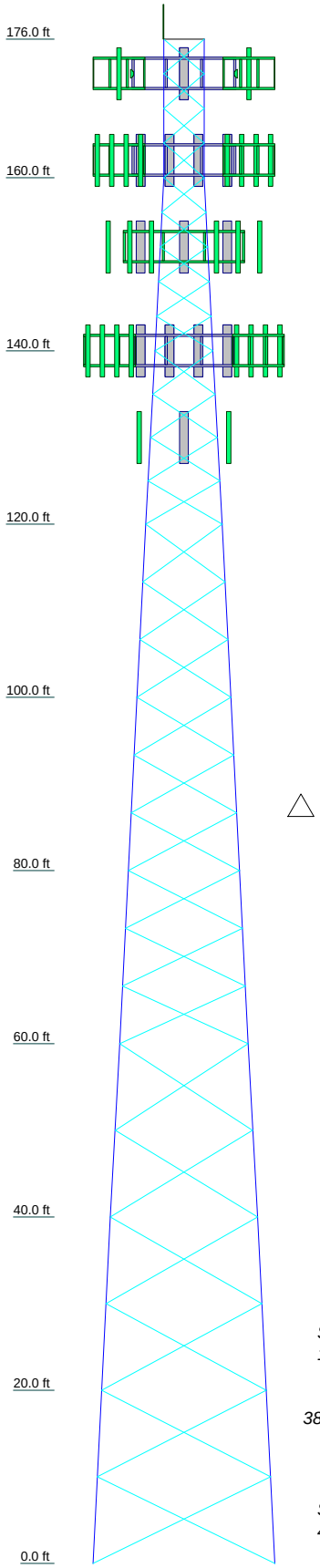


Figure 1 - Feed Line Layout

Section	T1	T2	T3	T4	T5	T6	T7	T8	T9	
Legs	ROHN 3 EH	ROHN 4 EH	ROHN 5 EH	ROHN 6 EHS	ROHN 6 EH		ROHN 8 EHS	ROHN 8 X-STR	ROHN 8 EH	
Leg Grade	A572-50									
Diagonals	L2x2x1/4	L2x2x3/16		L2 1/2x2 1/2x3/16		L3x3x1/4	L3 1/2x3 1/2x1/4		L4x4x1/4	
Diagonal Grade	A36						A572-50			
Top Girts	L2x2x1/4	N.A.								
Face Width (ft)	4.6875	6.72656		8.76563	10.8047	12.8438	14.8828	16.9219	18.9609	21
# Panels @ (ft)	9 @ 4	4 @ 5		9 @ 6.66667				6 @ 10		
Weight (K)	1.0	1.4	1.8	2.0	2.5	3.1	3.3	4.0	4.4	23.5



MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 93.8%

MAX. CORNER REACTIONS AT BASE:
DOWN: 257 K
SHEAR: 26 K

UPLIFT: -218 K
SHEAR: 22 K

AXIAL
106 K
SHEAR 15 K *MOMENT 1663 kip-ft*

TORQUE 6 kip-ft
38 mph WIND - 1.0000 in ICE

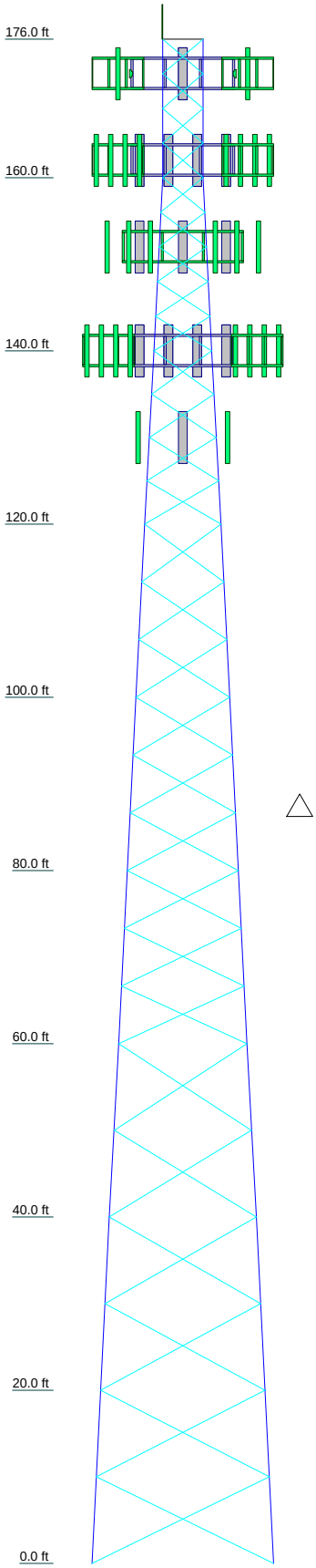
AXIAL
48 K
SHEAR 41 K *MOMENT 4384 kip-ft*

TORQUE 20 kip-ft
REACTIONS - 80 mph WIND

FDH VELOCITEL ENGINEERING INNOVATION
FDH Velocitel
6521 Meridien Drive
Raleigh, NC 27616
Phone: (919) 755-1012
FAX: (919) 755-1031

Job: ***New Britain 2, CT04382-S-02***			
Project: ***16BBAF1400***			
Client: SBA Network Services, Inc.	Drawn by: Mark S. Girgis	App'd:	
Code: TIA/EIA-222-F	Date: 01/21/16	Scale: NTS	
Path:		Dwg No. E-1	

Section	T1	T2	T3	T4	T5	T6	T7	T8	T9										
Legs	ROHN 3 EH	ROHN 4 EH	ROHN 5 EH	ROHN 6 EHS	ROHN 6 EH		ROHN 8 EHS	ROHN 8 X-STR	ROHN 8 EH										
Leg Grade	A572-50																		
Diagonals	L2x2x1/4	L2x2x3/16	L2 1/2x2 1/2x3/16			L3x3x1/4	L3 1/2x3 1/2x1/4		L4x4x1/4										
Diagonal Grade	A36						A572-50												
Top Girts	L2x2x1/4	N.A.																	
Face Width (ft)	21	4.6875	6.72656	8.76563	10.8047	12.8438	14.8828	16.9219	18.9609										
# Panels @ (ft)	9 @ 4		4 @ 5	9 @ 6.66667			6 @ 10												
Weight (K)	23.5	1.0	1.4	1.8	2.0	2.5	3.1	3.3	4.0	4.4									



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod	176	(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe	162
840-10054 w/ Mount Pipe	172	AIR 21 B2A/B4P w/ Mount Pipe	152
840-10054 w/ Mount Pipe	172	AIR 21 B2A/B4P w/ Mount Pipe	152
840-10054 w/ Mount Pipe	172	AIR 21 B2A/B4P w/ Mount Pipe	152
URAS-FLEXIBLE	172	AIR 21 B4A/B2P w/ Mount Pipe	152
URAS-FLEXIBLE	172	AIR 21 B4A/B2P w/ Mount Pipe	152
URAS-FLEXIBLE	172	AIR 21 B4A/B2P w/ Mount Pipe	152
Horizon Duo	172	S11B12	152
Horizon Duo	172	S11B12	152
Horizon Duo	172	S11B12	152
(3) Empty Pipe Mount	172	KRY 112 144/1	152
(3) Empty Pipe Mount	172	KRY 112 144/1	152
(3) Empty Pipe Mount	172	KRY 112 144/1	152
(3) T-Frames	172	Empty Pipe Mount	152
(2) VHLP2.5 Dish	172	Empty Pipe Mount	152
VHLP2.5 Dish	172	Empty Pipe Mount	152
VHLP2.5 Dish	172	(3) T-Frames	152
800 10121 w/ Mount Pipe	162	LNX-6515DS-A1M w/ Mount Pipe	152
800 10121 w/ Mount Pipe	162	LNX-6515DS-A1M w/ Mount Pipe	152
800 10121 w/ Mount Pipe	162	LNX-6515DS-A1M w/ Mount Pipe	152
QS6651-3 w/ Mount Pipe	162	800 10735v01 w/ Mount Pipe	140
QS6651-3 w/ Mount Pipe	162	800 10735v01 w/ Mount Pipe	140
QS6651-3 w/ Mount Pipe	162	800 10735v01 w/ Mount Pipe	140
(2) LGP21401	162	BXA-80080/4CF w/ Mount Pipe	140
(2) LGP21401	162	BXA-80080/4CF w/ Mount Pipe	140
(2) LGP21401	162	BXA-80080/4CF w/ Mount Pipe	140
(2) LGP13519	162	RRH-2x60-AWS	140
(2) LGP13519	162	RRH-2x60-AWS	140
(2) LGP13519	162	RRH-2x60-AWS	140
RRUS-11	162	RRH-2x60-PCS	140
RRUS-11	162	RRH-2x60-PCS	140
RRUS-11	162	RRH-2x60-PCS	140
RRUS-32	162	RRH 2x60-700	140
RRUS-32	162	RRH 2x60-700	140
RRUS-32	162	RRH 2x60-700	140
RRU A2	162	DB-T1-6Z-8AB-0Z	140
RRU A2	162	(3) T-Frames	140
RRU A2	162	(2) SBNHH-1D65B w/ Mount Pipe	140
DC6-48-60-18-8F	162	(2) SBNHH-1D65B w/ Mount Pipe	140
DC6-48-60-18-8F	162	(2) SBNHH-1D65B w/ Mount Pipe	140
(3) T-Frames	162	(3) Pipe Mounts	130
(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe	162	742 213 w/ Mount Pipe	130
(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe	162	742 213 w/ Mount Pipe	130
		742 213 w/ Mount Pipe	130

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.

FDH VELOCITEL ENGINEERING INNOVATION

FDH Velocitel
6521 Meridien Drive
Raleigh, NC 27616
Phone: (919) 755-1012
FAX: (919) 755-1031

Job:	***New Britain 2, CT04382-S-02***		
Project:	***16BBAF1400***		
Client: SBA Network Services, Inc.	Drawn by: Mark S. Girgis		App'd:
Code: TIA/EIA-222-F	Date: 01/21/16		Scale: NTS
Path:			Dwg No. E-1

FDH Velocitel
6521 Meridien Drive
Raleigh, NC 27616
Phone: (919) 755-1012
FAX: (919) 755-1031

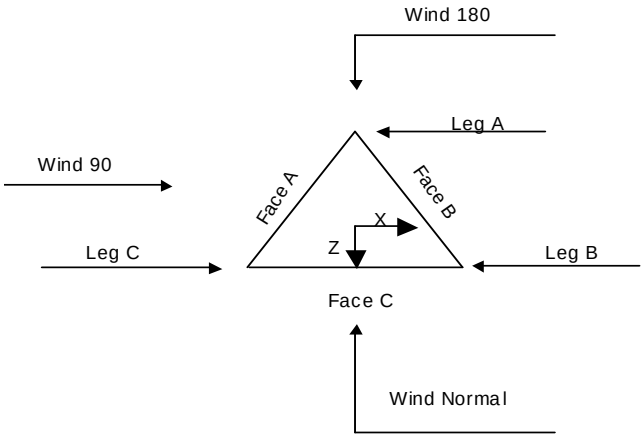
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 176.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 4.69 ft at the top and 21.00 ft at the base.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

Tower is located in Hartford County, Connecticut.
Basic wind speed of 80 mph.
Nominal ice thickness of 1.0000 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 38 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 50 mph.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.333.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	176.00-160.00			4.69	1	16.00
T2	160.00-140.00			4.69	1	20.00
T3	140.00-120.00			6.73	1	20.00
T4	120.00-100.00			8.77	1	20.00
T5	100.00-80.00			10.80	1	20.00
T6	80.00-60.00			12.84	1	20.00
T7	60.00-40.00			14.88	1	20.00
T8	40.00-20.00			16.92	1	20.00
T9	20.00-0.00			18.96	1	20.00

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	176.00-160.00	4.00	X Brace	No	No	0.0000	0.0000
T2	160.00-140.00	4.00	X Brace	No	No	0.0000	0.0000
T3	140.00-120.00	5.00	X Brace	No	No	0.0000	0.0000
T4	120.00-100.00	6.67	X Brace	No	No	0.0000	0.0000
T5	100.00-80.00	6.67	X Brace	No	No	0.0000	0.0000
T6	80.00-60.00	6.67	X Brace	No	No	0.0000	0.0000

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T7	60.00-40.00	10.00	X Brace	No	No	0.0000	0.0000
T8	40.00-20.00	10.00	X Brace	No	No	0.0000	0.0000
T9	20.00-0.00	10.00	X Brace	No	No	0.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 176.00-160.00	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T2 160.00-140.00	Pipe	ROHN 4 EH	A572-50 (50 ksi)	Equal Angle	L2x2x3/16	A36 (36 ksi)
T3 140.00-120.00	Pipe	ROHN 5 EH	A572-50 (50 ksi)	Equal Angle	L2x2x3/16	A36 (36 ksi)
T4 120.00-100.00	Pipe	ROHN 6 EHS	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T5 100.00-80.00	Pipe	ROHN 6 EH	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T6 80.00-60.00	Pipe	ROHN 6 EH	A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A572-50 (50 ksi)
T7 60.00-40.00	Pipe	ROHN 8 EHS	A572-50 (50 ksi)	Equal Angle	L3 1/2x3 1/2x1/4	A572-50 (50 ksi)
T8 40.00-20.00	Pipe	ROHN 8 X-STR	A572-50 (50 ksi)	Equal Angle	L3 1/2x3 1/2x1/4	A572-50 (50 ksi)
T9 20.00-0.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Equal Angle	L4x4x1/4	A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 176.00-160.00	Equal Angle	L2x2x1/4	A36 (36 ksi)	Flat Bar		A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
T1 176.00-160.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T2 160.00-140.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
T3 140.00-120.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T4 120.00-100.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T5 100.00-80.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T6 80.00-60.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T7 60.00-40.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T8 40.00-20.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T9 20.00-0.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1 176.00-160.00	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T2 160.00-140.00	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T3 140.00-120.00	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T4 120.00-100.00	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T5 100.00-80.00	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T6 80.00-60.00	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T7 60.00-40.00	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T8 40.00-20.00	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T9 20.00-0.00	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1

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

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 176.00-160.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 160.00-140.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 140.00-120.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 120.00-100.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 100.00-80.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 80.00-60.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 60.00-40.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 40.00-20.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 20.00-0.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 176.00-160.00	Flange	0.8750 A325N	4	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T2 160.00-140.00	Flange	1.0000 A325N	4	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T3 140.00-120.00	Flange	1.0000 A325N	6	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T4 120.00-100.00	Flange	1.0000 A325N	6	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T5 100.00-80.00	Flange	1.0000 A325N	6	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T6 80.00-60.00	Flange	1.0000 A325N	8	0.7500 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T7 60.00-40.00	Flange	1.0000 A325N	8	0.7500 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T8 40.00-20.00	Flange	1.0000 A325N	8	0.7500 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T9 20.00-0.00	Flange	1.0000 A354-BC	10	0.7500 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
***												
Safety Line	C	No	Ar (Leg)	176.00 - 0.00	0.0000	0	1	1	0.3750	0.3750		0.22

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
3/8 Feedline Ladder (Af)	A	Yes	Af (CfAe)	130.00 - 0.00	0.0000	-0.45	1	1	3.0000	3.0000	12.0000	8.40
Feedline Ladder (Af)	B	Yes	Af (CfAe)	172.00 - 0.00	-2.0000	-0.4	2	1	3.0000	3.0000	12.0000	8.40
Feedline Ladder (Af) ***	C	Yes	Af (CfAe)	162.00 - 0.00	-2.0000	-0.4	2	1	3.0000	3.0000	12.0000	8.40
LDF7-50A(1-5/8")	C	Yes	Ar (CfAe)	140.00 - 0.00	-1.0000	-0.4	26	12	0.5000	1.9800		0.82
LDF7-50A(1-5/8")	C	Yes	Ar (CfAe)	162.00 - 140.00	0.0000	-0.4	12	12	0.5000	1.9800		0.82
3" Flex Conduit	C	Yes	Ar (CfAe)	162.00 - 0.00	0.0000	-0.35	1	1	3.0000	3.0000		1.15
SSAM-CBLFIBER40M(1/2")	C	Yes	Ar (CfAe)	162.00 - 0.00	0.0000	-0.35	1	1	0.0000	0.0000		0.02
MLUH 3/3(7/8")	C	Yes	Ar (CfAe)	162.00 - 0.00	0.0000	-0.35	2	2	0.0000	0.0000		1.00
SSAM-CBLFIBER40M(1/2")	C	Yes	Ar (CfAe)	162.00 - 0.00	0.0000	-0.35	1	1	0.0000	0.0000		0.02
MLUH 3/3(7/8") ***	C	Yes	Ar (CfAe)	162.00 - 0.00	0.0000	-0.35	2	2	0.0000	0.0000		1.00
1-5/8" ***	B	Yes	Ar (CfAe)	152.00 - 0.00	-1.5000	-0.4	13	12	0.5000	1.9800		0.82
1-5/8" ***	A	Yes	Ar (CfAe)	130.00 - 0.00	0.0000	-0.45	6	3	0.5000	1.9800		0.82
5/16"	B	Yes	Ar (CfAe)	172.00 - 0.00	-4.0000	-0.44	6	6	0.5000	0.3125		0.20

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	176.00-160.00	A	0.500	0.000	0.000	0.000	0.00
		B	1.875	3.000	0.000	0.000	0.22
		C	4.960	0.500	0.000	0.000	0.07
T2	160.00-140.00	A	0.625	0.000	0.000	0.000	0.00
		B	26.885	5.000	0.000	0.000	0.49
		C	45.225	5.000	0.000	0.000	0.64
T3	140.00-120.00	A	5.575	2.500	0.000	0.000	0.13
		B	42.725	5.000	0.000	0.000	0.57
		C	45.225	5.000	0.000	0.000	0.87
T4	120.00-100.00	A	10.525	5.000	0.000	0.000	0.27
		B	42.725	5.000	0.000	0.000	0.57
		C	45.225	5.000	0.000	0.000	0.87
T5	100.00-80.00	A	10.525	5.000	0.000	0.000	0.27
		B	42.725	5.000	0.000	0.000	0.57
		C	45.225	5.000	0.000	0.000	0.87
T6	80.00-60.00	A	10.525	5.000	0.000	0.000	0.27
		B	42.725	5.000	0.000	0.000	0.57
		C	45.225	5.000	0.000	0.000	0.87
T7	60.00-40.00	A	10.525	5.000	0.000	0.000	0.27
		B	42.725	5.000	0.000	0.000	0.57
		C	45.225	5.000	0.000	0.000	0.87

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
T8	40.00-20.00	A	10.525	5.000	0.000	0.000	0.27
		B	42.725	5.000	0.000	0.000	0.57
		C	45.225	5.000	0.000	0.000	0.87
T9	20.00-0.00	A	10.525	5.000	0.000	0.000	0.27
		B	42.725	5.000	0.000	0.000	0.57
		C	45.225	5.000	0.000	0.000	0.87

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	176.00-160.00	A	1.216	3.742	0.000	0.000	0.000	0.00
		B		2.744	8.683	0.000	0.000	0.48
		C		7.003	5.317	0.000	0.000	0.24
T2	160.00-140.00	A	1.199	4.622	0.000	0.000	0.000	0.00
		B		8.897	41.716	0.000	0.000	1.41
		C		36.907	53.132	0.000	0.000	2.02
T3	140.00-120.00	A	1.179	8.169	7.943	0.000	0.000	0.37
		B		11.680	59.857	0.000	0.000	1.80
		C		36.431	53.086	0.000	0.000	2.62
T4	120.00-100.00	A	1.155	11.628	15.834	0.000	0.000	0.73
		B		11.524	59.805	0.000	0.000	1.78
		C		35.885	53.034	0.000	0.000	2.59
T5	100.00-80.00	A	1.128	11.445	15.773	0.000	0.000	0.72
		B		11.340	59.744	0.000	0.000	1.75
		C		35.244	52.973	0.000	0.000	2.55
T6	80.00-60.00	A	1.094	11.221	15.699	0.000	0.000	0.70
		B		11.117	59.670	0.000	0.000	1.71
		C		34.462	52.899	0.000	0.000	2.51
T7	60.00-40.00	A	1.051	10.933	15.603	0.000	0.000	0.69
		B		10.828	59.573	0.000	0.000	1.67
		C		33.451	52.803	0.000	0.000	2.45
T8	40.00-20.00	A	1.000	10.592	15.489	0.000	0.000	0.67
		B		10.488	59.460	0.000	0.000	1.62
		C		32.258	52.689	0.000	0.000	2.38
T9	20.00-0.00	A	1.000	10.592	15.489	0.000	0.000	0.67
		B		10.488	59.460	0.000	0.000	1.62
		C		32.258	52.689	0.000	0.000	2.38

Feed Line Shielding

Section	Elevation ft	Face	A_R ft^2	A_R Ice ft^2	A_F ft^2	A_F Ice ft^2
T1	176.00-160.00	A	0.000	0.000	0.000	0.000
		B	0.000	1.785	0.585	1.468
		C	0.000	1.271	0.595	1.045
T2	160.00-140.00	A	0.000	0.000	0.000	0.000
		B	0.000	6.368	3.259	5.310
		C	0.000	10.635	5.070	8.868
T3	140.00-120.00	A	0.000	1.145	0.592	0.971
		B	0.000	6.828	3.795	5.793
		C	0.000	8.087	3.944	6.860

Section	Elevation	Face	A_R	A_R Ice	A_F	A_F Ice
	ft		ft^2	ft^2	ft^2	ft^2
T4	120.00-100.00	A	0.000	1.699	1.128	1.838
		B	0.000	5.083	3.614	5.499
		C	0.000	6.001	3.756	6.492
T5	100.00-80.00	A	0.000	1.561	1.070	1.729
		B	0.000	4.687	3.427	5.194
		C	0.000	5.513	3.561	6.109
T6	80.00-60.00	A	0.000	1.450	1.241	1.987
		B	0.000	4.374	3.973	5.995
		C	0.000	5.121	4.129	7.019
T7	60.00-40.00	A	0.000	0.976	1.027	1.625
		B	0.000	2.963	3.290	4.933
		C	0.000	3.449	3.419	5.742
T8	40.00-20.00	A	0.000	0.887	0.995	1.552
		B	0.000	2.712	3.188	4.747
		C	0.000	3.134	3.313	5.484
T9	20.00-0.00	A	0.000	0.866	1.111	1.732
		B	0.000	2.649	3.558	5.298
		C	0.000	3.061	3.698	6.122

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
T1	176.00-160.00	1.3664	-0.5505	0.0095	-0.0608
T2	160.00-140.00	8.1992	-0.4423	4.9098	0.3447
T3	140.00-120.00	7.7571	-2.9711	5.4212	-1.2489
T4	120.00-100.00	7.0212	-2.5443	5.5870	-1.1008
T5	100.00-80.00	8.3225	-3.0269	6.6514	-1.3742
T6	80.00-60.00	9.0119	-3.2853	7.3252	-1.5861
T7	60.00-40.00	9.7538	-3.5631	8.5834	-1.9566
T8	40.00-20.00	10.8540	-3.9707	9.6392	-2.3214
T9	20.00-0.00	11.3127	-4.1427	10.1324	-2.4499

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	Placement		C_AA_A Front	C_AA_A Side	Weight
			ft ft ft	°	ft		ft^2	ft^2	K
Lightning Rod	C	From Leg	0.00 0.00 2.00	0.0000	176.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.25 0.66 0.97 1.49 2.68	0.25 0.66 0.97 1.49 2.68	0.03 0.03 0.04 0.06 0.14
***									
840-10054 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice	5.58 6.03 6.50	2.69 3.25 3.83	0.06 0.10 0.14

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice	7.45	5.04	0.25
						4" Ice	9.53	7.85	0.57
840-10054 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.58 6.03 6.50 7.45 9.53	2.69 3.25 3.83 5.04 7.85	0.06 0.10 0.14 0.25 0.57
840-10054 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.58 6.03 6.50 7.45 9.53	2.69 3.25 3.83 5.04 7.85	0.06 0.10 0.14 0.25 0.57
URAS-FLEXIBLE	A	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.80 1.99 2.18 2.59 3.51	0.78 0.92 1.07 1.39 2.14	0.03 0.04 0.06 0.09 0.20
URAS-FLEXIBLE	B	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.80 1.99 2.18 2.59 3.51	0.78 0.92 1.07 1.39 2.14	0.03 0.04 0.06 0.09 0.20
URAS-FLEXIBLE	C	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.80 1.99 2.18 2.59 3.51	0.78 0.92 1.07 1.39 2.14	0.03 0.04 0.06 0.09 0.20
Horizon Duo	A	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.55 0.65 0.76 1.00 1.60	0.34 0.43 0.52 0.73 1.25	0.01 0.01 0.02 0.04 0.10
Horizon Duo	B	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.55 0.65 0.76 1.00 1.60	0.34 0.43 0.52 0.73 1.25	0.01 0.01 0.02 0.04 0.10
Horizon Duo	C	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.55 0.65 0.76 1.00 1.60	0.34 0.43 0.52 0.73 1.25	0.01 0.01 0.02 0.04 0.10
(3) Empty Pipe Mount	A	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.00 3.74 4.48 5.96 8.92	0.90 1.12 1.34 1.78 2.66	0.07 0.08 0.09 0.12 0.18
(3) Empty Pipe Mount	B	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.00 3.74 4.48 5.96 8.92	0.90 1.12 1.34 1.78 2.66	0.07 0.08 0.09 0.12 0.18
(3) Empty Pipe Mount	C	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.00 3.74 4.48 5.96 8.92	0.90 1.12 1.34 1.78 2.66	0.07 0.08 0.09 0.12 0.18

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(3) T-Frames	A	None		0.0000	172.00	No Ice	33.11	33.11	1.54
						1/2" Ice	44.90	44.90	2.16
						1" Ice	56.69	56.69	2.78
						2" Ice	80.27	80.27	4.01
						4" Ice	127.43	127.43	6.49
***									
(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	162.00	No Ice	8.50	6.30	0.07
						1/2" Ice	9.15	7.48	0.14
						1" Ice	9.77	8.37	0.21
						2" Ice	11.03	10.18	0.38
						4" Ice	13.68	14.02	0.87
(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	162.00	No Ice	8.50	6.30	0.07
						1/2" Ice	9.15	7.48	0.14
						1" Ice	9.77	8.37	0.21
						2" Ice	11.03	10.18	0.38
						4" Ice	13.68	14.02	0.87
(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	162.00	No Ice	8.50	6.30	0.07
						1/2" Ice	9.15	7.48	0.14
						1" Ice	9.77	8.37	0.21
						2" Ice	11.03	10.18	0.38
						4" Ice	13.68	14.02	0.87
800 10121 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	162.00	No Ice	5.69	4.60	0.07
						1/2" Ice	6.18	5.35	0.11
						1" Ice	6.68	6.05	0.17
						2" Ice	7.70	7.53	0.30
						4" Ice	9.86	10.83	0.68
800 10121 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	162.00	No Ice	5.69	4.60	0.07
						1/2" Ice	6.18	5.35	0.11
						1" Ice	6.68	6.05	0.17
						2" Ice	7.70	7.53	0.30
						4" Ice	9.86	10.83	0.68
800 10121 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	162.00	No Ice	5.69	4.60	0.07
						1/2" Ice	6.18	5.35	0.11
						1" Ice	6.68	6.05	0.17
						2" Ice	7.70	7.53	0.30
						4" Ice	9.86	10.83	0.68
QS6651-3 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	162.00	No Ice	8.64	8.46	0.13
						1/2" Ice	9.29	9.66	0.21
						1" Ice	9.91	10.62	0.29
						2" Ice	11.18	12.61	0.49
						4" Ice	13.83	16.81	1.02
QS6651-3 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	162.00	No Ice	8.64	8.46	0.13
						1/2" Ice	9.29	9.66	0.21
						1" Ice	9.91	10.62	0.29
						2" Ice	11.18	12.61	0.49
						4" Ice	13.83	16.81	1.02
QS6651-3 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	162.00	No Ice	8.64	8.46	0.13
						1/2" Ice	9.29	9.66	0.21
						1" Ice	9.91	10.62	0.29
						2" Ice	11.18	12.61	0.49
						4" Ice	13.83	16.81	1.02
(2) LGP21401	A	From Leg	4.00 0.00 0.00	0.0000	162.00	No Ice	1.29	0.23	0.01
						1/2" Ice	1.45	0.31	0.02
						1" Ice	1.61	0.40	0.03
						2" Ice	1.97	0.61	0.05
						4" Ice	2.79	1.12	0.14
(2) LGP21401	B	From Leg	4.00	0.0000	162.00	No Ice	1.29	0.23	0.01

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1/2" Ice	1.45	0.31	0.02
			0.00			1" Ice	1.61	0.40	0.03
						2" Ice	1.97	0.61	0.05
						4" Ice	2.79	1.12	0.14
(2) LGP21401	C	From Leg	4.00	0.0000	162.00	No Ice	1.29	0.23	0.01
			0.00			1/2" Ice	1.45	0.31	0.02
			0.00			1" Ice	1.61	0.40	0.03
						2" Ice	1.97	0.61	0.05
						4" Ice	2.79	1.12	0.14
(2) LGP13519	A	From Leg	4.00	0.0000	162.00	No Ice	0.34	0.21	0.01
			0.00			1/2" Ice	0.42	0.28	0.01
			0.00			1" Ice	0.51	0.36	0.01
						2" Ice	0.73	0.55	0.02
						4" Ice	1.25	1.03	0.07
(2) LGP13519	B	From Leg	4.00	0.0000	162.00	No Ice	0.34	0.21	0.01
			0.00			1/2" Ice	0.42	0.28	0.01
			0.00			1" Ice	0.51	0.36	0.01
						2" Ice	0.73	0.55	0.02
						4" Ice	1.25	1.03	0.07
(2) LGP13519	C	From Leg	4.00	0.0000	162.00	No Ice	0.34	0.21	0.01
			0.00			1/2" Ice	0.42	0.28	0.01
			0.00			1" Ice	0.51	0.36	0.01
						2" Ice	0.73	0.55	0.02
						4" Ice	1.25	1.03	0.07
RRUS-11	A	From Leg	4.00	0.0000	162.00	No Ice	2.94	1.25	0.06
			0.00			1/2" Ice	3.17	1.41	0.07
			0.00			1" Ice	3.41	1.59	0.10
						2" Ice	3.91	1.96	0.15
						4" Ice	5.02	2.82	0.30
RRUS-11	B	From Leg	4.00	0.0000	162.00	No Ice	2.94	1.25	0.06
			0.00			1/2" Ice	3.17	1.41	0.07
			0.00			1" Ice	3.41	1.59	0.10
						2" Ice	3.91	1.96	0.15
						4" Ice	5.02	2.82	0.30
RRUS-11	C	From Leg	4.00	0.0000	162.00	No Ice	2.94	1.25	0.06
			0.00			1/2" Ice	3.17	1.41	0.07
			0.00			1" Ice	3.41	1.59	0.10
						2" Ice	3.91	1.96	0.15
						4" Ice	5.02	2.82	0.30
RRUS-32	A	From Leg	4.00	0.0000	162.00	No Ice	3.87	2.76	0.08
			0.00			1/2" Ice	4.15	3.02	0.10
			0.00			1" Ice	4.44	3.29	0.14
						2" Ice	5.06	3.85	0.21
						4" Ice	6.38	5.08	0.41
RRUS-32	B	From Leg	4.00	0.0000	162.00	No Ice	3.87	2.76	0.08
			0.00			1/2" Ice	4.15	3.02	0.10
			0.00			1" Ice	4.44	3.29	0.14
						2" Ice	5.06	3.85	0.21
						4" Ice	6.38	5.08	0.41
RRUS-32	C	From Leg	4.00	0.0000	162.00	No Ice	3.87	2.76	0.08
			0.00			1/2" Ice	4.15	3.02	0.10
			0.00			1" Ice	4.44	3.29	0.14
						2" Ice	5.06	3.85	0.21
						4" Ice	6.38	5.08	0.41
RRU A2	A	From Leg	4.00	0.0000	162.00	No Ice	1.83	0.40	0.02
			0.00			1/2" Ice	2.01	0.51	0.02
			0.00			1" Ice	2.20	0.62	0.04

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice	2.61	0.88	0.07
						4" Ice	3.53	1.50	0.17
RRU A2	B	From Leg	4.00 0.00 0.00	0.0000	162.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.83 2.01 2.20 2.61 3.53	0.40 0.51 0.62 0.88 1.50	0.02 0.02 0.04 0.07 0.17
RRU A2	C	From Leg	4.00 0.00 0.00	0.0000	162.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.83 2.01 2.20 2.61 3.53	0.40 0.51 0.62 0.88 1.50	0.02 0.02 0.04 0.07 0.17
DC6-48-60-18-8F	A	From Leg	4.00 0.00 0.00	0.0000	162.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.57 2.80 3.04 3.54 4.66	4.32 4.60 4.88 5.49 6.80	0.03 0.06 0.10 0.18 0.40
DC6-48-60-18-8F	B	From Leg	4.00 0.00 0.00	0.0000	162.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.57 2.80 3.04 3.54 4.66	4.32 4.60 4.88 5.49 6.80	0.03 0.06 0.10 0.18 0.40
(3) T-Frames	C	None		0.0000	162.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	33.11 44.90 56.69 80.27 127.43	33.11 44.90 56.69 80.27 127.43	1.54 2.16 2.78 4.01 6.49
***									
LNX-6515DS-A1M w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	11.45 12.06 12.69 14.03 17.05	9.36 10.68 11.71 13.82 18.22	0.08 0.16 0.25 0.47 1.08
LNX-6515DS-A1M w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	11.45 12.06 12.69 14.03 17.05	9.36 10.68 11.71 13.82 18.22	0.08 0.16 0.25 0.47 1.08
LNX-6515DS-A1M w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	11.45 12.06 12.69 14.03 17.05	9.36 10.68 11.71 13.82 18.22	0.08 0.16 0.25 0.47 1.08
AIR 21 B2A/B4P w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.09 7.78 8.37 9.60 12.20	6.02 7.17 8.03 9.79 13.53	0.12 0.18 0.25 0.40 0.86
AIR 21 B2A/B4P w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.09 7.78 8.37 9.60 12.20	6.02 7.17 8.03 9.79 13.53	0.12 0.18 0.25 0.40 0.86
AIR 21 B2A/B4P w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice	7.09 7.78 8.37 9.60	6.02 7.17 8.03 9.79	0.12 0.18 0.25 0.40

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						4" Ice	12.20	13.53	0.86
AIR 21 B4A/B2P w/ Mount Pipe	A	From Leg	4.00 0.00	0.0000	152.00	No Ice	7.09	6.02	0.12
						1/2" Ice	7.78	7.17	0.18
			0.00			1" Ice	8.37	8.03	0.24
						2" Ice	9.60	9.79	0.40
						4" Ice	12.20	13.53	0.86
AIR 21 B4A/B2P w/ Mount Pipe	B	From Leg	4.00 0.00	0.0000	152.00	No Ice	7.09	6.02	0.12
						1/2" Ice	7.78	7.17	0.18
			0.00			1" Ice	8.37	8.03	0.24
						2" Ice	9.60	9.79	0.40
						4" Ice	12.20	13.53	0.86
AIR 21 B4A/B2P w/ Mount Pipe	C	From Leg	4.00 0.00	0.0000	152.00	No Ice	7.09	6.02	0.12
						1/2" Ice	7.78	7.17	0.18
			0.00			1" Ice	8.37	8.03	0.24
						2" Ice	9.60	9.79	0.40
						4" Ice	12.20	13.53	0.86
S11B12	A	From Leg	4.00 0.00	0.0000	152.00	No Ice	3.31	1.36	0.05
						1/2" Ice	3.55	1.54	0.07
			0.00			1" Ice	3.80	1.73	0.10
						2" Ice	4.33	2.13	0.15
						4" Ice	5.50	3.04	0.31
S11B12	B	From Leg	4.00 0.00	0.0000	152.00	No Ice	3.31	1.36	0.05
						1/2" Ice	3.55	1.54	0.07
			0.00			1" Ice	3.80	1.73	0.10
						2" Ice	4.33	2.13	0.15
						4" Ice	5.50	3.04	0.31
S11B12	C	From Leg	4.00 0.00	0.0000	152.00	No Ice	3.31	1.36	0.05
						1/2" Ice	3.55	1.54	0.07
			0.00			1" Ice	3.80	1.73	0.10
						2" Ice	4.33	2.13	0.15
						4" Ice	5.50	3.04	0.31
KRY 112 144/1	A	From Leg	4.00 0.00	0.0000	152.00	No Ice	0.41	0.19	0.01
						1/2" Ice	0.50	0.26	0.01
			0.00			1" Ice	0.60	0.33	0.02
						2" Ice	0.82	0.51	0.03
						4" Ice	1.36	0.97	0.08
KRY 112 144/1	B	From Leg	4.00 0.00	0.0000	152.00	No Ice	0.41	0.19	0.01
						1/2" Ice	0.50	0.26	0.01
			0.00			1" Ice	0.60	0.33	0.02
						2" Ice	0.82	0.51	0.03
						4" Ice	1.36	0.97	0.08
KRY 112 144/1	C	From Leg	4.00 0.00	0.0000	152.00	No Ice	0.41	0.19	0.01
						1/2" Ice	0.50	0.26	0.01
			0.00			1" Ice	0.60	0.33	0.02
						2" Ice	0.82	0.51	0.03
						4" Ice	1.36	0.97	0.08
Empty Pipe Mount	A	From Leg	4.00 0.00	0.0000	152.00	No Ice	3.00	0.90	0.07
						1/2" Ice	3.74	1.12	0.08
			0.00			1" Ice	4.48	1.34	0.09
						2" Ice	5.96	1.78	0.12
						4" Ice	8.92	2.66	0.18
Empty Pipe Mount	B	From Leg	4.00 0.00	0.0000	152.00	No Ice	3.00	0.90	0.07
						1/2" Ice	3.74	1.12	0.08
			0.00			1" Ice	4.48	1.34	0.09
						2" Ice	5.96	1.78	0.12
						4" Ice	8.92	2.66	0.18
Empty Pipe Mount	C	From Leg	4.00	0.0000	152.00	No Ice	3.00	0.90	0.07

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1/2" Ice	3.74	1.12	0.08
			0.00			1" Ice	4.48	1.34	0.09
						2" Ice	5.96	1.78	0.12
						4" Ice	8.92	2.66	0.18
(3) T-Frames	A	None		0.0000	152.00	No Ice	33.11	33.11	1.54
						1/2" Ice	44.90	44.90	2.16
						1" Ice	56.69	56.69	2.78
						2" Ice	80.27	80.27	4.01
						4" Ice	127.43	127.43	6.49
***									
(2) SBNHH-1D65B w/ Mount Pipe	A	From Leg	3.00	0.0000	140.00	No Ice	8.86	7.30	0.07
			0.00			1/2" Ice	9.62	8.58	0.14
			0.00			1" Ice	10.34	9.72	0.22
						2" Ice	11.73	11.66	0.41
						4" Ice	14.64	15.92	0.94
(2) SBNHH-1D65B w/ Mount Pipe	B	From Leg	3.00	0.0000	140.00	No Ice	8.86	7.30	0.07
			0.00			1/2" Ice	9.62	8.58	0.14
			0.00			1" Ice	10.34	9.72	0.22
						2" Ice	11.73	11.66	0.41
						4" Ice	14.64	15.92	0.94
(2) SBNHH-1D65B w/ Mount Pipe	C	From Leg	3.00	0.0000	140.00	No Ice	8.86	7.30	0.07
			0.00			1/2" Ice	9.62	8.58	0.14
			0.00			1" Ice	10.34	9.72	0.22
						2" Ice	11.73	11.66	0.41
						4" Ice	14.64	15.92	0.94
800 10735v01 w/ Mount Pipe	A	From Leg	3.00	0.0000	140.00	No Ice	8.96	5.41	0.06
			0.00			1/2" Ice	9.60	6.60	0.12
			0.00			1" Ice	10.23	7.50	0.19
						2" Ice	11.50	9.33	0.36
						4" Ice	14.17	13.20	0.84
800 10735v01 w/ Mount Pipe	B	From Leg	3.00	0.0000	140.00	No Ice	8.96	5.41	0.06
			0.00			1/2" Ice	9.60	6.60	0.12
			0.00			1" Ice	10.23	7.50	0.19
						2" Ice	11.50	9.33	0.36
						4" Ice	14.17	13.20	0.84
800 10735v01 w/ Mount Pipe	C	From Leg	3.00	0.0000	140.00	No Ice	8.96	5.41	0.06
			0.00			1/2" Ice	9.60	6.60	0.12
			0.00			1" Ice	10.23	7.50	0.19
						2" Ice	11.50	9.33	0.36
						4" Ice	14.17	13.20	0.84
BXA-80080/4CF w/ Mount Pipe	A	From Leg	3.00	0.0000	140.00	No Ice	5.49	4.03	0.03
			0.00			1/2" Ice	5.94	4.65	0.08
			0.00			1" Ice	6.40	5.30	0.13
						2" Ice	7.35	6.70	0.25
						4" Ice	9.39	9.78	0.60
BXA-80080/4CF w/ Mount Pipe	B	From Leg	3.00	0.0000	140.00	No Ice	5.49	4.03	0.03
			0.00			1/2" Ice	5.94	4.65	0.08
			0.00			1" Ice	6.40	5.30	0.13
						2" Ice	7.35	6.70	0.25
						4" Ice	9.39	9.78	0.60
BXA-80080/4CF w/ Mount Pipe	C	From Leg	3.00	0.0000	140.00	No Ice	5.49	4.03	0.03
			0.00			1/2" Ice	5.94	4.65	0.08
			0.00			1" Ice	6.40	5.30	0.13
						2" Ice	7.35	6.70	0.25
						4" Ice	9.39	9.78	0.60
RRH-2x60-AWS	A	From Leg	3.00	0.0000	140.00	No Ice	2.35	1.53	0.04
			0.00			1/2" Ice	2.56	1.72	0.06

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1" Ice	2.79	1.92	0.08
						2" Ice	3.26	2.34	0.13
						4" Ice	4.31	3.29	0.27
RRH-2x60-AWS	B	From Leg	3.00	0.0000	140.00	No Ice	2.35	1.53	0.04
			0.00			1/2" Ice	2.56	1.72	0.06
			0.00			1" Ice	2.79	1.92	0.08
						2" Ice	3.26	2.34	0.13
						4" Ice	4.31	3.29	0.27
RRH-2x60-AWS	C	From Leg	3.00	0.0000	140.00	No Ice	2.35	1.53	0.04
			0.00			1/2" Ice	2.56	1.72	0.06
			0.00			1" Ice	2.79	1.92	0.08
						2" Ice	3.26	2.34	0.13
						4" Ice	4.31	3.29	0.27
RRH-2x60-PCS	A	From Leg	3.00	0.0000	140.00	No Ice	2.45	1.43	0.06
			0.00			1/2" Ice	2.67	1.61	0.07
			0.00			1" Ice	2.90	1.81	0.09
						2" Ice	3.37	2.22	0.14
						4" Ice	4.44	3.16	0.28
RRH-2x60-PCS	B	From Leg	3.00	0.0000	140.00	No Ice	2.45	1.43	0.06
			0.00			1/2" Ice	2.67	1.61	0.07
			0.00			1" Ice	2.90	1.81	0.09
						2" Ice	3.37	2.22	0.14
						4" Ice	4.44	3.16	0.28
RRH-2x60-PCS	C	From Leg	3.00	0.0000	140.00	No Ice	2.45	1.43	0.06
			0.00			1/2" Ice	2.67	1.61	0.07
			0.00			1" Ice	2.90	1.81	0.09
						2" Ice	3.37	2.22	0.14
						4" Ice	4.44	3.16	0.28
RRH 2x60-700	A	From Leg	3.00	0.0000	140.00	No Ice	2.57	1.93	0.03
			0.00			1/2" Ice	2.79	2.13	0.05
			0.00			1" Ice	3.02	2.34	0.07
						2" Ice	3.52	2.80	0.12
						4" Ice	4.61	3.81	0.28
RRH 2x60-700	B	From Leg	3.00	0.0000	140.00	No Ice	2.57	1.93	0.03
			0.00			1/2" Ice	2.79	2.13	0.05
			0.00			1" Ice	3.02	2.34	0.07
						2" Ice	3.52	2.80	0.12
						4" Ice	4.61	3.81	0.28
RRH 2x60-700	C	From Leg	3.00	0.0000	140.00	No Ice	2.57	1.93	0.03
			0.00			1/2" Ice	2.79	2.13	0.05
			0.00			1" Ice	3.02	2.34	0.07
						2" Ice	3.52	2.80	0.12
						4" Ice	4.61	3.81	0.28
DB-T1-6Z-8AB-0Z	A	From Leg	3.00	0.0000	140.00	No Ice	5.60	2.33	0.04
			0.00			1/2" Ice	5.92	2.56	0.08
			0.00			1" Ice	6.24	2.79	0.12
						2" Ice	6.91	3.28	0.21
						4" Ice	8.37	4.37	0.45
(3) T-Frames	C	None		0.0000	140.00	No Ice	30.02	30.02	0.95
						1/2" Ice	40.48	40.48	1.40
						1" Ice	50.94	50.94	1.86
						2" Ice	71.86	71.86	2.76
						4" Ice	113.70	113.70	4.57
***									
742 213 w/ Mount Pipe	A	From Leg	1.50	0.0000	130.00	No Ice	5.37	4.62	0.05
			0.00			1/2" Ice	5.95	6.00	0.09
			0.00			1" Ice	6.50	6.98	0.15

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice	7.61	8.85	0.28
						4" Ice	9.93	12.79	0.68
742 213 w/ Mount Pipe	B	From Leg	1.50 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.37 5.95 6.50 7.61 9.93	4.62 6.00 6.98 8.85 12.79	0.05 0.09 0.15 0.28 0.68
742 213 w/ Mount Pipe	C	From Leg	1.50 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.37 5.95 6.50 7.61 9.93	4.62 6.00 6.98 8.85 12.79	0.05 0.09 0.15 0.28 0.68
(3) Pipe Mounts	C	None		0.0000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.78 7.37 8.96 12.14 18.50	5.78 7.37 8.96 12.14 18.50	0.16 0.18 0.20 0.24 0.32

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
(2) VHLP2.5 Dish	A	Paraboloid w/o Radome	From Leg	4.00 0.00 0.00	0.0000		172.00	0.96	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.72 0.85 0.98 1.24 1.77	0.02 0.02 0.03 0.04 0.05
VHLP2.5 Dish	B	Paraboloid w/o Radome	From Leg	4.00 0.00 0.00	0.0000		172.00	0.96	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.72 0.85 0.98 1.24 1.77	0.02 0.02 0.03 0.04 0.05
VHLP2.5 Dish	C	Paraboloid w/o Radome	From Leg	4.00 0.00 0.00	0.0000		172.00	0.96	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.72 0.85 0.98 1.24 1.77	0.02 0.02 0.03 0.04 0.05

Tower Pressures - No Ice

$G_H = 1.122$

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
T1	168.00	1.592	26	79.667	A	8.438	9.833	9.333	51.08	0.000	0.000
176.00-160.00					B	10.853	11.208		42.31	0.000	0.000
					C	8.343	14.293		41.23	0.000	0.000
T2	150.00	1.541	25	121.650	A	10.882	15.651	15.026	56.63	0.000	0.000
160.00-140.00					B	12.622	41.911		27.55	0.000	0.000
					C	10.811	60.251		21.14	0.000	0.000
T3	130.00	1.48	24	164.206	A	13.490	24.150	18.575	49.35	0.000	0.000
140.00-120.00					B	12.787	61.300		25.07	0.000	0.000
					C	12.638	63.800		24.30	0.000	0.000
T4	110.00	1.411	23	206.759	A	17.866	32.647	22.122	43.79	0.000	0.000
120.00-100.00					B	15.380	64.847		27.57	0.000	0.000
					C	15.238	67.347		26.79	0.000	0.000
T5	90.00	1.332	22	247.541	A	20.110	32.647	22.122	41.93	0.000	0.000
100.00-80.00					B	17.753	64.847		26.78	0.000	0.000
					C	17.619	67.347		26.04	0.000	0.000
T6 80.00-60.00	70.00	1.24	20	288.322	A	25.919	32.647	22.122	37.77	0.000	0.000
					B	23.187	64.847		25.13	0.000	0.000
					C	23.030	67.347		24.48	0.000	0.000
T7 60.00-40.00	50.00	1.126	18	332.649	A	24.950	39.742	29.217	45.16	0.000	0.000
					B	22.688	71.942		30.88	0.000	0.000
					C	22.558	74.442		30.12	0.000	0.000
T8 40.00-20.00	30.00	1	16	373.222	A	27.009	39.325	28.800	43.42	0.000	0.000
					B	24.816	71.525		29.89	0.000	0.000
					C	24.691	74.025		29.17	0.000	0.000
T9 20.00-0.00	10.00	1	16	414.003	A	32.612	39.325	28.800	40.03	0.000	0.000
					B	30.165	71.525		28.32	0.000	0.000
					C	30.025	74.025		27.68	0.000	0.000

Tower Pressure - With Ice

G_H = 1.122

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
T1	168.00	1.592	6	1.2157	82.908	A	8.438	29.816	15.817	41.35	0.000	0.000
176.00-160.00						B	15.653	27.033		37.05	0.000	0.000
						C	12.709	31.807		35.53	0.000	0.000
T2	150.00	1.541	6	1.1992	125.653	A	10.882	40.707	23.035	44.65	0.000	0.000
160.00-140.00						B	47.287	38.613		26.82	0.000	0.000
						C	55.145	62.357		19.60	0.000	0.000
T3	130.00	1.48	5	1.1788	168.140	A	18.554	47.126	26.448	40.27	0.000	0.000
140.00-120.00						B	65.647	44.953		23.91	0.000	0.000
						C	57.808	68.446		20.95	0.000	0.000
T4	110.00	1.411	5	1.1554	210.616	A	27.991	52.703	29.838	36.98	0.000	0.000
120.00-100.00						B	68.301	49.214		25.39	0.000	0.000
						C	60.537	72.658		22.40	0.000	0.000
T5 100.00-80.00	90.00	1.332	5	1.1279	251.306	A	30.224	54.138	29.654	35.15	0.000	0.000
						B	70.730	50.908		24.38	0.000	0.000
						C	63.044	73.985		21.64	0.000	0.000
T6 80.00-60.00	70.00	1.24	5	1.0944	291.975	A	35.872	55.370	29.430	32.26	0.000	0.000
						B	75.835	52.342		22.96	0.000	0.000
						C	68.040	74.940		20.58	0.000	0.000
T7 60.00-40.00	50.00	1.126	4	1.0511	336.158	A	34.955	58.793	36.237	38.65	0.000	0.000
						B	75.617	56.702		27.39	0.000	0.000

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
						C	68.038	78.839		24.67	0.000	0.000
T8 40.00-20.00	30.00	1	4	1.0000	376.559	A	36.941	58.328	35.478	37.24	0.000	0.000
						B	77.717	56.398		26.45	0.000	0.000
						C	70.209	77.748		23.98	0.000	0.000
T9 20.00-0.00	10.00	1	4	1.0000	417.340	A	42.480	59.565	35.478	34.77	0.000	0.000
						B	82.885	57.678		25.24	0.000	0.000
						C	75.291	79.037		22.99	0.000	0.000

Tower Pressure - Service

G_H = 1.122

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
T1	168.00	1.592	10	79.667	A	8.438	9.833	9.333	51.08	0.000	0.000
176.00-160.00					B	10.853	11.208		42.31	0.000	0.000
					C	8.343	14.293		41.23	0.000	0.000
T2	150.00	1.541	10	121.650	A	10.882	15.651	15.026	56.63	0.000	0.000
160.00-140.00					B	12.622	41.911		27.55	0.000	0.000
					C	10.811	60.251		21.14	0.000	0.000
T3	130.00	1.48	9	164.206	A	13.490	24.150	18.575	49.35	0.000	0.000
140.00-120.00					B	12.787	61.300		25.07	0.000	0.000
					C	12.638	63.800		24.30	0.000	0.000
T4	110.00	1.411	9	206.759	A	17.866	32.647	22.122	43.79	0.000	0.000
120.00-100.00					B	15.380	64.847		27.57	0.000	0.000
					C	15.238	67.347		26.79	0.000	0.000
T5	90.00	1.332	9	247.541	A	20.110	32.647	22.122	41.93	0.000	0.000
100.00-80.00					B	17.753	64.847		26.78	0.000	0.000
					C	17.619	67.347		26.04	0.000	0.000
T6 80.00-60.00	70.00	1.24	8	288.322	A	25.919	32.647	22.122	37.77	0.000	0.000
					B	23.187	64.847		25.13	0.000	0.000
					C	23.030	67.347		24.48	0.000	0.000
T7 60.00-40.00	50.00	1.126	7	332.649	A	24.950	39.742	29.217	45.16	0.000	0.000
					B	22.688	71.942		30.88	0.000	0.000
					C	22.558	74.442		30.12	0.000	0.000
T8 40.00-20.00	30.00	1	6	373.222	A	27.009	39.325	28.800	43.42	0.000	0.000
					B	24.816	71.525		29.89	0.000	0.000
					C	24.691	74.025		29.17	0.000	0.000
T9 20.00-0.00	10.00	1	6	414.003	A	32.612	39.325	28.800	40.03	0.000	0.000
					B	30.165	71.525		28.32	0.000	0.000
					C	30.025	74.025		27.68	0.000	0.000

Tower Forces - No Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1	0.28	1.01	A	0.229	2.501	0.597	1	1	14.306	1.22	76.32	B
176.00-160.00			B	0.277	2.359	0.609	1	1	17.680			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
			C	0.284	2.339	0.611	1	1	17.078			
T2	1.13	1.41	A	0.218	2.537	0.594	1	1	20.182	2.86	143.09	C
160.00-140.00			B	0.448	1.976	0.672	1	1	40.807			
			C	0.584	1.815	0.744	1	1	55.640			
T3	1.58	1.79	A	0.229	2.501	0.597	1	1	27.903	2.97	148.61	C
140.00-120.00			B	0.451	1.972	0.674	1	1	54.093			
			C	0.466	1.949	0.681	1	1	56.055			
T4	1.71	2.03	A	0.244	2.455	0.6	1	1	37.468	3.17	158.31	C
120.00-100.00			B	0.388	2.088	0.647	1	1	57.322			
			C	0.399	2.065	0.651	1	1	59.106			
T5	1.71	2.47	A	0.213	2.553	0.593	1	1	39.475	3.22	160.87	C
100.00-80.00			B	0.334	2.21	0.627	1	1	58.398			
			C	0.343	2.187	0.63	1	1	60.053			
T6	1.71	3.08	A	0.203	2.586	0.591	1	1	45.215	3.34	166.97	C
80.00-60.00			B	0.305	2.282	0.618	1	1	63.232			
			C	0.313	2.261	0.62	1	1	64.793			
T7	1.71	3.31	A	0.194	2.615	0.589	1	1	48.370	3.28	163.76	C
60.00-40.00			B	0.284	2.338	0.611	1	1	66.664			
			C	0.292	2.319	0.613	1	1	68.219			
T8	1.71	4.03	A	0.178	2.672	0.586	1	1	50.057	3.06	153.09	C
40.00-20.00			B	0.258	2.413	0.604	1	1	68.016			
			C	0.264	2.395	0.606	1	1	69.526			
T9 20.00-0.00	1.71	4.38	A	0.174	2.686	0.585	1	1	55.633	3.34	166.93	C
			B	0.246	2.451	0.601	1	1	73.135			
			C	0.251	2.434	0.602	1	1	74.604			
Sum Weight:	13.25	23.50						OTM	2181.39 kip-ft	26.45		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1	0.28	1.01	A	0.229	2.501	0.597	0.8	1	12.619	1.07	66.95	B
176.00-160.00			B	0.277	2.359	0.609	0.8	1	15.509			
			C	0.284	2.339	0.611	0.8	1	15.410			
T2	1.13	1.41	A	0.218	2.537	0.594	0.8	1	18.006	2.75	137.52	C
160.00-140.00			B	0.448	1.976	0.672	0.8	1	38.282			
			C	0.584	1.815	0.744	0.8	1	53.477			
T3	1.58	1.79	A	0.229	2.501	0.597	0.8	1	25.205	2.84	141.91	C
140.00-120.00			B	0.451	1.972	0.674	0.8	1	51.535			
			C	0.466	1.949	0.681	0.8	1	53.528			
T4	1.71	2.03	A	0.244	2.455	0.6	0.8	1	33.895	3.00	150.15	C
120.00-100.00			B	0.388	2.088	0.647	0.8	1	54.246			
			C	0.399	2.065	0.651	0.8	1	56.058			
T5	1.71	2.47	A	0.213	2.553	0.593	0.8	1	35.453	3.03	151.43	C
100.00-80.00			B	0.334	2.21	0.627	0.8	1	54.848			
			C	0.343	2.187	0.63	0.8	1	56.529			
T6	1.71	3.08	A	0.203	2.586	0.591	0.8	1	40.031	3.10	155.10	C
80.00-60.00			B	0.305	2.282	0.618	0.8	1	58.595			
			C	0.313	2.261	0.62	0.8	1	60.187			
T7	1.71	3.31	A	0.194	2.615	0.589	0.8	1	43.380	3.06	152.93	C
60.00-40.00			B	0.284	2.338	0.611	0.8	1	62.126			
			C	0.292	2.319	0.613	0.8	1	63.707			
T8	1.71	4.03	A	0.178	2.672	0.586	0.8	1	44.656	2.84	142.21	C

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
40.00-20.00			B	0.258	2.413	0.604	0.8	1	63.052			
			C	0.264	2.395	0.606	0.8	1	64.588			
T9 20.00-0.00	1.71	4.38	A	0.174	2.686	0.585	0.8	1	49.110	3.07	153.49	C
			B	0.246	2.451	0.601	0.8	1	67.102			
			C	0.251	2.434	0.602	0.8	1	68.599			
Sum Weight:	13.25	23.50						OTM	2050.49 kip-ft	24.77		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
T1	0.28	1.01	A	0.229	2.501	0.597	0.85	1	13.041	1.11	69.29	B
176.00-160.00			B	0.277	2.359	0.609	0.85	1	16.052			
			C	0.284	2.339	0.611	0.85	1	15.827			
T2	1.13	1.41	A	0.218	2.537	0.594	0.85	1	18.550	2.78	138.91	C
160.00-140.00			B	0.448	1.976	0.672	0.85	1	38.913			
			C	0.584	1.815	0.744	0.85	1	54.018			
T3	1.58	1.79	A	0.229	2.501	0.597	0.85	1	25.879	2.87	143.59	C
140.00-120.00			B	0.451	1.972	0.674	0.85	1	52.175			
			C	0.466	1.949	0.681	0.85	1	54.160			
T4	1.71	2.03	A	0.244	2.455	0.6	0.85	1	34.788	3.04	152.19	C
120.00-100.00			B	0.388	2.088	0.647	0.85	1	55.015			
			C	0.399	2.065	0.651	0.85	1	56.820			
T5	1.71	2.47	A	0.213	2.553	0.593	0.85	1	36.459	3.08	153.79	C
100.00-80.00			B	0.334	2.21	0.627	0.85	1	55.735			
			C	0.343	2.187	0.63	0.85	1	57.410			
T6	1.71	3.08	A	0.203	2.586	0.591	0.85	1	41.327	3.16	158.07	C
80.00-60.00			B	0.305	2.282	0.618	0.85	1	59.754			
			C	0.313	2.261	0.62	0.85	1	61.338			
T7	1.71	3.31	A	0.194	2.615	0.589	0.85	1	44.627	3.11	155.64	C
60.00-40.00			B	0.284	2.338	0.611	0.85	1	63.261			
			C	0.292	2.319	0.613	0.85	1	64.835			
T8	1.71	4.03	A	0.178	2.672	0.586	0.85	1	46.006	2.90	144.93	C
40.00-20.00			B	0.258	2.413	0.604	0.85	1	64.293			
			C	0.264	2.395	0.606	0.85	1	65.822			
T9 20.00-0.00	1.71	4.38	A	0.174	2.686	0.585	0.85	1	50.741	3.14	156.85	C
			B	0.246	2.451	0.601	0.85	1	68.610			
			C	0.251	2.434	0.602	0.85	1	70.100			
Sum Weight:	13.25	23.50						OTM	2083.22 kip-ft	25.19		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
T1	0.72	2.32	A	0.461	1.955	0.679	1	1	28.670	0.44	27.22	C

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
176.00-160.00			B	0.515	1.881	0.705	1	1	34.717			
			C	0.537	1.857	0.717	1	1	35.516			
T2	3.43	3.15	A	0.411	2.043	0.656	1	1	37.584	1.49	74.32	C
160.00-140.00			B	0.684	1.776	0.808	1	1	78.500			
			C	0.935	1.978	1	1	1	117.503			
T3	4.79	3.65	A	0.391	2.083	0.648	1	1	49.083	1.28	63.93	C
140.00-120.00			B	0.658	1.78	0.791	1	1	101.189			
			C	0.751	1.788	0.858	1	1	116.504			
T4	5.09	4.08	A	0.383	2.098	0.645	1	1	61.977	1.22	61.08	C
120.00-100.00			B	0.558	1.836	0.729	1	1	104.167			
			C	0.632	1.787	0.774	1	1	116.772			
T5	5.01	4.66	A	0.336	2.205	0.627	1	1	64.194	1.19	59.46	C
100.00-80.00			B	0.484	1.922	0.689	1	1	105.831			
			C	0.545	1.848	0.722	1	1	116.435			
T6	4.92	5.62	A	0.313	2.263	0.62	1	1	70.191	1.18	59.02	C
80.00-60.00			B	0.439	1.992	0.668	1	1	110.814			
			C	0.49	1.914	0.692	1	1	119.921			
T7	4.81	5.74	A	0.279	2.354	0.61	1	1	70.799	1.12	56.24	C
60.00-40.00			B	0.394	2.077	0.649	1	1	112.418			
			C	0.437	1.996	0.667	1	1	120.653			
T8	4.67	6.45	A	0.253	2.429	0.603	1	1	72.092	1.04	52.01	C
40.00-20.00			B	0.356	2.157	0.635	1	1	113.513			
			C	0.393	2.078	0.649	1	1	120.646			
T9 20.00-0.00	4.67	7.17	A	0.245	2.454	0.6	1	1	78.248	1.11	55.53	C
			B	0.337	2.203	0.628	1	1	119.098			
			C	0.37	2.127	0.64	1	1	125.854			
Sum Weight:	38.12	42.85						OTM	884.93 kip-ft	10.07		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1	0.72	2.32	A	0.461	1.955	0.679	0.8	1	26.983	0.40	25.27	C
176.00-160.00			B	0.515	1.881	0.705	0.8	1	31.586			
			C	0.537	1.857	0.717	0.8	1	32.974			
T2	3.43	3.15	A	0.411	2.043	0.656	0.8	1	35.408	1.35	67.34	C
160.00-140.00			B	0.684	1.776	0.808	0.8	1	69.043			
			C	0.935	1.978	1	0.8	1	106.473			
T3	4.79	3.65	A	0.391	2.083	0.648	0.8	1	45.373	1.15	57.59	C
140.00-120.00			B	0.658	1.78	0.791	0.8	1	88.060			
			C	0.751	1.788	0.858	0.8	1	104.942			
T4	5.09	4.08	A	0.383	2.098	0.645	0.8	1	56.379	1.09	54.75	C
120.00-100.00			B	0.558	1.836	0.729	0.8	1	90.507			
			C	0.632	1.787	0.774	0.8	1	104.664			
T5	5.01	4.66	A	0.336	2.205	0.627	0.8	1	58.150	1.06	53.02	C
100.00-80.00			B	0.484	1.922	0.689	0.8	1	91.685			
			C	0.545	1.848	0.722	0.8	1	103.826			
T6	4.92	5.62	A	0.313	2.263	0.62	0.8	1	63.016	1.05	52.32	C
80.00-60.00			B	0.439	1.992	0.668	0.8	1	95.647			
			C	0.49	1.914	0.692	0.8	1	106.313			
T7	4.81	5.74	A	0.279	2.354	0.61	0.8	1	63.808	1.00	49.90	C
60.00-40.00			B	0.394	2.077	0.649	0.8	1	97.294			
			C	0.437	1.996	0.667	0.8	1	107.045			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
T8	4.67	6.45	A	0.253	2.429	0.603	0.8	1	64.704	0.92	45.96	C
40.00-20.00			B	0.356	2.157	0.635	0.8	1	97.969			
			C	0.393	2.078	0.649	0.8	1	106.605			
T9 20.00-0.00	4.67	7.17	A	0.245	2.454	0.6	0.8	1	69.752	0.98	48.89	C
			B	0.337	2.203	0.628	0.8	1	102.521			
			C	0.37	2.127	0.64	0.8	1	110.796			
Sum Weight:	38.12	42.85						OTM	796.07 kip-ft	9.00		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
T1	0.72	2.32	A	0.461	1.955	0.679	0.85	1	27.404	0.41	25.76	C
176.00-160.00			B	0.515	1.881	0.705	0.85	1	32.369			
			C	0.537	1.857	0.717	0.85	1	33.609			
T2	3.43	3.15	A	0.411	2.043	0.656	0.85	1	35.952	1.38	69.09	C
160.00-140.00			B	0.684	1.776	0.808	0.85	1	71.407			
			C	0.935	1.978	1	0.85	1	109.231			
T3	4.79	3.65	A	0.391	2.083	0.648	0.85	1	46.300	1.18	59.17	C
140.00-120.00			B	0.658	1.78	0.791	0.85	1	91.342			
			C	0.751	1.788	0.858	0.85	1	107.833			
T4	5.09	4.08	A	0.383	2.098	0.645	0.85	1	57.778	1.13	56.33	C
120.00-100.00			B	0.558	1.836	0.729	0.85	1	93.922			
			C	0.632	1.787	0.774	0.85	1	107.691			
T5	5.01	4.66	A	0.336	2.205	0.627	0.85	1	59.661	1.09	54.63	C
100.00-80.00			B	0.484	1.922	0.689	0.85	1	95.221			
			C	0.545	1.848	0.722	0.85	1	106.978			
T6	4.92	5.62	A	0.313	2.263	0.62	0.85	1	64.810	1.08	54.00	C
80.00-60.00			B	0.439	1.992	0.668	0.85	1	99.439			
			C	0.49	1.914	0.692	0.85	1	109.715			
T7	4.81	5.74	A	0.279	2.354	0.61	0.85	1	65.556	1.03	51.49	C
60.00-40.00			B	0.394	2.077	0.649	0.85	1	101.075			
			C	0.437	1.996	0.667	0.85	1	110.447			
T8	4.67	6.45	A	0.253	2.429	0.603	0.85	1	66.551	0.95	47.47	C
40.00-20.00			B	0.356	2.157	0.635	0.85	1	101.855			
			C	0.393	2.078	0.649	0.85	1	110.115			
T9 20.00-0.00	4.67	7.17	A	0.245	2.454	0.6	0.85	1	71.876	1.01	50.55	C
			B	0.337	2.203	0.628	0.85	1	106.665			
			C	0.37	2.127	0.64	0.85	1	114.560			
Sum Weight:	38.12	42.85						OTM	818.29 kip-ft	9.27		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1	0.28	1.01	A	0.229	2.501	0.597	1	1	14.306	0.48	29.81	B
176.00-160.00			B	0.277	2.359	0.609	1	1	17.680			
			C	0.284	2.339	0.611	1	1	17.078			
T2	1.13	1.41	A	0.218	2.537	0.594	1	1	20.182	1.12	55.89	C
160.00-140.00			B	0.448	1.976	0.672	1	1	40.807			
			C	0.584	1.815	0.744	1	1	55.640			
T3	1.58	1.79	A	0.229	2.501	0.597	1	1	27.903	1.16	58.05	C
140.00-120.00			B	0.451	1.972	0.674	1	1	54.093			
			C	0.466	1.949	0.681	1	1	56.055			
T4	1.71	2.03	A	0.244	2.455	0.6	1	1	37.468	1.24	61.84	C
120.00-100.00			B	0.388	2.088	0.647	1	1	57.322			
			C	0.399	2.065	0.651	1	1	59.106			
T5	1.71	2.47	A	0.213	2.553	0.593	1	1	39.475	1.26	62.84	C
100.00-80.00			B	0.334	2.21	0.627	1	1	58.398			
			C	0.343	2.187	0.63	1	1	60.053			
T6	1.71	3.08	A	0.203	2.586	0.591	1	1	45.215	1.30	65.22	C
80.00-60.00			B	0.305	2.282	0.618	1	1	63.232			
			C	0.313	2.261	0.62	1	1	64.793			
T7	1.71	3.31	A	0.194	2.615	0.589	1	1	48.370	1.28	63.97	C
60.00-40.00			B	0.284	2.338	0.611	1	1	66.664			
			C	0.292	2.319	0.613	1	1	68.219			
T8	1.71	4.03	A	0.178	2.672	0.586	1	1	50.057	1.20	59.80	C
40.00-20.00			B	0.258	2.413	0.604	1	1	68.016			
			C	0.264	2.395	0.606	1	1	69.526			
T9 20.00-0.00	1.71	4.38	A	0.174	2.686	0.585	1	1	55.633	1.30	65.21	C
			B	0.246	2.451	0.601	1	1	73.135			
			C	0.251	2.434	0.602	1	1	74.604			
Sum Weight:	13.25	23.50						OTM	852.11 kip-ft	10.33		

Tower Forces - Service - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1	0.28	1.01	A	0.229	2.501	0.597	0.8	1	12.619	0.42	26.15	B
176.00-160.00			B	0.277	2.359	0.609	0.8	1	15.509			
			C	0.284	2.339	0.611	0.8	1	15.410			
T2	1.13	1.41	A	0.218	2.537	0.594	0.8	1	18.006	1.07	53.72	C
160.00-140.00			B	0.448	1.976	0.672	0.8	1	38.282			
			C	0.584	1.815	0.744	0.8	1	53.477			
T3	1.58	1.79	A	0.229	2.501	0.597	0.8	1	25.205	1.11	55.43	C
140.00-120.00			B	0.451	1.972	0.674	0.8	1	51.535			
			C	0.466	1.949	0.681	0.8	1	53.528			
T4	1.71	2.03	A	0.244	2.455	0.6	0.8	1	33.895	1.17	58.65	C
120.00-100.00			B	0.388	2.088	0.647	0.8	1	54.246			
			C	0.399	2.065	0.651	0.8	1	56.058			
T5	1.71	2.47	A	0.213	2.553	0.593	0.8	1	35.453	1.18	59.15	C
100.00-80.00			B	0.334	2.21	0.627	0.8	1	54.848			
			C	0.343	2.187	0.63	0.8	1	56.529			
T6	1.71	3.08	A	0.203	2.586	0.591	0.8	1	40.031	1.21	60.59	C
80.00-60.00			B	0.305	2.282	0.618	0.8	1	58.595			
			C	0.313	2.261	0.62	0.8	1	60.187			
T7	1.71	3.31	A	0.194	2.615	0.589	0.8	1	43.380	1.19	59.74	C
60.00-40.00			B	0.284	2.338	0.611	0.8	1	62.126			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
			C	0.292	2.319	0.613	0.8	1	63.707			
T8	1.71	4.03	A	0.178	2.672	0.586	0.8	1	44.656	1.11	55.55	C
40.00-20.00			B	0.258	2.413	0.604	0.8	1	63.052			
			C	0.264	2.395	0.606	0.8	1	64.588			
T9 20.00-0.00	1.71	4.38	A	0.174	2.686	0.585	0.8	1	49.110	1.20	59.96	C
			B	0.246	2.451	0.601	0.8	1	67.102			
			C	0.251	2.434	0.602	0.8	1	68.599			
Sum Weight:	13.25	23.50						OTM	800.97 kip-ft	9.67		

Tower Forces - Service - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1	0.28	1.01	A	0.229	2.501	0.597	0.85	1	13.041	0.43	27.07	B
176.00-160.00			B	0.277	2.359	0.609	0.85	1	16.052			
			C	0.284	2.339	0.611	0.85	1	15.827			
T2	1.13	1.41	A	0.218	2.537	0.594	0.85	1	18.550	1.09	54.26	C
160.00-140.00			B	0.448	1.976	0.672	0.85	1	38.913			
			C	0.584	1.815	0.744	0.85	1	54.018			
T3	1.58	1.79	A	0.229	2.501	0.597	0.85	1	25.879	1.12	56.09	C
140.00-120.00			B	0.451	1.972	0.674	0.85	1	52.175			
			C	0.466	1.949	0.681	0.85	1	54.160			
T4	1.71	2.03	A	0.244	2.455	0.6	0.85	1	34.788	1.19	59.45	C
120.00-100.00			B	0.388	2.088	0.647	0.85	1	55.015			
			C	0.399	2.065	0.651	0.85	1	56.820			
T5	1.71	2.47	A	0.213	2.553	0.593	0.85	1	36.459	1.20	60.07	C
100.00-80.00			B	0.334	2.21	0.627	0.85	1	55.735			
			C	0.343	2.187	0.63	0.85	1	57.410			
T6	1.71	3.08	A	0.203	2.586	0.591	0.85	1	41.327	1.23	61.74	C
80.00-60.00			B	0.305	2.282	0.618	0.85	1	59.754			
			C	0.313	2.261	0.62	0.85	1	61.338			
T7	1.71	3.31	A	0.194	2.615	0.589	0.85	1	44.627	1.22	60.80	C
60.00-40.00			B	0.284	2.338	0.611	0.85	1	63.261			
			C	0.292	2.319	0.613	0.85	1	64.835			
T8	1.71	4.03	A	0.178	2.672	0.586	0.85	1	46.006	1.13	56.61	C
40.00-20.00			B	0.258	2.413	0.604	0.85	1	64.293			
			C	0.264	2.395	0.606	0.85	1	65.822			
T9 20.00-0.00	1.71	4.38	A	0.174	2.686	0.585	0.85	1	50.741	1.23	61.27	C
			B	0.246	2.451	0.601	0.85	1	68.610			
			C	0.251	2.434	0.602	0.85	1	70.100			
Sum Weight:	13.25	23.50						OTM	813.76 kip-ft	9.84		

Discrete Appurtenance Pressures - No Ice $G_H = 1.122$

Description	Aiming Azimuth °	Weight K	$Offset_x$ ft	$Offset_z$ ft	z ft	K_z	q_z psf	C_AA_C Front ft²	C_AA_C Side ft²

Description	*Aiming Azimuth* °	*Weight* *K*	*Offset$_x$* *ft*	*Offset$_z$* *ft*	*z* *ft*	*K_z*	*q_z* *psf*	*C_AA_C Front* *ft^2*	*C_AA_C Side* *ft^2*
Lightning Rod	240.0000	0.03	-2.34	1.35	178.00	1.619	27	0.25	0.25
840-10054 w/ Mount Pipe	0.0000	0.06	0.00	-6.71	172.00	1.603	26	5.58	2.69
840-10054 w/ Mount Pipe	120.0000	0.06	5.81	3.35	172.00	1.603	26	5.58	2.69
840-10054 w/ Mount Pipe	240.0000	0.06	-5.81	3.35	172.00	1.603	26	5.58	2.69
URAS-FLEXIBLE	0.0000	0.03	0.00	-6.71	172.00	1.603	26	1.80	0.78
URAS-FLEXIBLE	120.0000	0.03	5.81	3.35	172.00	1.603	26	1.80	0.78
URAS-FLEXIBLE	240.0000	0.03	-5.81	3.35	172.00	1.603	26	1.80	0.78
Horizon Duo	0.0000	0.01	0.00	-6.71	172.00	1.603	26	0.55	0.34
Horizon Duo	120.0000	0.01	5.81	3.35	172.00	1.603	26	0.55	0.34
Horizon Duo	240.0000	0.01	-5.81	3.35	172.00	1.603	26	0.55	0.34
Empty Pipe Mount	0.0000	0.20	0.00	-6.71	172.00	1.603	26	9.00	2.70
Empty Pipe Mount	120.0000	0.20	5.81	3.35	172.00	1.603	26	9.00	2.70
Empty Pipe Mount	240.0000	0.20	-5.81	3.35	172.00	1.603	26	9.00	2.70
(3) T-Frames	0.0000	1.54	0.00	0.00	172.00	1.603	26	33.11	33.11
AM-X-CD-16-65-00T-RET w/ Mount Pipe	0.0000	0.14	0.00	-6.71	162.00	1.576	26	17.00	12.61
AM-X-CD-16-65-00T-RET w/ Mount Pipe	120.0000	0.14	5.81	3.35	162.00	1.576	26	17.00	12.61
AM-X-CD-16-65-00T-RET w/ Mount Pipe	240.0000	0.14	-5.81	3.35	162.00	1.576	26	17.00	12.61
800 10121 w/ Mount Pipe	0.0000	0.07	0.00	-6.71	162.00	1.576	26	5.69	4.60
800 10121 w/ Mount Pipe	120.0000	0.07	5.81	3.35	162.00	1.576	26	5.69	4.60
800 10121 w/ Mount Pipe	240.0000	0.07	-5.81	3.35	162.00	1.576	26	5.69	4.60
QS6651-3 w/ Mount Pipe	0.0000	0.13	0.00	-6.71	162.00	1.576	26	8.64	8.46
QS6651-3 w/ Mount Pipe	120.0000	0.13	5.81	3.35	162.00	1.576	26	8.64	8.46
QS6651-3 w/ Mount Pipe	240.0000	0.13	-5.81	3.35	162.00	1.576	26	8.64	8.46
LGP21401	0.0000	0.02	0.00	-6.71	162.00	1.576	26	2.58	0.47
LGP21401	120.0000	0.02	5.81	3.35	162.00	1.576	26	2.58	0.47
LGP21401	240.0000	0.02	-5.81	3.35	162.00	1.576	26	2.58	0.47
LGP13519	0.0000	0.01	0.00	-6.71	162.00	1.576	26	0.68	0.41
LGP13519	120.0000	0.01	5.81	3.35	162.00	1.576	26	0.68	0.41
LGP13519	240.0000	0.01	-5.81	3.35	162.00	1.576	26	0.68	0.41
RRUS-11	0.0000	0.06	0.00	-6.71	162.00	1.576	26	2.94	1.25
RRUS-11	120.0000	0.06	5.81	3.35	162.00	1.576	26	2.94	1.25
RRUS-11	240.0000	0.06	-5.81	3.35	162.00	1.576	26	2.94	1.25
RRUS-32	0.0000	0.08	0.00	-6.71	162.00	1.576	26	3.87	2.76
RRUS-32	120.0000	0.08	5.81	3.35	162.00	1.576	26	3.87	2.76
RRUS-32	240.0000	0.08	-5.81	3.35	162.00	1.576	26	3.87	2.76
RRU A2	0.0000	0.02	0.00	-6.71	162.00	1.576	26	1.83	0.40
RRU A2	120.0000	0.02	5.81	3.35	162.00	1.576	26	1.83	0.40
RRU A2	240.0000	0.02	-5.81	3.35	162.00	1.576	26	1.83	0.40
DC6-48-60-18-8F	0.0000	0.03	0.00	-6.71	162.00	1.576	26	2.57	4.32
DC6-48-60-18-8F	120.0000	0.03	5.81	3.35	162.00	1.576	26	2.57	4.32
(3) T-Frames	0.0000	1.54	0.00	0.00	162.00	1.576	26	33.11	33.11
LNX-6515DS-A1M w/ Mount Pipe	0.0000	0.08	0.00	-7.18	152.00	1.547	25	11.45	9.36
LNX-6515DS-A1M w/ Mount Pipe	120.0000	0.08	6.22	3.59	152.00	1.547	25	11.45	9.36
LNX-6515DS-A1M w/ Mount Pipe	240.0000	0.08	-6.22	3.59	152.00	1.547	25	11.45	9.36
AIR 21 B2A/B4P w/ Mount Pipe	0.0000	0.12	0.00	-7.18	152.00	1.547	25	7.09	6.02
AIR 21 B2A/B4P w/ Mount Pipe	120.0000	0.12	6.22	3.59	152.00	1.547	25	7.09	6.02
AIR 21 B2A/B4P w/	240.0000	0.12	-6.22	3.59	152.00	1.547	25	7.09	6.02

Description	Aiming Azimuth °	Weight K	$Offset_x$ ft	$Offset_z$ ft	z ft	K_z	q_z psf	C_AA_C Front ft^2	C_AA_C Side ft^2
Mount Pipe									
AIR 21 B4A/B2P w/ Mount Pipe	0.0000	0.12	0.00	-7.18	152.00	1.547	25	7.09	6.02
AIR 21 B4A/B2P w/ Mount Pipe	120.0000	0.12	6.22	3.59	152.00	1.547	25	7.09	6.02
AIR 21 B4A/B2P w/ Mount Pipe	240.0000	0.12	-6.22	3.59	152.00	1.547	25	7.09	6.02
S11B12	0.0000	0.05	0.00	-7.18	152.00	1.547	25	3.31	1.36
S11B12	120.0000	0.05	6.22	3.59	152.00	1.547	25	3.31	1.36
S11B12	240.0000	0.05	-6.22	3.59	152.00	1.547	25	3.31	1.36
KRY 112 144/1	0.0000	0.01	0.00	-7.18	152.00	1.547	25	0.41	0.19
KRY 112 144/1	120.0000	0.01	6.22	3.59	152.00	1.547	25	0.41	0.19
KRY 112 144/1	240.0000	0.01	-6.22	3.59	152.00	1.547	25	0.41	0.19
Empty Pipe Mount	0.0000	0.07	0.00	-7.18	152.00	1.547	25	3.00	0.90
Empty Pipe Mount	120.0000	0.07	6.22	3.59	152.00	1.547	25	3.00	0.90
Empty Pipe Mount	240.0000	0.07	-6.22	3.59	152.00	1.547	25	3.00	0.90
(3) T-Frames	0.0000	1.54	0.00	0.00	152.00	1.547	25	33.11	33.11
SBNHH-1D65B w/ Mount Pipe	0.0000	0.14	0.00	-6.88	140.00	1.511	25	17.73	14.59
SBNHH-1D65B w/ Mount Pipe	120.0000	0.14	5.96	3.44	140.00	1.511	25	17.73	14.59
SBNHH-1D65B w/ Mount Pipe	240.0000	0.14	-5.96	3.44	140.00	1.511	25	17.73	14.59
800 10735v01 w/ Mount Pipe	0.0000	0.06	0.00	-6.88	140.00	1.511	25	8.96	5.41
800 10735v01 w/ Mount Pipe	120.0000	0.06	5.96	3.44	140.00	1.511	25	8.96	5.41
800 10735v01 w/ Mount Pipe	240.0000	0.06	-5.96	3.44	140.00	1.511	25	8.96	5.41
BXA-80080/4CF w/ Mount Pipe	0.0000	0.03	0.00	-6.88	140.00	1.511	25	5.49	4.03
BXA-80080/4CF w/ Mount Pipe	120.0000	0.03	5.96	3.44	140.00	1.511	25	5.49	4.03
BXA-80080/4CF w/ Mount Pipe	240.0000	0.03	-5.96	3.44	140.00	1.511	25	5.49	4.03
RRH-2x60-AWS	0.0000	0.04	0.00	-6.88	140.00	1.511	25	2.35	1.53
RRH-2x60-AWS	120.0000	0.04	5.96	3.44	140.00	1.511	25	2.35	1.53
RRH-2x60-AWS	240.0000	0.04	-5.96	3.44	140.00	1.511	25	2.35	1.53
RRH-2x60-PCS	0.0000	0.06	0.00	-6.88	140.00	1.511	25	2.45	1.43
RRH-2x60-PCS	120.0000	0.06	5.96	3.44	140.00	1.511	25	2.45	1.43
RRH-2x60-PCS	240.0000	0.06	-5.96	3.44	140.00	1.511	25	2.45	1.43
RRH 2x60-700	0.0000	0.03	0.00	-6.88	140.00	1.511	25	2.57	1.93
RRH 2x60-700	120.0000	0.03	5.96	3.44	140.00	1.511	25	2.57	1.93
RRH 2x60-700	240.0000	0.03	-5.96	3.44	140.00	1.511	25	2.57	1.93
DB-T1-6Z-8AB-0Z	0.0000	0.04	0.00	-6.88	140.00	1.511	25	5.60	2.33
(3) T-Frames	0.0000	0.95	0.00	0.00	140.00	1.511	25	30.02	30.02
742 213 w/ Mount Pipe	0.0000	0.05	0.00	-5.97	130.00	1.480	24	5.37	4.62
742 213 w/ Mount Pipe	120.0000	0.05	5.17	2.99	130.00	1.480	24	5.37	4.62
742 213 w/ Mount Pipe	240.0000	0.05	-5.17	2.99	130.00	1.480	24	5.37	4.62
(3) Pipe Mounts	0.0000	0.16	0.00	0.00	130.00	1.480	24	5.78	5.78
	Sum Weight:	10.89							

Discrete Appurtenance Pressures - With Ice $G_H = 1.122$

Description	Aiming Azimuth °	Weight K	$Offset_x$ ft	$Offset_z$ ft	z ft	K_z	q_z psf	C_AA_C Front ft^2	C_AA_C Side ft^2	t_z in

Description	*Aiming Azimuth* °	*Weight* *K*	*Offset$_x$* *ft*	*Offset$_z$* *ft*	*z* *ft*	*K_z*	*q_z* *psf*	*C_AA_C Front* *ft^2*	*C_AA_C Side* *ft^2*	*t_z* *in*
Lightning Rod	240.0000	0.04	-2.34	1.35	178.00	1.619	6	1.09	1.09	1.2225
840-10054 w/ Mount Pipe	0.0000	0.17	0.00	-6.71	172.00	1.603	6	6.71	4.10	1.2191
840-10054 w/ Mount Pipe	120.0000	0.17	5.81	3.35	172.00	1.603	6	6.71	4.10	1.2191
840-10054 w/ Mount Pipe	240.0000	0.17	-5.81	3.35	172.00	1.603	6	6.71	4.10	1.2191
URAS-FLEXIBLE	0.0000	0.07	0.00	-6.71	172.00	1.603	6	2.27	1.14	1.2191
URAS-FLEXIBLE	120.0000	0.07	5.81	3.35	172.00	1.603	6	2.27	1.14	1.2191
URAS-FLEXIBLE	240.0000	0.07	-5.81	3.35	172.00	1.603	6	2.27	1.14	1.2191
Horizon Duo	0.0000	0.02	0.00	-6.71	172.00	1.603	6	0.81	0.56	1.2191
Horizon Duo	120.0000	0.02	5.81	3.35	172.00	1.603	6	0.81	0.56	1.2191
Horizon Duo	240.0000	0.02	-5.81	3.35	172.00	1.603	6	0.81	0.56	1.2191
Empty Pipe Mount	0.0000	0.30	0.00	-6.71	172.00	1.603	6	14.41	4.31	1.2191
Empty Pipe Mount	120.0000	0.30	5.81	3.35	172.00	1.603	6	14.41	4.31	1.2191
Empty Pipe Mount	240.0000	0.30	-5.81	3.35	172.00	1.603	6	14.41	4.31	1.2191
(3) T-Frames	0.0000	3.05	0.00	0.00	172.00	1.603	6	61.86	61.86	1.2191
AM-X-CD-16-65-00T-RET w/ Mount Pipe	0.0000	0.50	0.00	-6.71	162.00	1.576	6	20.07	17.50	1.2104
AM-X-CD-16-65-00T-RET w/ Mount Pipe	120.0000	0.50	5.81	3.35	162.00	1.576	6	20.07	17.50	1.2104
AM-X-CD-16-65-00T-RET w/ Mount Pipe	240.0000	0.50	-5.81	3.35	162.00	1.576	6	20.07	17.50	1.2104
800 10121 w/ Mount Pipe	0.0000	0.20	0.00	-6.71	162.00	1.576	6	6.89	6.36	1.2104
800 10121 w/ Mount Pipe	120.0000	0.20	5.81	3.35	162.00	1.576	6	6.89	6.36	1.2104
800 10121 w/ Mount Pipe	240.0000	0.20	-5.81	3.35	162.00	1.576	6	6.89	6.36	1.2104
QS6651-3 w/ Mount Pipe	0.0000	0.33	0.00	-6.71	162.00	1.576	6	10.18	11.04	1.2104
QS6651-3 w/ Mount Pipe	120.0000	0.33	5.81	3.35	162.00	1.576	6	10.18	11.04	1.2104
QS6651-3 w/ Mount Pipe	240.0000	0.33	-5.81	3.35	162.00	1.576	6	10.18	11.04	1.2104
LGP21401	0.0000	0.07	0.00	-6.71	162.00	1.576	6	3.37	0.89	1.2104
LGP21401	120.0000	0.07	5.81	3.35	162.00	1.576	6	3.37	0.89	1.2104
LGP21401	240.0000	0.07	-5.81	3.35	162.00	1.576	6	3.37	0.89	1.2104
LGP13519	0.0000	0.03	0.00	-6.71	162.00	1.576	6	1.12	0.80	1.2104
LGP13519	120.0000	0.03	5.81	3.35	162.00	1.576	6	1.12	0.80	1.2104
LGP13519	240.0000	0.03	-5.81	3.35	162.00	1.576	6	1.12	0.80	1.2104
RRUS-11	0.0000	0.11	0.00	-6.71	162.00	1.576	6	3.52	1.67	1.2104
RRUS-11	120.0000	0.11	5.81	3.35	162.00	1.576	6	3.52	1.67	1.2104
RRUS-11	240.0000	0.11	-5.81	3.35	162.00	1.576	6	3.52	1.67	1.2104
RRUS-32	0.0000	0.15	0.00	-6.71	162.00	1.576	6	4.57	3.41	1.2104
RRUS-32	120.0000	0.15	5.81	3.35	162.00	1.576	6	4.57	3.41	1.2104
RRUS-32	240.0000	0.15	-5.81	3.35	162.00	1.576	6	4.57	3.41	1.2104
RRU A2	0.0000	0.04	0.00	-6.71	162.00	1.576	6	2.29	0.68	1.2104
RRU A2	120.0000	0.04	5.81	3.35	162.00	1.576	6	2.29	0.68	1.2104
RRU A2	240.0000	0.04	-5.81	3.35	162.00	1.576	6	2.29	0.68	1.2104
DC6-48-60-18-8F	0.0000	0.12	0.00	-6.71	162.00	1.576	6	3.14	5.01	1.2104
DC6-48-60-18-8F	120.0000	0.12	5.81	3.35	162.00	1.576	6	3.14	5.01	1.2104
(3) T-Frames	0.0000	3.04	0.00	0.00	162.00	1.576	6	61.65	61.65	1.2104
LNX-6515DS-A1M w/ Mount Pipe	0.0000	0.30	0.00	-7.18	152.00	1.547	6	12.96	12.14	1.2012
LNX-6515DS-A1M w/ Mount Pipe	120.0000	0.30	6.22	3.59	152.00	1.547	6	12.96	12.14	1.2012
LNX-6515DS-A1M w/ Mount Pipe	240.0000	0.30	-6.22	3.59	152.00	1.547	6	12.96	12.14	1.2012
AIR 21 B2A/B4P w/ Mount Pipe	0.0000	0.28	0.00	-7.18	152.00	1.547	6	8.62	8.38	1.2012
AIR 21 B2A/B4P w/ Mount Pipe	120.0000	0.28	6.22	3.59	152.00	1.547	6	8.62	8.38	1.2012
AIR 21 B2A/B4P w/	240.0000	0.28	-6.22	3.59	152.00	1.547	6	8.62	8.38	1.2012

Description	Aiming Azimuth °	Weight K	$Offset_x$ ft	$Offset_z$ ft	z ft	K_z	q_z psf	C_AA_C Front ft^2	C_AA_C Side ft^2	t_z in
Mount Pipe										
AIR 21 B4A/B2P w/ Mount Pipe	0.0000	0.28	0.00	-7.18	152.00	1.547	6	8.62	8.38	1.2012
AIR 21 B4A/B2P w/ Mount Pipe	120.0000	0.28	6.22	3.59	152.00	1.547	6	8.62	8.38	1.2012
AIR 21 B4A/B2P w/ Mount Pipe	240.0000	0.28	-6.22	3.59	152.00	1.547	6	8.62	8.38	1.2012
S11B12	0.0000	0.11	0.00	-7.18	152.00	1.547	6	3.91	1.81	1.2012
S11B12	120.0000	0.11	6.22	3.59	152.00	1.547	6	3.91	1.81	1.2012
S11B12	240.0000	0.11	-6.22	3.59	152.00	1.547	6	3.91	1.81	1.2012
KRY 112 144/1	0.0000	0.02	0.00	-7.18	152.00	1.547	6	0.64	0.37	1.2012
KRY 112 144/1	120.0000	0.02	6.22	3.59	152.00	1.547	6	0.64	0.37	1.2012
KRY 112 144/1	240.0000	0.02	-6.22	3.59	152.00	1.547	6	0.64	0.37	1.2012
Empty Pipe Mount	0.0000	0.10	0.00	-7.18	152.00	1.547	6	4.78	1.43	1.2012
Empty Pipe Mount	120.0000	0.10	6.22	3.59	152.00	1.547	6	4.78	1.43	1.2012
Empty Pipe Mount	240.0000	0.10	-6.22	3.59	152.00	1.547	6	4.78	1.43	1.2012
(3) T-Frames	0.0000	3.03	0.00	0.00	152.00	1.547	6	61.43	61.43	1.2012
SBNHH-1D65B w/ Mount Pipe	0.0000	0.51	0.00	-6.88	140.00	1.511	6	21.21	20.17	1.1894
SBNHH-1D65B w/ Mount Pipe	120.0000	0.51	5.96	3.44	140.00	1.511	6	21.21	20.17	1.1894
SBNHH-1D65B w/ Mount Pipe	240.0000	0.51	-5.96	3.44	140.00	1.511	6	21.21	20.17	1.1894
800 10735v01 w/ Mount Pipe	0.0000	0.22	0.00	-6.88	140.00	1.511	6	10.47	7.84	1.1894
800 10735v01 w/ Mount Pipe	120.0000	0.22	5.96	3.44	140.00	1.511	6	10.47	7.84	1.1894
800 10735v01 w/ Mount Pipe	240.0000	0.22	-5.96	3.44	140.00	1.511	6	10.47	7.84	1.1894
BXA-80080/4CF w/ Mount Pipe	0.0000	0.15	0.00	-6.88	140.00	1.511	6	6.58	5.56	1.1894
BXA-80080/4CF w/ Mount Pipe	120.0000	0.15	5.96	3.44	140.00	1.511	6	6.58	5.56	1.1894
BXA-80080/4CF w/ Mount Pipe	240.0000	0.15	-5.96	3.44	140.00	1.511	6	6.58	5.56	1.1894
RRH-2x60-AWS	0.0000	0.09	0.00	-6.88	140.00	1.511	6	2.88	2.00	1.1894
RRH-2x60-AWS	120.0000	0.09	5.96	3.44	140.00	1.511	6	2.88	2.00	1.1894
RRH-2x60-AWS	240.0000	0.09	-5.96	3.44	140.00	1.511	6	2.88	2.00	1.1894
RRH-2x60-PCS	0.0000	0.10	0.00	-6.88	140.00	1.511	6	2.99	1.89	1.1894
RRH-2x60-PCS	120.0000	0.10	5.96	3.44	140.00	1.511	6	2.99	1.89	1.1894
RRH-2x60-PCS	240.0000	0.10	-5.96	3.44	140.00	1.511	6	2.99	1.89	1.1894
RRH 2x60-700	0.0000	0.08	0.00	-6.88	140.00	1.511	6	3.12	2.43	1.1894
RRH 2x60-700	120.0000	0.08	5.96	3.44	140.00	1.511	6	3.12	2.43	1.1894
RRH 2x60-700	240.0000	0.08	-5.96	3.44	140.00	1.511	6	3.12	2.43	1.1894
DB-T1-6Z-8AB-0Z	0.0000	0.14	0.00	-6.88	140.00	1.511	6	6.37	2.88	1.1894
(3) T-Frames	0.0000	2.03	0.00	0.00	140.00	1.511	6	54.90	54.90	1.1894
742 213 w/ Mount Pipe	0.0000	0.17	0.00	-5.97	130.00	1.480	5	6.70	7.32	1.1788
742 213 w/ Mount Pipe	120.0000	0.17	5.17	2.99	130.00	1.480	5	6.70	7.32	1.1788
742 213 w/ Mount Pipe	240.0000	0.17	-5.17	2.99	130.00	1.480	5	6.70	7.32	1.1788
(3) Pipe Mounts	0.0000	0.21	0.00	0.00	130.00	1.480	5	9.53	9.53	1.1788
	Sum Weight:	24.91								

Discrete Appurtenance Pressures - Service $G_H = 1.122$

Description	Aiming Azimuth °	Weight K	$Offset_x$ ft	$Offset_z$ ft	z ft	K_z	q_z psf	C_AA_C Front ft^2	C_AA_C Side ft^2

Description	Aiming Azimuth °	Weight K	$Offset_x$ ft	$Offset_z$ ft	z ft	K_z	q_z psf	C_AA_C Front ft^2	C_AA_C Side ft^2
Lightning Rod	240.0000	0.03	-2.34	1.35	178.00	1.619	10	0.25	0.25
840-10054 w/ Mount Pipe	0.0000	0.06	0.00	-6.71	172.00	1.603	10	5.58	2.69
840-10054 w/ Mount Pipe	120.0000	0.06	5.81	3.35	172.00	1.603	10	5.58	2.69
840-10054 w/ Mount Pipe	240.0000	0.06	-5.81	3.35	172.00	1.603	10	5.58	2.69
URAS-FLEXIBLE	0.0000	0.03	0.00	-6.71	172.00	1.603	10	1.80	0.78
URAS-FLEXIBLE	120.0000	0.03	5.81	3.35	172.00	1.603	10	1.80	0.78
URAS-FLEXIBLE	240.0000	0.03	-5.81	3.35	172.00	1.603	10	1.80	0.78
Horizon Duo	0.0000	0.01	0.00	-6.71	172.00	1.603	10	0.55	0.34
Horizon Duo	120.0000	0.01	5.81	3.35	172.00	1.603	10	0.55	0.34
Horizon Duo	240.0000	0.01	-5.81	3.35	172.00	1.603	10	0.55	0.34
Empty Pipe Mount	0.0000	0.20	0.00	-6.71	172.00	1.603	10	9.00	2.70
Empty Pipe Mount	120.0000	0.20	5.81	3.35	172.00	1.603	10	9.00	2.70
Empty Pipe Mount	240.0000	0.20	-5.81	3.35	172.00	1.603	10	9.00	2.70
(3) T-Frames	0.0000	1.54	0.00	0.00	172.00	1.603	10	33.11	33.11
AM-X-CD-16-65-00T-RET w/ Mount Pipe	0.0000	0.14	0.00	-6.71	162.00	1.576	10	17.00	12.61
AM-X-CD-16-65-00T-RET w/ Mount Pipe	120.0000	0.14	5.81	3.35	162.00	1.576	10	17.00	12.61
AM-X-CD-16-65-00T-RET w/ Mount Pipe	240.0000	0.14	-5.81	3.35	162.00	1.576	10	17.00	12.61
800 10121 w/ Mount Pipe	0.0000	0.07	0.00	-6.71	162.00	1.576	10	5.69	4.60
800 10121 w/ Mount Pipe	120.0000	0.07	5.81	3.35	162.00	1.576	10	5.69	4.60
800 10121 w/ Mount Pipe	240.0000	0.07	-5.81	3.35	162.00	1.576	10	5.69	4.60
QS6651-3 w/ Mount Pipe	0.0000	0.13	0.00	-6.71	162.00	1.576	10	8.64	8.46
QS6651-3 w/ Mount Pipe	120.0000	0.13	5.81	3.35	162.00	1.576	10	8.64	8.46
QS6651-3 w/ Mount Pipe	240.0000	0.13	-5.81	3.35	162.00	1.576	10	8.64	8.46
LGP21401	0.0000	0.02	0.00	-6.71	162.00	1.576	10	2.58	0.47
LGP21401	120.0000	0.02	5.81	3.35	162.00	1.576	10	2.58	0.47
LGP21401	240.0000	0.02	-5.81	3.35	162.00	1.576	10	2.58	0.47
LGP13519	0.0000	0.01	0.00	-6.71	162.00	1.576	10	0.68	0.41
LGP13519	120.0000	0.01	5.81	3.35	162.00	1.576	10	0.68	0.41
LGP13519	240.0000	0.01	-5.81	3.35	162.00	1.576	10	0.68	0.41
RRUS-11	0.0000	0.06	0.00	-6.71	162.00	1.576	10	2.94	1.25
RRUS-11	120.0000	0.06	5.81	3.35	162.00	1.576	10	2.94	1.25
RRUS-11	240.0000	0.06	-5.81	3.35	162.00	1.576	10	2.94	1.25
RRUS-32	0.0000	0.08	0.00	-6.71	162.00	1.576	10	3.87	2.76
RRUS-32	120.0000	0.08	5.81	3.35	162.00	1.576	10	3.87	2.76
RRUS-32	240.0000	0.08	-5.81	3.35	162.00	1.576	10	3.87	2.76
RRU A2	0.0000	0.02	0.00	-6.71	162.00	1.576	10	1.83	0.40
RRU A2	120.0000	0.02	5.81	3.35	162.00	1.576	10	1.83	0.40
RRU A2	240.0000	0.02	-5.81	3.35	162.00	1.576	10	1.83	0.40
DC6-48-60-18-8F	0.0000	0.03	0.00	-6.71	162.00	1.576	10	2.57	4.32
DC6-48-60-18-8F	120.0000	0.03	5.81	3.35	162.00	1.576	10	2.57	4.32
(3) T-Frames	0.0000	1.54	0.00	0.00	162.00	1.576	10	33.11	33.11
LNX-6515DS-A1M w/ Mount Pipe	0.0000	0.08	0.00	-7.18	152.00	1.547	10	11.45	9.36
LNX-6515DS-A1M w/ Mount Pipe	120.0000	0.08	6.22	3.59	152.00	1.547	10	11.45	9.36
LNX-6515DS-A1M w/ Mount Pipe	240.0000	0.08	-6.22	3.59	152.00	1.547	10	11.45	9.36
AIR 21 B2A/B4P w/ Mount Pipe	0.0000	0.12	0.00	-7.18	152.00	1.547	10	7.09	6.02
AIR 21 B2A/B4P w/ Mount Pipe	120.0000	0.12	6.22	3.59	152.00	1.547	10	7.09	6.02
AIR 21 B2A/B4P w/	240.0000	0.12	-6.22	3.59	152.00	1.547	10	7.09	6.02

Description	Aiming Azimuth °	Weight K	$Offset_x$ ft	$Offset_z$ ft	z ft	K_z	q_z psf	C_AA_C Front ft^2	C_AA_C Side ft^2
Mount Pipe									
AIR 21 B4A/B2P w/ Mount Pipe	0.0000	0.12	0.00	-7.18	152.00	1.547	10	7.09	6.02
AIR 21 B4A/B2P w/ Mount Pipe	120.0000	0.12	6.22	3.59	152.00	1.547	10	7.09	6.02
AIR 21 B4A/B2P w/ Mount Pipe	240.0000	0.12	-6.22	3.59	152.00	1.547	10	7.09	6.02
S11B12	0.0000	0.05	0.00	-7.18	152.00	1.547	10	3.31	1.36
S11B12	120.0000	0.05	6.22	3.59	152.00	1.547	10	3.31	1.36
S11B12	240.0000	0.05	-6.22	3.59	152.00	1.547	10	3.31	1.36
KRY 112 144/1	0.0000	0.01	0.00	-7.18	152.00	1.547	10	0.41	0.19
KRY 112 144/1	120.0000	0.01	6.22	3.59	152.00	1.547	10	0.41	0.19
KRY 112 144/1	240.0000	0.01	-6.22	3.59	152.00	1.547	10	0.41	0.19
Empty Pipe Mount	0.0000	0.07	0.00	-7.18	152.00	1.547	10	3.00	0.90
Empty Pipe Mount	120.0000	0.07	6.22	3.59	152.00	1.547	10	3.00	0.90
Empty Pipe Mount	240.0000	0.07	-6.22	3.59	152.00	1.547	10	3.00	0.90
(3) T-Frames	0.0000	1.54	0.00	0.00	152.00	1.547	10	33.11	33.11
SBNHH-1D65B w/ Mount Pipe	0.0000	0.14	0.00	-6.88	140.00	1.511	10	17.73	14.59
SBNHH-1D65B w/ Mount Pipe	120.0000	0.14	5.96	3.44	140.00	1.511	10	17.73	14.59
SBNHH-1D65B w/ Mount Pipe	240.0000	0.14	-5.96	3.44	140.00	1.511	10	17.73	14.59
800 10735v01 w/ Mount Pipe	0.0000	0.06	0.00	-6.88	140.00	1.511	10	8.96	5.41
800 10735v01 w/ Mount Pipe	120.0000	0.06	5.96	3.44	140.00	1.511	10	8.96	5.41
800 10735v01 w/ Mount Pipe	240.0000	0.06	-5.96	3.44	140.00	1.511	10	8.96	5.41
BXA-80080/4CF w/ Mount Pipe	0.0000	0.03	0.00	-6.88	140.00	1.511	10	5.49	4.03
BXA-80080/4CF w/ Mount Pipe	120.0000	0.03	5.96	3.44	140.00	1.511	10	5.49	4.03
BXA-80080/4CF w/ Mount Pipe	240.0000	0.03	-5.96	3.44	140.00	1.511	10	5.49	4.03
RRH-2x60-AWS	0.0000	0.04	0.00	-6.88	140.00	1.511	10	2.35	1.53
RRH-2x60-AWS	120.0000	0.04	5.96	3.44	140.00	1.511	10	2.35	1.53
RRH-2x60-AWS	240.0000	0.04	-5.96	3.44	140.00	1.511	10	2.35	1.53
RRH-2x60-PCS	0.0000	0.06	0.00	-6.88	140.00	1.511	10	2.45	1.43
RRH-2x60-PCS	120.0000	0.06	5.96	3.44	140.00	1.511	10	2.45	1.43
RRH-2x60-PCS	240.0000	0.06	-5.96	3.44	140.00	1.511	10	2.45	1.43
RRH 2x60-700	0.0000	0.03	0.00	-6.88	140.00	1.511	10	2.57	1.93
RRH 2x60-700	120.0000	0.03	5.96	3.44	140.00	1.511	10	2.57	1.93
RRH 2x60-700	240.0000	0.03	-5.96	3.44	140.00	1.511	10	2.57	1.93
DB-T1-6Z-8AB-0Z	0.0000	0.04	0.00	-6.88	140.00	1.511	10	5.60	2.33
(3) T-Frames	0.0000	0.95	0.00	0.00	140.00	1.511	10	30.02	30.02
742 213 w/ Mount Pipe	0.0000	0.05	0.00	-5.97	130.00	1.480	9	5.37	4.62
742 213 w/ Mount Pipe	120.0000	0.05	5.17	2.99	130.00	1.480	9	5.37	4.62
742 213 w/ Mount Pipe	240.0000	0.05	-5.17	2.99	130.00	1.480	9	5.37	4.62
(3) Pipe Mounts	0.0000	0.16	0.00	0.00	130.00	1.480	9	5.78	5.78
	Sum Weight:	10.89							

Dish Pressures - No Ice

Elevation ft	Dish Description	Aiming Azimuth °	Weight K	$Offset_x$ ft	$Offset_z$ ft	K_z	A_A ft^2	q_z psf

Elevation ft	Dish Description	Aiming Azimuth °	Weight K	$Offset_x$ ft	$Offset_z$ ft	K_z	A_A ft^2	q_z psf
172.00	VHLP2.5 Dish	0.0000	0.04	0.00	-6.71	1.603	1.44	26
172.00	VHLP2.5 Dish	120.0000	0.02	5.81	3.35	1.603	0.72	26
172.00	VHLP2.5 Dish	240.0000	0.02	-5.81	3.35	1.603	0.72	26
		Sum Weight:	0.08					

Dish Pressures - With Ice

Elevation ft	Dish Description	Aiming Azimuth °	Weight K	$Offset_x$ ft	$Offset_z$ ft	K_z	A_A ft^2	q_z psf	t_z in
172.00	VHLP2.5 Dish	0.0000	0.06	0.00	-6.71	1.603	2.07	6	1.2191
172.00	VHLP2.5 Dish	120.0000	0.03	5.81	3.35	1.603	1.04	6	1.2191
172.00	VHLP2.5 Dish	240.0000	0.03	-5.81	3.35	1.603	1.04	6	1.2191
		Sum Weight:	0.13						

Dish Pressures - Service

Elevation ft	Dish Description	Aiming Azimuth °	Weight K	$Offset_x$ ft	$Offset_z$ ft	K_z	A_A ft^2	q_z psf
172.00	VHLP2.5 Dish	0.0000	0.04	0.00	-6.71	1.603	1.44	10
172.00	VHLP2.5 Dish	120.0000	0.02	5.81	3.35	1.603	0.72	10
172.00	VHLP2.5 Dish	240.0000	0.02	-5.81	3.35	1.603	0.72	10
		Sum Weight:	0.08					

Force Totals

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Overturning Moments, M_x kip-ft	Sum of Overturning Moments, M_z kip-ft	Sum of Torques kip-ft
Leg Weight	14.69					
Bracing Weight	8.81					
Total Member Self-Weight	23.50			2.00	-25.10	
Total Weight	47.73			2.00	-25.10	
Wind 0 deg - No Ice		0.02	-40.68	-4369.02	-28.65	19.90
Wind 30 deg - No Ice		19.70	-34.12	-3696.41	-2161.16	12.90
Wind 60 deg - No Ice		33.71	-19.51	-2120.29	-3688.79	3.33
Wind 90 deg - No Ice		39.32	-0.04	-4.40	-4284.61	-7.02
Wind 120 deg - No Ice		35.15	20.34	2188.52	-3798.83	-16.29
Wind 150 deg - No Ice		19.62	34.13	3702.51	-2148.61	-19.93
Wind 180 deg - No Ice		-0.02	39.00	4242.75	-21.54	-18.68
Wind 210 deg - No Ice		-19.66	34.16	3706.07	2104.58	-12.96
Wind 240 deg - No Ice		-35.17	20.38	2194.68	3752.19	-3.60
Wind 270 deg - No Ice		-39.32	0.01	2.71	4234.42	7.02
Wind 300 deg - No Ice		-33.68	-19.47	-2114.13	3635.04	15.36
Wind 330 deg - No Ice		-19.66	-34.10	-3692.86	2104.81	19.99
Member Ice	19.34					
Total Weight Ice	106.01			2.01	-71.71	

Load Case	*Vertical Forces* *K*	*Sum of Forces X* *K*	*Sum of Forces Z* *K*	*Sum of Overturning Moments, M_x* *kip-ft*	*Sum of Overturning Moments, M_z* *kip-ft*	*Sum of Torques* *kip-ft*
Wind 0 deg - Ice		0.01	-14.71	-1600.35	-72.57	5.89
Wind 30 deg - Ice		6.96	-12.05	-1327.16	-839.55	4.05
Wind 60 deg - Ice		11.80	-6.83	-755.21	-1380.20	1.56
Wind 90 deg - Ice		13.89	-0.01	0.22	-1603.81	-1.26
Wind 120 deg - Ice		12.72	7.36	803.77	-1456.37	-4.11
Wind 150 deg - Ice		6.93	12.05	1332.15	-835.99	-5.31
Wind 180 deg - Ice		-0.01	13.65	1515.70	-70.86	-5.26
Wind 210 deg - Ice		-6.94	12.06	1333.01	694.05	-4.07
Wind 240 deg - Ice		-12.73	7.37	805.25	1313.81	-1.78
Wind 270 deg - Ice		-13.89	-0.00	1.94	1460.39	1.26
Wind 300 deg - Ice		-11.80	-6.82	-753.72	1235.92	3.70
Wind 330 deg - Ice		-6.95	-12.04	-1326.30	694.65	5.33
Total Weight	47.73			2.00	-25.10	
Wind 0 deg - Service		0.01	-15.89	-1707.90	-1.49	7.77
Wind 30 deg - Service		7.69	-13.33	-1445.16	-834.50	5.04
Wind 60 deg - Service		13.17	-7.62	-829.49	-1431.23	1.30
Wind 90 deg - Service		15.36	-0.02	-2.97	-1663.98	-2.74
Wind 120 deg - Service		13.73	7.95	853.64	-1474.22	-6.36
Wind 150 deg - Service		7.67	13.33	1445.04	-829.60	-7.78
Wind 180 deg - Service		-0.01	15.23	1656.07	1.29	-7.30
Wind 210 deg - Service		-7.68	13.34	1446.43	831.80	-5.06
Wind 240 deg - Service		-13.74	7.96	856.05	1475.40	-1.41
Wind 270 deg - Service		-15.36	0.00	-0.19	1663.77	2.74
Wind 300 deg - Service		-13.16	-7.61	-827.08	1429.64	6.00
Wind 330 deg - Service		-7.68	-13.32	-1443.77	831.89	7.81

Load Combinations

Comb. No.	*Description*
1	Dead Only
2	Dead+Wind 0 deg - No Ice
3	Dead+Wind 30 deg - No Ice
4	Dead+Wind 60 deg - No Ice
5	Dead+Wind 90 deg - No Ice
6	Dead+Wind 120 deg - No Ice
7	Dead+Wind 150 deg - No Ice
8	Dead+Wind 180 deg - No Ice
9	Dead+Wind 210 deg - No Ice
10	Dead+Wind 240 deg - No Ice
11	Dead+Wind 270 deg - No Ice
12	Dead+Wind 300 deg - No Ice
13	Dead+Wind 330 deg - No Ice
14	Dead+Ice+Temp
15	Dead+Wind 0 deg+Ice+Temp
16	Dead+Wind 30 deg+Ice+Temp
17	Dead+Wind 60 deg+Ice+Temp
18	Dead+Wind 90 deg+Ice+Temp
19	Dead+Wind 120 deg+Ice+Temp
20	Dead+Wind 150 deg+Ice+Temp
21	Dead+Wind 180 deg+Ice+Temp
22	Dead+Wind 210 deg+Ice+Temp
23	Dead+Wind 240 deg+Ice+Temp
24	Dead+Wind 270 deg+Ice+Temp
25	Dead+Wind 300 deg+Ice+Temp
26	Dead+Wind 330 deg+Ice+Temp

Comb. No.	Description
27	Dead+Wind 0 deg - Service
28	Dead+Wind 30 deg - Service
29	Dead+Wind 60 deg - Service
30	Dead+Wind 90 deg - Service
31	Dead+Wind 120 deg - Service
32	Dead+Wind 150 deg - Service
33	Dead+Wind 180 deg - Service
34	Dead+Wind 210 deg - Service
35	Dead+Wind 240 deg - Service
36	Dead+Wind 270 deg - Service
37	Dead+Wind 300 deg - Service
38	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	176 - 160	Leg	Max Tension	4	5.92	-0.38	0.22
			Max. Compression	2	-9.64	0.07	0.70
			Max. Mx	11	-2.42	-1.03	0.02
			Max. My	2	1.41	0.01	-1.02
			Max. Vy	5	0.81	-0.57	0.02
			Max. Vx	8	0.84	-0.04	-0.64
		Diagonal	Max Tension	12	2.34	0.00	0.00
			Max. Compression	6	-2.51	0.00	0.00
			Max. Mx	15	0.46	0.01	0.00
			Max. My	13	1.09	0.00	-0.00
			Max. Vy	15	-0.02	0.01	0.00
			Max. Vx	13	-0.00	0.00	-0.00
		Top Girt	Max Tension	8	0.23	0.00	0.00
			Max. Compression	10	-0.29	0.00	0.00
			Max. Mx	14	-0.07	-0.03	0.00
			Max. Vy	14	0.02	0.00	0.00
T2	160 - 140	Leg	Max Tension	4	37.55	-0.16	-0.01
			Max. Compression	6	-46.34	0.16	-0.01
			Max. Mx	10	-15.94	0.71	0.01
			Max. My	3	-2.40	0.02	-0.58
			Max. Vy	12	-1.19	-0.12	-0.01
			Max. Vx	9	1.03	0.02	-0.22
		Diagonal	Max Tension	13	4.17	0.00	0.00
			Max. Compression	13	-4.24	0.00	0.00
			Max. Mx	19	1.12	0.02	0.00
			Max. My	13	-3.27	-0.00	-0.00
			Max. Vy	19	-0.02	0.02	0.00
			Max. Vx	13	0.00	0.00	0.00
T3	140 - 120	Leg	Max Tension	4	74.88	-0.31	-0.00
			Max. Compression	6	-88.05	0.69	0.03
			Max. Mx	2	-87.97	0.69	-0.03
			Max. My	3	-6.51	-0.01	-0.68
			Max. Vy	8	-1.33	-0.15	0.01
			Max. Vx	11	-1.17	0.00	0.17
		Diagonal	Max Tension	7	5.70	0.00	0.00
			Max. Compression	13	-5.75	0.00	0.00
			Max. Mx	19	1.60	0.02	0.00
			Max. My	20	-1.89	0.02	0.00
			Max. Vy	17	0.02	0.02	-0.00
			Max. Vx	20	-0.00	0.00	0.00
T4	120 - 100	Leg	Max Tension	4	105.08	-0.66	-0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	6	-121.26	0.61	0.01
			Max. Mx	2	-98.33	0.69	-0.03
			Max. My	3	-7.14	-0.01	-0.70
			Max. Vy	12	-0.07	-0.69	-0.03
			Max. Vx	2	-0.06	-0.31	-0.62
		Diagonal	Max Tension	13	5.97	0.00	0.00
			Max. Compression	13	-6.03	0.00	0.00
			Max. Mx	19	1.59	0.05	0.01
			Max. My	15	1.49	0.04	-0.01
			Max. Vy	17	0.03	0.05	0.01
			Max. Vx	15	0.00	0.00	0.00
T5	100 - 80	Leg	Max Tension	4	131.64	-0.55	-0.00
			Max. Compression	6	-151.40	1.11	0.05
			Max. Mx	2	-151.09	1.11	-0.06
			Max. My	3	-9.34	0.02	-0.93
			Max. Vy	10	-0.13	1.11	0.01
			Max. Vx	2	0.10	-0.53	-0.85
		Diagonal	Max Tension	13	5.82	0.00	0.00
			Max. Compression	13	-5.84	0.00	0.00
			Max. Mx	17	1.48	0.06	-0.01
			Max. My	15	-2.05	0.05	-0.01
			Max. Vy	17	0.04	0.06	-0.01
			Max. Vx	15	0.00	0.00	0.00
T6	80 - 60	Leg	Max Tension	4	155.11	-0.64	-0.00
			Max. Compression	6	-178.97	1.15	0.04
			Max. Mx	2	-178.52	1.15	-0.05
			Max. My	3	-11.06	-0.01	-1.11
			Max. Vy	10	0.13	1.11	0.01
			Max. Vx	3	0.16	-0.01	-1.11
		Diagonal	Max Tension	13	6.02	0.00	0.00
			Max. Compression	13	-6.07	0.00	0.00
			Max. Mx	17	1.54	0.09	-0.01
			Max. My	20	-2.07	0.07	0.01
			Max. Vy	17	0.06	0.09	-0.01
			Max. Vx	20	-0.00	0.00	0.00
T7	60 - 40	Leg	Max Tension	4	174.69	-1.24	-0.01
			Max. Compression	6	-202.52	1.39	0.02
			Max. Mx	17	42.15	-1.40	-0.01
			Max. My	3	-11.85	-0.07	-1.81
			Max. Vy	25	0.18	-1.40	-0.01
			Max. Vx	3	-0.18	-0.07	-1.81
		Diagonal	Max Tension	13	6.96	0.00	0.00
			Max. Compression	13	-7.01	0.00	0.00
			Max. Mx	19	2.46	0.15	-0.02
			Max. My	15	1.98	0.14	-0.02
			Max. Vy	17	0.07	0.14	0.02
			Max. Vx	15	0.00	0.00	0.00
T8	40 - 20	Leg	Max Tension	4	194.76	-1.14	-0.01
			Max. Compression	6	-227.31	1.59	0.04
			Max. Mx	17	45.68	-3.74	-0.01
			Max. My	3	-13.80	-0.09	-1.41
			Max. Vy	25	0.57	-3.74	-0.01
			Max. Vx	3	-0.15	-0.09	-1.41
		Diagonal	Max Tension	13	7.13	0.00	0.00
			Max. Compression	13	-7.26	0.00	0.00
			Max. Mx	17	1.16	0.17	0.02
			Max. My	15	0.92	0.14	-0.02
			Max. Vy	17	0.07	0.15	0.02
			Max. Vx	15	0.00	0.00	0.00
T9	20 - 0	Leg	Max Tension	4	213.45	-1.22	-0.01
			Max. Compression	6	-251.08	0.00	-0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	23	-110.15	4.21	-0.02
			Max. My	3	-16.31	-0.15	-2.39
			Max. Vy	25	-0.76	-3.74	-0.01
			Max. Vx	3	-0.33	-0.15	-2.39
		Diagonal	Max Tension	13	7.64	0.00	0.00
			Max. Compression	13	-7.85	0.00	0.00
			Max. Mx	17	-0.21	0.27	-0.02
			Max. My	15	3.99	0.14	-0.03
			Max. Vy	17	0.10	0.27	-0.02
			Max. Vx	15	0.01	0.00	0.00

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	10	254.92	22.44	-12.83
	Max. H_x	10	254.92	22.44	-12.83
	Max. H_z	4	-218.04	-19.48	11.16
	Min. Vert	4	-218.04	-19.48	11.16
	Min. H_x	4	-218.04	-19.48	11.16
	Min. H_z	10	254.92	22.44	-12.83
Leg B	Max. Vert	6	256.97	-22.17	-13.33
	Max. H_x	12	-215.31	19.17	11.55
	Max. H_z	12	-215.31	19.17	11.55
	Min. Vert	12	-215.31	19.17	11.55
	Min. H_x	6	256.97	-22.17	-13.33
	Min. H_z	6	256.97	-22.17	-13.33
Leg A	Max. Vert	2	256.14	0.57	25.89
	Max. H_x	11	15.76	2.56	1.23
	Max. H_z	2	256.14	0.57	25.89
	Min. Vert	8	-217.38	-0.49	-22.46
	Min. H_x	6	-104.43	-2.55	-11.10
	Min. H_z	8	-217.38	-0.49	-22.46

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	47.73	-0.00	0.00	2.00	-25.10	0.00
Dead+Wind 0 deg - No Ice	47.73	0.02	-40.68	-4369.02	-28.65	19.90
Dead+Wind 30 deg - No Ice	47.73	19.70	-34.12	-3696.41	-2161.16	12.90
Dead+Wind 60 deg - No Ice	47.73	33.71	-19.51	-2120.29	-3688.79	3.33
Dead+Wind 90 deg - No Ice	47.73	39.32	-0.04	-4.40	-4284.61	-7.02
Dead+Wind 120 deg - No Ice	47.73	35.15	20.34	2188.52	-3798.83	-16.29
Dead+Wind 150 deg - No Ice	47.73	19.62	34.13	3702.51	-2148.61	-19.93
Dead+Wind 180 deg - No Ice	47.73	-0.02	39.00	4242.75	-21.54	-18.68
Dead+Wind 210 deg - No Ice	47.73	-19.66	34.16	3706.07	2104.57	-12.96
Dead+Wind 240 deg - No Ice	47.73	-35.17	20.38	2194.68	3752.19	-3.60
Dead+Wind 270 deg - No Ice	47.73	-39.32	0.01	2.71	4234.42	7.02
Dead+Wind 300 deg - No Ice	47.73	-33.68	-19.47	-2114.13	3635.04	15.36
Dead+Wind 330 deg - No Ice	47.73	-19.66	-34.10	-3692.86	2104.81	19.99

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead+Ice+Temp	106.01	-0.00	0.00	2.01	-71.71	0.00
Dead+Wind 0 deg+Ice+Temp	106.01	0.01	-14.71	-1600.34	-72.57	5.89
Dead+Wind 30 deg+Ice+Temp	106.01	6.96	-12.05	-1327.16	-839.55	4.05
Dead+Wind 60 deg+Ice+Temp	106.01	11.80	-6.83	-755.20	-1380.20	1.56
Dead+Wind 90 deg+Ice+Temp	106.01	13.89	-0.01	0.23	-1603.81	-1.26
Dead+Wind 120 deg+Ice+Temp	106.01	12.72	7.36	803.77	-1456.37	-4.11
Dead+Wind 150 deg+Ice+Temp	106.01	6.93	12.05	1332.15	-835.99	-5.31
Dead+Wind 180 deg+Ice+Temp	106.01	-0.01	13.65	1515.70	-70.86	-5.26
Dead+Wind 210 deg+Ice+Temp	106.01	-6.94	12.06	1333.01	694.05	-4.07
Dead+Wind 240 deg+Ice+Temp	106.01	-12.73	7.37	805.25	1313.81	-1.78
Dead+Wind 270 deg+Ice+Temp	106.01	-13.89	-0.00	1.94	1460.39	1.26
Dead+Wind 300 deg+Ice+Temp	106.01	-11.80	-6.82	-753.72	1235.91	3.70
Dead+Wind 330 deg+Ice+Temp	106.01	-6.95	-12.04	-1326.30	694.64	5.33
Dead+Wind 0 deg - Service	47.73	0.01	-15.89	-1705.43	-26.49	7.77
Dead+Wind 30 deg - Service	47.73	7.69	-13.33	-1442.69	-859.50	5.04
Dead+Wind 60 deg - Service	47.73	13.17	-7.62	-827.02	-1456.23	1.30
Dead+Wind 90 deg - Service	47.73	15.36	-0.02	-0.50	-1688.97	-2.74
Dead+Wind 120 deg - Service	47.73	13.73	7.95	856.11	-1499.21	-6.36
Dead+Wind 150 deg - Service	47.73	7.67	13.33	1447.51	-854.59	-7.78
Dead+Wind 180 deg - Service	47.73	-0.01	15.23	1658.54	-23.71	-7.30
Dead+Wind 210 deg - Service	47.73	-7.68	13.34	1448.90	806.81	-5.06
Dead+Wind 240 deg - Service	47.73	-13.74	7.96	858.52	1450.41	-1.41
Dead+Wind 270 deg - Service	47.73	-15.36	0.00	2.28	1638.78	2.74
Dead+Wind 300 deg - Service	47.73	-13.16	-7.61	-824.61	1404.64	6.00
Dead+Wind 330 deg - Service	47.73	-7.68	-13.32	-1441.30	806.90	7.81

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	-47.73	0.00	0.00	47.73	0.00	0.000%
2	0.02	-47.73	-40.68	-0.02	47.73	40.68	0.000%
3	19.70	-47.73	-34.12	-19.70	47.73	34.12	0.000%
4	33.71	-47.73	-19.51	-33.71	47.73	19.51	0.000%
5	39.32	-47.73	-0.04	-39.32	47.73	0.04	0.000%
6	35.15	-47.73	20.34	-35.15	47.73	-20.34	0.000%
7	19.62	-47.73	34.13	-19.62	47.73	-34.13	0.000%
8	-0.02	-47.73	39.00	0.02	47.73	-39.00	0.000%
9	-19.66	-47.73	34.16	19.66	47.73	-34.16	0.000%
10	-35.17	-47.73	20.38	35.17	47.73	-20.38	0.000%
11	-39.32	-47.73	0.01	39.32	47.73	-0.01	0.000%
12	-33.68	-47.73	-19.47	33.68	47.73	19.47	0.000%
13	-19.66	-47.73	-34.10	19.66	47.73	34.10	0.000%
14	0.00	-106.01	0.00	0.00	106.01	-0.00	0.000%
15	0.01	-106.01	-14.71	-0.01	106.01	14.71	0.000%
16	6.96	-106.01	-12.05	-6.96	106.01	12.05	0.000%
17	11.80	-106.01	-6.83	-11.80	106.01	6.83	0.000%
18	13.89	-106.01	-0.01	-13.89	106.01	0.01	0.000%
19	12.72	-106.01	7.36	-12.72	106.01	-7.36	0.000%
20	6.93	-106.01	12.05	-6.93	106.01	-12.05	0.000%
21	-0.01	-106.01	13.65	0.01	106.01	-13.65	0.000%
22	-6.94	-106.01	12.06	6.94	106.01	-12.06	0.000%
23	-12.73	-106.01	7.37	12.73	106.01	-7.37	0.000%
24	-13.89	-106.01	-0.00	13.89	106.01	0.00	0.000%
25	-11.80	-106.01	-6.82	11.80	106.01	6.82	0.000%
26	-6.95	-106.01	-12.04	6.95	106.01	12.04	0.000%
27	0.01	-47.73	-15.89	-0.01	47.73	15.89	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
28	7.69	-47.73	-13.33	-7.69	47.73	13.33	0.000%
29	13.17	-47.73	-7.62	-13.17	47.73	7.62	0.000%
30	15.36	-47.73	-0.02	-15.36	47.73	0.02	0.000%
31	13.73	-47.73	7.95	-13.73	47.73	-7.95	0.000%
32	7.67	-47.73	13.33	-7.67	47.73	-13.33	0.000%
33	-0.01	-47.73	15.23	0.01	47.73	-15.23	0.000%
34	-7.68	-47.73	13.34	7.68	47.73	-13.34	0.000%
35	-13.74	-47.73	7.96	13.74	47.73	-7.96	0.000%
36	-15.36	-47.73	0.00	15.36	47.73	-0.00	0.000%
37	-13.16	-47.73	-7.61	13.16	47.73	7.61	0.000%
38	-7.68	-47.73	-13.32	7.68	47.73	13.32	0.000%

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	176 - 160	5.146	31	0.2545	0.0345
T2	160 - 140	4.290	31	0.2499	0.0340
T3	140 - 120	3.254	31	0.2240	0.0278
T4	120 - 100	2.330	31	0.1893	0.0206
T5	100 - 80	1.578	31	0.1490	0.0152
T6	80 - 60	0.981	31	0.1145	0.0101
T7	60 - 40	0.544	31	0.0785	0.0068
T8	40 - 20	0.254	31	0.0474	0.0044
T9	20 - 0	0.076	31	0.0237	0.0021

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
176.00	Lightning Rod	31	5.146	0.2545	0.0345	598852
172.00	(2) VHLP2.5 Dish	31	4.931	0.2542	0.0346	598852
162.00	(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe	31	4.397	0.2512	0.0343	209164
152.00	LNX-6515DS-A1M w/ Mount Pipe	31	3.868	0.2418	0.0321	78757
140.00	(2) SBNHH-1D65B w/ Mount Pipe	31	3.254	0.2240	0.0278	41972
130.00	742 213 w/ Mount Pipe	31	2.773	0.2075	0.0240	31162

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	176 - 160	13.079	6	0.6469	0.0883
T2	160 - 140	10.905	6	0.6349	0.0871
T3	140 - 120	8.272	6	0.5689	0.0712

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T4	120 - 100	5.924	6	0.4808	0.0527
T5	100 - 80	4.012	6	0.3783	0.0389
T6	80 - 60	2.495	6	0.2908	0.0258
T7	60 - 40	1.385	6	0.1992	0.0175
T8	40 - 20	0.647	6	0.1204	0.0113
T9	20 - 0	0.195	2	0.0601	0.0053

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
176.00	Lightning Rod	6	13.079	0.6469	0.0883	249670
172.00	(2) VHLP2.5 Dish	6	12.534	0.6460	0.0886	249670
162.00	(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe	6	11.176	0.6382	0.0878	86974
152.00	LNX-6515DS-A1M w/ Mount Pipe	6	9.832	0.6142	0.0822	31450
140.00	(2) SBNHH-1D65B w/ Mount Pipe	6	8.272	0.5689	0.0712	16566
130.00	742 213 w/ Mount Pipe	6	7.049	0.5270	0.0614	12272

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load K	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	176	Leg	A325N	0.8750	4	1.48	26.45	0.056	1.333	Bolt Tension
		Diagonal	A325N	0.6250	1	2.51	6.44	0.390	1.333	Bolt Shear
		Top Girt	A325N	0.6250	1	0.29	6.44	0.045	1.333	Bolt Shear
T2	160	Leg	A325N	1.0000	4	9.39	34.56	0.272	1.333	Bolt Tension
		Diagonal	A325N	0.6250	1	4.17	4.55	0.915	1.333	Member Block Shear
T3	140	Leg	A325N	1.0000	6	12.48	34.56	0.361	1.333	Bolt Tension
		Diagonal	A325N	0.6250	1	5.70	4.55	1.251	1.333	Member Block Shear
T4	120	Leg	A325N	1.0000	6	17.51	34.56	0.507	1.333	Bolt Tension
		Diagonal	A325N	0.6250	1	5.97	5.10	1.171	1.333	Member Bearing
T5	100	Leg	A325N	1.0000	6	21.94	34.56	0.635	1.333	Bolt Tension
		Diagonal	A325N	0.6250	1	5.82	5.10	1.141	1.333	Member Bearing
T6	80	Leg	A325N	1.0000	8	19.39	34.56	0.561	1.333	Bolt Tension
		Diagonal	A325N	0.7500	1	6.02	9.14	0.658	1.333	Member Bearing
T7	60	Leg	A325N	1.0000	8	21.84	34.56	0.632	1.333	Bolt Tension
		Diagonal	A325N	0.7500	1	6.96	9.14	0.761	1.333	Member Bearing
T8	40	Leg	A325N	1.0000	8	24.34	34.56	0.704	1.333	Bolt Tension
		Diagonal	A325N	0.7500	1	7.26	9.28	0.782	1.333	Bolt Shear
T9	20	Leg	A354-BC	1.0000	10	21.35	32.40	0.659	1.333	Bolt Tension
		Diagonal	A325N	0.7500	1	7.85	9.28	0.846	1.333	Bolt Shear

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	176 - 160	ROHN 3 EH	16.00	4.00	42.2 K=1.00	25.514	3.0159	-9.64	76.95	0.125
T2	160 - 140	ROHN 4 EH	20.03	4.01	32.6 K=1.00	26.830	4.4074	-46.34	118.25	0.392
T3	140 - 120	ROHN 5 EH	20.03	5.01	32.7 K=1.00	26.815	6.1120	-88.05	163.89	0.537
T4	120 - 100	ROHN 6 EHS	20.03	6.68	36.0 K=1.00	26.379	6.7133	-121.26	177.09	0.685
T5	100 - 80	ROHN 6 EH	20.03	6.68	36.5 K=1.00	26.312	8.4049	-151.40	221.15	0.685
T6	80 - 60	ROHN 6 EH	20.03	6.68	36.5 K=1.00	26.312	8.4049	-178.97	221.15	0.809
T7	60 - 40	ROHN 8 EHS	20.03	10.02	40.6 K=1.00	25.754	9.8666	-202.52	254.10	0.797
T8	40 - 20	ROHN 8 X-STR	20.03	10.02	41.8 K=1.00	25.582	12.7627	-227.31	326.49	0.696
T9	20 - 0	ROHN 8 EH	20.03	10.02	41.8 K=1.00	25.582	12.7627	-251.08	326.49	0.769

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	176 - 160	L2x2x1/4	6.16	2.77	93.8 K=1.10	13.754	0.9380	-2.51	12.90	0.195
T2	160 - 140	L2x2x3/16	7.65	3.61	112.4 K=1.02	11.350	0.7150	-4.17	8.12	0.513
T3	140 - 120	L2x2x3/16	9.87	4.70	143.0 K=1.00	7.303	0.7150	-5.50	5.22	1.053
T4	120 - 100	L2 1/2x2 1/2x3/16	12.41	5.96	144.5 K=1.00	7.155	0.9020	-5.85	6.45	0.907
T5	100 - 80	L2 1/2x2 1/2x3/16	14.17	6.85	166.0 K=1.00	5.422	0.9020	-5.80	4.89	1.186
T6	80 - 60	L3x3x1/4	16.00	7.75	157.0 K=1.00	6.055	1.4400	-6.00	8.72	0.689
T7	60 - 40	L3 1/2x3 1/2x1/4	19.22	9.35	161.6 K=1.00	5.717	1.6900	-7.01	9.66	0.726
T8	40 - 20	L3 1/2x3 1/2x1/4	20.99	10.24	177.1 K=1.00	4.763	1.6900	-7.26	8.05	0.902
T9	20 - 0	L4x4x1/4	22.80	11.15	168.3 K=1.00	5.273	1.9400	-7.85	10.23	0.767

Top Girt Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	F_a	A	Actual P	Allow. P_a	Ratio $\frac{P}{P_a}$
	ft		ft	ft		ksi	in^2	K	K	
T1	176 - 160	L2x2x1/4	4.69	4.16	127.6 K=1.00	9.178	0.9380	-0.29	8.61	0.034

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	F_a	A	Actual P	Allow. P_a	Ratio $\frac{P}{P_a}$
	ft		ft	ft		ksi	in^2	K	K	
T1	176 - 160	ROHN 3 EH	16.00	4.00	42.2	30.000	3.0159	5.92	90.48	0.065
T2	160 - 140	ROHN 4 EH	20.03	4.01	32.6	30.000	4.4074	37.55	132.22	0.284
T3	140 - 120	ROHN 5 EH	20.03	5.01	32.7	30.000	6.1120	74.88	183.36	0.408
T4	120 - 100	ROHN 6 EHS	20.03	6.68	36.0	30.000	6.7133	105.08	201.40	0.522
T5	100 - 80	ROHN 6 EH	20.03	6.68	36.5	30.000	8.4049	131.64	252.15	0.522
T6	80 - 60	ROHN 6 EH	20.03	6.68	36.5	30.000	8.4049	155.10	252.15	0.615
T7	60 - 40	ROHN 8 EHS	20.03	10.02	40.6	30.000	9.8666	174.69	296.00	0.590
T8	40 - 20	ROHN 8 X-STR	20.03	10.02	41.8	30.000	12.7627	194.76	382.88	0.509
T9	20 - 0	ROHN 8 EH	20.03	10.02	41.8	30.000	12.7627	213.45	382.88	0.557

Diagonal Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	F_a	A	Actual P	Allow. P_a	Ratio $\frac{P}{P_a}$
	ft		ft	ft		ksi	in^2	K	K	
T1	176 - 160	L2x2x1/4	6.16	2.77	56.9	29.000	0.5629	2.34	16.32	0.144
T2	160 - 140	L2x2x3/16	6.97	3.27	65.9	29.000	0.4308	4.17	12.49	0.334
T3	140 - 120	L2x2x3/16	8.59	4.06	81.3	29.000	0.4308	5.70	12.49	0.456
T4	120 - 100	L2 1/2x2 1/2x3/16	11.29	5.41	85.2	29.000	0.5710	5.97	16.56	0.361
T5	100 - 80	L2 1/2x2 1/2x3/16	13.58	6.55	102.9	29.000	0.5710	5.82	16.56	0.351
T6	80 - 60	L3x3x1/4	15.38	7.44	97.8	32.500	0.9159	6.02	29.77	0.202
T7	60 - 40	L3 1/2x3 1/2x1/4	19.22	9.35	104.4	32.500	1.1034	6.96	35.86	0.194
T8	40 - 20	L3 1/2x3 1/2x1/4	20.99	10.24	114.2	32.500	1.1034	7.13	35.86	0.199
T9	20 - 0	L4x4x1/4	22.80	11.15	108.3	32.500	1.2909	7.64	41.96	0.182

Top Girt Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	F_a	A	Actual P	Allow. P_a	Ratio $\frac{P}{P_a}$
	ft		ft	ft		ksi	in^2	K	K	
T1	176 - 160	L2x2x1/4	4.69	4.16	86.6	29.000	0.5629	0.23	16.32	0.014

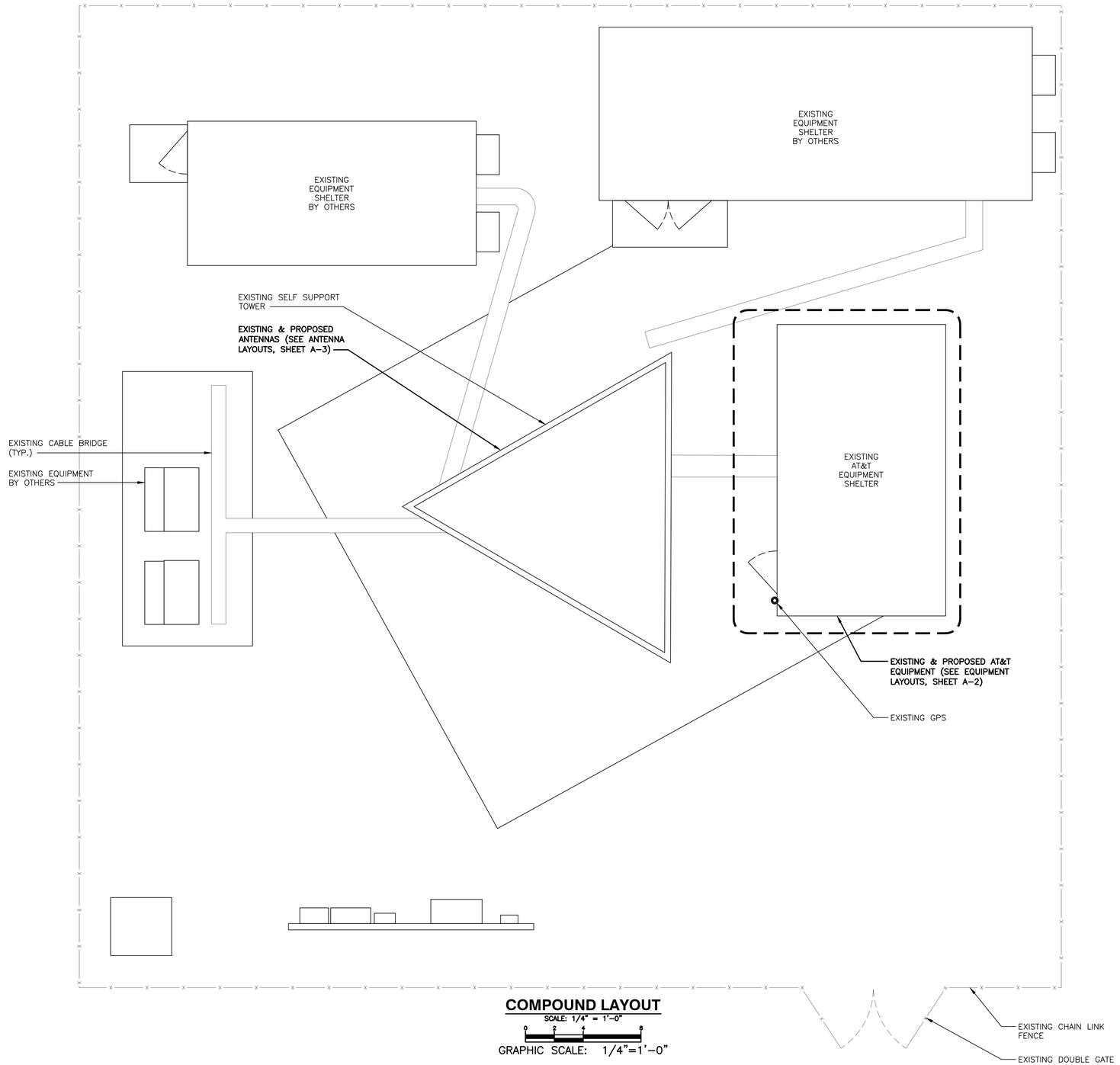
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
T1	176 - 160	Leg	ROHN 3 EH	3	-9.64	102.57	9.4	Pass
T2	160 - 140	Leg	ROHN 4 EH	32	-46.34	157.63	29.4	Pass
T3	140 - 120	Leg	ROHN 5 EH	65	-88.05	218.47	40.3	Pass
T4	120 - 100	Leg	ROHN 6 EHS	92	-121.26	236.06	51.4	Pass
T5	100 - 80	Leg	ROHN 6 EH	113	-151.40	294.79	51.4	Pass
T6	80 - 60	Leg	ROHN 6 EH	134	-178.97	294.79	60.7	Pass
T7	60 - 40	Leg	ROHN 8 EHS	155	-202.52	338.72	59.8	Pass
T8	40 - 20	Leg	ROHN 8 X-STR	170	-227.31	435.21	52.2	Pass
							52.8 (b)	
T9	20 - 0	Leg	ROHN 8 EH	185	-251.08	435.21	57.7	Pass
T1	176 - 160	Diagonal	L2x2x1/4	9	-2.51	17.20	14.6	Pass
							29.3 (b)	
T2	160 - 140	Diagonal	L2x2x3/16	37	-4.17	10.82	38.5	Pass
							68.7 (b)	
T3	140 - 120	Diagonal	L2x2x3/16	70	-5.50	6.96	79.0	Pass
							93.8 (b)	
T4	120 - 100	Diagonal	L2 1/2x2 1/2x3/16	97	-5.85	8.60	68.0	Pass
							87.9 (b)	
T5	100 - 80	Diagonal	L2 1/2x2 1/2x3/16	118	-5.80	6.52	89.0	Pass
T6	80 - 60	Diagonal	L3x3x1/4	139	-6.00	11.62	51.7	Pass
T7	60 - 40	Diagonal	L3 1/2x3 1/2x1/4	160	-7.01	12.88	54.5	Pass
							57.1 (b)	
T8	40 - 20	Diagonal	L3 1/2x3 1/2x1/4	175	-7.26	10.73	67.6	Pass
T9	20 - 0	Diagonal	L4x4x1/4	190	-7.85	13.63	57.5	Pass
							63.4 (b)	
T1	176 - 160	Top Girt	L2x2x1/4	5	-0.29	11.48	2.6	Pass
							3.4 (b)	
							Summary	
						Leg (T6)	60.7	Pass
						Diagonal (T3)	93.8	Pass
						Top Girt (T1)	3.4	Pass
						Bolt Checks	93.8	Pass
						RATING =	**93.8**	**Pass**

FOUNDATION REACTION COMPARISON

REACTIONS PER ANCHOR	DESIGN REACTIONS	CURRENT REACTION	% CAPACITY
UPLIFT (kips)	312.3	218.0	69.8%
COMPRESSION (kips)	364.9	257.0	70.4%
MAX MOMENT (kip-ft)	5963.8	4384.0	73.5%

Design loads from:



COMPOUND LAYOUT

SCALE: 1/4" = 1'-0"

0 2 4 8

GRAPHIC SCALE: 1/4"=1'-0"

NORTH

COM-EX Consultants
115 ROUTE 46
SUITE E39
MOUNTAIN LAKES, NJ 07046
PHONE: 862.209.4300
FAX: 862.209.4301

EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01821

SITE NUMBER: CT5254
SITE NAME: NEW BRITAIN WEST

1 HARTFORD SQUARE
NEW BRITAIN, CT 06052
HARTFORD COUNTY

at&t MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	02/10/16	REVISED PER CLIENT COMMENTS	KCD	NDB	NDB
0	1/12/16	ISSUED AS FINAL	JW	NDB	NDB

SCALE: AS SHOWN | DESIGNED BY: JW | DRAWN BY: JW

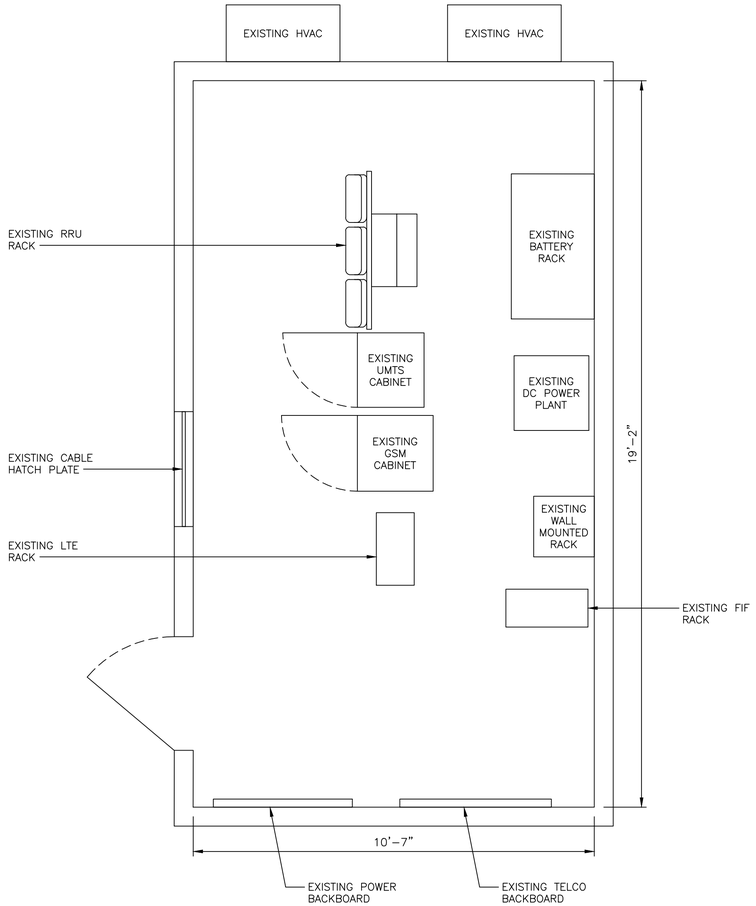
SEAL:

STATE OF CONNECTICUT
NICHOLAS D. BOLDUC 28643
REGISTERED PROFESSIONAL ENGINEER
PROFESSIONAL ENGINEER
CT LICENSE NO. 28643

AT&T

DRAWING TITLE:
COMPOUND LAYOUT

JOB NUMBER	DRAWING NUMBER	REV
15151-EMP	A-1	1



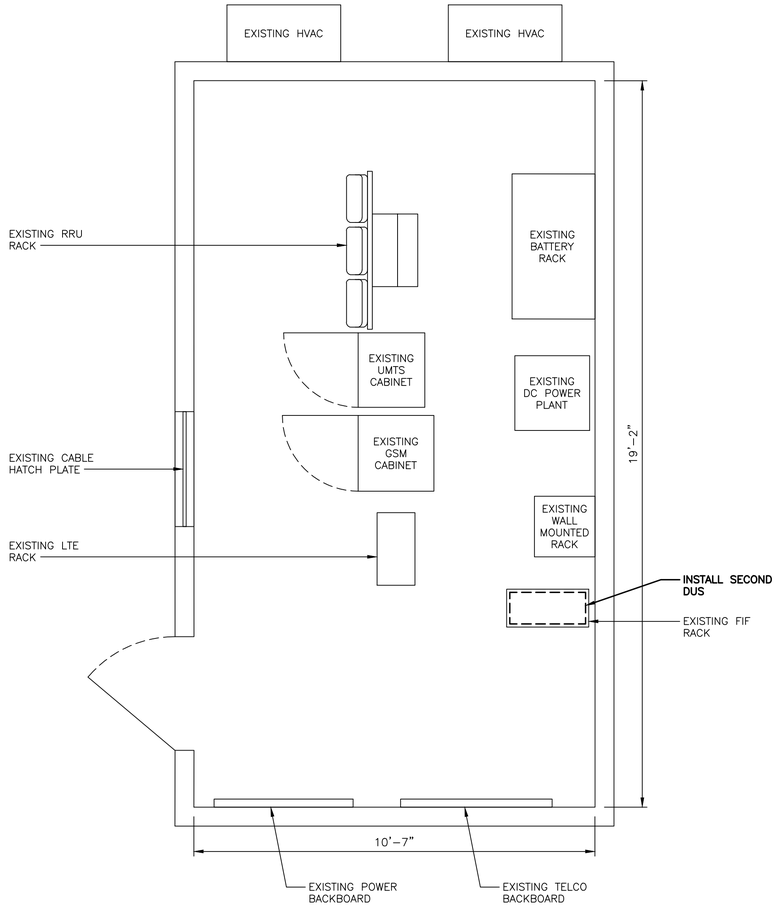
NORTH

EXISTING EQUIPMENT LAYOUT

SCALE: 1/2" = 2'-0"

2 0 1 2 4 8

(IN FEET)
1/2 Inch = 1 Foot



NORTH

PROPOSED EQUIPMENT LAYOUT

SCALE: 1/2" = 2'-0"

2 0 1 2 4 8

(IN FEET)
1/2 Inch = 1 Foot

COM-EX Consultants
115 ROUTE 46
SUITE E39
MOUNTAIN LAKES, NJ 07046
PHONE: 862.209.4300
FAX: 862.209.4301

EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01821

SITE NUMBER: CT5254
SITE NAME: NEW BRITAIN WEST

1 HARTFORD SQUARE
NEW BRITAIN, CT 06052
HARTFORD COUNTY

at&t MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	02/10/16	REVISED PER CLIENT COMMENTS	KCD	NDB	NDB
0	1/12/16	ISSUED AS FINAL	JW	NDB	NDB

SCALE: AS SHOWN | DESIGNED BY: JW | DRAWN BY: JW

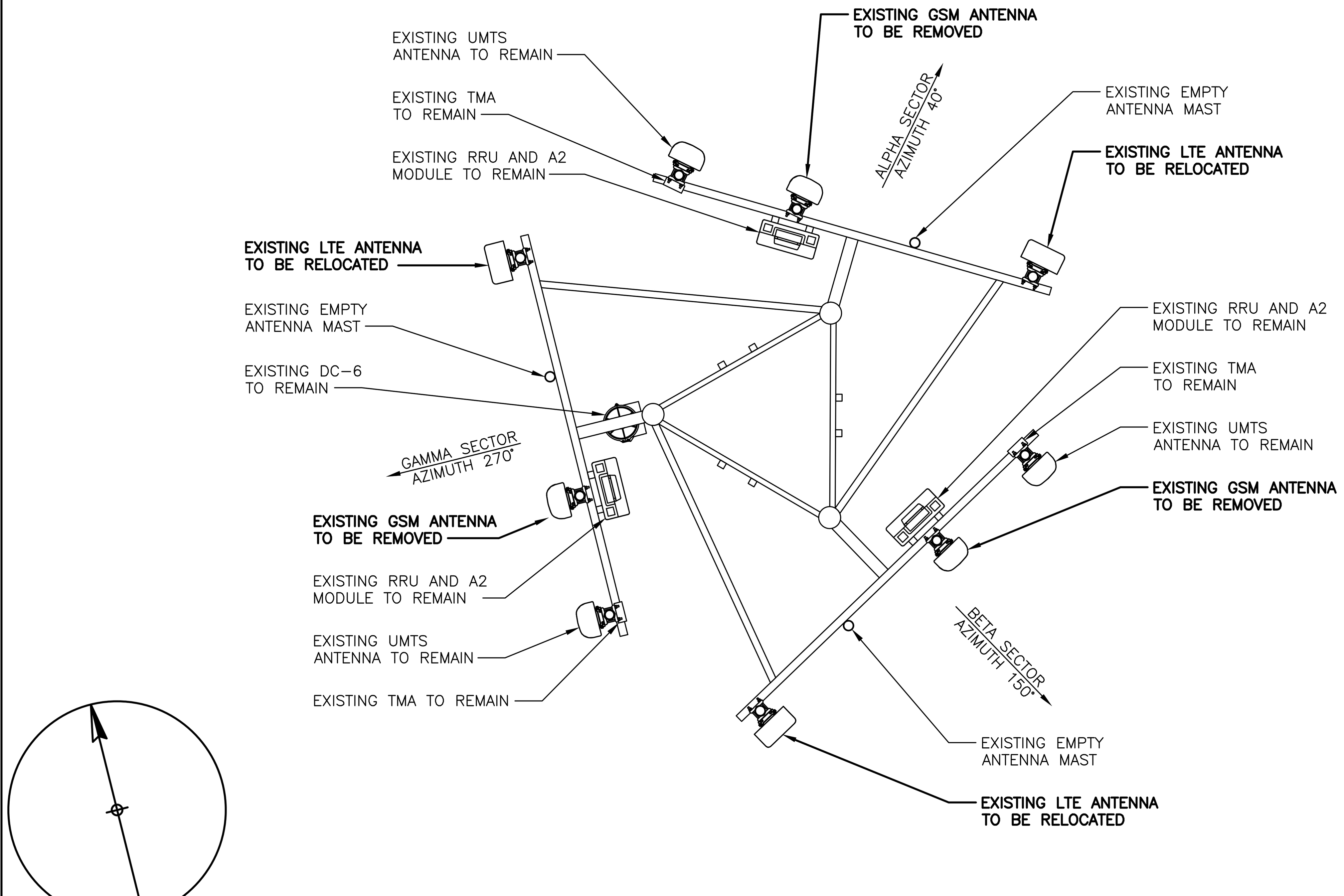
SEAL:

STATE OF CONNECTICUT
DOUGLAS G. BOLDUC
LICENSED PROFESSIONAL ENGINEER
PROFESSIONAL ENGINEER
CT LICENSE NO. 23643

AT&T

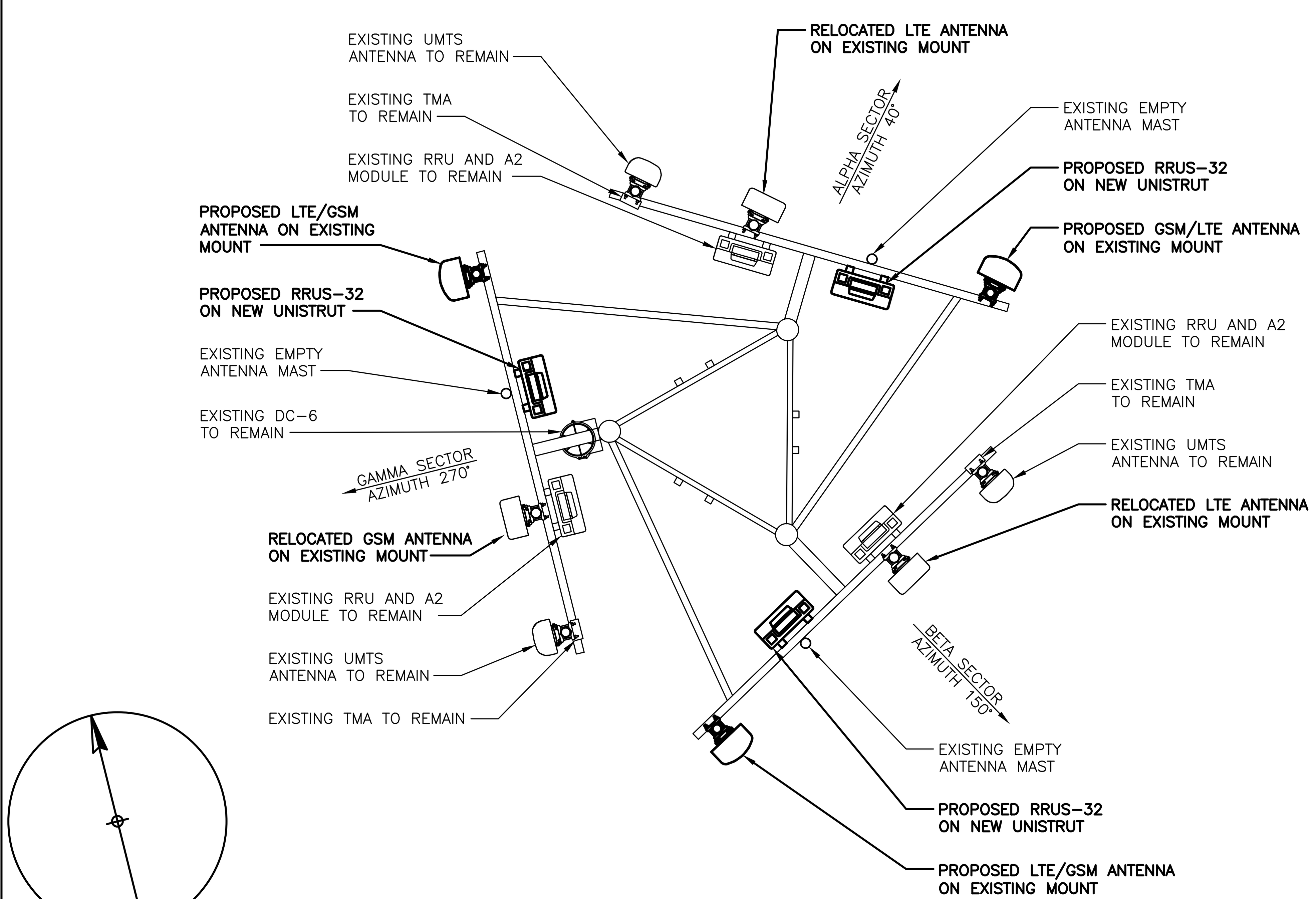
DRAWING TITLE:
EQUIPMENT LAYOUTS

JOB NUMBER	DRAWING NUMBER	REV
15151-EMP	A-2	1



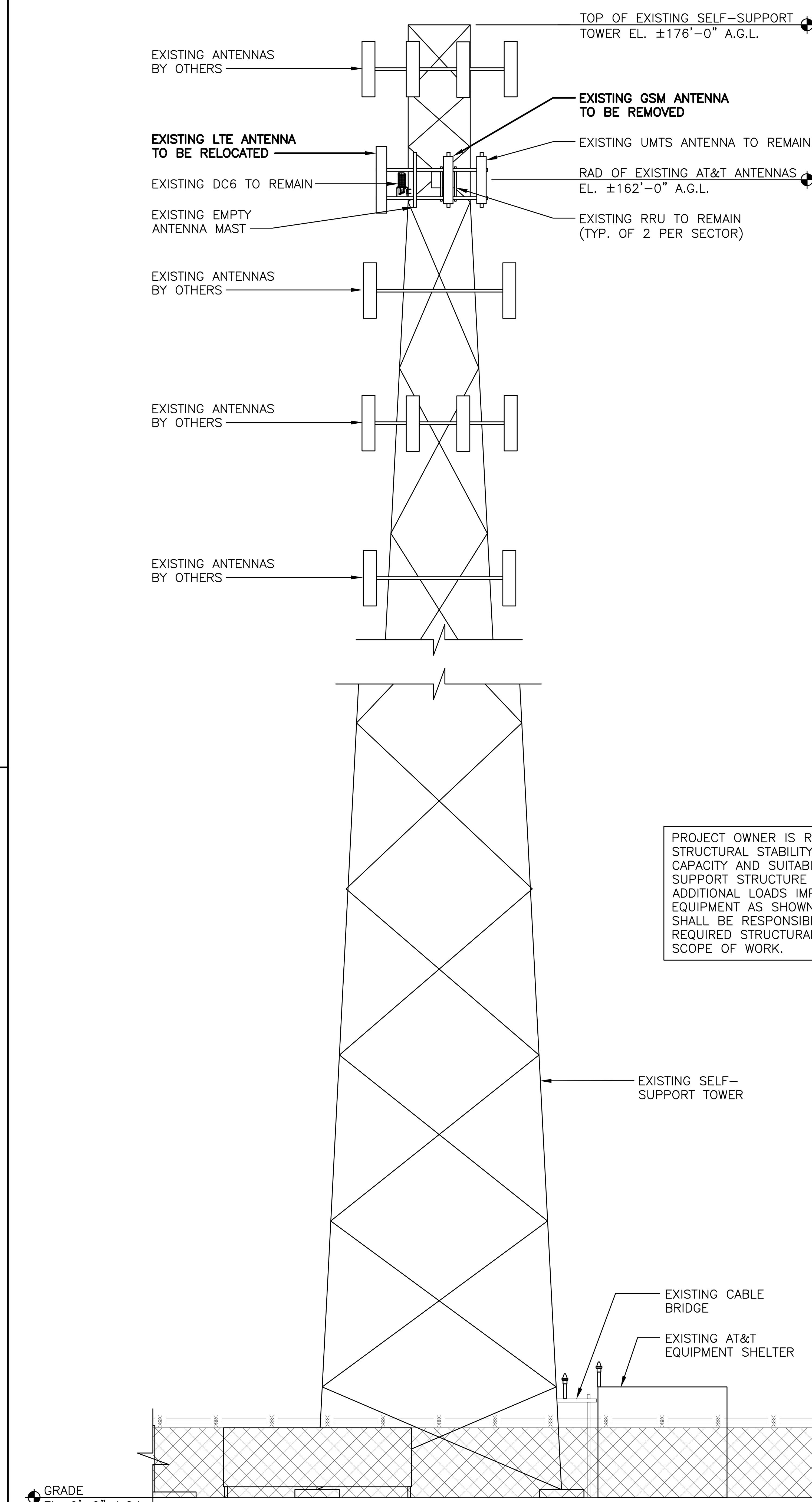
EXISTING ANTENNA LAYOUT

SCALE: N.T.S.



PROPOSED ANTENNA LAYOUT

SCALE: N.T.S.



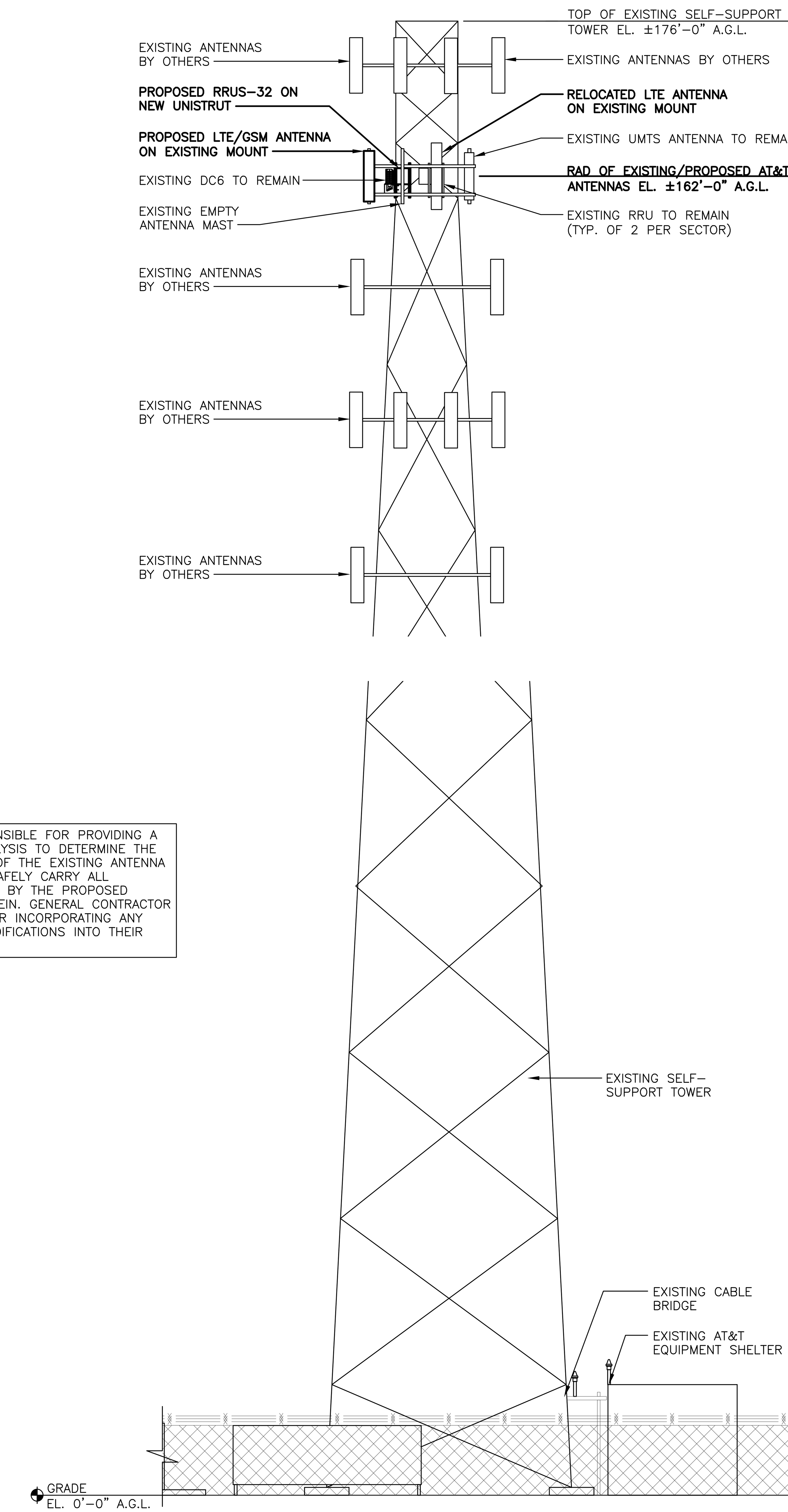
PROJECT OWNER IS RESPONSIBLE FOR PROVIDING A STRUCTURAL STABILITY ANALYSIS TO DETERMINE THE CAPACITY AND SUITABILITY OF THE EXISTING ANTENNA SUPPORT STRUCTURE TO SAFELY CARRY ALL ADDITIONAL LOADS IMPOSED BY THE PROPOSED EQUIPMENT AS SHOWN HEREIN. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR INCORPORATING ANY REQUIRED STRUCTURAL MODIFICATIONS INTO THEIR SCOPE OF WORK.

EXISTING TOWER ELEVATION

SCALE: 1/8" = 1'-0"

0 4 8 16

GRAPHIC SCALE: 1/8"=1'-0"



PROPOSED TOWER ELEVATION

SCALE: 1/8" = 1'-0"

0 4 8 16

GRAPHIC SCALE: 1/8"=1'-0"

COM-EX Consultants
115 ROUTE 46
SUITE E39
MOUNTAIN LAKES, NJ 07046
PHONE: 862.209.4300
FAX: 862.209.4301

EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01821

SITE NUMBER: CT5254
SITE NAME: NEW BRITAIN WEST

1 HARTFORD SQUARE
NEW BRITAIN, CT 06052
HARTFORD COUNTY

at&t MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	02/10/16	REVISED PER CLIENT COMMENTS	KCD	NDB	NDB
0	1/12/16	ISSUED AS FINAL	JW	NDB	NDB

SCALE: AS SHOWN | DESIGNED BY: JW | DRAWN BY: JW

SEAL:

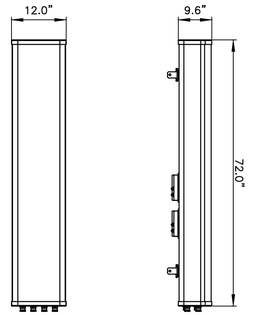
STATE OF CONNECTICUT NICHOLAS D. BARILE PROFESSIONAL ENGINEER CT ... 28643

AT&T

DRAWING TITLE:

ANTENNA LAYOUTS & ELEVATIONS

JOB NUMBER	DRAWING NUMBER	REV
15151-EMP	A-3	1



FRONT VIEW

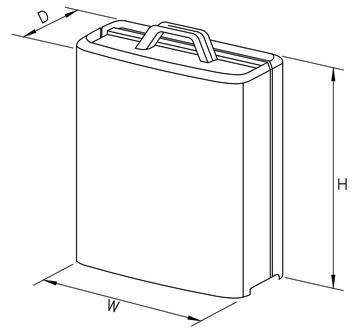
SIDE VIEW

BOTTOM VIEW

MANUFACTURER	QUINTEL
MODEL	QS6651
WEIGHT	47.6 LBS

LTE ANTENNA DETAIL

SCALE: N.T.S.



MODEL	H x W x D	WEIGHT
*RRUS-11	19.69" x 16.97" x 7.17"	50.7 LBS
*A2 MODULE	16.4" X 15.2" X 3.4"	22 LBS
RRUS-32	29.9" x 13.3" x 9.5"	77 LBS

* DENOTES EXISTING

RRUS DETAIL

SCALE: N.T.S.

COM-EX Consultants
115 ROUTE 46
SUITE E39
MOUNTAIN LAKES, NJ 07046
PHONE: 862.209.4300
FAX: 862.209.4301

EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01821

SITE NUMBER: CT5254
SITE NAME: NEW BRITAIN WEST

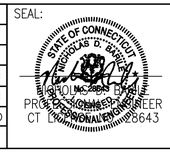
1 HARTFORD SQUARE
NEW BRITAIN, CT 06052
HARTFORD COUNTY

at&t MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	02/10/16	REVISED PER CLIENT COMMENTS	KCD	NDB	NDB
0	1/12/16	ISSUED AS FINAL	JW	NDB	NDB

SCALE: AS SHOWN | DESIGNED BY: JW | DRAWN BY: JW

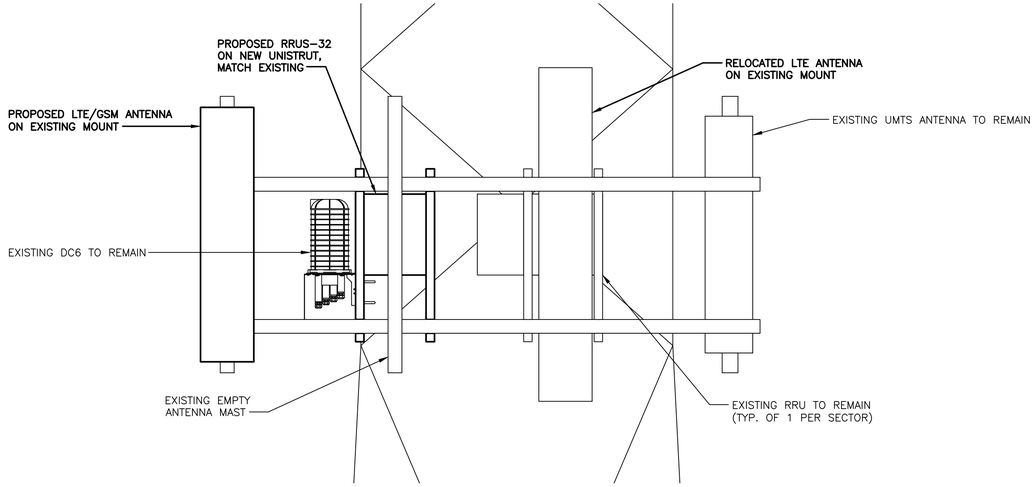
SEAL:



AT&T

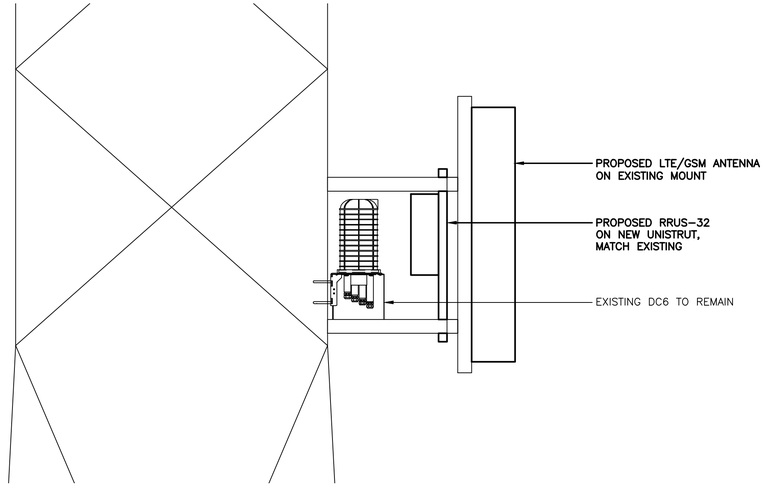
DRAWING TITLE:
DETAILS

JOB NUMBER	DRAWING NUMBER	REV
15151-EMP	A-4	1



PROPOSED ANTENNA MOUNTING DETAIL (FRONT VIEW)

SCALE: N.T.S.



PROPOSED ANTENNA MOUNTING DETAIL (SIDE VIEW)

SCALE: N.T.S.

EXISTING ANTENNA SCHEDULE

SECTOR	POSITION	MAKE	MODEL	SIZE (INCHES)
ALPHA	A1	KATHREIN	800 10121	54.5"x10.3"x5.9"
	A2	KATHREIN	800 10121	54.5"x10.3"x5.9"
	A3	–	–	–
	A4	KMW	AM-X-CD-16-65-00T-RET	72"x11.8"x5.9"
BETA	B1	KATHREIN	800 10121	54.5"x10.3"x5.9"
	B2	KATHREIN	800 10121	54.5"x10.3"x5.9"
	B3	–	–	–
	B4	KMW	AM-X-CD-16-65-00T-RET	72"x11.8"x5.9"
GAMMA	C1	KATHREIN	800 10121	54.5"x10.3"x5.9"
	C2	KATHREIN	800 10121	54.5"x10.3"x5.9"
	C3	–	–	–
	C4	KMW	AM-X-CD-16-65-00T-RET	72"x11.8"x5.9"

FINAL ANTENNA SCHEDULE

SECTOR	POSITION	MAKE	MODEL	SIZE (INCHES)
ALPHA	A1	KATHREIN	800 10121	54.5"x10.3"x5.9"
	A2	KMW	AM-X-CD-16-65-00T-RET	72"x11.8"x5.9"
	A3	–	–	–
	A4	**ANDREW**	**SBNHH-1D65A**	**55"x11.8"x7.1"**
BETA	B1	KATHREIN	800 10121	54.5"x10.3"x5.9"
	B2	KMW	AM-X-CD-16-65-00T-RET	72"x11.8"x5.9"
	B3	–	–	–
	B4	**ANDREW**	**SBNHH-1D65A**	**55"x11.8"x7.1"**
GAMMA	C1	KATHREIN	800 10121	54.5"x10.3"x5.9"
	C2	KMW	AM-X-CD-16-65-00T-RET	72"x11.8"x5.9"
	C3	–	–	–
	C4	**ANDREW**	**SBNHH-1D65A**	**55"x11.8"x7.1"**

PROPOSED RRU SCHEDULE

SECTOR	MAKE	MODEL	SIZE (INCHES)	ADDITIONAL COMPONENT	SIZE (INCHES)
ALPHA	ERICSSON	RRUS-11 (EXISTING)	19.7"x16.9"x7.2"	ERICSSON A2 MODULE	16.4"X15.2"X3.4"
	ERICSSON	**RRUS-32**	**29.9"x13.3"x9.5"**		
BETA	ERICSSON	RRUS-11 (EXISTING)	19.7"x16.9"x7.2"	ERICSSON A2 MODULE	16.4"X15.2"X3.4"
	ERICSSON	**RRUS-12**	**29.9"x13.3"x9.5"**		
GAMMA	ERICSSON	RRUS-11 (EXISTING)	19.7"x16.9"x7.2"	ERICSSON A2 MODULE	16.4"X15.2"X3.4"
	ERICSSON	**RRUS-12**	**29.9"x13.3"x9.5"**		

PROJECT OWNER IS RESPONSIBLE FOR PROVIDING A STRUCTURAL STABILITY ANALYSIS TO DETERMINE THE CAPACITY AND SUITABILITY OF THE EXISTING ANTENNA SUPPORT STRUCTURE TO SAFELY CARRY ALL ADDITIONAL LOADS IMPOSED BY THE PROPOSED EQUIPMENT AS SHOWN HEREIN. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR INCORPORATING ANY REQUIRED STRUCTURAL MODIFICATIONS INTO THEIR SCOPE OF WORK.

COMEX Consultants
115 ROUTE 46
SUITE E39
MOUNTAIN LAKES, NJ 07046
PHONE: 862.209.4300
FAX: 862.209.4301

EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01821

SITE NUMBER: CT5254
SITE NAME: NEW BRITAIN WEST

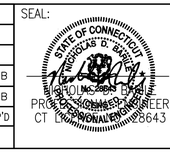
1 HARTFORD SQUARE
NEW BRITAIN, CT 06052
HARTFORD COUNTY

at&t MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	02/10/16	REVISED PER CLIENT COMMENTS	KCD	NDB	NDB
0	1/12/16	ISSUED AS FINAL	JW	NDB	NDB

SCALE: AS SHOWN | DESIGNED BY: JW | DRAWN BY: JW

SEAL:



PROFESSIONAL ENGINEER
CT LICENSE NO. 28643

AT&T

DRAWING TITLE:
ANTENNA MOUNTING DETAILS

JOB NUMBER	DRAWING NUMBER	REV
15151-EMP	A-5	1