David Ford, Site Acquisition
c/o New Cingular Wireless, PCS LLC (AT&T)
Centerline Communications, LLC
95 Ryan Drive, Suite 1
Raynham, MA 02767
Mobile: (508) 821-6509
dford@clinellc.com

November 18, 2016

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

RE: Notice of Exempt Modification // Site Number: CT2112
623-627 Honeyspot Road, Stratford, CT 06615 (Site Name: Stratford)
N 41.176875 // W 73.1460222

Dear Ms. Bachman:

New Cingular Wireless, PCS, LLC ("AT&T") currently maintains nine (9) antennas at the 90 foot level of the existing 102 foot monopole tower at 623-627 Honeyspot Road, Stratford, CT 06615. The tower is owned by John and/or Deborah Becker. The property is also owned by John and/or Deborah Becker. AT&T now intends to replace three (3) of its existing antennas with three (3) new for its LTE upgrade. These antennas would be installed at the 90 foot level of the tower. AT&T also intends to install three (3) remote radio units, three (3) modules, one (1) surge arrestor and six (6) triplexers.

The current proposal involves an antenna swap only (three for three); zero antennas will be added.

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 John A. Harkins, Mayor for the Town of Stratford, as well as the tower owner and the ground owner, John and/or Deborah Becker.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2). AT&T was original approved for nine (9) antennas on 6/16/1999; AT&T was further approved for three (3) additional antennas that were never added on 7/18/2011 and approved for various radio units on 6/15/2015 and 4/18/16.

Attached to accommodate this filing are construction drawings dated 3/17/2016 by ComEx consultants, a structural analysis dated 11/03/2016 by ComEx Consultants and an Emissions Analysis Report dated 11/6/2016 by EBI Consulting.

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

2. The proposed modifications 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 modifications 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 as shown in the attached structural analysis by ComEx Consultants dated 11/03/2016.

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

Sincerely,

_____

David Ford, Site Acquisition
c/o New Cingular Wireless, PCS LLC (AT&T)
Centerline Communications, LLC
95 Ryan Drive, Suite 1
Raynham, MA 02767
Mobile: (508) 821-6509
dford@clinellc.com

Attachments

cc: John A. Harkins, Mayor, Town of Stratford - as elected official
John and/or Deborah Becker - as tower owner
John and/or Deborah Becker - as property owner

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: CT2112

Stratford
623 Honeyspot Road
Stratford, CT 06616

November 6, 2016

EBI Project Number: 6216004965

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	28.31 %

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

EBI Consulting
environmental | engineering | due diligence

November 6, 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: **CT2112 – Stratford**

EBI Consulting was directed to analyze the proposed AT&T facility located at **623 Honeyspot Road, Stratford, 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 **623 Honeyspot Road, Stratford, 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 (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

3) 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.

4) 2 GSM channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

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

6) 2 LTE channels (2300 MHz (WCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

7) 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.

8) For the following calculations the sample point was the top of a 6-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.

9) The antennas used in this modeling are the **Powerwave 7770, KMW AM-X-CD-16-65-00T-RET and the Quintel QS66512-2** 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.

10) The antenna mounting height centerlines of the proposed antennas are **90 feet** above ground level (AGL) for **Sector A**, **90 feet** above ground level (AGL) for **Sector B** and **90 feet** above ground level (AGL) for Sector C.

11) 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.

AT&T Site Inventory and Power Data by Antenna

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	Powerwave 7770	Make / Model:	Powerwave 7770	Make / Model:	Powerwave 7770
Gain:	11.4 / 13.4 dBd	Gain:	11.4 / 13.4 dBd	Gain:	11.4 / 13.4 dBd
Height (AGL):	**90 feet**	Height (AGL):	**90 feet**	Height (AGL):	**90 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 Watts	Total TX Power(W):	120 Watts	Total TX Power(W):	120 Watts
ERP (W):	2,140.89	ERP (W):	2,140.89	ERP (W):	2,140.89
Antenna A1 MPE%	**1.41 %**	Antenna B1 MPE%	**1.41 %**	Antenna C1 MPE%	**1.41 %**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	KMW AM-X-CD-16-65-00T-RET	Make / Model:	KMW AM-X-CD-16-65-00T-RET	Make / Model:	KMW AM-X-CD-16-65-00T-RET
Gain:	13.35 dBd	Gain:	13.35 dBd	Gain:	13.35 dBd
Height (AGL):	**90 feet**	Height (AGL):	**90 feet**	Height (AGL):	**90 feet**
Frequency Bands	700 MHz	Frequency Bands	700 MHz	Frequency Bands	700 MHz
Channel Count	2	Channel Count	2	Channel Count	2
Total TX Power(W):	120 Watts	Total TX Power(W):	120 Watts	Total TX Power(W):	120 Watts
ERP (W):	2,595.26	ERP (W):	2,595.26	ERP (W):	2,595.26
Antenna A2 MPE%	**2.83 %**	Antenna B2 MPE%	**2.83 %**	Antenna C2 MPE%	**2.83 %**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Quintel QS66512-2	Make / Model:	Quintel QS66512-2	Make / Model:	Quintel QS66512-2
Gain:	11.35 / 13.85 / 14.85 dBd	Gain:	11.35 / 13.85 / 14.85 dBd	Gain:	11.35 / 13.85 / 14.85 dBd
Height (AGL):	**90 feet**	Height (AGL):	**90 feet**	Height (AGL):	**90 feet**
Frequency Bands	850 MHz / 1900 MHz (PCS) / 2300 MHz (WCS)	Frequency Bands	850 MHz / 1900 MHz (PCS) / 2300 MHz (WCS)	Frequency Bands	850 MHz / 1900 MHz (PCS) / 2300 MHz (WCS)
Channel Count	6	Channel Count	6	Channel Count	6
Total TX Power(W):	300 Watts	Total TX Power(W):	300 Watts	Total TX Power(W):	300 Watts
ERP (W):	7,396.59	ERP (W):	7,396.59	ERP (W):	7,396.59
Antenna A3 MPE%	**4.09 %**	Antenna B3 MPE%	**4.09 %**	Antenna C3 MPE%	**4.09 %**

Site Composite MPE%	
Carrier	**MPE%**
AT&T – Max per sector	**8.33 %**
Verizon Wireless	10.87 %
Clearwire	0.43 %
Sprint	0.40 %
Nextel	2.11 %
MetroPCS	1.91 %
Com-tronics	4.26 %
Site Total MPE %:	**28.31 %**

AT&T Sector A Total:	8.33 %
AT&T Sector B Total:	8.33 %
AT&T Sector C Total:	8.33 %
Site Total:	28.31 %

AT&T _ Frequency Band / Technology 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	414.12	90	4.22	850 MHz	567	0.74%
AT&T 1900 MHz (PCS) UMTS	2	656.33	90	6.69	1900 MHz (PCS)	1000	0.67%
AT&T 700 MHz LTE	2	1,297.63	90	13.22	700 MHz	467	2.83%
AT&T 850 MHz GSM	2	409.37	90	4.17	850 MHz	567	0.74%
AT&T 1900 MHz (PCS) LTE	2	1,455.97	90	14.84	1900 MHz (PCS)	1000	1.48%
AT&T 2300 MHz (WCS) LTE	2	1,832.95	90	18.68	2300 MHz (WCS)	1000	1.87%
						Total:	8.33%

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 A:	8.33 %
Sector B:	8.33 %
Sector C:	8.33 %
AT&T Maximum Total (per sector):	8.33 %
Site Total:	28.31 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **28.31 %** 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.

STRUCTURAL ANALYSIS REPORT - REV.1
MONOPOLE

Prepared For:

Com-Ex Consultants, LLC
115 Route 46 – Suite E39
Mountain Lakes, NJ 07046

Structure Rating:	
Monopole:	**Pass**
Anchor Rods:	**Pass**
Base Plate:	**Pass**
Foundation:	**Pass**

Sincerely,
Destek Engineering, LLC

11-03-2016

STATE OF CONNECTICUT
AHMET COLAKOGLU
PEN. 27057
LICENSED
PROFESSIONAL ENGINEER

Ahmet Colakoglu, PE
Connecticut Professional Engineer
License No: 27057

AT&T Site ID: CT2112
FA Number: 10071312
Site Name: Stratford
623 Honeyspot Road
Stratford, CT 06615

DESTEK ENGINEERING, LLC
1281 Kennestone Circle, Ste 100, Marietta, GA 30066 -Tel: (770) 693-0835

CONTENTS

DESTEK ENGINEERING, LLC
1281 Kennestone Circle, Ste 100, Marietta, GA 30066 -Tel: (770) 693-0835

1.0 SUBJECT AND REFERENCES

The purpose of this analysis is to evaluate the structural capacity of the existing monopole located at 623 Honeyspot Road, Stratford, CT 06615 for the additions and alterations proposed by AT&T.

The structural analysis is based on the following information provided to Destek Engineering, LLC (Destek):

- Construction Drawings prepared by Com-Ex, dated 10/05/2016.
- RFDS prepared by AT&T, dated 07/18/2016.
- Structural Analysis Report prepared by Destek, dated 03/08/2016.
- Tower Modification Drawings prepared by Ramaker & Associates, Inc., dated 10/15/2014.

1.1 STRUCTURE

The structure is a 102'-0" tall, 18-sided monopole, which is attached to the foundation with anchor bolts and a base plate. Please refer to the software output in Appendix A, for tower geometry, member sizes, and other details.

ELEVATION (FEET)	SECTION LENGTH (FEET)	LAP SPLICE (IN)	SHAFT THICKNESS (IN)	TOP DIAMETER (IN)	BOTTOM DIAMETER (IN)	YIELD STRENGTH (KSI)
102.70-89.80	12.92	-	0.2500	13.0000	13.0000	35
89.80-45.00	44.80	3.80	0.2500	13.0000	26.7925	65
45.00-0.00	48.78	-	0.3125	25.1226	40.0000	65

*Does not include description of existing monopole modifications.

2.0 EXISTING AND PROPOSED APPURTENANCES

AT&T is proposing the following antenna configuration on the tower:

Existing Configuration of AT&T Appurtenances:

Rad. Center (ft)	Antenna & TMA	Mount	Cables
90.0	(3) 7700.00 (3) AM-X-CD-16-65-00T-RET (3) QS66512-2 (12) LGP 21401 TMAs (6) RRUS 11 (3) RRUS 32 (3) RRUS A2 (2) DC (6) Triplexers	(1) Platform Mount	(12) 7/8"

DESTEK ENGINEERING, LLC
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Proposed and Final Configuration of AT&T Appurtenances:

Rad. Center (ft)	Antenna & TMA	Mount	Cables
90.0	(3) 7700.00 (3) AM-X-CD-16-65-00T-RET (3) QS66512-2 (3) RRUS 11 (3) RRUS 32 (3) RRUS 32 B2 (2) WCS-IMFQ-AMT* (6) Triplexers (2) DC	(1) Platform Mount	(12) 7/8”

***For Sector Alpha and Beta only.**

Existing Appurtenances by Others

Rad. Center (ft)	Antenna & TMA	Mount	Cables
101.0	(6) Kathrein 800 10504	(3) Sector Mounts	(12) 7/8” (1) 3/8”
82.0	(3) MG D3-900TV (3) BXA-171063-8CF-EDIN-X (3) BXA-70063-6CF-EDIN-X (3) RRH2x40-AWS (3) RRH 2x40-700 W/SOLAR (1) DB-T1-6Z-8AB-0Z	(1) Platform Mount	(12) 7/8” (1) 1/2" (2) Fiber Cable
72.0	(3) APXVTM14-C-120 (3) APXVSPP18-C (3)TD-RRH8x20 (3) 800MHZ RRH (3) 1900MHz 4X40W RRH (1) 2'x2' Junction box	(3) Sector Mounts	(4) 1-1/4” (2) 1/2" (1) 5/8”
28.0	(1) 20’ Omni (2) 12’ Omni (3) 10’ Omni (1) GPS	(3) Sector Mounts	(8) 1/2” (1) 1-1/4”

DESTEK ENGINEERING, LLC
1281 Kennestone Circle, Ste 100, Marietta, GA 30066 -Tel: (770) 693-0835

3.0 CODES AND LOADING

This analysis has been performed in accordance with the 2012 International Building Code based upon an ultimate 3-second gust wind speed of 125 mph (Risk Category II) converted to a nominal 3-second gust wind speed of 97 mph per section 1609.3.1 as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1. The following loading criteria were used in the analysis:

- Basic wind speed of 97 mph without ice (V)
- Basic wind speed of 50 mph concurrent with the design ice thickness of ¾" (V_i and t_i)
- Exposure Category C, Topographic Category 1

The following load combinations were used with wind blowing at 0°, 60°, and 90°, measured from a line normal to the face of the tower:

- $1.2D + 1.6W_o$
- $0.9D + 1.6W_o$
- $1.2D + 1.0D_i + 1.0W_i$

D: Dead load of structure and appurtenances
W_o: Wind load without ice (based upon V)
W_i: Concurrent wind load with factored ice thickness (based upon V_i)
D_i: Weight of ice due to factored ice thickness (based upon t_i)

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1281 Kennestone Circle, Ste 100, Marietta, GA 30066 -Tel: (770) 693-0835

4.0 STANDARD CONDITIONS FOR ENGINEERING SERVICES ON EXISTING STRUCTURES

The analysis is based on the information provided to Destek and is assumed to be current and correct. Unless otherwise noted, the structure is assumed to be in good condition, free of defects, and can achieve theoretical strength.

It is assumed that the structure has been maintained and shall be maintained during its service lifespan. The superstructure and the foundation system are assumed to be designed with proper engineering practice and fabricated, constructed and erected in accordance with the design documents. Destek will accept no liability which may arise due to any existing deficiency in design, material, fabrication, erection, construction, etc. or lack of maintenance.

The analysis does not include a qualification of the antenna mounts attached on the structure or their connections. The analysis is performed to verify the capacity of the main structural members, which is the current practice in the tower industry.

The analysis results presented in this report are only applicable for the previously mentioned existing and proposed appurtenances. Any deviation of the appurtenances and placement, etc., will require Destek to generate an additional structural analysis. Additionally, the proposed linear appurtenances should be placed per recommendations of this report.

5.0 ANALYSIS AND ASSUMPTIONS

The Monopole was analyzed by utilizing tnxTower, a non-linear, three-dimensional, finite element-analysis software package, a product of Tower Numerics, Inc. Software output for this analysis is provided in Appendix A of this report.

The monopole modifications are assumed to have been constructed in accordance with the previously referenced drawings.

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1281 Kennestone Circle, Ste 100, Marietta, GA 30066 -Tel: (770) 693-0835

6.0 RESULTS AND CONCLUSION

Based on a structural analysis per TIA-222-G, the existing monopole is found to have **adequate** structural capacity for the proposed changes by AT&T. As a maximum, the monopole shaft between 32.8 feet and 33.8 feet is stressed to **52.7%** of its capacity. The base plate is stressed to **64.5%** of its capacity as a maximum. The anchor rods, base plate and foundation are also found to have **adequate** capacity.

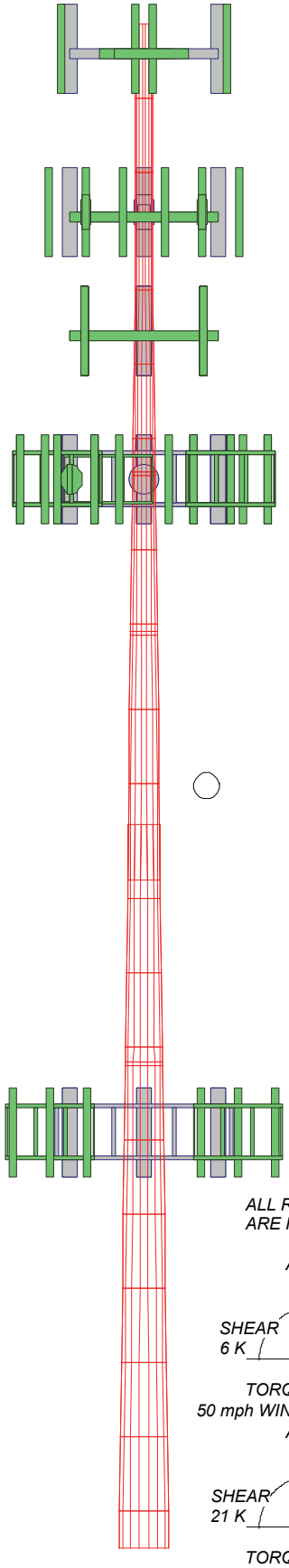
Therefore, the proposed additions and alterations by AT&T can be implemented as intended with the conditions outlined in this report.

Should you have any questions about this report, please contact Ahmet Colakoglu at (770) 693-0835 or acolakoglu@destekengineering.com.

DESTEK ENGINEERING, LLC
1281 Kennestone Circle, Ste 100, Marietta, GA 30066 -Tel: (770) 693-0835

APPENDIX A
CALCULATIONS

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	5.00	0	0.2500		13.0000	13.0000	A53-B-35	0.2
2	5.00	0	0.2500		13.0000	13.0000		0.2
3	2.92	0	0.2500		13.0000	13.0000		0.1
4	5.00	18	0.2500		13.0000	14.5393		0.2
5	5.00	18	0.2500		14.5393	16.0787		0.2
6	5.00	18	0.2500		16.0787	17.6180		0.2
7	2.28	18	0.2500		17.6180	18.3968		0.1
8	0.25	18	0.2500		18.3968	18.5312		0.0
9	5.00	18	0.6125		18.5312	19.9363		0.5
10	5.00	18	0.5750		19.9363	21.4756		0.6
11	0.25	18	0.5750		21.4756	21.7068		0.0
12	0.25	18	0.5750		21.7068	21.9380		0.0
13	5.00	18	0.6750		21.9380	23.2452		0.7
14	5.00	18	0.6375		23.2459	24.7852		0.7
15	5.06	18	0.6250	3.80	24.7852	26.7925		1.0
16	0.52	18	0.6625		24.7852	26.6475	A572-65	0.8
17	5.00	18	0.6500		26.6475	28.1725		0.9
18	5.00	18	0.6250		28.1725	29.6974		0.9
19	0.33	18	0.6250		29.6974	29.8722		0.2
20	0.25	18	0.6250		29.8722	30.0470		0.2
21	5.00	18	0.6875		30.0470	31.6128		1.1
22	5.00	18	0.6625		31.6128	33.1377		1.1
23	5.00	18	0.6500		33.1377	34.6627		1.1
24	5.00	18	0.6250		34.6627	36.1876		1.1
25	5.00	18	0.6125		36.1876	37.7126		1.2
26	5.00	18	0.6000		37.7126	39.2375		1.2
27	2.50	18	0.6000		39.2375	40.0000		0.6



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
(2) 800 10504 w/ Mount Pipe	101	(2) BXA-70063-6CF-EDIN-X w/ Mount Pipe	82
(2) 800 10504 w/ Mount Pipe	101	RRH2x40-AWS	82
(2) 800 10504 w/ Mount Pipe	101	RRH2x40-AWS	82
5' T-Arm	101	RRH2x40-AWS	82
5' T-Arm	101	RRH 2x40-700 W/SOLAR	82
5' T-Arm	101	RRH 2x40-700 W/SOLAR	82
climbing ladder	92	RRH 2x40-700 W/SOLAR	82
7770.00 w/ Mount Pipe	90	DB-T1-6Z-8AB-0Z	82
7770.00 w/ Mount Pipe	90	Sabre 10' Platform w/handrails	82
AM-X-CD-16-65-00T-RET w/ Mount Pipe	90	MG D3-800TV w/ Mount Pipe	82
AM-X-CD-16-65-00T-RET w/ Mount Pipe	90	climbing ladder	82
AM-X-CD-16-65-00T-RET w/ Mount Pipe	90	(2) 1900MHz 4X40W RRH	75
QS66512-2 w/ Mount Pipe	90	(2) 1900MHz 4X40W RRH	75
QS66512-2 w/ Mount Pipe	90	(2) 1900MHz 4X40W RRH	75
QS66512-2 w/ Mount Pipe	90	800MHZ RRH	73
(2) DC Filber Distribution/Squid	90	800MHZ RRH	73
RRUS 11	90	800MHZ RRH	73
RRUS 11	90	APXVTM14-C-120 w/ Mount Pipe	72
RRUS 11	90	APXVSPP18-C w/ Mount Pipe	72
RRUS 32	90	APXVSPP18-C w/ Mount Pipe	72
RRUS 32	90	APXVSPP18-C w/ Mount Pipe	72
RRUS 32	90	TD-RRH8x20	72
RRUS 32 B2	90	TD-RRH8x20	72
RRUS 32 B2	90	TD-RRH8x20	72
RRUS 32 B2	90	2'x2' Junction box	72
WCS-IMFQ-AMT	90	12' T-ARM	72
WCS-IMFQ-AMT	90	12' T-ARM	72
Sabre 10' Platform w/handrails	90	12' T-ARM	72
7770.00 w/ Mount Pipe	90	APXVTM14-C-120 w/ Mount Pipe	72
MG D3-800TV w/ Mount Pipe	82	APXVTM14-C-120 w/ Mount Pipe	72
MG D3-800TV w/ Mount Pipe	82	Andrew PX2F-52-NXA	72
BXA-171063-8CF-EDIN-X w/ Mount Pipe	82	Dragonwave 2' HP Dish	72
BXA-171063-8CF-EDIN-X w/ Mount Pipe	82	Dragonwave 2' HP Dish	72
BXA-171063-8CF-EDIN-X w/ Mount Pipe	82	12' Omni	28
(2) BXA-70063-6CF-EDIN-X w/ Mount Pipe	82	10' Omni	28
(2) BXA-70063-6CF-EDIN-X w/ Mount Pipe	82	10' Omni	28
		10' Omni	28
		GPS	28
		12' T-Arm	28
		4' Standoff	28
		4' Standoff	28
		20' Omni	28
		12' Omni	28

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-35	35 ksi	63 ksi	A572-65	65 ksi	80 ksi

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 97 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 52.7%

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SHEAR 6 K
MOMENT 426 kip-ft
TORQUE 1 kip-ft
50 mph WIND - 0.7500 in ICE
AXIAL 37 K
SHEAR 21 K
MOMENT 1498 kip-ft
TORQUE 4 kip-ft
REACTIONS - 97 mph WIND

Destek Engineering, LLC
1281 Kennestone Circle, Suite 100
Marietta, GA 30066
Phone: (770) 693 0835
FAX:

Job: CT2112			
Project: 1629013			
Client: Com-Ex Consultants, LLC	Drawn by: Ahmet Colakoglu	App'd:	
Code: TIA-222-G	Date: 11/03/16	Scale: NTS	
Path: Z:\Projects\2016\29 - Com-Ex\013 - CT2112 - 15180\10-2016\Tnx\CT2112 G.eri		Dwg No. E-1	

Tower Input Data

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

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

Options

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

Tapered Pole Section Geometry

Section	*Elevation* *ft*	*Section Length* *ft*	*Splice Length* *ft*	*Number of Sides*	*Top Diameter* *in*	*Bottom Diameter* *in*	*Wall Thickness* *in*	*Bend Radius* *in*	*Pole Grade*
L1	102.70-97.70	5.00	0.00	Round	13.0000	13.0000	0.2500		A53-B-35 (35 ksi)
L2	97.70-92.70	5.00	0.00	Round	13.0000	13.0000	0.2500		A53-B-35 (35 ksi)

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L3	92.70-89.78	2.92	0.00	Round	13.0000	13.0000	0.2500		A53-B-35 (35 ksi)
L4	89.78-84.78	5.00	0.00	18	13.0000	14.5393	0.2500	1.0000	A572-65 (65 ksi)
L5	84.78-79.78	5.00	0.00	18	14.5393	16.0787	0.2500	1.0000	A572-65 (65 ksi)
L6	79.78-74.78	5.00	0.00	18	16.0787	17.6180	0.2500	1.0000	A572-65 (65 ksi)
L7	74.78-72.50	2.28	0.00	18	17.6180	18.3200	0.2500	1.0000	A572-65 (65 ksi)
L8	72.50-72.25	0.25	0.00	18	18.3200	18.3969	0.6625	2.6500	A572-65 (65 ksi)
L9	72.25-67.25	5.00	0.00	18	18.3969	19.9363	0.6125	2.4500	A572-65 (65 ksi)
L10	67.25-62.25	5.00	0.00	18	19.9363	21.4756	0.5750	2.3000	A572-65 (65 ksi)
L11	62.25-61.75	0.50	0.00	18	21.4756	21.6295	0.5750	2.3000	A572-65 (65 ksi)
L12	61.75-61.50	0.25	0.00	18	21.6295	21.7065	0.7125	2.8500	A572-65 (65 ksi)
L13	61.50-56.50	5.00	0.00	18	21.7065	23.2459	0.6750	2.7000	A572-65 (65 ksi)
L14	56.50-51.50	5.00	0.00	18	23.2459	24.7852	0.6375	2.5500	A572-65 (65 ksi)
L15	51.50-44.98	6.52	3.80	18	24.7852	26.7925	0.6250	2.5000	A572-65 (65 ksi)
L16	44.98-43.78	5.00	0.00	18	25.1226	26.6475	0.6625	2.6500	A572-65 (65 ksi)
L17	43.78-38.78	5.00	0.00	18	26.6475	28.1725	0.6500	2.6000	A572-65 (65 ksi)
L18	38.78-33.78	5.00	0.00	18	28.1725	29.6974	0.6250	2.5000	A572-65 (65 ksi)
L19	33.78-32.75	1.03	0.00	18	29.6974	30.0116	0.6250	2.5000	A572-65 (65 ksi)
L20	32.75-32.50	0.25	0.00	18	30.0116	30.0878	0.7125	2.8500	A572-65 (65 ksi)
L21	32.50-27.50	5.00	0.00	18	30.0878	31.6128	0.6875	2.7500	A572-65 (65 ksi)
L22	27.50-22.50	5.00	0.00	18	31.6128	33.1377	0.6625	2.6500	A572-65 (65 ksi)
L23	22.50-17.50	5.00	0.00	18	33.1377	34.6627	0.6500	2.6000	A572-65 (65 ksi)
L24	17.50-12.50	5.00	0.00	18	34.6627	36.1876	0.6250	2.5000	A572-65 (65 ksi)
L25	12.50-7.50	5.00	0.00	18	36.1876	37.7126	0.6125	2.4500	A572-65 (65 ksi)
L26	7.50-2.50	5.00	0.00	18	37.7126	39.2375	0.6000	2.4000	A572-65 (65 ksi)
L27	2.50-0.00	2.50		18	39.2375	40.0000	0.6000	2.4000	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	13.0000	10.0138	203.5623	4.5087	6.5000	31.3173	407.1246	5.0039	0.0000	0

Section	Tip Dia.	Area	I	r	C	I/C	J	It/Q	w	w/t
	in	in^2	in^4	in	in	in^3	in^4	in^2	in	
	13.0000	10.0138	203.5623	4.5087	6.5000	31.3173	407.1246	5.0039	0.0000	0
L2	13.0000	10.0138	203.5623	4.5087	6.5000	31.3173	407.1246	5.0039	0.0000	0
	13.0000	10.0138	203.5623	4.5087	6.5000	31.3173	407.1246	5.0039	0.0000	0
L3	13.0000	10.0138	203.5623	4.5087	6.5000	31.3173	407.1246	5.0039	0.0000	0
	13.0000	10.0138	203.5623	4.5087	6.5000	31.3173	407.1246	5.0039	0.0000	0
L4	13.2005	10.1171	207.7854	4.5263	6.6040	31.4636	415.8441	5.0595	1.8480	7.392
	14.7636	11.3386	292.4968	5.0727	7.3860	39.6016	585.3784	5.6704	2.1189	8.476
L5	14.7636	11.3386	292.4968	5.0727	7.3860	39.6016	585.3784	5.6704	2.1189	8.476
	16.3267	12.5601	397.5747	5.6192	8.1680	48.6748	795.6725	6.2812	2.3898	9.559
L6	16.3267	12.5601	397.5747	5.6192	8.1680	48.6748	795.6725	6.2812	2.3898	9.559
	17.8898	13.7815	525.2133	6.1656	8.9500	58.6833	1051.1176	6.8921	2.6608	10.643
L7	17.8898	13.7815	525.2133	6.1656	8.9500	58.6833	1051.1176	6.8921	2.6608	10.643
	18.6026	14.3385	591.5020	6.4148	9.3065	63.5577	1183.7824	7.1706	2.7843	11.137
L8	18.6026	37.1297	1462.5652	6.2684	9.3065	157.1545	2927.0549	18.5684	2.0583	3.107
	18.6807	37.2915	1481.7742	6.2957	9.3456	158.5524	2965.4982	18.6493	2.0719	3.127
L9	18.6807	34.5743	1381.5620	6.3135	9.3456	147.8296	2764.9420	17.2904	2.1599	3.526
	20.2438	37.5669	1772.2551	6.8599	10.1276	174.9921	3546.8423	18.7870	2.4308	3.969
L10	20.2438	35.3353	1673.4546	6.8733	10.1276	165.2366	3349.1112	17.6710	2.4968	4.342
	21.8069	38.1447	2105.1806	7.4197	10.9096	192.9657	4213.1312	19.0760	2.7677	4.813
L11	21.8069	38.1447	2105.1806	7.4197	10.9096	192.9657	4213.1312	19.0760	2.7677	4.813
	21.9632	38.4256	2152.0385	7.4744	10.9878	195.8569	4306.9088	19.2165	2.7948	4.861
L12	21.9632	47.3034	2614.7519	7.4256	10.9878	237.9684	5232.9443	23.6562	2.5528	3.583
	22.0414	47.4774	2643.7222	7.4529	11.0269	239.7519	5290.9230	23.7432	2.5663	3.602
L13	22.0414	45.0590	2518.0241	7.4662	11.0269	228.3526	5039.3615	22.5338	2.6323	3.9
	23.6045	48.3569	3112.3777	8.0127	11.8089	263.5621	6228.8507	24.1831	2.9033	4.301
L14	23.6045	45.7463	2954.1434	8.0260	11.8089	250.1625	5912.1739	22.8775	2.9693	4.658
	25.1676	48.8611	3599.5799	8.5724	12.5909	285.8879	7203.8963	24.4352	3.2402	5.083
L15	25.1676	47.9278	3534.4831	8.5769	12.5909	280.7177	7073.6170	23.9685	3.2622	5.22
	27.2058	51.9098	4490.6694	9.2895	13.6106	329.9394	8987.2478	25.9598	3.6155	5.785
L16	26.6870	51.4341	3887.8092	8.6833	12.7623	304.6328	7780.7340	25.7219	3.2556	4.914
	27.0586	54.6407	4661.2337	9.2247	13.5370	344.3340	9328.6007	27.3255	3.5240	5.319
L17	27.0586	53.6355	4579.8889	9.2291	13.5370	338.3249	9165.8042	26.8229	3.5460	5.455
	28.6071	56.7817	5434.0205	9.7705	14.3116	379.6927	10875.1913	28.3962	3.8144	5.868
L18	28.6071	54.6473	5239.2711	9.7794	14.3116	366.0849	10485.4362	27.3289	3.8584	6.173
	30.1556	57.6725	6158.4178	10.3207	15.0863	408.2125	12324.9391	28.8417	4.1268	6.603
L19	30.1556	57.6725	6158.4178	10.3207	15.0863	408.2125	12324.9391	28.8417	4.1268	6.603
	30.4746	58.2956	6360.2150	10.4322	15.2459	417.1758	12728.7989	29.1534	4.1820	6.691
L20	30.4746	66.2592	7186.0703	10.4012	15.2459	471.3449	14381.5961	33.1359	4.0280	5.653
	30.5520	66.4316	7242.3188	10.4282	15.2846	473.8305	14494.1672	33.2221	4.0415	5.672
L21	30.5520	64.1552	7006.0595	10.4371	15.2846	458.3732	14021.3378	32.0837	4.0855	5.942
	32.1005	67.4828	8153.7629	10.9785	16.0593	507.7286	16318.2548	33.7478	4.3538	6.333
L22	32.1005	65.0815	7876.3333	10.9874	16.0593	490.4533	15763.0305	32.5469	4.3978	6.638
	33.6489	68.2881	9098.8604	11.5287	16.8340	540.5060	18209.6933	34.1505	4.6662	7.043
L23	33.6489	67.0254	8937.4962	11.5331	16.8340	530.9204	17886.7526	33.5191	4.6882	7.213
	35.1974	70.1716	10256.0538	12.0745	17.6086	582.4444	20525.6027	35.0924	4.9566	7.626
L24	35.1974	67.5222	9883.3515	12.0834	17.6086	561.2785	19779.7078	33.7675	5.0006	8.001
	36.7459	70.5474	11272.1285	12.6247	18.3833	613.1717	22559.0891	35.2804	5.2690	8.43
L25	36.7459	69.1607	11058.3385	12.6292	18.3833	601.5421	22131.2278	34.5869	5.2910	8.638
	38.2944	72.1253	12542.2340	13.1705	19.1580	654.6738	25100.9714	36.0695	5.5594	9.077
L26	38.2944	70.6772	12298.6929	13.1750	19.1580	641.9616	24613.5688	35.3453	5.5814	9.302
	39.8428	73.5813	13877.8936	13.7163	19.9327	696.2388	27774.0481	36.7976	5.8498	9.75
L27	39.8428	73.5813	13877.8936	13.7163	19.9327	696.2388	27774.0481	36.7976	5.8498	9.75
	40.6171	75.0334	14715.8140	13.9870	20.3200	724.2034	29450.9913	37.5238	5.9840	9.973

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals	Double Angle Stitch Bolt Spacing Redundants
ft	ft^2	in					in	in	in
L1 102.70-97.70				1	1	1			

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L2 97.70-92.70				1	1	1			
L3 92.70-89.78				1	1	1			
L4 89.78-84.78				1	1	1			
L5 84.78-79.78				1	1	1			
L6 79.78-74.78				1	1	1			
L7 74.78-72.50				1	1	1			
L8 72.50-72.25				1	1	0.868837			
L9 72.25-67.25				1	1	0.894983			
L10 67.25-62.25				1	1	0.913448			
L11 62.25-61.75				1	1	0.909948			
L12 61.75-61.50				1	1	0.872027			
L13 61.50-56.50				1	1	0.881427			
L14 56.50-51.50				1	1	0.897331			
L15 51.50-44.98				1	1	0.897559			
L16 44.98-43.78				1	1	0.924164			
L17 43.78-38.78				1	1	0.915956			
L18 38.78-33.78				1	1	0.928035			
L19 33.78-32.75				1	1	0.923459			
L20 32.75-32.50				1	1	0.933812			
L21 32.50-27.50				1	1	0.941679			
L22 27.50-22.50				1	1	0.952724			
L23 22.50-17.50				1	1	0.948707			
L24 17.50-12.50				1	1	0.965094			
L25 12.50-7.50				1	1	0.96495			
L26 7.50-2.50				1	1	0.966413			
L27 2.50-0.00				1	1	0.95779			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
****									
LDF6-50A(1-1/4")	C	Surface Ar (CaAa)	72.00 - 20.00	3	1	0.000 0.000	0.0000		0.66
LDF6-50A(1-1/4")	C	Surface Ar (CaAa)	72.00 - 20.00	1	1	0.000 0.000	1.5500		0.66
LDF4-50A(1/2")	C	Surface Ar (CaAa)	72.00 - 20.00	1	1	0.000 0.000	0.6300		0.15
LDF4-50A(1/2")	C	Surface Ar	72.00 - 20.00	1	1	0.000	0.0000		0.15

Description	Sector	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
		(CaAa)				0.000			
241568(5/8)	C	Surface Ar	72.00 - 20.00	1	1	0.000	0.6300		0.19
		(CaAa)				0.000			
***									
MS-650	C	Surface Af	32.75 - 0.00	2	2	0.000	0.0000	0.0000	27.65
		(CaAa)				0.000			
MS-650	B	Surface Af	61.75 - 0.00	1	1	0.000	0.0000	0.0000	27.65
		(CaAa)				0.000			
MS-600	A	Surface Af	74.50 - 0.00	1	1	0.000	0.0000	0.0000	20.42
		(CaAa)				0.000			

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
***								
****								
LDF5-50A(7/8")	B	No	Inside Pole	82.00 - 20.00	12	No Ice	0.00	0.33
						1/2" Ice	0.00	0.33
						1" Ice	0.00	0.33
LDF4-50A(1/2")	B	No	Inside Pole	82.00 - 20.00	1	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
						1" Ice	0.00	0.15
HB158-1-08U8-S8J18 (8X8)	B	No	Inside Pole	82.00 - 20.00	1	No Ice	0.00	1.30
						1/2" Ice	0.00	1.30
						1" Ice	0.00	1.30
HB114-1-08U4-S4J18 (4X4)	B	No	Inside Pole	82.00 - 20.00	1	No Ice	0.00	1.30
						1/2" Ice	0.00	1.30
						1" Ice	0.00	1.30
***								
LDF5-50A(7/8")	C	No	Inside Pole	90.00 - 20.00	12	No Ice	0.00	0.33
						1/2" Ice	0.00	0.33
						1" Ice	0.00	0.33
***								
LDF4-50A(1/2")	C	No	Inside Pole	28.00 - 0.00	8	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
						1" Ice	0.00	0.15
LDF6-50A(1-1/4")	C	No	Inside Pole	28.00 - 0.00	1	No Ice	0.00	0.66
						1/2" Ice	0.00	0.66
						1" Ice	0.00	0.66
***								
LDF5-50A(7/8")	C	No	Inside Pole	101.00 - 20.00	12	No Ice	0.00	0.33
						1/2" Ice	0.00	0.33
						1" Ice	0.00	0.33
LDF2-50(3/8")	C	No	Inside Pole	101.00 - 20.00	1	No Ice	0.00	0.08
						1/2" Ice	0.00	0.08
						1" Ice	0.00	0.08

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	102.70-97.70	A	0.000	0.000	0.000	0.000	0.00

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.01
L2	97.70-92.70	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.02
L3	92.70-89.78	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.01
L4	89.78-84.78	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.04
L5	84.78-79.78	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.04
L6	79.78-74.78	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.03
		C	0.000	0.000	0.000	0.000	0.04
L7	74.78-72.50	A	0.000	0.000	0.000	0.000	0.04
		B	0.000	0.000	0.000	0.000	0.02
		C	0.000	0.000	0.000	0.000	0.02
L8	72.50-72.25	A	0.000	0.000	0.000	0.000	0.01
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L9	72.25-67.25	A	0.000	0.000	0.000	0.000	0.10
		B	0.000	0.000	0.000	0.000	0.03
		C	0.000	0.000	1.335	0.000	0.05
L10	67.25-62.25	A	0.000	0.000	0.000	0.000	0.10
		B	0.000	0.000	0.000	0.000	0.03
		C	0.000	0.000	1.405	0.000	0.06
L11	62.25-61.75	A	0.000	0.000	0.000	0.000	0.01
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.141	0.000	0.01
L12	61.75-61.50	A	0.000	0.000	0.000	0.000	0.01
		B	0.000	0.000	0.000	0.000	0.01
		C	0.000	0.000	0.070	0.000	0.00
L13	61.50-56.50	A	0.000	0.000	0.000	0.000	0.10
		B	0.000	0.000	0.000	0.000	0.17
		C	0.000	0.000	1.405	0.000	0.06
L14	56.50-51.50	A	0.000	0.000	0.000	0.000	0.10
		B	0.000	0.000	0.000	0.000	0.17
		C	0.000	0.000	1.405	0.000	0.06
L15	51.50-44.98	A	0.000	0.000	0.000	0.000	0.13
		B	0.000	0.000	0.000	0.000	0.22
		C	0.000	0.000	1.832	0.000	0.07
L16	44.98-43.78	A	0.000	0.000	0.000	0.000	0.02
		B	0.000	0.000	0.000	0.000	0.04
		C	0.000	0.000	0.337	0.000	0.01
L17	43.78-38.78	A	0.000	0.000	0.000	0.000	0.10
		B	0.000	0.000	0.000	0.000	0.17
		C	0.000	0.000	1.405	0.000	0.06
L18	38.78-33.78	A	0.000	0.000	0.000	0.000	0.10
		B	0.000	0.000	0.000	0.000	0.17
		C	0.000	0.000	1.405	0.000	0.06
L19	33.78-32.75	A	0.000	0.000	0.000	0.000	0.02
		B	0.000	0.000	0.000	0.000	0.04
		C	0.000	0.000	0.289	0.000	0.01
L20	32.75-32.50	A	0.000	0.000	0.000	0.000	0.01
		B	0.000	0.000	0.000	0.000	0.01
		C	0.000	0.000	0.070	0.000	0.02
L21	32.50-27.50	A	0.000	0.000	0.000	0.000	0.10
		B	0.000	0.000	0.000	0.000	0.17

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C	0.000	0.000	1.405	0.000	0.33
L22	27.50-22.50	A	0.000	0.000	0.000	0.000	0.10
		B	0.000	0.000	0.000	0.000	0.17
		C	0.000	0.000	1.405	0.000	0.34
L23	22.50-17.50	A	0.000	0.000	0.000	0.000	0.10
		B	0.000	0.000	0.000	0.000	0.16
		C	0.000	0.000	0.703	0.000	0.31
L24	17.50-12.50	A	0.000	0.000	0.000	0.000	0.10
		B	0.000	0.000	0.000	0.000	0.14
		C	0.000	0.000	0.000	0.000	0.29
L25	12.50-7.50	A	0.000	0.000	0.000	0.000	0.10
		B	0.000	0.000	0.000	0.000	0.14
		C	0.000	0.000	0.000	0.000	0.29
L26	7.50-2.50	A	0.000	0.000	0.000	0.000	0.10
		B	0.000	0.000	0.000	0.000	0.14
		C	0.000	0.000	0.000	0.000	0.29
L27	2.50-0.00	A	0.000	0.000	0.000	0.000	0.05
		B	0.000	0.000	0.000	0.000	0.07
		C	0.000	0.000	0.000	0.000	0.14

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	102.70-97.70	A	1.676	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.01
L2	97.70-92.70	A	1.668	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.02
L3	92.70-89.78	A	1.661	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.01
L4	89.78-84.78	A	1.653	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.04
L5	84.78-79.78	A	1.643	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.01
		C		0.000	0.000	0.000	0.000	0.04
L6	79.78-74.78	A	1.633	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.03
		C		0.000	0.000	0.000	0.000	0.04
L7	74.78-72.50	A	1.625	0.000	0.000	0.650	0.000	0.05
		B		0.000	0.000	0.000	0.000	0.02
		C		0.000	0.000	0.000	0.000	0.02
L8	72.50-72.25	A	1.623	0.000	0.000	0.081	0.000	0.01
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
L9	72.25-67.25	A	1.616	0.000	0.000	1.616	0.000	0.12
		B		0.000	0.000	0.000	0.000	0.03
		C		0.000	0.000	9.013	0.000	0.19
L10	67.25-62.25	A	1.605	0.000	0.000	1.605	0.000	0.12
		B		0.000	0.000	0.000	0.000	0.03
		C		0.000	0.000	9.428	0.000	0.19
L11	62.25-61.75	A	1.598	0.000	0.000	0.160	0.000	0.01
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.939	0.000	0.02

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
L12	61.75-61.50	A	1.597	0.000	0.000	0.080	0.000	0.01
		B		0.000	0.000	0.080	0.000	0.01
		C		0.000	0.000	0.469	0.000	0.01
L13	61.50-56.50	A	1.590	0.000	0.000	1.590	0.000	0.12
		B		0.000	0.000	1.590	0.000	0.19
		C		0.000	0.000	9.353	0.000	0.19
L14	56.50-51.50	A	1.576	0.000	0.000	1.576	0.000	0.12
		B		0.000	0.000	1.576	0.000	0.19
		C		0.000	0.000	9.283	0.000	0.19
L15	51.50-44.98	A	1.558	0.000	0.000	2.032	0.000	0.16
		B		0.000	0.000	2.032	0.000	0.25
		C		0.000	0.000	11.990	0.000	0.24
L16	44.98-43.78	A	1.545	0.000	0.000	0.374	0.000	0.03
		B		0.000	0.000	0.374	0.000	0.05
		C		0.000	0.000	2.207	0.000	0.04
L17	43.78-38.78	A	1.534	0.000	0.000	1.534	0.000	0.12
		B		0.000	0.000	1.534	0.000	0.19
		C		0.000	0.000	9.074	0.000	0.18
L18	38.78-33.78	A	1.514	0.000	0.000	1.514	0.000	0.12
		B		0.000	0.000	1.514	0.000	0.19
		C		0.000	0.000	8.976	0.000	0.18
L19	33.78-32.75	A	1.501	0.000	0.000	0.309	0.000	0.02
		B		0.000	0.000	0.309	0.000	0.04
		C		0.000	0.000	1.836	0.000	0.04
L20	32.75-32.50	A	1.498	0.000	0.000	0.075	0.000	0.01
		B		0.000	0.000	0.075	0.000	0.01
		C		0.000	0.000	0.445	0.000	0.02
L21	32.50-27.50	A	1.486	0.000	0.000	1.486	0.000	0.12
		B		0.000	0.000	1.486	0.000	0.19
		C		0.000	0.000	8.833	0.000	0.47
L22	27.50-22.50	A	1.459	0.000	0.000	1.459	0.000	0.12
		B		0.000	0.000	1.459	0.000	0.19
		C		0.000	0.000	8.699	0.000	0.47
L23	22.50-17.50	A	1.427	0.000	0.000	1.427	0.000	0.12
		B		0.000	0.000	1.427	0.000	0.17
		C		0.000	0.000	4.269	0.000	0.38
L24	17.50-12.50	A	1.386	0.000	0.000	1.386	0.000	0.12
		B		0.000	0.000	1.386	0.000	0.15
		C		0.000	0.000	0.000	0.000	0.30
L25	12.50-7.50	A	1.331	0.000	0.000	1.331	0.000	0.12
		B		0.000	0.000	1.331	0.000	0.15
		C		0.000	0.000	0.000	0.000	0.30
L26	7.50-2.50	A	1.242	0.000	0.000	1.242	0.000	0.11
		B		0.000	0.000	1.242	0.000	0.15
		C		0.000	0.000	0.000	0.000	0.30
L27	2.50-0.00	A	1.081	0.000	0.000	0.540	0.000	0.06
		B		0.000	0.000	0.540	0.000	0.07
		C		0.000	0.000	0.000	0.000	0.15

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	102.70-97.70	0.0000	0.0000	0.0000	0.0000
L2	97.70-92.70	0.0000	0.0000	0.0000	0.0000
L3	92.70-89.78	0.0000	0.0000	0.0000	0.0000

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L4	89.78-84.78	0.0000	0.0000	0.0000	0.0000
L5	84.78-79.78	0.0000	0.0000	0.0000	0.0000
L6	79.78-74.78	0.0000	0.0000	0.0000	0.0000
L7	74.78-72.50	0.0000	0.0000	-0.2678	-0.1546
L8	72.50-72.25	0.0000	0.0000	-0.3002	-0.1733
L9	72.25-67.25	0.0000	0.3594	-0.1670	1.0171
L10	67.25-62.25	0.0000	0.3774	-0.1702	1.0927
L11	62.25-61.75	0.0000	0.3787	-0.1738	1.1154
L12	61.75-61.50	0.0000	0.3788	0.0000	0.9473
L13	61.50-56.50	0.0000	0.3800	0.0000	0.9659
L14	56.50-51.50	0.0000	0.3819	0.0000	0.9993
L15	51.50-44.98	0.0000	0.3840	0.0000	1.0345
L16	44.98-43.78	0.0000	0.3847	0.0000	1.0485
L17	43.78-38.78	0.0000	0.3856	0.0000	1.0622
L18	38.78-33.78	0.0000	0.3870	0.0000	1.0867
L19	33.78-32.75	0.0000	0.3878	0.0000	1.1001
L20	32.75-32.50	0.0000	0.3879	0.0000	1.0284
L21	32.50-27.50	0.0000	0.3886	0.0000	1.0395
L22	27.50-22.50	0.0000	0.3897	0.0000	1.0585
L23	22.50-17.50	0.0000	0.2023	0.0000	0.4989
L24	17.50-12.50	0.0000	0.0000	0.0000	-0.2973
L25	12.50-7.50	0.0000	0.0000	0.0000	-0.2918
L26	7.50-2.50	0.0000	0.0000	0.0000	-0.2797
L27	2.50-0.00	0.0000	0.0000	0.0000	-0.2528

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L7	28	MS-600	72.50 - 74.50	1.0000	1.0000
L8	28	MS-600	72.25 - 72.50	1.0000	1.0000
L9	2	LDF6-50A(1-1/4")	67.25 - 72.00	1.0000	1.0000
L9	3	LDF6-50A(1-1/4")	67.25 - 72.00	1.0000	1.0000
L9	4	LDF4-50A(1/2")	67.25 - 72.00	1.0000	1.0000
L9	5	LDF4-50A(1/2")	67.25 - 72.00	1.0000	1.0000
L9	6	241568(5/8)	67.25 - 72.00	1.0000	1.0000
L9	28	MS-600	67.25 - 72.25	1.0000	1.0000
L10	2	LDF6-50A(1-1/4")	62.25 - 67.25	1.0000	1.0000
L10	3	LDF6-50A(1-1/4")	62.25 - 67.25	1.0000	1.0000
L10	4	LDF4-50A(1/2")	62.25 - 67.25	1.0000	1.0000
L10	5	LDF4-50A(1/2")	62.25 - 67.25	1.0000	1.0000
L10	6	241568(5/8)	62.25 - 67.25	1.0000	1.0000
L10	28	MS-600	62.25 - 67.25	1.0000	1.0000
L11	2	LDF6-50A(1-1/4")	61.75 - 62.25	1.0000	1.0000
L11	3	LDF6-50A(1-1/4")	61.75 - 62.25	1.0000	1.0000
L11	4	LDF4-50A(1/2")	61.75 - 62.25	1.0000	1.0000
L11	5	LDF4-50A(1/2")	61.75 - 62.25	1.0000	1.0000
L11	6	241568(5/8)	61.75 - 62.25	1.0000	1.0000
L11	28	MS-600	61.75 - 62.25	1.0000	1.0000
L12	2	LDF6-50A(1-1/4")	61.50 - 61.75	1.0000	1.0000
L12	3	LDF6-50A(1-1/4")	61.50 - 61.75	1.0000	1.0000
L12	4	LDF4-50A(1/2")	61.50 - 61.75	1.0000	1.0000
L12	5	LDF4-50A(1/2")	61.50 - 61.75	1.0000	1.0000
L12	6	241568(5/8)	61.50 - 61.75	1.0000	1.0000
L12	27	MS-650	61.50 - 61.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L12	28	MS-600	61.50 - 61.75	1.0000	1.0000
L13	2	LDF6-50A(1-1/4")	56.50 - 61.50	1.0000	1.0000
L13	3	LDF6-50A(1-1/4")	56.50 - 61.50	1.0000	1.0000
L13	4	LDF4-50A(1/2")	56.50 - 61.50	1.0000	1.0000
L13	5	LDF4-50A(1/2")	56.50 - 61.50	1.0000	1.0000
L13	6	241568(5/8)	56.50 - 61.50	1.0000	1.0000
L13	27	MS-650	56.50 - 61.50	1.0000	1.0000
L13	28	MS-600	56.50 - 61.50	1.0000	1.0000
L14	2	LDF6-50A(1-1/4")	51.50 - 56.50	1.0000	1.0000
L14	3	LDF6-50A(1-1/4")	51.50 - 56.50	1.0000	1.0000
L14	4	LDF4-50A(1/2")	51.50 - 56.50	1.0000	1.0000
L14	5	LDF4-50A(1/2")	51.50 - 56.50	1.0000	1.0000
L14	6	241568(5/8)	51.50 - 56.50	1.0000	1.0000
L14	27	MS-650	51.50 - 56.50	1.0000	1.0000
L14	28	MS-600	51.50 - 56.50	1.0000	1.0000
L15	2	LDF6-50A(1-1/4")	44.98 - 51.50	1.0000	1.0000
L15	3	LDF6-50A(1-1/4")	44.98 - 51.50	1.0000	1.0000
L15	4	LDF4-50A(1/2")	44.98 - 51.50	1.0000	1.0000
L15	5	LDF4-50A(1/2")	44.98 - 51.50	1.0000	1.0000
L15	6	241568(5/8)	44.98 - 51.50	1.0000	1.0000
L15	27	MS-650	44.98 - 51.50	1.0000	1.0000
L15	28	MS-600	44.98 - 51.50	1.0000	1.0000
L17	2	LDF6-50A(1-1/4")	38.78 - 43.78	1.0000	1.0000
L17	3	LDF6-50A(1-1/4")	38.78 - 43.78	1.0000	1.0000
L17	4	LDF4-50A(1/2")	38.78 - 43.78	1.0000	1.0000
L17	5	LDF4-50A(1/2")	38.78 - 43.78	1.0000	1.0000
L17	6	241568(5/8)	38.78 - 43.78	1.0000	1.0000
L17	27	MS-650	38.78 - 43.78	1.0000	1.0000
L17	28	MS-600	38.78 - 43.78	1.0000	1.0000
L18	2	LDF6-50A(1-1/4")	33.78 - 38.78	1.0000	1.0000
L18	3	LDF6-50A(1-1/4")	33.78 - 38.78	1.0000	1.0000
L18	4	LDF4-50A(1/2")	33.78 - 38.78	1.0000	1.0000
L18	5	LDF4-50A(1/2")	33.78 - 38.78	1.0000	1.0000
L18	6	241568(5/8)	33.78 - 38.78	1.0000	1.0000
L18	27	MS-650	33.78 - 38.78	1.0000	1.0000
L18	28	MS-600	33.78 - 38.78	1.0000	1.0000
L19	2	LDF6-50A(1-1/4")	32.75 - 33.78	1.0000	1.0000
L19	3	LDF6-50A(1-1/4")	32.75 - 33.78	1.0000	1.0000
L19	4	LDF4-50A(1/2")	32.75 - 33.78	1.0000	1.0000
L19	5	LDF4-50A(1/2")	32.75 - 33.78	1.0000	1.0000
L19	6	241568(5/8)	32.75 - 33.78	1.0000	1.0000
L19	27	MS-650	32.75 - 33.78	1.0000	1.0000
L19	28	MS-600	32.75 - 33.78	1.0000	1.0000
L20	2	LDF6-50A(1-1/4")	32.50 - 32.75	1.0000	1.0000
L20	3	LDF6-50A(1-1/4")	32.50 - 32.75	1.0000	1.0000
L20	4	LDF4-50A(1/2")	32.50 - 32.75	1.0000	1.0000
L20	5	LDF4-50A(1/2")	32.50 - 32.75	1.0000	1.0000
L20	6	241568(5/8)	32.50 - 32.75	1.0000	1.0000
L20	26	MS-650	32.50 - 32.75	1.0000	1.0000
L20	27	MS-650	32.50 - 32.75	1.0000	1.0000
L20	28	MS-600	32.50 - 32.75	1.0000	1.0000
L21	2	LDF6-50A(1-1/4")	27.50 - 32.50	1.0000	1.0000
L21	3	LDF6-50A(1-1/4")	27.50 - 32.50	1.0000	1.0000
L21	4	LDF4-50A(1/2")	27.50 - 32.50	1.0000	1.0000
L21	5	LDF4-50A(1/2")	27.50 - 32.50	1.0000	1.0000
L21	6	241568(5/8)	27.50 - 32.50	1.0000	1.0000
L21	26	MS-650	27.50 - 32.50	1.0000	1.0000
L21	27	MS-650	27.50 - 32.50	1.0000	1.0000
L21	28	MS-600	27.50 - 32.50	1.0000	1.0000
L22	2	LDF6-50A(1-1/4")	22.50 - 27.50	1.0000	1.0000
L22	3	LDF6-50A(1-1/4")	22.50 - 27.50	1.0000	1.0000
L22	4	LDF4-50A(1/2")	22.50 - 27.50	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L22	5	LDF4-50A(1/2")	22.50 - 27.50	1.0000	1.0000
L22	6	241568(5/8)	22.50 - 27.50	1.0000	1.0000
L22	26	MS-650	22.50 - 27.50	1.0000	1.0000
L22	27	MS-650	22.50 - 27.50	1.0000	1.0000
L22	28	MS-600	22.50 - 27.50	1.0000	1.0000
L23	2	LDF6-50A(1-1/4")	20.00 - 22.50	1.0000	1.0000
L23	3	LDF6-50A(1-1/4")	20.00 - 22.50	1.0000	1.0000
L23	4	LDF4-50A(1/2")	20.00 - 22.50	1.0000	1.0000
L23	5	LDF4-50A(1/2")	20.00 - 22.50	1.0000	1.0000
L23	6	241568(5/8)	20.00 - 22.50	1.0000	1.0000
L23	26	MS-650	17.50 - 22.50	1.0000	1.0000
L23	27	MS-650	17.50 - 22.50	1.0000	1.0000
L23	28	MS-600	17.50 - 22.50	1.0000	1.0000
L24	26	MS-650	12.50 - 17.50	1.0000	1.0000
L24	27	MS-650	12.50 - 17.50	1.0000	1.0000
L24	28	MS-600	12.50 - 17.50	1.0000	1.0000
L25	26	MS-650	7.50 - 12.50	1.0000	1.0000
L25	27	MS-650	7.50 - 12.50	1.0000	1.0000
L25	28	MS-600	7.50 - 12.50	1.0000	1.0000
L26	26	MS-650	2.50 - 7.50	1.0000	1.0000
L26	27	MS-650	2.50 - 7.50	1.0000	1.0000
L26	28	MS-600	2.50 - 7.50	1.0000	1.0000
L27	26	MS-650	0.00 - 2.50	1.0000	1.0000
L27	27	MS-650	0.00 - 2.50	1.0000	1.0000
L27	28	MS-600	0.00 - 2.50	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
****									
(2) 800 10504 w/ Mount Pipe	A	From Leg	3.00	0.0000	101.00	No Ice	3.59	3.18	0.04
			0.00			1/2" Ice	4.01	3.91	0.07
			0.00			1" Ice	4.42	4.58	0.11
(2) 800 10504 w/ Mount Pipe	B	From Leg	3.00	0.0000	101.00	No Ice	3.59	3.18	0.04
			0.00			1/2" Ice	4.01	3.91	0.07
			0.00			1" Ice	4.42	4.58	0.11
(2) 800 10504 w/ Mount Pipe	C	From Leg	3.00	0.0000	101.00	No Ice	3.59	3.18	0.04
			0.00			1/2" Ice	4.01	3.91	0.07
			0.00			1" Ice	4.42	4.58	0.11
5' T-Arm	A	From Leg	0.00	0.0000	101.00	No Ice	2.78	2.23	0.11
			0.00			1/2" Ice	3.39	2.43	0.14
			0.00			1" Ice	4.00	2.63	0.17
5' T-Arm	B	From Leg	0.00	0.0000	101.00	No Ice	2.78	2.23	0.11
			0.00			1/2" Ice	3.39	2.43	0.14
			0.00			1" Ice	4.00	2.63	0.17
5' T-Arm	C	From Leg	0.00	0.0000	101.00	No Ice	2.78	2.23	0.11
			0.00			1/2" Ice	3.39	2.43	0.14
			0.00			1" Ice	4.00	2.63	0.17
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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
7770.00 w/ Mount Pipe	A	From Leg	4.00	0.0000	90.00	No Ice	5.75	4.25	0.06
			0.00			1/2" Ice	6.18	5.01	0.10
			0.00			1" Ice	6.61	5.71	0.16
7770.00 w/ Mount Pipe	B	From Leg	4.00	0.0000	90.00	No Ice	5.75	4.25	0.06
			0.00			1/2" Ice	6.18	5.01	0.10
			0.00			1" Ice	6.61	5.71	0.16
7770.00 w/ Mount Pipe	C	From Leg	4.00	0.0000	90.00	No Ice	5.75	4.25	0.06
			0.00			1/2" Ice	6.18	5.01	0.10
			0.00			1" Ice	6.61	5.71	0.16
AM-X-CD-16-65-00T-RET w/ Mount Pipe	A	From Leg	4.00	0.0000	90.00	No Ice	8.26	6.30	0.07
			0.00			1/2" Ice	8.82	7.48	0.14
			0.00			1" Ice	9.35	8.37	0.21
AM-X-CD-16-65-00T-RET w/ Mount Pipe	B	From Leg	4.00	0.0000	90.00	No Ice	8.26	6.30	0.07
			0.00			1/2" Ice	8.82	7.48	0.14
			0.00			1" Ice	9.35	8.37	0.21
AM-X-CD-16-65-00T-RET w/ Mount Pipe	C	From Leg	4.00	0.0000	90.00	No Ice	8.26	6.30	0.07
			0.00			1/2" Ice	8.82	7.48	0.14
			0.00			1" Ice	9.35	8.37	0.21
QS66512-2 w/ Mount Pipe	A	From Leg	4.00	0.0000	90.00	No Ice	8.37	8.46	0.13
			0.00			1/2" Ice	8.93	9.66	0.21
			0.00			1" Ice	9.46	10.55	0.29
QS66512-2 w/ Mount Pipe	B	From Leg	4.00	0.0000	90.00	No Ice	8.37	8.46	0.13
			0.00			1/2" Ice	8.93	9.66	0.21
			0.00			1" Ice	9.46	10.55	0.29
QS66512-2 w/ Mount Pipe	C	From Leg	4.00	0.0000	90.00	No Ice	8.37	8.46	0.13
			0.00			1/2" Ice	8.93	9.66	0.21
			0.00			1" Ice	9.46	10.55	0.29
(2) DC Filber Distribution/Squid	A	From Leg	4.00	0.0000	90.00	No Ice	2.57	2.57	0.02
			0.00			1/2" Ice	2.80	2.80	0.04
			0.00			1" Ice	3.04	3.04	0.07
RRUS 11	A	From Leg	4.00	0.0000	90.00	No Ice	2.78	1.19	0.05
			0.00			1/2" Ice	2.99	1.33	0.07
			0.00			1" Ice	3.21	1.49	0.10
RRUS 11	B	From Leg	4.00	0.0000	90.00	No Ice	2.78	1.19	0.05
			0.00			1/2" Ice	2.99	1.33	0.07
			0.00			1" Ice	3.21	1.49	0.10
RRUS 11	C	From Leg	4.00	0.0000	90.00	No Ice	2.78	1.19	0.05
			0.00			1/2" Ice	2.99	1.33	0.07
			0.00			1" Ice	3.21	1.49	0.10
RRUS 32	A	From Leg	4.00	0.0000	90.00	No Ice	2.86	1.78	0.06
			0.00			1/2" Ice	3.08	1.97	0.08
			0.00			1" Ice	3.32	2.17	0.10
RRUS 32	B	From Leg	4.00	0.0000	90.00	No Ice	2.86	1.78	0.06
			0.00			1/2" Ice	3.08	1.97	0.08
			0.00			1" Ice	3.32	2.17	0.10
RRUS 32	C	From Leg	4.00	0.0000	90.00	No Ice	2.86	1.78	0.06
			0.00			1/2" Ice	3.08	1.97	0.08
			0.00			1" Ice	3.32	2.17	0.10
RRUS 32 B2	A	From Leg	4.00	0.0000	90.00	No Ice	2.73	1.67	0.05
			0.00			1/2" Ice	2.95	1.86	0.07
			0.00			1" Ice	3.18	2.05	0.10
RRUS 32 B2	B	From Leg	4.00	0.0000	90.00	No Ice	2.73	1.67	0.05
			0.00			1/2" Ice	2.95	1.86	0.07
			0.00			1" Ice	3.18	2.05	0.10
RRUS 32 B2	C	From Leg	4.00	0.0000	90.00	No Ice	2.73	1.67	0.05
			0.00			1/2" Ice	2.95	1.86	0.07
			0.00			1" Ice	3.18	2.05	0.10

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
WCS-IMFQ-AMT	A	From Leg	4.00	0.0000	90.00	No Ice	0.99	0.64	0.03
			0.00			1/2" Ice	1.11	0.75	0.04
			0.00			1" Ice	1.25	0.86	0.05
WCS-IMFQ-AMT	B	From Leg	4.00	0.0000	90.00	No Ice	0.99	0.64	0.03
			0.00			1/2" Ice	1.11	0.75	0.04
			0.00			1" Ice	1.25	0.86	0.05
Sabre 10' Platform w/handrails	C	None		0.0000	90.00	No Ice	25.40	25.40	1.30
						1/2" Ice	30.40	30.40	1.69
						1" Ice	35.40	35.40	2.08
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MG D3-800TV w/ Mount Pipe	A	From Leg	4.00	0.0000	82.00	No Ice	3.57	3.42	0.04
			0.00			1/2" Ice	3.98	4.12	0.07
			0.00			1" Ice	4.39	4.78	0.11
MG D3-800TV w/ Mount Pipe	B	From Leg	4.00	0.0000	82.00	No Ice	3.57	3.42	0.04
			0.00			1/2" Ice	3.98	4.12	0.07
			0.00			1" Ice	4.39	4.78	0.11
MG D3-800TV w/ Mount Pipe	C	From Leg	4.00	0.0000	82.00	No Ice	3.57	3.42	0.04
			0.00			1/2" Ice	3.98	4.12	0.07
			0.00			1" Ice	4.39	4.78	0.11
BXA-171063-8CF-EDIN-X w/ Mount Pipe	A	From Leg	4.00	0.0000	82.00	No Ice	3.16	3.33	0.03
			0.00			1/2" Ice	3.53	3.94	0.06
			0.00			1" Ice	3.90	4.56	0.10
BXA-171063-8CF-EDIN-X w/ Mount Pipe	B	From Leg	4.00	0.0000	82.00	No Ice	3.16	3.33	0.03
			0.00			1/2" Ice	3.53	3.94	0.06
			0.00			1" Ice	3.90	4.56	0.10
BXA-171063-8CF-EDIN-X w/ Mount Pipe	C	From Leg	4.00	0.0000	82.00	No Ice	3.16	3.33	0.03
			0.00			1/2" Ice	3.53	3.94	0.06
			0.00			1" Ice	3.90	4.56	0.10
(2) BXA-70063-6CF-EDIN-X w/ Mount Pipe	A	From Leg	4.00	0.0000	82.00	No Ice	7.81	5.80	0.04
			0.00			1/2" Ice	8.36	6.95	0.10
			0.00			1" Ice	8.87	7.82	0.17
(2) BXA-70063-6CF-EDIN-X w/ Mount Pipe	B	From Leg	4.00	0.0000	82.00	No Ice	7.81	5.80	0.04
			0.00			1/2" Ice	8.36	6.95	0.10
			0.00			1" Ice	8.87	7.82	0.17
(2) BXA-70063-6CF-EDIN-X w/ Mount Pipe	C	From Leg	4.00	0.0000	82.00	No Ice	7.81	5.80	0.04
			0.00			1/2" Ice	8.36	6.95	0.10
			0.00			1" Ice	8.87	7.82	0.17
RRH2x40-AWS	A	From Leg	4.00	0.0000	82.00	No Ice	2.16	1.42	0.04
			0.00			1/2" Ice	2.36	1.59	0.06
			0.00			1" Ice	2.57	1.77	0.08
RRH2x40-AWS	B	From Leg	4.00	0.0000	82.00	No Ice	2.16	1.42	0.04
			0.00			1/2" Ice	2.36	1.59	0.06
			0.00			1" Ice	2.57	1.77	0.08
RRH2x40-AWS	C	From Leg	4.00	0.0000	82.00	No Ice	2.16	1.42	0.04
			0.00			1/2" Ice	2.36	1.59	0.06
			0.00			1" Ice	2.57	1.77	0.08
RRH 2x40-700 W/SOLAR	A	From Leg	4.00	0.0000	82.00	No Ice	2.83	1.67	0.05
			0.00			1/2" Ice	3.04	1.84	0.08
			0.00			1" Ice	3.26	2.01	0.10
RRH 2x40-700 W/SOLAR	B	From Leg	4.00	0.0000	82.00	No Ice	2.83	1.67	0.05
			0.00			1/2" Ice	3.04	1.84	0.08
			0.00			1" Ice	3.26	2.01	0.10
RRH 2x40-700 W/SOLAR	C	From Leg	4.00	0.0000	82.00	No Ice	2.83	1.67	0.05
			0.00			1/2" Ice	3.04	1.84	0.08
			0.00			1" Ice	3.26	2.01	0.10
DB-T1-6Z-8AB-0Z	C	From Leg	4.00	0.0000	82.00	No Ice	4.80	2.00	0.04
			0.00			1/2" Ice	5.07	2.19	0.08

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
				0.00			1" Ice	5.35	2.39	0.12
Sabre 10' Platform w/handrails	C	None			0.0000	82.00	No Ice	25.40	25.40	1.30
							1/2" Ice	30.40	30.40	1.69
							1" Ice	35.40	35.40	2.08
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800MHZ RRH	A	From Leg	1.00		0.0000	73.00	No Ice	2.13	1.77	0.05
			0.00				1/2" Ice	2.32	1.95	0.07
			0.00				1" Ice	2.51	2.13	0.10
800MHZ RRH	B	From Leg	1.00		0.0000	73.00	No Ice	2.13	1.77	0.05
			0.00				1/2" Ice	2.32	1.95	0.07
			0.00				1" Ice	2.51	2.13	0.10
800MHZ RRH	C	From Leg	1.00		0.0000	73.00	No Ice	2.13	1.77	0.05
			0.00				1/2" Ice	2.32	1.95	0.07
			0.00				1" Ice	2.51	2.13	0.10
(2) 1900MHz 4X40W RRH	A	From Leg	1.00		0.0000	75.00	No Ice	2.32	2.24	0.06
			0.00				1/2" Ice	2.53	2.44	0.08
			0.00				1" Ice	2.74	2.65	0.11
(2) 1900MHz 4X40W RRH	B	From Leg	1.00		0.0000	75.00	No Ice	2.32	2.24	0.06
			0.00				1/2" Ice	2.53	2.44	0.08
			0.00				1" Ice	2.74	2.65	0.11
(2) 1900MHz 4X40W RRH	C	From Leg	1.00		0.0000	75.00	No Ice	2.32	2.24	0.06
			0.00				1/2" Ice	2.53	2.44	0.08
			0.00				1" Ice	2.74	2.65	0.11
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APXVTM14-C-120 w/ Mount Pipe	A	From Leg	4.00		0.0000	72.00	No Ice	6.58	4.96	0.08
			0.00				1/2" Ice	7.03	5.75	0.13
			0.00				1" Ice	7.47	6.47	0.19
APXVTM14-C-120 w/ Mount Pipe	B	From Leg	4.00		0.0000	72.00	No Ice	6.58	4.96	0.08
			0.00				1/2" Ice	7.03	5.75	0.13
			0.00				1" Ice	7.47	6.47	0.19
APXVTM14-C-120 w/ Mount Pipe	C	From Leg	4.00		0.0000	72.00	No Ice	6.58	4.96	0.08
			0.00				1/2" Ice	7.03	5.75	0.13
			0.00				1" Ice	7.47	6.47	0.19
APXVSPP18-C w/ Mount Pipe	A	From Leg	4.00		0.0000	72.00	No Ice	8.26	6.95	0.08
			0.00				1/2" Ice	8.82	8.13	0.15
			0.00				1" Ice	9.35	9.02	0.23
APXVSPP18-C w/ Mount Pipe	B	From Leg	4.00		0.0000	72.00	No Ice	8.26	6.95	0.08
			0.00				1/2" Ice	8.82	8.13	0.15
			0.00				1" Ice	9.35	9.02	0.23
APXVSPP18-C w/ Mount Pipe	C	From Leg	4.00		0.0000	72.00	No Ice	8.26	6.95	0.08
			0.00				1/2" Ice	8.82	8.13	0.15
			0.00				1" Ice	9.35	9.02	0.23
TD-RRH8x20	A	From Leg	4.00		0.0000	72.00	No Ice	3.70	1.29	0.07
			0.00				1/2" Ice	3.95	1.46	0.09
			0.00				1" Ice	4.20	1.64	0.12
TD-RRH8x20	B	From Leg	4.00		0.0000	72.00	No Ice	3.70	1.29	0.07
			0.00				1/2" Ice	3.95	1.46	0.09
			0.00				1" Ice	4.20	1.64	0.12
TD-RRH8x20	C	From Leg	4.00		0.0000	72.00	No Ice	3.70	1.29	0.07
			0.00				1/2" Ice	3.95	1.46	0.09
			0.00				1" Ice	4.20	1.64	0.12
2'x2' Junction box	C	From Leg	2.00		0.0000	72.00	No Ice	5.60	2.80	0.10
			0.00				1/2" Ice	5.92	3.04	0.14
			0.00				1" Ice	6.24	3.28	0.18
12' T-ARM	A	From Leg	2.00		0.0000	72.00	No Ice	4.70	2.33	0.77
			0.00				1/2" Ice	5.33	2.96	0.99
			0.00				1" Ice	5.96	3.59	1.21

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
12' T-ARM	B	From Leg	2.00	0.0000	72.00	No Ice	4.70	2.33	0.77
			0.00			1/2" Ice	5.33	2.96	0.99
			0.00			1" Ice	5.96	3.59	1.21
12' T-ARM	C	From Leg	2.00	0.0000	72.00	No Ice	4.70	2.33	0.77
			0.00			1/2" Ice	5.33	2.96	0.99
			0.00			1" Ice	5.96	3.59	1.21
***									
12' T-Arm	A	From Leg	1.00	0.0000	28.00	No Ice	4.70	2.33	0.33
			0.00			1/2" Ice	5.33	2.96	0.40
			0.00			1" Ice	5.96	3.59	0.47
4' Standoff	A	From Leg	1.00	0.0000	28.00	No Ice	3.41	3.41	0.08
			0.00			1/2" Ice	4.47	4.47	0.10
			0.00			1" Ice	5.53	5.53	0.13
4' Standoff	A	From Leg	1.00	0.0000	28.00	No Ice	3.41	3.41	0.08
			0.00			1/2" Ice	4.47	4.47	0.10
			0.00			1" Ice	5.53	5.53	0.13
20' Omni	A	From Leg	1.00	0.0000	28.00	No Ice	5.00	5.00	0.04
			0.00			1/2" Ice	7.03	7.03	0.08
			14.00			1" Ice	9.06	9.06	0.11
12' Omni	A	From Leg	1.00	0.0000	28.00	No Ice	3.00	3.00	0.02
			0.00			1/2" Ice	4.23	4.23	0.04
			8.00			1" Ice	5.46	5.46	0.06
12' Omni	A	From Leg	1.00	0.0000	28.00	No Ice	3.00	3.00	0.02
			0.00			1/2" Ice	4.23	4.23	0.04
			8.00			1" Ice	5.46	5.46	0.06
10' Omni	A	From Leg	1.00	0.0000	28.00	No Ice	2.00	2.00	0.03
			0.00			1/2" Ice	3.02	3.02	0.04
			6.00			1" Ice	4.04	4.04	0.06
10' Omni	A	From Leg	1.00	0.0000	28.00	No Ice	2.00	2.00	0.03
			0.00			1/2" Ice	3.02	3.02	0.04
			6.00			1" Ice	4.04	4.04	0.06
10' Omni	A	From Leg	0.00	0.0000	28.00	No Ice	2.00	2.00	0.03
			0.00			1/2" Ice	3.02	3.02	0.04
			6.00			1" Ice	4.04	4.04	0.06
GPS	A	From Leg	1.00	0.0000	28.00	No Ice	0.17	0.17	0.00
			0.00			1/2" Ice	0.24	0.24	0.00
			2.00			1" Ice	0.31	0.31	0.01
climbing ladder	C	From Leg	0.00	0.0000	92.00	No Ice	0.29	0.29	0.01
			0.00			1/2" Ice	0.55	0.55	0.01
			0.00			1" Ice	0.81	0.81	0.01
climbing ladder	C	From Leg	0.00	0.0000	82.00	No Ice	0.29	0.29	0.01
			0.00			1/2" Ice	0.55	0.55	0.01
			0.00			1" Ice	0.81	0.81	0.01

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

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft²	Weight K
Andrew PX2F-52-NXA	C	Paraboloid w/Radome	From Leg	4.00 0.00 0.00	0.0000		72.00	2.00	No Ice 1/2" Ice 1" Ice	3.14 3.41 3.68	0.04 0.06 0.08
Dragonwave 2' HP Dish	A	Paraboloid w/Radome	From Leg	4.00 0.00 0.00	0.0000		72.00	2.08	No Ice 1/2" Ice 1" Ice	3.72 4.01 4.30	0.01 0.03 0.05
Dragonwave 2' HP Dish	A	Paraboloid w/Radome	From Leg	4.00 0.00 0.00	0.0000		72.00	2.08	No Ice 1/2" Ice 1" Ice	3.72 4.01 4.30	0.01 0.03 0.05

Tower Pressures - No Ice

$G_H = 1.100$

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg % %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1 102.70-97.70	100.20	1.266	29	5.417	A	0.000	5.417	5.417	100.00	0.000	0.000
					B	0.000	5.417		100.00	0.000	0.000
					C	0.000	5.417		100.00	0.000	0.000
L2 97.70-92.70	95.20	1.253	29	5.417	A	0.000	5.417	5.417	100.00	0.000	0.000
					B	0.000	5.417		100.00	0.000	0.000
					C	0.000	5.417		100.00	0.000	0.000
L3 92.70-89.78	91.24	1.241	28	3.163	A	0.000	3.163	3.163	100.00	0.000	0.000
					B	0.000	3.163		100.00	0.000	0.000
					C	0.000	3.163		100.00	0.000	0.000
L4 89.78-84.78	87.23	1.23	28	5.826	A	0.000	5.826	5.826	100.00	0.000	0.000
					B	0.000	5.826		100.00	0.000	0.000
					C	0.000	5.826		100.00	0.000	0.000
L5 84.78-79.78	82.24	1.215	28	6.477	A	0.000	6.477	6.477	100.00	0.000	0.000
					B	0.000	6.477		100.00	0.000	0.000
					C	0.000	6.477		100.00	0.000	0.000
L6 79.78-74.78	77.24	1.199	27	7.128	A	0.000	7.128	7.128	100.00	0.000	0.000
					B	0.000	7.128		100.00	0.000	0.000
					C	0.000	7.128		100.00	0.000	0.000
L7 74.78-72.50	73.63	1.187	27	3.467	A	0.000	3.467	3.467	100.00	0.000	0.000
					B	0.000	3.467		100.00	0.000	0.000
					C	0.000	3.467		100.00	0.000	0.000
L8 72.50-72.25	72.37	1.182	27	0.388	A	0.000	0.388	0.388	100.00	0.000	0.000
					B	0.000	0.388		100.00	0.000	0.000
					C	0.000	0.388		100.00	0.000	0.000
L9 72.25-67.25	69.72	1.173	27	8.109	A	0.000	8.109	8.109	100.00	0.000	0.000
					B	0.000	8.109		100.00	0.000	0.000
					C	0.000	8.109		100.00	1.335	0.000
L10 67.25-62.25	64.72	1.155	26	8.761	A	0.000	8.761	8.761	100.00	0.000	0.000
					B	0.000	8.761		100.00	0.000	0.000
					C	0.000	8.761		100.00	1.405	0.000
L11 62.25-61.75	62.00	1.144	26	0.912	A	0.000	0.912	0.912	100.00	0.000	0.000
					B	0.000	0.912		100.00	0.000	0.000
					C	0.000	0.912		100.00	0.141	0.000
L12 61.75-61.50	61.62	1.143	26	0.458	A	0.000	0.458	0.458	100.00	0.000	0.000
					B	0.000	0.458		100.00	0.000	0.000
					C	0.000	0.458		100.00	0.070	0.000
L13	58.97	1.132	26	9.510	A	0.000	9.510	9.510	100.00	0.000	0.000

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
61.50-56.50					B	0.000	9.510		100.00	0.000	0.000
					C	0.000	9.510		100.00	1.405	0.000
L14	53.97	1.112	25	10.161	A	0.000	10.161	10.161	100.00	0.000	0.000
56.50-51.50					B	0.000	10.161		100.00	0.000	0.000
					C	0.000	10.161		100.00	1.405	0.000
L15	48.20	1.085	25	14.228	A	0.000	14.228	14.228	100.00	0.000	0.000
51.50-44.98					B	0.000	14.228		100.00	0.000	0.000
					C	0.000	14.228		100.00	1.832	0.000
L16	44.38	1.067	24	2.687	A	0.000	2.687	2.687	100.00	0.000	0.000
44.98-43.78					B	0.000	2.687		100.00	0.000	0.000
					C	0.000	2.687		100.00	0.337	0.000
L17	41.26	1.05	24	11.597	A	0.000	11.597	11.597	100.00	0.000	0.000
43.78-38.78					B	0.000	11.597		100.00	0.000	0.000
					C	0.000	11.597		100.00	1.405	0.000
L18	36.26	1.022	23	12.242	A	0.000	12.242	12.242	100.00	0.000	0.000
38.78-33.78					B	0.000	12.242		100.00	0.000	0.000
					C	0.000	12.242		100.00	1.405	0.000
L19	33.26	1.004	23	2.602	A	0.000	2.602	2.602	100.00	0.000	0.000
33.78-32.75					B	0.000	2.602		100.00	0.000	0.000
					C	0.000	2.602		100.00	0.289	0.000
L20	32.62	1	23	0.636	A	0.000	0.636	0.636	100.00	0.000	0.000
32.75-32.50					B	0.000	0.636		100.00	0.000	0.000
					C	0.000	0.636		100.00	0.070	0.000
L21	29.98	0.982	22	13.053	A	0.000	13.053	13.053	100.00	0.000	0.000
32.50-27.50					B	0.000	13.053		100.00	0.000	0.000
					C	0.000	13.053		100.00	1.405	0.000
L22	24.98	0.945	22	13.698	A	0.000	13.698	13.698	100.00	0.000	0.000
27.50-22.50					B	0.000	13.698		100.00	0.000	0.000
					C	0.000	13.698		100.00	1.405	0.000
L23	19.98	0.902	21	14.343	A	0.000	14.343	14.343	100.00	0.000	0.000
22.50-17.50					B	0.000	14.343		100.00	0.000	0.000
					C	0.000	14.343		100.00	0.703	0.000
L24	14.98	0.85	19	14.988	A	0.000	14.988	14.988	100.00	0.000	0.000
17.50-12.50					B	0.000	14.988		100.00	0.000	0.000
					C	0.000	14.988		100.00	0.000	0.000
L25 12.50-7.50	9.98	0.85	19	15.633	A	0.000	15.633	15.633	100.00	0.000	0.000
					B	0.000	15.633		100.00	0.000	0.000
					C	0.000	15.633		100.00	0.000	0.000
L26 7.50-2.50	4.98	0.85	19	16.279	A	0.000	16.279	16.279	100.00	0.000	0.000
					B	0.000	16.279		100.00	0.000	0.000
					C	0.000	16.279		100.00	0.000	0.000
L27 2.50-0.00	1.25	0.85	19	8.381	A	0.000	8.381	8.381	100.00	0.000	0.000
					B	0.000	8.381		100.00	0.000	0.000
					C	0.000	8.381		100.00	0.000	0.000

Tower Pressure - With Ice

$G_H = 1.100$

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1 102.70-97.70	100.20	1.266	8	1.6762	6.814	A	0.000	6.814	6.814	100.00	0.000	0.000
						B	0.000	6.814		100.00	0.000	0.000
						C	0.000	6.814		100.00	0.000	0.000

Section Elevation	z	K_Z	q_z	t_Z	A_G	Face	A_F	A_R	A_{leg}	Leg %	C_AA_A In Face	C_AA_A Out Face
ft	ft		psf	in	ft^2		ft^2	ft^2	ft^2		ft^2	ft^2
L2 97.70-92.70	95.20	1.253	8	1.6676	6.806	A	0.000	6.806	6.806	100.00	0.000	0.000
						B	0.000	6.806		100.00	0.000	0.000
						C	0.000	6.806		100.00	0.000	0.000
L3 92.70-89.78	91.24	1.241	8	1.6606	3.971	A	0.000	3.971	3.971	100.00	0.000	0.000
						B	0.000	3.971		100.00	0.000	0.000
						C	0.000	3.971		100.00	0.000	0.000
L4 89.78-84.78	87.23	1.23	7	1.6531	7.203	A	0.000	7.203	7.203	100.00	0.000	0.000
						B	0.000	7.203		100.00	0.000	0.000
						C	0.000	7.203		100.00	0.000	0.000
L5 84.78-79.78	82.24	1.215	7	1.6434	7.847	A	0.000	7.847	7.847	100.00	0.000	0.000
						B	0.000	7.847		100.00	0.000	0.000
						C	0.000	7.847		100.00	0.000	0.000
L6 79.78-74.78	77.24	1.199	7	1.6331	8.489	A	0.000	8.489	8.489	100.00	0.000	0.000
						B	0.000	8.489		100.00	0.000	0.000
						C	0.000	8.489		100.00	0.000	0.000
L7 74.78-72.50	73.63	1.187	7	1.6253	4.084	A	0.000	4.084	4.084	100.00	0.650	0.000
						B	0.000	4.084		100.00	0.000	0.000
						C	0.000	4.084		100.00	0.000	0.000
L8 72.50-72.25	72.37	1.182	7	1.6226	0.456	A	0.000	0.456	0.456	100.00	0.081	0.000
						B	0.000	0.456		100.00	0.000	0.000
						C	0.000	0.456		100.00	0.000	0.000
L9 72.25-67.25	69.72	1.173	7	1.6165	9.456	A	0.000	9.456	9.456	100.00	1.616	0.000
						B	0.000	9.456		100.00	0.000	0.000
						C	0.000	9.456		100.00	9.013	0.000
L10 67.25-62.25	64.72	1.155	7	1.6045	10.098	A	0.000	10.098	10.098	100.00	1.605	0.000
						B	0.000	10.098		100.00	0.000	0.000
						C	0.000	10.098		100.00	9.428	0.000
L11 62.25-61.75	62.00	1.144	7	1.5976	1.045	A	0.000	1.045	1.045	100.00	0.160	0.000
						B	0.000	1.045		100.00	0.000	0.000
						C	0.000	1.045		100.00	0.939	0.000
L12 61.75-61.50	61.62	1.143	7	1.5967	0.525	A	0.000	0.525	0.525	100.00	0.080	0.000
						B	0.000	0.525		100.00	0.080	0.000
						C	0.000	0.525		100.00	0.469	0.000
L13 61.50-56.50	58.97	1.132	7	1.5897	10.834	A	0.000	10.834	10.834	100.00	1.590	0.000
						B	0.000	10.834		100.00	1.590	0.000
						C	0.000	10.834		100.00	9.353	0.000
L14 56.50-51.50	53.97	1.112	7	1.5756	11.474	A	0.000	11.474	11.474	100.00	1.576	0.000
						B	0.000	11.474		100.00	1.576	0.000
						C	0.000	11.474		100.00	9.283	0.000
L15 51.50-44.98	48.20	1.085	7	1.5579	15.921	A	0.000	15.921	15.921	100.00	2.032	0.000
						B	0.000	15.921		100.00	2.032	0.000
						C	0.000	15.921		100.00	11.990	0.000
L16 44.98-43.78	44.38	1.067	6	1.5451	2.999	A	0.000	2.999	2.999	100.00	0.374	0.000
						B	0.000	2.999		100.00	0.374	0.000
						C	0.000	2.999		100.00	2.207	0.000
L17 43.78-38.78	41.26	1.05	6	1.5339	12.875	A	0.000	12.875	12.875	100.00	1.534	0.000
						B	0.000	12.875		100.00	1.534	0.000
						C	0.000	12.875		100.00	9.074	0.000
L18 38.78-33.78	36.26	1.022	6	1.5142	13.504	A	0.000	13.504	13.504	100.00	1.514	0.000
						B	0.000	13.504		100.00	1.514	0.000
						C	0.000	13.504		100.00	8.976	0.000
L19 33.78-32.75	33.26	1.004	6	1.5012	2.860	A	0.000	2.860	2.860	100.00	0.309	0.000
						B	0.000	2.860		100.00	0.309	0.000
						C	0.000	2.860		100.00	1.836	0.000
L20 32.75-32.50	32.62	1	6	1.4983	0.698	A	0.000	0.698	0.698	100.00	0.075	0.000
						B	0.000	0.698		100.00	0.075	0.000
						C	0.000	0.698		100.00	0.445	0.000
L21 32.50-27.50	29.98	0.982	6	1.4857	14.291	A	0.000	14.291	14.291	100.00	1.486	0.000
						B	0.000	14.291		100.00	1.486	0.000
						C	0.000	14.291		100.00	8.833	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
L22 27.50-22.50	24.98	0.945	6	1.4588	14.913	A	0.000	14.913	14.913	100.00	1.459	0.000
						B	0.000	14.913		100.00	1.459	0.000
						C	0.000	14.913		100.00	8.699	0.000
L23 22.50-17.50	19.98	0.902	5	1.4266	15.532	A	0.000	15.532	15.532	100.00	1.427	0.000
						B	0.000	15.532		100.00	1.427	0.000
						C	0.000	15.532		100.00	4.269	0.000
L24 17.50-12.50	14.98	0.85	5	1.3861	16.143	A	0.000	16.143	16.143	100.00	1.386	0.000
						B	0.000	16.143		100.00	1.386	0.000
						C	0.000	16.143		100.00	0.000	0.000
L25 12.50-7.50	9.98	0.85	5	1.3310	16.743	A	0.000	16.743	16.743	100.00	1.331	0.000
						B	0.000	16.743		100.00	1.331	0.000
						C	0.000	16.743		100.00	0.000	0.000
L26 7.50-2.50	4.98	0.85	5	1.2416	17.313	A	0.000	17.313	17.313	100.00	1.242	0.000
						B	0.000	17.313		100.00	1.242	0.000
						C	0.000	17.313		100.00	0.000	0.000
L27 2.50-0.00	1.25	0.85	5	1.0809	8.832	A	0.000	8.832	8.832	100.00	0.540	0.000
						B	0.000	8.832		100.00	0.540	0.000
						C	0.000	8.832		100.00	0.000	0.000

Tower Pressure - Service

$G_H = 1.100$

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1	100.20	1.266	10	5.417	A	0.000	5.417	5.417	100.00	0.000	0.000
102.70-97.70					B	0.000	5.417		100.00	0.000	0.000
					C	0.000	5.417		100.00	0.000	0.000
L2 97.70-92.70	95.20	1.253	10	5.417	A	0.000	5.417	5.417	100.00	0.000	0.000
					B	0.000	5.417		100.00	0.000	0.000
					C	0.000	5.417		100.00	0.000	0.000
L3 92.70-89.78	91.24	1.241	10	3.163	A	0.000	3.163	3.163	100.00	0.000	0.000
					B	0.000	3.163		100.00	0.000	0.000
					C	0.000	3.163		100.00	0.000	0.000
L4 89.78-84.78	87.23	1.23	10	5.826	A	0.000	5.826	5.826	100.00	0.000	0.000
					B	0.000	5.826		100.00	0.000	0.000
					C	0.000	5.826		100.00	0.000	0.000
L5 84.78-79.78	82.24	1.215	10	6.477	A	0.000	6.477	6.477	100.00	0.000	0.000
					B	0.000	6.477		100.00	0.000	0.000
					C	0.000	6.477		100.00	0.000	0.000
L6 79.78-74.78	77.24	1.199	9	7.128	A	0.000	7.128	7.128	100.00	0.000	0.000
					B	0.000	7.128		100.00	0.000	0.000
					C	0.000	7.128		100.00	0.000	0.000
L7 74.78-72.50	73.63	1.187	9	3.467	A	0.000	3.467	3.467	100.00	0.000	0.000
					B	0.000	3.467		100.00	0.000	0.000
					C	0.000	3.467		100.00	0.000	0.000
L8 72.50-72.25	72.37	1.182	9	0.388	A	0.000	0.388	0.388	100.00	0.000	0.000
					B	0.000	0.388		100.00	0.000	0.000
					C	0.000	0.388		100.00	0.000	0.000
L9 72.25-67.25	69.72	1.173	9	8.109	A	0.000	8.109	8.109	100.00	0.000	0.000
					B	0.000	8.109		100.00	0.000	0.000
					C	0.000	8.109		100.00	1.335	0.000
L10	64.72	1.155	9	8.761	A	0.000	8.761	8.761	100.00	0.000	0.000

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
67.25-62.25					B	0.000	8.761		100.00	0.000	0.000
					C	0.000	8.761		100.00	1.405	0.000
L11	62.00	1.144	9	0.912	A	0.000	0.912	0.912	100.00	0.000	0.000
62.25-61.75					B	0.000	0.912		100.00	0.000	0.000
					C	0.000	0.912		100.00	0.141	0.000
L12	61.62	1.143	9	0.458	A	0.000	0.458	0.458	100.00	0.000	0.000
61.75-61.50					B	0.000	0.458		100.00	0.000	0.000
					C	0.000	0.458		100.00	0.070	0.000
L13	58.97	1.132	9	9.510	A	0.000	9.510	9.510	100.00	0.000	0.000
61.50-56.50					B	0.000	9.510		100.00	0.000	0.000
					C	0.000	9.510		100.00	1.405	0.000
L14	53.97	1.112	9	10.161	A	0.000	10.161	10.161	100.00	0.000	0.000
56.50-51.50					B	0.000	10.161		100.00	0.000	0.000
					C	0.000	10.161		100.00	1.405	0.000
L15	48.20	1.085	9	14.228	A	0.000	14.228	14.228	100.00	0.000	0.000
51.50-44.98					B	0.000	14.228		100.00	0.000	0.000
					C	0.000	14.228		100.00	1.832	0.000
L16	44.38	1.067	8	2.687	A	0.000	2.687	2.687	100.00	0.000	0.000
44.98-43.78					B	0.000	2.687		100.00	0.000	0.000
					C	0.000	2.687		100.00	0.337	0.000
L17	41.26	1.05	8	11.597	A	0.000	11.597	11.597	100.00	0.000	0.000
43.78-38.78					B	0.000	11.597		100.00	0.000	0.000
					C	0.000	11.597		100.00	1.405	0.000
L18	36.26	1.022	8	12.242	A	0.000	12.242	12.242	100.00	0.000	0.000
38.78-33.78					B	0.000	12.242		100.00	0.000	0.000
					C	0.000	12.242		100.00	1.405	0.000
L19	33.26	1.004	8	2.602	A	0.000	2.602	2.602	100.00	0.000	0.000
33.78-32.75					B	0.000	2.602		100.00	0.000	0.000
					C	0.000	2.602		100.00	0.289	0.000
L20	32.62	1	8	0.636	A	0.000	0.636	0.636	100.00	0.000	0.000
32.75-32.50					B	0.000	0.636		100.00	0.000	0.000
					C	0.000	0.636		100.00	0.070	0.000
L21	29.98	0.982	8	13.053	A	0.000	13.053	13.053	100.00	0.000	0.000
32.50-27.50					B	0.000	13.053		100.00	0.000	0.000
					C	0.000	13.053		100.00	1.405	0.000
L22	24.98	0.945	7	13.698	A	0.000	13.698	13.698	100.00	0.000	0.000
27.50-22.50					B	0.000	13.698		100.00	0.000	0.000
					C	0.000	13.698		100.00	1.405	0.000
L23	19.98	0.902	7	14.343	A	0.000	14.343	14.343	100.00	0.000	0.000
22.50-17.50					B	0.000	14.343		100.00	0.000	0.000
					C	0.000	14.343		100.00	0.703	0.000
L24	14.98	0.85	7	14.988	A	0.000	14.988	14.988	100.00	0.000	0.000
17.50-12.50					B	0.000	14.988		100.00	0.000	0.000
					C	0.000	14.988		100.00	0.000	0.000
L25 12.50-7.50	9.98	0.85	7	15.633	A	0.000	15.633	15.633	100.00	0.000	0.000
					B	0.000	15.633		100.00	0.000	0.000
					C	0.000	15.633		100.00	0.000	0.000
L26 7.50-2.50	4.98	0.85	7	16.279	A	0.000	16.279	16.279	100.00	0.000	0.000
					B	0.000	16.279		100.00	0.000	0.000
					C	0.000	16.279		100.00	0.000	0.000
L27 2.50-0.00	1.25	0.85	7	8.381	A	0.000	8.381	8.381	100.00	0.000	0.000
					B	0.000	8.381		100.00	0.000	0.000
					C	0.000	8.381		100.00	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	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
L1	0.01	0.17	A	1	0.6	29	1	1	5.417	0.10	20.72	C
102.70-97.70			B	1	0.6		1	1	5.417			
			C	1	0.6		1	1	5.417			
L2	0.02	0.17	A	1	0.6	29	1	1	5.417	0.10	20.49	C
97.70-92.70			B	1	0.6		1	1	5.417			
			C	1	0.6		1	1	5.417			
L3	0.01	0.10	A	1	0.6	28	1	1	3.163	0.06	20.31	C
92.70-89.78			B	1	0.6		1	1	3.163			
			C	1	0.6		1	1	3.163			
L4	0.04	0.18	A	1	0.65	28	1	1	5.826	0.12	23.44	C
89.78-84.78			B	1	0.65		1	1	5.826			
			C	1	0.65		1	1	5.826			
L5	0.05	0.20	A	1	0.65	28	1	1	6.477	0.13	25.74	C
84.78-79.78			B	1	0.65		1	1	6.477			
			C	1	0.65		1	1	6.477			
L6	0.07	0.22	A	1	0.65	27	1	1	7.128	0.14	27.96	C
79.78-74.78			B	1	0.65		1	1	7.128			
			C	1	0.65		1	1	7.128			
L7	0.07	0.11	A	1	0.65	27	1	1	3.467	0.07	29.52	C
74.78-72.50			B	1	0.65		1	1	3.467			
			C	1	0.65		1	1	3.467			
L8	0.01	0.03	A	1	0.65	27	1	1	0.388	0.01	30.05	C
72.50-72.25			B	1	0.65		1	1	0.388			
			C	1	0.65		1	1	0.388			
L9	0.19	0.55	A	1	0.65	27	1	1	8.109	0.16	31.13	C
72.25-67.25			B	1	0.65		1	1	8.109			
			C	1	0.65		1	1	8.109			
L10	0.19	0.57	A	1	0.65	26	1	1	8.761	0.17	33.11	C
67.25-62.25			B	1	0.65		1	1	8.761			
			C	1	0.65		1	1	8.761			
L11	0.02	0.06	A	1	0.65	26	1	1	0.912	0.02	34.15	C
62.25-61.75			B	1	0.65		1	1	0.912			
			C	1	0.65		1	1	0.912			
L12	0.02	0.04	A	1	0.65	26	1	1	0.458	0.01	34.29	C
61.75-61.50			B	1	0.65		1	1	0.458			
			C	1	0.65		1	1	0.458			
L13	0.33	0.70	A	1	0.65	26	1	1	9.510	0.18	35.24	C
61.50-56.50			B	1	0.65		1	1	9.510			
			C	1	0.65		1	1	9.510			
L14	0.33	0.72	A	1	0.65	25	1	1	10.161	0.18	36.96	C
56.50-51.50			B	1	0.65		1	1	10.161			
			C	1	0.65		1	1	10.161			
L15	0.43	0.99	A	1	0.65	25	1	1	14.228	0.25	38.75	C
51.50-44.98			B	1	0.65		1	1	14.228			
			C	1	0.65		1	1	14.228			
L16	0.08	0.83	A	1	0.65	24	1	1	2.687	0.05	39.08	C
44.98-43.78			B	1	0.65		1	1	2.687			
			C	1	0.65		1	1	2.687			
L17	0.33	0.86	A	1	0.65	24	1	1	11.597	0.20	39.86	C
43.78-38.78			B	1	0.65		1	1	11.597			
			C	1	0.65		1	1	11.597			
L18	0.33	0.89	A	1	0.65	23	1	1	12.242	0.20	40.95	C
38.78-33.78			B	1	0.65		1	1	12.242			
			C	1	0.65		1	1	12.242			
L19	0.07	0.19	A	1	0.65	23	1	1	2.602	0.04	41.49	C
33.78-32.75			B	1	0.65		1	1	2.602			
			C	1	0.65		1	1	2.602			
L20	0.03	0.05	A	1	0.65	23	1	1	0.636	0.01	41.59	C
32.75-32.50			B	1	0.65		1	1	0.636			
			C	1	0.65		1	1	0.636			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
L21	0.61	1.05	A	1	0.65	22	1	1	13.053	0.21	41.95	C
32.50-27.50			B	1	0.65		1	1	13.053			
			C	1	0.65		1	1	13.053			
L22	0.62	1.08	A	1	0.65	22	1	1	13.698	0.21	42.36	C
27.50-22.50			B	1	0.65		1	1	13.698			
			C	1	0.65		1	1	13.698			
L23	0.57	1.11	A	1	0.65	21	1	1	14.343	0.21	42.32	C
22.50-17.50			B	1	0.65		1	1	14.343			
			C	1	0.65		1	1	14.343			
L24	0.53	1.13	A	1	0.65	19	1	1	14.988	0.21	41.69	C
17.50-12.50			B	1	0.65		1	1	14.988			
			C	1	0.65		1	1	14.988			
L25	0.53	1.16	A	1	0.65	19	1	1	15.633	0.22	43.48	C
12.50-7.50			B	1	0.65		1	1	15.633			
			C	1	0.65		1	1	15.633			
L26 7.50-2.50	0.53	1.19	A	1	0.65	19	1	1	16.279	0.23	45.28	C
			B	1	0.65		1	1	16.279			
			C	1	0.65		1	1	16.279			
L27 2.50-0.00	0.26	0.61	A	1	0.65	19	1	1	8.381	0.12	46.62	C
			B	1	0.65		1	1	8.381			
			C	1	0.65		1	1	8.381			
Sum Weight:	6.28	14.97						OTM	160.21 kip-ft	3.59		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
L1	0.01	0.17	A	1	0.6	29	1	1	5.417	0.10	20.72	C
102.70-97.70			B	1	0.6		1	1	5.417			
			C	1	0.6		1	1	5.417			
L2	0.02	0.17	A	1	0.6	29	1	1	5.417	0.10	20.49	C
97.70-92.70			B	1	0.6		1	1	5.417			
			C	1	0.6		1	1	5.417			
L3	0.01	0.10	A	1	0.6	28	1	1	3.163	0.06	20.31	C
92.70-89.78			B	1	0.6		1	1	3.163			
			C	1	0.6		1	1	3.163			
L4	0.04	0.18	A	1	0.65	28	1	1	5.826	0.12	23.44	C
89.78-84.78			B	1	0.65		1	1	5.826			
			C	1	0.65		1	1	5.826			
L5	0.05	0.20	A	1	0.65	28	1	1	6.477	0.13	25.74	C
84.78-79.78			B	1	0.65		1	1	6.477			
			C	1	0.65		1	1	6.477			
L6	0.07	0.22	A	1	0.65	27	1	1	7.128	0.14	27.96	C
79.78-74.78			B	1	0.65		1	1	7.128			
			C	1	0.65		1	1	7.128			
L7	0.07	0.11	A	1	0.65	27	1	1	3.467	0.07	29.52	C
74.78-72.50			B	1	0.65		1	1	3.467			
			C	1	0.65		1	1	3.467			
L8	0.01	0.03	A	1	0.65	27	1	1	0.388	0.01	30.05	C
72.50-72.25			B	1	0.65		1	1	0.388			
			C	1	0.65		1	1	0.388			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
L9	0.19	0.55	A	1	0.65	27	1	1	8.109	0.16	31.13	C
72.25-67.25			B	1	0.65		1	1	8.109			
			C	1	0.65		1	1	8.109			
L10	0.19	0.57	A	1	0.65	26	1	1	8.761	0.17	33.11	C
67.25-62.25			B	1	0.65		1	1	8.761			
			C	1	0.65		1	1	8.761			
L11	0.02	0.06	A	1	0.65	26	1	1	0.912	0.02	34.15	C
62.25-61.75			B	1	0.65		1	1	0.912			
			C	1	0.65		1	1	0.912			
L12	0.02	0.04	A	1	0.65	26	1	1	0.458	0.01	34.29	C
61.75-61.50			B	1	0.65		1	1	0.458			
			C	1	0.65		1	1	0.458			
L13	0.33	0.70	A	1	0.65	26	1	1	9.510	0.18	35.24	C
61.50-56.50			B	1	0.65		1	1	9.510			
			C	1	0.65		1	1	9.510			
L14	0.33	0.72	A	1	0.65	25	1	1	10.161	0.18	36.96	C
56.50-51.50			B	1	0.65		1	1	10.161			
			C	1	0.65		1	1	10.161			
L15	0.43	0.99	A	1	0.65	25	1	1	14.228	0.25	38.75	C
51.50-44.98			B	1	0.65		1	1	14.228			
			C	1	0.65		1	1	14.228			
L16	0.08	0.83	A	1	0.65	24	1	1	2.687	0.05	39.08	C
44.98-43.78			B	1	0.65		1	1	2.687			
			C	1	0.65		1	1	2.687			
L17	0.33	0.86	A	1	0.65	24	1	1	11.597	0.20	39.86	C
43.78-38.78			B	1	0.65		1	1	11.597			
			C	1	0.65		1	1	11.597			
L18	0.33	0.89	A	1	0.65	23	1	1	12.242	0.20	40.95	C
38.78-33.78			B	1	0.65		1	1	12.242			
			C	1	0.65		1	1	12.242			
L19	0.07	0.19	A	1	0.65	23	1	1	2.602	0.04	41.49	C
33.78-32.75			B	1	0.65		1	1	2.602			
			C	1	0.65		1	1	2.602			
L20	0.03	0.05	A	1	0.65	23	1	1	0.636	0.01	41.59	C
32.75-32.50			B	1	0.65		1	1	0.636			
			C	1	0.65		1	1	0.636			
L21	0.61	1.05	A	1	0.65	22	1	1	13.053	0.21	41.95	C
32.50-27.50			B	1	0.65		1	1	13.053			
			C	1	0.65		1	1	13.053			
L22	0.62	1.08	A	1	0.65	22	1	1	13.698	0.21	42.36	C
27.50-22.50			B	1	0.65		1	1	13.698			
			C	1	0.65		1	1	13.698			
L23	0.57	1.11	A	1	0.65	21	1	1	14.343	0.21	42.32	C
22.50-17.50			B	1	0.65		1	1	14.343			
			C	1	0.65		1	1	14.343			
L24	0.53	1.13	A	1	0.65	19	1	1	14.988	0.21	41.69	C
17.50-12.50			B	1	0.65		1	1	14.988			
			C	1	0.65		1	1	14.988			
L25	0.53	1.16	A	1	0.65	19	1	1	15.633	0.22	43.48	C
12.50-7.50			B	1	0.65		1	1	15.633			
			C	1	0.65		1	1	15.633			
L26 7.50-2.50	0.53	1.19	A	1	0.65	19	1	1	16.279	0.23	45.28	C
			B	1	0.65		1	1	16.279			
			C	1	0.65		1	1	16.279			
L27 2.50-0.00	0.26	0.61	A	1	0.65	19	1	1	8.381	0.12	46.62	C
			B	1	0.65		1	1	8.381			
			C	1	0.65		1	1	8.381			
Sum Weight:	6.28	14.97						OTM	160.21 kip-ft	3.59		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
L1	0.01	0.17	A	1	0.6	29	1	1	5.417	0.10	20.72	C
102.70-97.70			B	1	0.6		1	1	5.417			
			C	1	0.6		1	1	5.417			
L2	0.02	0.17	A	1	0.6	29	1	1	5.417	0.10	20.49	C
97.70-92.70			B	1	0.6		1	1	5.417			
			C	1	0.6		1	1	5.417			
L3	0.01	0.10	A	1	0.6	28	1	1	3.163	0.06	20.31	C
92.70-89.78			B	1	0.6		1	1	3.163			
			C	1	0.6		1	1	3.163			
L4	0.04	0.18	A	1	0.65	28	1	1	5.826	0.12	23.44	C
89.78-84.78			B	1	0.65		1	1	5.826			
			C	1	0.65		1	1	5.826			
L5	0.05	0.20	A	1	0.65	28	1	1	6.477	0.13	25.74	C
84.78-79.78			B	1	0.65		1	1	6.477			
			C	1	0.65		1	1	6.477			
L6	0.07	0.22	A	1	0.65	27	1	1	7.128	0.14	27.96	C
79.78-74.78			B	1	0.65		1	1	7.128			
			C	1	0.65		1	1	7.128			
L7	0.07	0.11	A	1	0.65	27	1	1	3.467	0.07	29.52	C
74.78-72.50			B	1	0.65		1	1	3.467			
			C	1	0.65		1	1	3.467			
L8	0.01	0.03	A	1	0.65	27	1	1	0.388	0.01	30.05	C
72.50-72.25			B	1	0.65		1	1	0.388			
			C	1	0.65		1	1	0.388			
L9	0.19	0.55	A	1	0.65	27	1	1	8.109	0.17	34.60	C
72.25-67.25			B	1	0.65		1	1	8.109			
			C	1	0.722		1	1	8.109			
L10	0.19	0.57	A	1	0.65	26	1	1	8.761	0.18	36.45	C
67.25-62.25			B	1	0.65		1	1	8.761			
			C	1	0.716		1	1	8.761			
L11	0.02	0.06	A	1	0.65	26	1	1	0.912	0.02	37.06	C
62.25-61.75			B	1	0.65		1	1	0.912			
			C	1	0.705		1	1	0.912			
L12	0.02	0.04	A	1	0.65	26	1	1	0.458	0.01	37.14	C
61.75-61.50			B	1	0.65		1	1	0.458			
			C	1	0.704		1	1	0.458			
L13	0.33	0.70	A	1	0.65	26	1	1	9.510	0.19	37.68	C
61.50-56.50			B	1	0.65		1	1	9.510			
			C	1	0.695		1	1	9.510			
L14	0.33	0.72	A	1	0.65	25	1	1	10.161	0.19	38.65	C
56.50-51.50			B	1	0.65		1	1	10.161			
			C	1	0.68		1	1	10.161			
L15	0.43	0.99	A	1	0.65	25	1	1	14.228	0.26	39.60	C
51.50-44.98			B	1	0.65		1	1	14.228			
			C	1	0.664		1	1	14.228			
L16	0.08	0.83	A	1	0.65	24	1	1	2.687	0.05	39.62	C
44.98-43.78			B	1	0.65		1	1	2.687			
			C	1	0.659		1	1	2.687			
L17	0.33	0.86	A	1	0.65	24	1	1	11.597	0.20	39.98	C
43.78-38.78			B	1	0.65		1	1	11.597			
			C	1	0.652		1	1	11.597			
L18	0.33	0.89	A	1	0.65	23	1	1	12.242	0.20	40.95	C

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
38.78-33.78			B	1	0.65		1	1	12.242			
			C	1	0.65		1	1	12.242			
L19	0.07	0.19	A	1	0.65	23	1	1	2.602	0.04	41.49	C
33.78-32.75			B	1	0.65		1	1	2.602			
			C	1	0.65		1	1	2.602			
L20	0.03	0.05	A	1	0.65	23	1	1	0.636	0.01	41.59	C
32.75-32.50			B	1	0.65		1	1	0.636			
			C	1	0.65		1	1	0.636			
L21	0.61	1.05	A	1	0.65	22	1	1	13.053	0.21	41.95	C
32.50-27.50			B	1	0.65		1	1	13.053			
			C	1	0.65		1	1	13.053			
L22	0.62	1.08	A	1	0.65	22	1	1	13.698	0.21	42.36	C
27.50-22.50			B	1	0.65		1	1	13.698			
			C	1	0.65		1	1	13.698			
L23	0.57	1.11	A	1	0.65	21	1	1	14.343	0.21	42.32	C
22.50-17.50			B	1	0.65		1	1	14.343			
			C	1	0.65		1	1	14.343			
L24	0.53	1.13	A	1	0.65	19	1	1	14.988	0.21	41.69	C
17.50-12.50			B	1	0.65		1	1	14.988			
			C	1	0.65		1	1	14.988			
L25	0.53	1.16	A	1	0.65	19	1	1	15.633	0.22	43.48	C
12.50-7.50			B	1	0.65		1	1	15.633			
			C	1	0.65		1	1	15.633			
L26 7.50-2.50	0.53	1.19	A	1	0.65	19	1	1	16.279	0.23	45.28	C
			B	1	0.65		1	1	16.279			
			C	1	0.65		1	1	16.279			
L27 2.50-0.00	0.26	0.61	A	1	0.65	19	1	1	8.381	0.12	46.62	C
			B	1	0.65		1	1	8.381			
			C	1	0.65		1	1	8.381			
Sum Weight:	6.28	14.97						OTM	164.13 kip-ft	3.66		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
L1	0.01	0.32	A	1	1.2	8	1	1	6.814	0.07	13.85	C
102.70-97.70			B	1	1.2		1	1	6.814			
			C	1	1.2		1	1	6.814			
L2	0.02	0.32	A	1	1.2	8	1	1	6.806	0.07	13.68	C
97.70-92.70			B	1	1.2		1	1	6.806			
			C	1	1.2		1	1	6.806			
L3	0.01	0.19	A	1	1.2	8	1	1	3.971	0.04	13.55	C
92.70-89.78			B	1	1.2		1	1	3.971			
			C	1	1.2		1	1	3.971			
L4	0.04	0.34	A	1	1.2	7	1	1	7.203	0.07	14.22	C
89.78-84.78			B	1	1.2		1	1	7.203			
			C	1	1.2		1	1	7.203			
L5	0.05	0.38	A	1	1.2	7	1	1	7.847	0.08	15.30	C
84.78-79.78			B	1	1.2		1	1	7.847			
			C	1	1.2		1	1	7.847			
L6	0.07	0.41	A	1	1.2	7	1	1	8.489	0.08	16.33	C

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
79.78-74.78			B	1	1.2		1	1	8.489			
			C	1	1.2		1	1	8.489			
L7	0.08	0.20	A	1	1.2	7	1	1	4.084	0.04	17.06	C
74.78-72.50			B	1	1.2		1	1	4.084			
			C	1	1.2		1	1	4.084			
L8	0.01	0.04	A	1	1.2	7	1	1	0.456	0.00	17.31	C
72.50-72.25			B	1	1.2		1	1	0.456			
			C	1	1.2		1	1	0.456			
L9	0.34	0.76	A	1	1.2	7	1	1	9.456	0.09	17.81	C
72.25-67.25			B	1	1.2		1	1	9.456			
			C	1	1.2		1	1	9.456			
L10	0.35	0.79	A	1	1.2	7	1	1	10.098	0.09	18.72	C
67.25-62.25			B	1	1.2		1	1	10.098			
			C	1	1.2		1	1	10.098			
L11	0.03	0.08	A	1	1.2	7	1	1	1.045	0.01	19.20	C
62.25-61.75			B	1	1.2		1	1	1.045			
			C	1	1.2		1	1	1.045			
L12	0.03	0.05	A	1	1.2	7	1	1	0.525	0.00	19.26	C
61.75-61.50			B	1	1.2		1	1	0.525			
			C	1	1.2		1	1	0.525			
L13	0.50	0.94	A	1	1.2	7	1	1	10.834	0.10	19.69	C
61.50-56.50			B	1	1.2		1	1	10.834			
			C	1	1.2		1	1	10.834			
L14	0.50	0.97	A	1	1.2	7	1	1	11.474	0.10	20.47	C
56.50-51.50			B	1	1.2		1	1	11.474			
			C	1	1.2		1	1	11.474			
L15	0.65	1.34	A	1	1.2	7	1	1	15.921	0.14	21.27	C
51.50-44.98			B	1	1.2		1	1	15.921			
			C	1	1.2		1	1	15.921			
L16	0.12	0.90	A	1	1.2	6	1	1	2.999	0.03	21.39	C
44.98-43.78			B	1	1.2		1	1	2.999			
			C	1	1.2		1	1	2.999			
L17	0.49	1.13	A	1	1.2	6	1	1	12.875	0.11	21.71	C
43.78-38.78			B	1	1.2		1	1	12.875			
			C	1	1.2		1	1	12.875			
L18	0.49	1.17	A	1	1.2	6	1	1	13.504	0.11	22.16	C
38.78-33.78			B	1	1.2		1	1	13.504			
			C	1	1.2		1	1	13.504			
L19	0.10	0.25	A	1	1.2	6	1	1	2.860	0.02	22.37	C
33.78-32.75			B	1	1.2		1	1	2.860			
			C	1	1.2		1	1	2.860			
L20	0.04	0.07	A	1	1.2	6	1	1	0.698	0.01	22.41	C
32.75-32.50			B	1	1.2		1	1	0.698			
			C	1	1.2		1	1	0.698			
L21	0.78	1.35	A	1	1.2	6	1	1	14.291	0.11	22.53	C
32.50-27.50			B	1	1.2		1	1	14.291			
			C	1	1.2		1	1	14.291			
L22	0.78	1.39	A	1	1.2	6	1	1	14.913	0.11	22.62	C
27.50-22.50			B	1	1.2		1	1	14.913			
			C	1	1.2		1	1	14.913			
L23	0.67	1.42	A	1	1.2	5	1	1	15.532	0.11	22.48	C
22.50-17.50			B	1	1.2		1	1	15.532			
			C	1	1.2		1	1	15.532			
L24	0.57	1.45	A	1	1.2	5	1	1	16.143	0.11	22.03	C
17.50-12.50			B	1	1.2		1	1	16.143			
			C	1	1.2		1	1	16.143			
L25	0.57	1.47	A	1	1.2	5	1	1	16.743	0.11	22.84	C
12.50-7.50			B	1	1.2		1	1	16.743			
			C	1	1.2		1	1	16.743			
L26 7.50-2.50	0.56	1.49	A	1	1.2	5	1	1	17.313	0.12	23.62	C

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
			B	1	1.2		1	1	17.313			
			C	1	1.2		1	1	17.313			
L27 2.50-0.00	0.28	0.74	A	1	1.2	5	1	1	8.832	0.06	24.10	C
			B	1	1.2		1	1	8.832			
			C	1	1.2		1	1	8.832			
Sum Weight:	8.14	19.94						OTM	92.70 kip-ft	2.00		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
L1	0.01	0.32	A	1	1.2	8	1	1	6.814	0.07	13.85	C
102.70-97.70			B	1	1.2		1	1	6.814			
			C	1	1.2		1	1	6.814			
L2	0.02	0.32	A	1	1.2	8	1	1	6.806	0.07	13.68	C
97.70-92.70			B	1	1.2		1	1	6.806			
			C	1	1.2		1	1	6.806			
L3	0.01	0.19	A	1	1.2	8	1	1	3.971	0.04	13.55	C
92.70-89.78			B	1	1.2		1	1	3.971			
			C	1	1.2		1	1	3.971			
L4	0.04	0.34	A	1	1.2	7	1	1	7.203	0.07	14.22	C
89.78-84.78			B	1	1.2		1	1	7.203			
			C	1	1.2		1	1	7.203			
L5	0.05	0.38	A	1	1.2	7	1	1	7.847	0.08	15.30	C
84.78-79.78			B	1	1.2		1	1	7.847			
			C	1	1.2		1	1	7.847			
L6	0.07	0.41	A	1	1.2	7	1	1	8.489	0.08	16.33	C
79.78-74.78			B	1	1.2		1	1	8.489			
			C	1	1.2		1	1	8.489			
L7	0.08	0.20	A	1	1.2	7	1	1	4.084	0.04	17.06	C
74.78-72.50			B	1	1.2		1	1	4.084			
			C	1	1.2		1	1	4.084			
L8	0.01	0.04	A	1	1.2	7	1	1	0.456	0.00	17.31	C
72.50-72.25			B	1	1.2		1	1	0.456			
			C	1	1.2		1	1	0.456			
L9	0.34	0.76	A	1	1.2	7	1	1	9.456	0.09	17.81	C
72.25-67.25			B	1	1.2		1	1	9.456			
			C	1	1.2		1	1	9.456			
L10	0.35	0.79	A	1	1.2	7	1	1	10.098	0.09	18.72	C
67.25-62.25			B	1	1.2		1	1	10.098			
			C	1	1.2		1	1	10.098			
L11	0.03	0.08	A	1	1.2	7	1	1	1.045	0.01	19.20	C
62.25-61.75			B	1	1.2		1	1	1.045			
			C	1	1.2		1	1	1.045			
L12	0.03	0.05	A	1	1.2	7	1	1	0.525	0.00	19.26	C
61.75-61.50			B	1	1.2		1	1	0.525			
			C	1	1.2		1	1	0.525			
L13	0.50	0.94	A	1	1.2	7	1	1	10.834	0.10	19.69	C
61.50-56.50			B	1	1.2		1	1	10.834			
			C	1	1.2		1	1	10.834			
L14	0.50	0.97	A	1	1.2	7	1	1	11.474	0.10	20.47	C

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
56.50-51.50			B	1	1.2		1	1	11.474			
			C	1	1.2		1	1	11.474			
L15	0.65	1.34	A	1	1.2	7	1	1	15.921	0.14	21.27	C
51.50-44.98			B	1	1.2		1	1	15.921			
			C	1	1.2		1	1	15.921			
L16	0.12	0.90	A	1	1.2	6	1	1	2.999	0.03	21.39	C
44.98-43.78			B	1	1.2		1	1	2.999			
			C	1	1.2		1	1	2.999			
L17	0.49	1.13	A	1	1.2	6	1	1	12.875	0.11	21.71	C
43.78-38.78			B	1	1.2		1	1	12.875			
			C	1	1.2		1	1	12.875			
L18	0.49	1.17	A	1	1.2	6	1	1	13.504	0.11	22.16	C
38.78-33.78			B	1	1.2		1	1	13.504			
			C	1	1.2		1	1	13.504			
L19	0.10	0.25	A	1	1.2	6	1	1	2.860	0.02	22.37	C
33.78-32.75			B	1	1.2		1	1	2.860			
			C	1	1.2		1	1	2.860			
L20	0.04	0.07	A	1	1.2	6	1	1	0.698	0.01	22.41	C
32.75-32.50			B	1	1.2		1	1	0.698			
			C	1	1.2		1	1	0.698			
L21	0.78	1.35	A	1	1.2	6	1	1	14.291	0.11	22.53	C
32.50-27.50			B	1	1.2		1	1	14.291			
			C	1	1.2		1	1	14.291			
L22	0.78	1.39	A	1	1.2	6	1	1	14.913	0.11	22.62	C
27.50-22.50			B	1	1.2		1	1	14.913			
			C	1	1.2		1	1	14.913			
L23	0.67	1.42	A	1	1.2	5	1	1	15.532	0.11	22.48	C
22.50-17.50			B	1	1.2		1	1	15.532			
			C	1	1.2		1	1	15.532			
L24	0.57	1.45	A	1	1.2	5	1	1	16.143	0.11	22.03	C
17.50-12.50			B	1	1.2		1	1	16.143			
			C	1	1.2		1	1	16.143			
L25	0.57	1.47	A	1	1.2	5	1	1	16.743	0.11	22.84	C
12.50-7.50			B	1	1.2		1	1	16.743			
			C	1	1.2		1	1	16.743			
L26 7.50-2.50	0.56	1.49	A	1	1.2	5	1	1	17.313	0.12	23.62	C
			B	1	1.2		1	1	17.313			
			C	1	1.2		1	1	17.313			
L27 2.50-0.00	0.28	0.74	A	1	1.2	5	1	1	8.832	0.06	24.10	C
			B	1	1.2		1	1	8.832			
			C	1	1.2		1	1	8.832			
Sum Weight:	8.14	19.94						OTM	92.70 kip-ft	2.00		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
L1	0.01	0.32	A	1	1.2	8	1	1	6.814	0.07	13.85	C
102.70-97.70			B	1	1.2		1	1	6.814			
			C	1	1.2		1	1	6.814			
L2	0.02	0.32	A	1	1.2	8	1	1	6.806	0.07	13.68	C

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
97.70-92.70			B	1	1.2		1	1	6.806			
			C	1	1.2		1	1	6.806			
L3	0.01	0.19	A	1	1.2	8	1	1	3.971	0.04	13.55	C
92.70-89.78			B	1	1.2		1	1	3.971			
			C	1	1.2		1	1	3.971			
L4	0.04	0.34	A	1	1.2	7	1	1	7.203	0.07	14.22	C
89.78-84.78			B	1	1.2		1	1	7.203			
			C	1	1.2		1	1	7.203			
L5	0.05	0.38	A	1	1.2	7	1	1	7.847	0.08	15.30	C
84.78-79.78			B	1	1.2		1	1	7.847			
			C	1	1.2		1	1	7.847			
L6	0.07	0.41	A	1	1.2	7	1	1	8.489	0.08	16.33	C
79.78-74.78			B	1	1.2		1	1	8.489			
			C	1	1.2		1	1	8.489			
L7	0.08	0.20	A	1	1.2	7	1	1	4.084	0.04	17.06	C
74.78-72.50			B	1	1.2		1	1	4.084			
			C	1	1.2		1	1	4.084			
L8	0.01	0.04	A	1	1.2	7	1	1	0.456	0.00	17.31	C
72.50-72.25			B	1	1.2		1	1	0.456			
			C	1	1.2		1	1	0.456			
L9	0.34	0.76	A	1	1.2	7	1	1	9.456	0.14	27.95	C
72.25-67.25			B	1	1.2		1	1	9.456			
			C	1	1.2		1	1	9.456			
L10	0.35	0.79	A	1	1.2	7	1	1	10.098	0.15	29.18	C
67.25-62.25			B	1	1.2		1	1	10.098			
			C	1	1.2		1	1	10.098			
L11	0.03	0.08	A	1	1.2	7	1	1	1.045	0.01	29.53	C
62.25-61.75			B	1	1.2		1	1	1.045			
			C	1	1.2		1	1	1.045			
L12	0.03	0.05	A	1	1.2	7	1	1	0.525	0.01	29.57	C
61.75-61.50			B	1	1.2		1	1	0.525			
			C	1	1.2		1	1	0.525			
L13	0.50	0.94	A	1	1.2	7	1	1	10.834	0.15	29.88	C
61.50-56.50			B	1	1.2		1	1	10.834			
			C	1	1.2		1	1	10.834			
L14	0.50	0.97	A	1	1.2	7	1	1	11.474	0.15	30.40	C
56.50-51.50			B	1	1.2		1	1	11.474			
			C	1	1.2		1	1	11.474			
L15	0.65	1.34	A	1	1.2	7	1	1	15.921	0.20	30.89	C
51.50-44.98			B	1	1.2		1	1	15.921			
			C	1	1.2		1	1	15.921			
L16	0.12	0.90	A	1	1.2	6	1	1	2.999	0.04	30.85	C
44.98-43.78			B	1	1.2		1	1	2.999			
			C	1	1.2		1	1	2.999			
L17	0.49	1.13	A	1	1.2	6	1	1	12.875	0.15	30.91	C
43.78-38.78			B	1	1.2		1	1	12.875			
			C	1	1.2		1	1	12.875			
L18	0.49	1.17	A	1	1.2	6	1	1	13.504	0.16	31.03	C
38.78-33.78			B	1	1.2		1	1	13.504			
			C	1	1.2		1	1	13.504			
L19	0.10	0.25	A	1	1.2	6	1	1	2.860	0.03	31.03	C
33.78-32.75			B	1	1.2		1	1	2.860			
			C	1	1.2		1	1	2.860			
L20	0.04	0.07	A	1	1.2	6	1	1	0.698	0.01	32.27	C
32.75-32.50			B	1	1.2		1	1	0.698			
			C	1	1.2		1	1	0.698			
L21	0.78	1.35	A	1	1.2	6	1	1	14.291	0.16	32.15	C
32.50-27.50			B	1	1.2		1	1	14.291			
			C	1	1.2		1	1	14.291			
L22	0.78	1.39	A	1	1.2	6	1	1	14.913	0.16	31.76	C

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
27.50-22.50			B	1	1.2		1	1	14.913			
			C	1	1.2		1	1	14.913			
L23	0.67	1.42	A	1	1.2	5	1	1	15.532	0.11	22.48	C
22.50-17.50			B	1	1.2		1	1	15.532			
			C	1	1.2		1	1	15.532			
L24	0.57	1.45	A	1	1.2	5	1	1	16.143	0.11	22.03	C
17.50-12.50			B	1	1.2		1	1	16.143			
			C	1	1.2		1	1	16.143			
L25	0.57	1.47	A	1	1.2	5	1	1	16.743	0.11	22.84	C
12.50-7.50			B	1	1.2		1	1	16.743			
			C	1	1.2		1	1	16.743			
L26 7.50-2.50	0.56	1.49	A	1	1.2	5	1	1	17.313	0.12	23.62	C
			B	1	1.2		1	1	17.313			
			C	1	1.2		1	1	17.313			
L27 2.50-0.00	0.28	0.74	A	1	1.2	5	1	1	8.832	0.06	24.10	C
			B	1	1.2		1	1	8.832			
			C	1	1.2		1	1	8.832			
Sum Weight:	8.14	19.94						OTM	115.77 kip-ft	2.48		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
L1	0.01	0.17	A	1	0.6	10	1	1	5.417	0.04	7.09	C
102.70-97.70			B	1	0.6		1	1	5.417			
			C	1	0.6		1	1	5.417			
L2	0.02	0.17	A	1	0.6	10	1	1	5.417	0.04	7.02	C
97.70-92.70			B	1	0.6		1	1	5.417			
			C	1	0.6		1	1	5.417			
L3	0.01	0.10	A	1	0.6	10	1	1	3.163	0.02	6.95	C
92.70-89.78			B	1	0.6		1	1	3.163			
			C	1	0.6		1	1	3.163			
L4	0.04	0.18	A	1	0.65	10	1	1	5.826	0.04	8.03	C
89.78-84.78			B	1	0.65		1	1	5.826			
			C	1	0.65		1	1	5.826			
L5	0.05	0.20	A	1	0.65	10	1	1	6.477	0.04	8.81	C
84.78-79.78			B	1	0.65		1	1	6.477			
			C	1	0.65		1	1	6.477			
L6	0.07	0.22	A	1	0.65	9	1	1	7.128	0.05	9.57	C
79.78-74.78			B	1	0.65		1	1	7.128			
			C	1	0.65		1	1	7.128			
L7	0.07	0.11	A	1	0.65	9	1	1	3.467	0.02	10.11	C
74.78-72.50			B	1	0.65		1	1	3.467			
			C	1	0.65		1	1	3.467			
L8	0.01	0.03	A	1	0.65	9	1	1	0.388	0.00	10.29	C
72.50-72.25			B	1	0.65		1	1	0.388			
			C	1	0.65		1	1	0.388			
L9	0.19	0.55	A	1	0.65	9	1	1	8.109	0.05	10.66	C
72.25-67.25			B	1	0.65		1	1	8.109			
			C	1	0.65		1	1	8.109			
L10	0.19	0.57	A	1	0.65	9	1	1	8.761	0.06	11.33	C

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
67.25-62.25			B	1	0.65		1	1	8.761			
			C	1	0.65		1	1	8.761			
L11	0.02	0.06	A	1	0.65	9	1	1	0.912	0.01	11.69	C
62.25-61.75			B	1	0.65		1	1	0.912			
			C	1	0.65		1	1	0.912			
L12	0.02	0.04	A	1	0.65	9	1	1	0.458	0.00	11.74	C
61.75-61.50			B	1	0.65		1	1	0.458			
			C	1	0.65		1	1	0.458			
L13	0.33	0.70	A	1	0.65	9	1	1	9.510	0.06	12.06	C
61.50-56.50			B	1	0.65		1	1	9.510			
			C	1	0.65		1	1	9.510			
L14	0.33	0.72	A	1	0.65	9	1	1	10.161	0.06	12.65	C
56.50-51.50			B	1	0.65		1	1	10.161			
			C	1	0.65		1	1	10.161			
L15	0.43	0.99	A	1	0.65	9	1	1	14.228	0.09	13.27	C
51.50-44.98			B	1	0.65		1	1	14.228			
			C	1	0.65		1	1	14.228			
L16	0.08	0.83	A	1	0.65	8	1	1	2.687	0.02	13.38	C
44.98-43.78			B	1	0.65		1	1	2.687			
			C	1	0.65		1	1	2.687			
L17	0.33	0.86	A	1	0.65	8	1	1	11.597	0.07	13.65	C
43.78-38.78			B	1	0.65		1	1	11.597			
			C	1	0.65		1	1	11.597			
L18	0.33	0.89	A	1	0.65	8	1	1	12.242	0.07	14.02	C
38.78-33.78			B	1	0.65		1	1	12.242			
			C	1	0.65		1	1	12.242			
L19	0.07	0.19	A	1	0.65	8	1	1	2.602	0.01	14.20	C
33.78-32.75			B	1	0.65		1	1	2.602			
			C	1	0.65		1	1	2.602			
L20	0.03	0.05	A	1	0.65	8	1	1	0.636	0.00	14.24	C
32.75-32.50			B	1	0.65		1	1	0.636			
			C	1	0.65		1	1	0.636			
L21	0.61	1.05	A	1	0.65	8	1	1	13.053	0.07	14.36	C
32.50-27.50			B	1	0.65		1	1	13.053			
			C	1	0.65		1	1	13.053			
L22	0.62	1.08	A	1	0.65	7	1	1	13.698	0.07	14.50	C
27.50-22.50			B	1	0.65		1	1	13.698			
			C	1	0.65		1	1	13.698			
L23	0.57	1.11	A	1	0.65	7	1	1	14.343	0.07	14.49	C
22.50-17.50			B	1	0.65		1	1	14.343			
			C	1	0.65		1	1	14.343			
L24	0.53	1.13	A	1	0.65	7	1	1	14.988	0.07	14.27	C
17.50-12.50			B	1	0.65		1	1	14.988			
			C	1	0.65		1	1	14.988			
L25	0.53	1.16	A	1	0.65	7	1	1	15.633	0.07	14.89	C
12.50-7.50			B	1	0.65		1	1	15.633			
			C	1	0.65		1	1	15.633			
L26 7.50-2.50	0.53	1.19	A	1	0.65	7	1	1	16.279	0.08	15.50	C
			B	1	0.65		1	1	16.279			
			C	1	0.65		1	1	16.279			
L27 2.50-0.00	0.26	0.61	A	1	0.65	7	1	1	8.381	0.04	15.96	C
			B	1	0.65		1	1	8.381			
			C	1	0.65		1	1	8.381			
Sum Weight:	6.28	14.97						OTM	54.84 kip-ft	1.23		

Tower Forces - Service - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
L1	0.01	0.17	A	1	0.6	10	1	1	5.417	0.04	7.09	C
102.70-97.70			B	1	0.6		1	1	5.417			
			C	1	0.6		1	1	5.417			
L2	0.02	0.17	A	1	0.6	10	1	1	5.417	0.04	7.02	C
97.70-92.70			B	1	0.6		1	1	5.417			
			C	1	0.6		1	1	5.417			
L3	0.01	0.10	A	1	0.6	10	1	1	3.163	0.02	6.95	C
92.70-89.78			B	1	0.6		1	1	3.163			
			C	1	0.6		1	1	3.163			
L4	0.04	0.18	A	1	0.65	10	1	1	5.826	0.04	8.03	C
89.78-84.78			B	1	0.65		1	1	5.826			
			C	1	0.65		1	1	5.826			
L5	0.05	0.20	A	1	0.65	10	1	1	6.477	0.04	8.81	C
84.78-79.78			B	1	0.65		1	1	6.477			
			C	1	0.65		1	1	6.477			
L6	0.07	0.22	A	1	0.65	9	1	1	7.128	0.05	9.57	C
79.78-74.78			B	1	0.65		1	1	7.128			
			C	1	0.65		1	1	7.128			
L7	0.07	0.11	A	1	0.65	9	1	1	3.467	0.02	10.11	C
74.78-72.50			B	1	0.65		1	1	3.467			
			C	1	0.65		1	1	3.467			
L8	0.01	0.03	A	1	0.65	9	1	1	0.388	0.00	10.29	C
72.50-72.25			B	1	0.65		1	1	0.388			
			C	1	0.65		1	1	0.388			
L9	0.19	0.55	A	1	0.65	9	1	1	8.109	0.05	10.66	C
72.25-67.25			B	1	0.65		1	1	8.109			
			C	1	0.65		1	1	8.109			
L10	0.19	0.57	A	1	0.65	9	1	1	8.761	0.06	11.33	C
67.25-62.25			B	1	0.65		1	1	8.761			
			C	1	0.65		1	1	8.761			
L11	0.02	0.06	A	1	0.65	9	1	1	0.912	0.01	11.69	C
62.25-61.75			B	1	0.65		1	1	0.912			
			C	1	0.65		1	1	0.912			
L12	0.02	0.04	A	1	0.65	9	1	1	0.458	0.00	11.74	C
61.75-61.50			B	1	0.65		1	1	0.458			
			C	1	0.65		1	1	0.458			
L13	0.33	0.70	A	1	0.65	9	1	1	9.510	0.06	12.06	C
61.50-56.50			B	1	0.65		1	1	9.510			
			C	1	0.65		1	1	9.510			
L14	0.33	0.72	A	1	0.65	9	1	1	10.161	0.06	12.65	C
56.50-51.50			B	1	0.65		1	1	10.161			
			C	1	0.65		1	1	10.161			
L15	0.43	0.99	A	1	0.65	9	1	1	14.228	0.09	13.27	C
51.50-44.98			B	1	0.65		1	1	14.228			
			C	1	0.65		1	1	14.228			
L16	0.08	0.83	A	1	0.65	8	1	1	2.687	0.02	13.38	C
44.98-43.78			B	1	0.65		1	1	2.687			
			C	1	0.65		1	1	2.687			
L17	0.33	0.86	A	1	0.65	8	1	1	11.597	0.07	13.65	C
43.78-38.78			B	1	0.65		1	1	11.597			
			C	1	0.65		1	1	11.597			
L18	0.33	0.89	A	1	0.65	8	1	1	12.242	0.07	14.02	C
38.78-33.78			B	1	0.65		1	1	12.242			
			C	1	0.65		1	1	12.242			
L19	0.07	0.19	A	1	0.65	8	1	1	2.602	0.01	14.20	C
33.78-32.75			B	1	0.65		1	1	2.602			
			C	1	0.65		1	1	2.602			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
L20	0.03	0.05	A	1	0.65	8	1	1	0.636	0.00	14.24	C
32.75-32.50			B	1	0.65		1	1	0.636			
			C	1	0.65		1	1	0.636			
L21	0.61	1.05	A	1	0.65	8	1	1	13.053	0.07	14.36	C
32.50-27.50			B	1	0.65		1	1	13.053			
			C	1	0.65		1	1	13.053			
L22	0.62	1.08	A	1	0.65	7	1	1	13.698	0.07	14.50	C
27.50-22.50			B	1	0.65		1	1	13.698			
			C	1	0.65		1	1	13.698			
L23	0.57	1.11	A	1	0.65	7	1	1	14.343	0.07	14.49	C
22.50-17.50			B	1	0.65		1	1	14.343			
			C	1	0.65		1	1	14.343			
L24	0.53	1.13	A	1	0.65	7	1	1	14.988	0.07	14.27	C
17.50-12.50			B	1	0.65		1	1	14.988			
			C	1	0.65		1	1	14.988			
L25	0.53	1.16	A	1	0.65	7	1	1	15.633	0.07	14.89	C
12.50-7.50			B	1	0.65		1	1	15.633			
			C	1	0.65		1	1	15.633			
L26 7.50-2.50	0.53	1.19	A	1	0.65	7	1	1	16.279	0.08	15.50	C
			B	1	0.65		1	1	16.279			
			C	1	0.65		1	1	16.279			
L27 2.50-0.00	0.26	0.61	A	1	0.65	7	1	1	8.381	0.04	15.96	C
			B	1	0.65		1	1	8.381			
			C	1	0.65		1	1	8.381			
Sum Weight:	6.28	14.97						OTM	54.84 kip-ft	1.23		

Tower Forces - Service - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
L1	0.01	0.17	A	1	0.6	10	1	1	5.417	0.04	7.09	C
102.70-97.70			B	1	0.6		1	1	5.417			
			C	1	0.6		1	1	5.417			
L2	0.02	0.17	A	1	0.6	10	1	1	5.417	0.04	7.02	C
97.70-92.70			B	1	0.6		1	1	5.417			
			C	1	0.6		1	1	5.417			
L3	0.01	0.10	A	1	0.6	10	1	1	3.163	0.02	6.95	C
92.70-89.78			B	1	0.6		1	1	3.163			
			C	1	0.6		1	1	3.163			
L4	0.04	0.18	A	1	0.65	10	1	1	5.826	0.04	8.03	C
89.78-84.78			B	1	0.65		1	1	5.826			
			C	1	0.65		1	1	5.826			
L5	0.05	0.20	A	1	0.65	10	1	1	6.477	0.04	8.81	C
84.78-79.78			B	1	0.65		1	1	6.477			
			C	1	0.65		1	1	6.477			
L6	0.07	0.22	A	1	0.65	9	1	1	7.128	0.05	9.57	C
79.78-74.78			B	1	0.65		1	1	7.128			
			C	1	0.65		1	1	7.128			
L7	0.07	0.11	A	1	0.65	9	1	1	3.467	0.02	10.11	C
74.78-72.50			B	1	0.65		1	1	3.467			
			C	1	0.65		1	1	3.467			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
L8	0.01	0.03	A	1	0.65	9	1	1	0.388	0.00	10.29	C
72.50-72.25			B	1	0.65		1	1	0.388			
			C	1	0.65		1	1	0.388			
L9	0.19	0.55	A	1	0.65	9	1	1	8.109	0.06	11.84	C
72.25-67.25			B	1	0.65		1	1	8.109			
			C	1	0.722		1	1	8.109			
L10	0.19	0.57	A	1	0.65	9	1	1	8.761	0.06	12.48	C
67.25-62.25			B	1	0.65		1	1	8.761			
			C	1	0.716		1	1	8.761			
L11	0.02	0.06	A	1	0.65	9	1	1	0.912	0.01	12.69	C
62.25-61.75			B	1	0.65		1	1	0.912			
			C	1	0.705		1	1	0.912			
L12	0.02	0.04	A	1	0.65	9	1	1	0.458	0.00	12.71	C
61.75-61.50			B	1	0.65		1	1	0.458			
			C	1	0.704		1	1	0.458			
L13	0.33	0.70	A	1	0.65	9	1	1	9.510	0.06	12.90	C
61.50-56.50			B	1	0.65		1	1	9.510			
			C	1	0.695		1	1	9.510			
L14	0.33	0.72	A	1	0.65	9	1	1	10.161	0.07	13.23	C
56.50-51.50			B	1	0.65		1	1	10.161			
			C	1	0.68		1	1	10.161			
L15	0.43	0.99	A	1	0.65	9	1	1	14.228	0.09	13.56	C
51.50-44.98			B	1	0.65		1	1	14.228			
			C	1	0.664		1	1	14.228			
L16	0.08	0.83	A	1	0.65	8	1	1	2.687	0.02	13.56	C
44.98-43.78			B	1	0.65		1	1	2.687			
			C	1	0.659		1	1	2.687			
L17	0.33	0.86	A	1	0.65	8	1	1	11.597	0.07	13.69	C
43.78-38.78			B	1	0.65		1	1	11.597			
			C	1	0.652		1	1	11.597			
L18	0.33	0.89	A	1	0.65	8	1	1	12.242	0.07	14.02	C
38.78-33.78			B	1	0.65		1	1	12.242			
			C	1	0.65		1	1	12.242			
L19	0.07	0.19	A	1	0.65	8	1	1	2.602	0.01	14.20	C
33.78-32.75			B	1	0.65		1	1	2.602			
			C	1	0.65		1	1	2.602			
L20	0.03	0.05	A	1	0.65	8	1	1	0.636	0.00	14.24	C
32.75-32.50			B	1	0.65		1	1	0.636			
			C	1	0.65		1	1	0.636			
L21	0.61	1.05	A	1	0.65	8	1	1	13.053	0.07	14.36	C
32.50-27.50			B	1	0.65		1	1	13.053			
			C	1	0.65		1	1	13.053			
L22	0.62	1.08	A	1	0.65	7	1	1	13.698	0.07	14.50	C
27.50-22.50			B	1	0.65		1	1	13.698			
			C	1	0.65		1	1	13.698			
L23	0.57	1.11	A	1	0.65	7	1	1	14.343	0.07	14.49	C
22.50-17.50			B	1	0.65		1	1	14.343			
			C	1	0.65		1	1	14.343			
L24	0.53	1.13	A	1	0.65	7	1	1	14.988	0.07	14.27	C
17.50-12.50			B	1	0.65		1	1	14.988			
			C	1	0.65		1	1	14.988			
L25	0.53	1.16	A	1	0.65	7	1	1	15.633	0.07	14.89	C
12.50-7.50			B	1	0.65		1	1	15.633			
			C	1	0.65		1	1	15.633			
L26 7.50-2.50	0.53	1.19	A	1	0.65	7	1	1	16.279	0.08	15.50	C
			B	1	0.65		1	1	16.279			
			C	1	0.65		1	1	16.279			
L27 2.50-0.00	0.26	0.61	A	1	0.65	7	1	1	8.381	0.04	15.96	C
			B	1	0.65		1	1	8.381			
			C	1	0.65		1	1	8.381			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
Sum Weight:	6.28	14.97						OTM	56.19 kip-ft	1.25		

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	14.97					
Bracing Weight	0.00					
Total Member Self-Weight	14.97			-0.67	0.15	
Total Weight	30.89			-0.67	0.15	
Wind 0 deg - No Ice		0.07	-12.91	-908.52	-4.78	-0.52
Wind 30 deg - No Ice		6.50	-11.20	-788.93	-458.74	-1.68
Wind 60 deg - No Ice		11.17	-6.47	-456.06	-788.22	-2.23
Wind 90 deg - No Ice		12.93	-0.03	-2.90	-911.78	-2.23
Wind 120 deg - No Ice		11.14	6.41	450.14	-785.56	-1.80
Wind 150 deg - No Ice		6.42	11.16	784.24	-452.77	-0.86
Wind 180 deg - No Ice		-0.05	12.92	908.18	4.10	0.49
Wind 210 deg - No Ice		-6.52	11.24	789.83	460.26	1.72
Wind 240 deg - No Ice		-11.19	6.52	458.18	789.94	2.32
Wind 270 deg - No Ice		-12.91	0.09	5.77	910.20	2.26
Wind 300 deg - No Ice		-11.08	-6.36	-447.41	781.44	1.75
Wind 330 deg - No Ice		-6.37	-11.12	-782.62	449.34	0.79
Member Ice	4.97					
Total Weight Ice	53.05			-1.80	1.14	
Wind 0 deg - Ice		0.02	-5.67	-384.11	-0.32	-0.18
Wind 30 deg - Ice		2.85	-4.92	-333.48	-191.45	-0.75
Wind 60 deg - Ice		4.91	-2.84	-193.29	-330.48	-1.06
Wind 90 deg - Ice		6.14	-0.01	-2.36	-404.20	-1.10
Wind 120 deg - Ice		4.90	2.82	188.47	-329.78	-0.91
Wind 150 deg - Ice		2.83	4.90	328.93	-189.79	-0.46
Wind 180 deg - Ice		-0.01	5.67	380.82	2.27	0.17
Wind 210 deg - Ice		-2.85	4.93	330.61	194.13	0.76
Wind 240 deg - Ice		-4.91	2.85	190.83	333.23	1.09
Wind 270 deg - Ice		-6.13	0.03	0.15	405.84	1.12
Wind 300 deg - Ice		-4.88	-2.80	-190.72	330.57	0.89
Wind 330 deg - Ice		-2.81	-4.89	-331.56	190.81	0.44
Total Weight	30.89			-0.67	0.15	
Wind 0 deg - Service		0.02	-4.42	-312.28	-1.23	-0.18
Wind 30 deg - Service		2.23	-3.84	-271.34	-156.64	-0.58
Wind 60 deg - Service		3.82	-2.22	-157.38	-269.43	-0.76
Wind 90 deg - Service		4.43	-0.01	-2.25	-311.73	-0.76
Wind 120 deg - Service		3.81	2.20	152.84	-268.52	-0.61
Wind 150 deg - Service		2.20	3.82	267.22	-154.60	-0.29
Wind 180 deg - Service		-0.02	4.42	309.64	1.81	0.17
Wind 210 deg - Service		-2.23	3.85	269.13	157.97	0.59
Wind 240 deg - Service		-3.83	2.23	155.59	270.83	0.79
Wind 270 deg - Service		-4.42	0.03	0.72	312.00	0.77
Wind 300 deg - Service		-3.79	-2.18	-154.42	267.92	0.60
Wind 330 deg - Service		-2.18	-3.81	-269.18	154.23	0.27

Load Combinations

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

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	102.7 - 97.7	Pole	Max Tension	48	0.00	-0.00	-0.00
			Max. Compression	26	-2.18	0.00	0.00
			Max. Mx	8	-0.82	-4.81	0.00
			Max. My	2	-0.82	0.00	4.81
			Max. Vy	20	-1.50	4.81	0.00
			Max. Vx	2	-1.50	0.00	4.81
			Max. Torque	21			-0.00
L2	97.7 - 92.7	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-2.56	0.00	0.01
			Max. Mx	8	-1.04	-12.77	0.01
			Max. My	2	-1.04	-0.00	12.77
			Max. Vy	20	-1.68	12.77	0.00
			Max. Vx	2	-1.68	-0.00	12.77
			Max. Torque	16			0.00
L3	92.7 - 89.78	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-10.48	-0.29	1.19
			Max. Mx	8	-4.05	-19.09	0.24
			Max. My	2	-4.05	-0.13	19.25
			Max. Vy	8	6.78	-19.09	0.24
			Max. Vx	2	-6.79	-0.13	19.25
			Max. Torque	20			-0.99
L4	89.78 - 84.78	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-10.91	-0.29	1.21
			Max. Mx	8	-4.33	-53.46	0.23
			Max. My	2	-4.33	-0.10	53.65
			Max. Vy	20	-6.97	53.19	0.28
			Max. Vx	2	-6.98	-0.10	53.65
			Max. Torque	20			-0.99
L5	84.78 - 79.78	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-18.02	0.49	0.77
			Max. Mx	20	-6.90	98.52	0.10
			Max. My	2	-6.90	0.00	98.58
			Max. Vy	20	-11.58	98.52	0.10
			Max. Vx	2	-11.53	0.00	98.58
			Max. Torque	20			-0.99
L6	79.78 - 74.78	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-19.53	0.50	0.78
			Max. Mx	20	-7.73	157.01	-0.10
			Max. My	2	-7.73	-0.21	156.83
			Max. Vy	20	-12.32	157.01	-0.10
			Max. Vx	2	-12.27	-0.21	156.83
			Max. Torque	18			-0.81
L7	74.78 - 72.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-20.28	0.54	0.81
			Max. Mx	20	-8.15	185.35	-0.18
			Max. My	2	-8.16	-0.27	185.04
			Max. Vy	20	-12.65	185.35	-0.18
			Max. Vx	2	-12.60	-0.27	185.04
			Max. Torque	18			-0.81
L8	72.5 - 72.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-20.33	0.55	0.81
			Max. Mx	20	-8.21	188.51	-0.19
			Max. My	2	-8.21	-0.27	188.19
			Max. Vy	20	-12.65	188.51	-0.19
			Max. Vx	2	-12.60	-0.27	188.19
			Max. Torque	18			-0.81
L9	72.25 - 67.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-29.45	1.69	0.89
			Max. Mx	20	-12.82	266.32	-1.01
			Max. My	2	-12.82	-0.24	265.24
			Max. Vy	8	15.77	-265.18	0.67

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	14	15.73	1.46	-265.20
			Max. Torque	18			-1.65
L10	67.25 - 62.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-30.74	1.81	0.82
			Max. Mx	20	-13.78	345.71	-1.67
			Max. My	2	-13.79	-0.68	344.40
			Max. Vy	8	16.04	-344.59	0.94
			Max. Vx	14	15.98	1.98	-344.39
			Max. Torque	18			-1.65
L11	62.25 - 61.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-30.88	1.82	0.81
			Max. Mx	20	-13.89	353.72	-1.74
			Max. My	2	-13.89	-0.73	352.38
			Max. Vy	8	16.07	-352.61	0.97
			Max. Vx	14	16.00	2.03	-352.38
			Max. Torque	18			-1.65
L12	61.75 - 61.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-30.96	1.82	0.82
			Max. Mx	20	-13.95	357.73	-1.76
			Max. My	2	-13.95	-0.75	356.38
			Max. Vy	8	16.08	-356.63	0.99
			Max. Vx	14	16.01	2.05	-356.38
			Max. Torque	18			-1.65
L13	61.5 - 56.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-32.60	1.78	0.82
			Max. Mx	20	-15.23	438.62	-2.35
			Max. My	2	-15.23	-1.32	437.12
			Max. Vy	8	16.38	-437.80	1.34
			Max. Vx	14	16.29	2.45	-436.99
			Max. Torque	18			-1.65
L14	56.5 - 51.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-34.28	1.74	0.82
			Max. Mx	20	-16.54	520.97	-2.92
			Max. My	2	-16.54	-1.89	519.25
			Max. Vy	8	16.67	-520.43	1.71
			Max. Vx	14	16.57	2.84	-518.97
			Max. Torque	18			-1.65
L15	51.5 - 44.98	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-35.22	1.72	0.82
			Max. Mx	20	-17.27	566.38	-3.23
			Max. My	2	-17.27	-2.20	564.51
			Max. Vy	8	16.83	-566.00	1.91
			Max. Vx	14	16.72	3.05	-564.15
			Max. Torque	18			-1.65
L16	44.98 - 43.78	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-37.96	1.67	0.83
			Max. Mx	20	-19.40	651.11	-3.79
			Max. My	2	-19.40	-2.77	648.96
			Max. Vy	8	17.17	-651.02	2.28
			Max. Vx	14	17.05	3.44	-648.44
			Max. Torque	18			-1.64
L17	43.78 - 38.78	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-39.82	1.63	0.84
			Max. Mx	8	-20.88	-737.56	2.66
			Max. My	2	-20.88	-3.35	734.92
			Max. Vy	8	17.45	-737.56	2.66
			Max. Vx	14	17.33	3.82	-734.22
			Max. Torque	18			-1.64
L18	38.78 - 33.78	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-41.72	1.58	0.85
			Max. Mx	8	-22.39	-825.53	3.05

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	2	-22.39	-3.93	822.30
			Max. Vy	8	17.73	-825.53	3.05
			Max. Vx	14	17.62	4.20	-821.41
			Max. Torque	18			-1.64
L19	33.78 - 32.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-42.12	1.57	0.85
			Max. Mx	8	-22.71	-843.83	3.13
			Max. My	2	-22.71	-4.04	840.48
			Max. Vy	8	17.79	-843.83	3.13
			Max. Vx	14	17.68	4.28	-839.55
			Max. Torque	18			-1.64
L20	32.75 - 32.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-42.24	1.57	0.84
			Max. Mx	8	-22.81	-848.28	3.13
			Max. My	2	-22.82	-4.07	844.89
			Max. Vy	8	17.80	-848.28	3.13
			Max. Vx	14	17.69	4.30	-843.98
			Max. Torque	18			-1.64
L21	32.5 - 27.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-46.20	1.51	3.79
			Max. Mx	8	-25.61	-945.03	4.83
			Max. My	2	-25.61	-4.65	942.46
			Max. Vy	8	19.19	-945.03	4.83
			Max. Vx	14	19.16	4.67	-938.66
			Max. Torque	19			-3.70
L22	27.5 - 22.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-48.70	1.45	3.34
			Max. Mx	8	-27.70	-1041.69	4.78
			Max. My	2	-27.70	-5.23	1038.56
			Max. Vy	8	19.47	-1041.69	4.78
			Max. Vx	14	19.45	5.05	-1035.43
			Max. Torque	19			-3.70
L23	22.5 - 17.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-51.13	1.40	2.98
			Max. Mx	8	-29.76	-1139.78	4.73
			Max. My	2	-29.77	-5.82	1136.09
			Max. Vy	8	19.75	-1139.78	4.73
			Max. Vx	14	19.73	5.42	-1133.63
			Max. Torque	19			-3.70
L24	17.5 - 12.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-53.47	1.34	2.70
			Max. Mx	8	-31.81	-1239.22	4.68
			Max. My	2	-31.81	-6.40	1234.98
			Max. Vy	8	20.02	-1239.22	4.68
			Max. Vx	14	20.00	5.78	-1233.18
			Max. Torque	19			-3.70
L25	12.5 - 7.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-55.85	1.27	2.40
			Max. Mx	8	-33.89	-1339.99	4.62
			Max. My	2	-33.89	-6.98	1335.19
			Max. Vy	8	20.29	-1339.99	4.62
			Max. Vx	14	20.27	6.14	-1334.08
			Max. Torque	19			-3.70
L26	7.5 - 2.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-58.24	1.21	2.10
			Max. Mx	8	-35.99	-1442.13	4.54
			Max. My	2	-35.99	-7.57	1436.75
			Max. Vy	8	20.56	-1442.13	4.54
			Max. Vx	14	20.54	6.50	-1436.36
			Max. Torque	19			-3.70
L27	2.5 - 0	Pole	Max Tension	1	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	26	-59.44	1.18	1.94
			Max. Mx	8	-37.06	-1493.72	4.49
			Max. My	2	-37.06	-7.86	1488.05
			Max. Vy	8	20.71	-1493.72	4.49
			Max. Vx	14	20.69	6.67	-1488.02
			Max. Torque	19			-3.70

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	59.44	-0.00	-0.00
	Max. H_x	21	27.80	20.65	-0.14
	Max. H_z	3	27.80	-0.10	20.65
	Max. M_x	2	1488.05	-0.10	20.65
	Max. M_z	8	1493.72	-20.69	0.04
	Max. Torsion	9	3.56	-20.69	0.04
	Min. Vert	3	27.80	-0.10	20.65
	Min. H_x	9	27.80	-20.69	0.04
	Min. H_z	14	37.07	0.08	-20.67
	Min. M_x	14	-1488.02	0.08	-20.67
	Min. M_z	20	-1491.06	20.65	-0.14
	Min. Torsion	19	-3.70	17.91	-10.43

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	30.89	-0.00	-0.00	-0.67	0.15	0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	37.07	0.10	-20.65	-1488.05	-7.86	-0.83
0.9 Dead+1.6 Wind 0 deg - No Ice	27.80	0.10	-20.65	-1478.82	-7.87	-0.83
1.2 Dead+1.6 Wind 30 deg - No Ice	37.07	10.40	-17.93	-1292.17	-751.56	-2.68
0.9 Dead+1.6 Wind 30 deg - No Ice	27.80	10.40	-17.93	-1284.11	-747.05	-2.68
1.2 Dead+1.6 Wind 60 deg - No Ice	37.07	17.88	-10.35	-746.86	-1291.35	-3.55
0.9 Dead+1.6 Wind 60 deg - No Ice	27.80	17.88	-10.35	-742.12	-1283.55	-3.56
1.2 Dead+1.6 Wind 90 deg - No Ice	37.07	20.69	-0.04	-4.49	-1493.72	-3.56
0.9 Dead+1.6 Wind 90 deg - No Ice	27.80	20.69	-0.04	-4.25	-1484.71	-3.56
1.2 Dead+1.6 Wind 120 deg - No Ice	37.07	17.82	10.26	737.69	-1287.00	-2.86
0.9 Dead+1.6 Wind 120 deg - No Ice	27.80	17.82	10.26	733.42	-1279.23	-2.86
1.2 Dead+1.6 Wind 150 deg - No Ice	37.07	10.28	17.86	1285.01	-741.80	-1.37

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
0.9 Dead+1.6 Wind 150 deg - No Ice	27.80	10.28	17.86	1277.42	-737.35	-1.37
1.2 Dead+1.6 Wind 180 deg - No Ice	37.07	-0.08	20.67	1488.02	6.67	0.77
0.9 Dead+1.6 Wind 180 deg - No Ice	27.80	-0.08	20.67	1479.18	6.58	0.77
1.2 Dead+1.6 Wind 210 deg - No Ice	37.07	-10.43	17.98	1294.15	753.95	2.74
0.9 Dead+1.6 Wind 210 deg - No Ice	27.80	-10.43	17.98	1286.51	749.32	2.74
1.2 Dead+1.6 Wind 240 deg - No Ice	37.07	-17.91	10.43	750.84	1294.06	3.69
0.9 Dead+1.6 Wind 240 deg - No Ice	27.80	-17.91	10.43	746.50	1286.15	3.70
1.2 Dead+1.6 Wind 270 deg - No Ice	37.07	-20.65	0.14	9.69	1491.06	3.61
0.9 Dead+1.6 Wind 270 deg - No Ice	27.80	-20.65	0.14	9.85	1481.96	3.61
1.2 Dead+1.6 Wind 300 deg - No Ice	37.07	-17.72	-10.17	-732.71	1280.18	2.78
0.9 Dead+1.6 Wind 300 deg - No Ice	27.80	-17.72	-10.17	-728.05	1272.35	2.78
1.2 Dead+1.6 Wind 330 deg - No Ice	37.07	-10.19	-17.79	-1281.86	736.11	1.26
0.9 Dead+1.6 Wind 330 deg - No Ice	27.80	-10.19	-17.79	-1273.86	731.58	1.26
1.2 Dead+1.0 Ice+1.0 Temp	59.44	0.00	0.00	-1.94	1.18	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	59.44	0.02	-5.67	-403.61	-0.21	-0.18
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	59.44	2.85	-4.92	-350.44	-200.95	-0.74
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	59.44	4.91	-2.84	-203.21	-346.97	-1.06
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	59.44	6.14	-0.01	-2.69	-423.98	-1.10
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	59.44	4.90	2.82	197.72	-346.23	-0.91
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	59.44	2.83	4.90	345.23	-199.20	-0.46
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	59.44	-0.01	5.67	399.73	2.50	0.17
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	59.44	-2.85	4.93	346.99	204.00	0.76
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	59.44	-4.91	2.85	200.19	350.09	1.09
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	59.44	-6.13	0.03	-0.06	425.95	1.11
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	59.44	-4.88	-2.80	-200.52	347.31	0.89
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	59.44	-2.81	-4.89	-348.42	200.53	0.44
Dead+Wind 0 deg - Service	30.89	0.02	-4.42	-317.68	-1.56	-0.18
Dead+Wind 30 deg - Service	30.89	2.22	-3.84	-275.92	-160.06	-0.57
Dead+Wind 60 deg - Service	30.89	3.82	-2.22	-159.73	-275.15	-0.76
Dead+Wind 90 deg - Service	30.89	4.43	-0.01	-1.48	-318.24	-0.76
Dead+Wind 120 deg - Service	30.89	3.81	2.20	156.70	-274.18	-0.61
Dead+Wind 150 deg - Service	30.89	2.20	3.82	273.35	-157.98	-0.29
Dead+Wind 180 deg - Service	30.89	-0.02	4.42	316.63	1.54	0.17
Dead+Wind 210 deg - Service	30.89	-2.23	3.85	275.35	160.84	0.59
Dead+Wind 240 deg - Service	30.89	-3.83	2.23	159.51	275.92	0.79
Dead+Wind 270 deg - Service	30.89	-4.42	0.03	1.54	317.91	0.77

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead+Wind 300 deg - Service	30.89	-3.79	-2.18	-156.71	273.00	0.60
Dead+Wind 330 deg - Service	30.89	-2.18	-3.81	-273.72	157.01	0.27

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	-30.89	0.00	0.00	30.89	0.00	0.000%
2	0.10	-37.07	-20.65	-0.10	37.07	20.65	0.001%
3	0.10	-27.80	-20.65	-0.10	27.80	20.65	0.001%
4	10.40	-37.07	-17.93	-10.40	37.07	17.93	0.000%
5	10.40	-27.80	-17.93	-10.40	27.80	17.93	0.000%
6	17.88	-37.07	-10.35	-17.88	37.07	10.35	0.000%
7	17.88	-27.80	-10.35	-17.88	27.80	10.35	0.000%
8	20.69	-37.07	-0.04	-20.69	37.07	0.04	0.000%
9	20.69	-27.80	-0.04	-20.69	27.80	0.04	0.000%
10	17.82	-37.07	10.26	-17.82	37.07	-10.26	0.000%
11	17.82	-27.80	10.26	-17.82	27.80	-10.26	0.000%
12	10.28	-37.07	17.86	-10.28	37.07	-17.86	0.000%
13	10.28	-27.80	17.86	-10.28	27.80	-17.86	0.000%
14	-0.08	-37.07	20.67	0.08	37.07	-20.67	0.000%
15	-0.08	-27.80	20.67	0.08	27.80	-20.67	0.001%
16	-10.43	-37.07	17.98	10.43	37.07	-17.98	0.000%
17	-10.43	-27.80	17.98	10.43	27.80	-17.98	0.000%
18	-17.91	-37.07	10.43	17.91	37.07	-10.43	0.000%
19	-17.91	-27.80	10.43	17.91	27.80	-10.43	0.000%
20	-20.65	-37.07	0.14	20.65	37.07	-0.14	0.000%
21	-20.65	-27.80	0.14	20.65	27.80	-0.14	0.000%
22	-17.72	-37.07	-10.17	17.72	37.07	10.17	0.000%
23	-17.72	-27.80	-10.17	17.72	27.80	10.17	0.000%
24	-10.19	-37.07	-17.79	10.19	37.07	17.79	0.000%
25	-10.19	-27.80	-17.79	10.19	27.80	17.79	0.000%
26	0.00	-59.44	0.00	-0.00	59.44	-0.00	0.002%
27	0.02	-59.44	-5.67	-0.02	59.44	5.67	0.000%
28	2.85	-59.44	-4.92	-2.85	59.44	4.92	0.000%
29	4.91	-59.44	-2.84	-4.91	59.44	2.84	0.000%
30	6.14	-59.44	-0.01	-6.14	59.44	0.01	0.000%
31	4.90	-59.44	2.82	-4.90	59.44	-2.82	0.000%
32	2.83	-59.44	4.90	-2.83	59.44	-4.90	0.000%
33	-0.01	-59.44	5.67	0.01	59.44	-5.67	0.000%
34	-2.85	-59.44	4.93	2.85	59.44	-4.93	0.000%
35	-4.91	-59.44	2.85	4.91	59.44	-2.85	0.000%
36	-6.13	-59.44	0.03	6.13	59.44	-0.03	0.000%
37	-4.88	-59.44	-2.80	4.88	59.44	2.80	0.000%
38	-2.81	-59.44	-4.89	2.81	59.44	4.89	0.000%
39	0.02	-30.89	-4.42	-0.02	30.89	4.42	0.003%
40	2.23	-30.89	-3.84	-2.22	30.89	3.84	0.003%
41	3.82	-30.89	-2.22	-3.82	30.89	2.22	0.001%
42	4.43	-30.89	-0.01	-4.43	30.89	0.01	0.003%
43	3.81	-30.89	2.20	-3.81	30.89	-2.20	0.003%
44	2.20	-30.89	3.82	-2.20	30.89	-3.82	0.003%
45	-0.02	-30.89	4.42	0.02	30.89	-4.42	0.003%
46	-2.23	-30.89	3.85	2.23	30.89	-3.85	0.001%
47	-3.83	-30.89	2.23	3.83	30.89	-2.23	0.003%
48	-4.42	-30.89	0.03	4.42	30.89	-0.03	0.003%
49	-3.79	-30.89	-2.18	3.79	30.89	2.18	0.001%
50	-2.18	-30.89	-3.81	2.18	30.89	3.81	0.003%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	6	0.00000001	0.00000001
2	Yes	13	0.00000001	0.00014493
3	Yes	13	0.00000001	0.00012102
4	Yes	16	0.00000001	0.00007157
5	Yes	16	0.00000001	0.00005607
6	Yes	16	0.00000001	0.00008811
7	Yes	16	0.00000001	0.00006944
8	Yes	14	0.00000001	0.00013881
9	Yes	14	0.00000001	0.00011448
10	Yes	16	0.00000001	0.00007084
11	Yes	16	0.00000001	0.00005563
12	Yes	16	0.00000001	0.00007841
13	Yes	16	0.00000001	0.00006170
14	Yes	14	0.00000001	0.00006427
15	Yes	13	0.00000001	0.00014086
16	Yes	16	0.00000001	0.00008786
17	Yes	16	0.00000001	0.00006919
18	Yes	16	0.00000001	0.00007081
19	Yes	16	0.00000001	0.00005548
20	Yes	14	0.00000001	0.00012914
21	Yes	14	0.00000001	0.00010663
22	Yes	16	0.00000001	0.00008172
23	Yes	16	0.00000001	0.00006435
24	Yes	16	0.00000001	0.00007420
25	Yes	16	0.00000001	0.00005824
26	Yes	6	0.00000001	0.00008555
27	Yes	15	0.00000001	0.00008764
28	Yes	15	0.00000001	0.00009363
29	Yes	15	0.00000001	0.00009383
30	Yes	15	0.00000001	0.00008918
31	Yes	15	0.00000001	0.00009153
32	Yes	15	0.00000001	0.00009172
33	Yes	15	0.00000001	0.00008597
34	Yes	15	0.00000001	0.00009391
35	Yes	15	0.00000001	0.00009368
36	Yes	15	0.00000001	0.00009060
37	Yes	15	0.00000001	0.00009427
38	Yes	15	0.00000001	0.00009399
39	Yes	11	0.00000001	0.00007991
40	Yes	11	0.00000001	0.00012863
41	Yes	12	0.00000001	0.00009280
42	Yes	11	0.00000001	0.00012278
43	Yes	11	0.00000001	0.00011856
44	Yes	11	0.00000001	0.00013847
45	Yes	11	0.00000001	0.00007863
46	Yes	12	0.00000001	0.00008934
47	Yes	11	0.00000001	0.00013847
48	Yes	11	0.00000001	0.00012374
49	Yes	12	0.00000001	0.00007680
50	Yes	11	0.00000001	0.00012076

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	102.7 - 97.7	8.642	40	0.8197	0.0058
L2	97.7 - 92.7	7.784	40	0.8174	0.0058
L3	92.7 - 89.78	6.934	40	0.8044	0.0058
L4	89.78 - 84.78	6.446	40	0.7910	0.0057
L5	84.78 - 79.78	5.638	40	0.7463	0.0044
L6	79.78 - 74.78	4.889	40	0.6825	0.0035
L7	74.78 - 72.5	4.218	40	0.5988	0.0028
L8	72.5 - 72.25	3.943	40	0.5565	0.0025
L9	72.25 - 67.25	3.914	40	0.5546	0.0025
L10	67.25 - 62.25	3.357	40	0.5106	0.0021
L11	62.25 - 61.75	2.849	40	0.4610	0.0018
L12	61.75 - 61.5	2.801	40	0.4560	0.0017
L13	61.5 - 56.5	2.777	40	0.4540	0.0017
L14	56.5 - 51.5	2.325	40	0.4108	0.0015
L15	51.5 - 44.98	1.918	40	0.3664	0.0013
L16	48.78 - 43.78	1.716	40	0.3423	0.0012
L17	43.78 - 38.78	1.369	40	0.3157	0.0011
L18	38.78 - 33.78	1.061	40	0.2735	0.0010
L19	33.78 - 32.75	0.797	40	0.2318	0.0009
L20	32.75 - 32.5	0.747	40	0.2236	0.0008
L21	32.5 - 27.5	0.736	40	0.2218	0.0008
L22	27.5 - 22.5	0.522	40	0.1859	0.0007
L23	22.5 - 17.5	0.347	40	0.1502	0.0006
L24	17.5 - 12.5	0.208	40	0.1155	0.0004
L25	12.5 - 7.5	0.105	40	0.0812	0.0003
L26	7.5 - 2.5	0.037	40	0.0479	0.0002
L27	2.5 - 0	0.004	40	0.0156	0.0001

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
101.00	(2) 800 10504 w/ Mount Pipe	40	8.350	0.8196	0.0058	39048
92.00	climbing ladder	40	6.816	0.8018	0.0058	12856
90.00	7770.00 w/ Mount Pipe	40	6.482	0.7923	0.0057	9430
82.00	MG D3-800TV w/ Mount Pipe	40	5.213	0.7125	0.0038	4297
75.00	(2) 1900MHz 4X40W RRH	40	4.246	0.6036	0.0028	3456
73.00	800MHZ RRH	40	4.002	0.5625	0.0026	4001
72.00	Andrew PX2F-52-NXA	40	3.885	0.5528	0.0025	4549
28.00	12' T-Arm	40	0.542	0.1895	0.0008	7988

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	102.7 - 97.7	40.505	18	3.8380	0.0268
L2	97.7 - 92.7	36.494	18	3.8269	0.0268

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L3	92.7 - 89.78	32.518	18	3.7660	0.0268
L4	89.78 - 84.78	30.236	18	3.7035	0.0265
L5	84.78 - 79.78	26.456	18	3.5022	0.0205
L6	79.78 - 74.78	22.941	18	3.2023	0.0162
L7	74.78 - 72.5	19.789	18	2.8088	0.0130
L8	72.5 - 72.25	18.496	18	2.6099	0.0118
L9	72.25 - 67.25	18.359	18	2.6009	0.0117
L10	67.25 - 62.25	15.744	16	2.3953	0.0099
L11	62.25 - 61.75	13.358	16	2.1637	0.0083
L12	61.75 - 61.5	13.133	16	2.1405	0.0081
L13	61.5 - 56.5	13.021	16	2.1309	0.0081
L14	56.5 - 51.5	10.896	16	1.9284	0.0070
L15	51.5 - 44.98	8.988	16	1.7189	0.0061
L16	48.78 - 43.78	8.041	16	1.6055	0.0056
L17	43.78 - 38.78	6.416	16	1.4799	0.0052
L18	38.78 - 33.78	4.971	16	1.2817	0.0046
L19	33.78 - 32.75	3.732	16	1.0857	0.0041
L20	32.75 - 32.5	3.502	16	1.0472	0.0040
L21	32.5 - 27.5	3.448	16	1.0389	0.0039
L22	27.5 - 22.5	2.449	16	0.8705	0.0035
L23	22.5 - 17.5	1.625	16	0.7036	0.0027
L24	17.5 - 12.5	0.974	16	0.5414	0.0020
L25	12.5 - 7.5	0.491	16	0.3810	0.0013
L26	7.5 - 2.5	0.175	16	0.2250	0.0008
L27	2.5 - 0	0.019	16	0.0732	0.0002

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
101.00	(2) 800 10504 w/ Mount Pipe	18	39.140	3.8375	0.0268	8384
92.00	climbing ladder	18	31.968	3.7535	0.0268	2792
90.00	7770.00 w/ Mount Pipe	18	30.406	3.7094	0.0266	2067
82.00	MG D3-800TV w/ Mount Pipe	18	24.462	3.3436	0.0177	930
75.00	(2) 1900MHz 4X40W RRH	18	19.919	2.8310	0.0131	741
73.00	800MHZ RRH	18	18.771	2.6382	0.0119	858
72.00	Andrew PX2F-52-NXA	16	18.224	2.5924	0.0117	976
28.00	12' T-Arm	16	2.541	0.8874	0.0036	1706

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	102.7 - 97.7 (1)	TP13x13x0.25	5.00	0.00	0.0	10.0138	-0.82	315.44	0.003
L2	97.7 - 92.7 (2)	TP13x13x0.25	5.00	0.00	0.0	10.0138	-1.04	315.44	0.003
L3	92.7 - 89.78 (3)	TP13x13x0.25	2.92	0.00	0.0	10.0138	-4.05	315.44	0.013

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L4	89.78 - 84.78 (4)	TP14.5393x13x0.25	5.00	0.00	0.0	11.3386	-4.33	842.40	0.005
L5	84.78 - 79.78 (5)	TP16.0787x14.5393x0.25	5.00	0.00	0.0	12.5601	-6.90	933.15	0.007
L6	79.78 - 74.78 (6)	TP17.618x16.0787x0.25	5.00	0.00	0.0	13.7815	-7.73	1023.90	0.008
L7	74.78 - 72.5 (7)	TP18.32x17.618x0.25	2.28	0.00	0.0	14.3385	-8.15	1065.28	0.008
L8	72.5 - 72.25 (8)	TP18.3969x18.32x0.6625	0.25	0.00	0.0	37.2915	-8.21	2770.57	0.003
L9	72.25 - 67.25 (9)	TP19.9363x18.3969x0.6125	5.00	0.00	0.0	37.5669	-12.81	2791.03	0.005
L10	67.25 - 62.25 (10)	TP21.4756x19.9363x0.575	5.00	0.00	0.0	38.1447	-13.78	2833.96	0.005
L11	62.25 - 61.75 (11)	TP21.6295x21.4756x0.575	0.50	0.00	0.0	38.4256	-13.88	2854.83	0.005
L12	61.75 - 61.5 (12)	TP21.7065x21.6295x0.7125	0.25	0.00	0.0	47.4774	-13.95	3527.34	0.004
L13	61.5 - 56.5 (13)	TP23.2459x21.7065x0.675	5.00	0.00	0.0	48.3569	-15.22	3592.68	0.004
L14	56.5 - 51.5 (14)	TP24.7852x23.2459x0.6375	5.00	0.00	0.0	48.8611	-16.54	3630.13	0.005
L15	51.5 - 44.98 (15)	TP26.7925x24.7852x0.625	6.52	0.00	0.0	49.5890	-17.26	3684.21	0.005
L16	44.98 - 43.78 (16)	TP26.6475x25.1226x0.6625	5.00	0.00	0.0	54.6407	-19.40	4059.53	0.005
L17	43.78 - 38.78 (17)	TP28.1725x26.6475x0.65	5.00	0.00	0.0	56.7817	-20.88	4218.59	0.005
L18	38.78 - 33.78 (18)	TP29.6974x28.1725x0.625	5.00	0.00	0.0	57.6725	-22.39	4284.78	0.005
L19	33.78 - 32.75 (19)	TP30.0116x29.6974x0.625	1.03	0.00	0.0	58.2956	-22.71	4331.07	0.005
L20	32.75 - 32.5 (20)	TP30.0878x30.0116x0.7125	0.25	0.00	0.0	66.4316	-22.81	4935.53	0.005
L21	32.5 - 27.5 (21)	TP31.6128x30.0878x0.6875	5.00	0.00	0.0	67.4828	-25.61	5013.64	0.005
L22	27.5 - 22.5 (22)	TP33.1377x31.6128x0.6625	5.00	0.00	0.0	67.0055	-26.87	4978.17	0.005
L23	22.5 - 17.5 (23)	TP34.6627x33.1377x0.65	5.00	0.00	0.0	67.0254	-27.71	4979.66	0.006
L24	17.5 - 12.5 (24)	TP36.1876x34.6627x0.625	5.00	0.00	0.0	67.5222	-29.77	5016.57	0.006
L25	12.5 - 7.5 (25)	TP37.7126x36.1876x0.6125	5.00	0.00	0.0	69.1607	-31.82	5138.30	0.006
L26	7.5 - 2.5 (26)	TP39.2375x37.7126x0.6	5.00	0.00	0.0	70.6772	-33.90	5250.96	0.006
L27	2.5 - 0 (27)	TP40x39.2375x0.6	2.50	0.00	0.0	73.5813	-36.00	5466.72	0.007

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	102.7 - 97.7 (1)	TP13x13x0.25	4.81	106.69	0.045	0.00	106.69	0.000
L2	97.7 - 92.7 (2)	TP13x13x0.25	12.77	106.69	0.120	0.00	106.69	0.000
L3	92.7 - 89.78 (3)	TP13x13x0.25	19.28	106.69	0.181	0.00	106.69	0.000
L4	89.78 - 84.78 (4)	TP14.5393x13x0.25	53.65	245.18	0.219	0.00	245.18	0.000
L5	84.78 - 79.78 (5)	TP16.0787x14.5393x0.25	98.60	301.36	0.327	0.00	301.36	0.000
L6	79.78 - 74.78 (6)	TP17.618x16.0787x0.25	157.14	363.32	0.433	0.00	363.32	0.000
L7	74.78 - 72.5 (7)	TP18.32x17.618x0.25	185.48	393.50	0.471	0.00	393.50	0.000
L8	72.5 - 72.25 (8)	TP18.3969x18.32x0.6625	188.64	981.64	0.192	0.00	981.64	0.000
L9	72.25 - 67.25 (9)	TP19.9363x18.3969x0.6125	267.07	1083.42	0.247	0.00	1083.42	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L10	67.25 - 62.25 (10)	TP21.4756x19.9363x0.575	346.98	1194.70	0.290	0.00	1194.70	0.000
L11	62.25 - 61.75 (11)	TP21.6295x21.4756x0.575	355.04	1212.60	0.293	0.00	1212.60	0.000
L12	61.75 - 61.5 (12)	TP21.7065x21.6295x0.7125	359.07	1484.37	0.242	0.00	1484.37	0.000
L13	61.5 - 56.5 (13)	TP23.2459x21.7065x0.675	440.33	1631.78	0.270	0.00	1631.78	0.000
L14	56.5 - 51.5 (14)	TP24.7852x23.2459x0.6375	522.96	1770.00	0.295	0.00	1770.00	0.000
L15	51.5 - 44.98 (15)	TP26.7925x24.7852x0.625	568.49	1862.13	0.305	0.00	1862.13	0.000
L16	44.98 - 43.78 (16)	TP26.6475x25.1226x0.6625	653.42	2131.86	0.307	0.00	2131.86	0.000
L17	43.78 - 38.78 (17)	TP28.1725x26.6475x0.65	739.86	2350.78	0.315	0.00	2350.78	0.000
L18	38.78 - 33.78 (18)	TP29.6974x28.1725x0.625	827.70	2527.35	0.327	0.00	2527.35	0.000
L19	33.78 - 32.75 (19)	TP30.0116x29.6974x0.625	845.98	2582.84	0.328	0.00	2582.84	0.000
L20	32.75 - 32.5 (20)	TP30.0878x30.0116x0.7125	850.42	2933.60	0.290	0.00	2933.60	0.000
L21	32.5 - 27.5 (21)	TP31.6128x30.0878x0.6875	946.79	3143.47	0.301	0.00	3143.47	0.000
L22	27.5 - 22.5 (22)	TP33.1377x31.6128x0.6625	1004.55	3220.64	0.312	0.00	3220.64	0.000
L23	22.5 - 17.5 (23)	TP34.6627x33.1377x0.65	1043.35	3287.06	0.317	0.00	3287.06	0.000
L24	17.5 - 12.5 (24)	TP36.1876x34.6627x0.625	1141.68	3475.02	0.329	0.00	3475.02	0.000
L25	12.5 - 7.5 (25)	TP37.7126x36.1876x0.6125	1241.72	3724.30	0.333	0.00	3724.30	0.000
L26	7.5 - 2.5 (26)	TP39.2375x37.7126x0.6	1343.10	3974.54	0.338	0.00	3974.54	0.000
L27	2.5 - 0 (27)	TP40x39.2375x0.6	1445.85	4310.59	0.335	0.00	4310.59	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	102.7 - 97.7 (1)	TP13x13x0.25	1.50	157.72	0.010	0.00	164.42	0.000
L2	97.7 - 92.7 (2)	TP13x13x0.25	1.68	157.72	0.011	0.00	164.42	0.000
L3	92.7 - 89.78 (3)	TP13x13x0.25	6.78	157.72	0.043	0.41	164.42	0.002
L4	89.78 - 84.78 (4)	TP14.5393x13x0.25	6.97	421.20	0.017	0.41	490.97	0.001
L5	84.78 - 79.78 (5)	TP16.0787x14.5393x0.25	11.58	466.57	0.025	0.60	603.45	0.001
L6	79.78 - 74.78 (6)	TP17.618x16.0787x0.25	12.35	511.95	0.024	0.81	727.53	0.001
L7	74.78 - 72.5 (7)	TP18.32x17.618x0.25	12.67	532.64	0.024	0.81	787.97	0.001
L8	72.5 - 72.25 (8)	TP18.3969x18.32x0.6625	12.68	1385.29	0.009	0.80	1965.68	0.000
L9	72.25 - 67.25 (9)	TP19.9363x18.3969x0.6125	15.85	1395.52	0.011	1.65	2169.49	0.001
L10	67.25 - 62.25 (10)	TP21.4756x19.9363x0.575	16.10	1416.98	0.011	1.65	2392.32	0.001
L11	62.25 - 61.75 (11)	TP21.6295x21.4756x0.575	16.12	1427.42	0.011	1.65	2428.17	0.001
L12	61.75 - 61.5 (12)	TP21.7065x21.6295x0.7125	16.14	1763.67	0.009	1.65	2972.36	0.001
L13	61.5 - 56.5 (13)	TP23.2459x21.7065x0.675	16.41	1796.34	0.009	1.65	3267.55	0.001
L14	56.5 - 51.5 (14)	TP24.7852x23.2459x0.6375	16.69	1815.07	0.009	1.65	3544.33	0.000
L15	51.5 - 44.98 (15)	TP26.7925x24.7852x0.625	16.85	1842.11	0.009	1.65	3728.82	0.000

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L16	44.98 - 43.78 (16)	TP26.6475x25.1226x0.6625	17.18	2029.77	0.008	1.64	4268.93	0.000
L17	43.78 - 38.78 (17)	TP28.1725x26.6475x0.65	17.46	2109.30	0.008	1.64	4707.29	0.000
L18	38.78 - 33.78 (18)	TP29.6974x28.1725x0.625	17.74	2142.39	0.008	1.64	5060.88	0.000
L19	33.78 - 32.75 (19)	TP30.0116x29.6974x0.625	17.80	2165.54	0.008	1.64	5172.00	0.000
L20	32.75 - 32.5 (20)	TP30.0878x30.0116x0.7125	17.81	2467.77	0.007	1.64	5874.38	0.000
L21	32.5 - 27.5 (21)	TP31.6128x30.0878x0.6875	19.22	2506.82	0.008	2.68	6294.64	0.000
L22	27.5 - 22.5 (22)	TP33.1377x31.6128x0.6625	19.45	2512.91	0.008	2.68	6449.17	0.000
L23	22.5 - 17.5 (23)	TP34.6627x33.1377x0.65	19.56	2513.20	0.008	2.68	6582.16	0.000
L24	17.5 - 12.5 (24)	TP36.1876x34.6627x0.625	19.90	2530.76	0.008	2.74	6958.53	0.000
L25	12.5 - 7.5 (25)	TP37.7126x36.1876x0.6125	20.16	2591.17	0.008	2.74	7457.71	0.000
L26	7.5 - 2.5 (26)	TP39.2375x37.7126x0.6	20.43	2647.06	0.008	2.74	7958.81	0.000
L27	2.5 - 0 (27)	TP40x39.2375x0.6	20.72	2760.33	0.008	2.74	8631.75	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	102.7 - 97.7 (1)	0.003	0.045	0.000	0.010	0.000	0.048 ✔	1.000	4.8.2 ✔
L2	97.7 - 92.7 (2)	0.003	0.120	0.000	0.011	0.000	0.123 ✔	1.000	4.8.2 ✔
L3	92.7 - 89.78 (3)	0.013	0.181	0.000	0.043	0.002	0.196 ✔	1.000	4.8.2 ✔
L4	89.78 - 84.78 (4)	0.005	0.219	0.000	0.017	0.001	0.224 ✔	1.000	4.8.2 ✔
L5	84.78 - 79.78 (5)	0.007	0.327	0.000	0.025	0.001	0.335 ✔	1.000	4.8.2 ✔
L6	79.78 - 74.78 (6)	0.008	0.433	0.000	0.024	0.001	0.441 ✔	1.000	4.8.2 ✔
L7	74.78 - 72.5 (7)	0.008	0.471	0.000	0.024	0.001	0.480 ✔	1.000	4.8.2 ✔
L8	72.5 - 72.25 (8)	0.003	0.192	0.000	0.009	0.000	0.195 ✔	1.000	4.8.2 ✔
L9	72.25 - 67.25 (9)	0.005	0.247	0.000	0.011	0.001	0.251 ✔	1.000	4.8.2 ✔
L10	67.25 - 62.25 (10)	0.005	0.290	0.000	0.011	0.001	0.295 ✔	1.000	4.8.2 ✔
L11	62.25 - 61.75 (11)	0.005	0.293	0.000	0.011	0.001	0.298 ✔	1.000	4.8.2 ✔
L12	61.75 - 61.5 (12)	0.004	0.242	0.000	0.009	0.001	0.246 ✔	1.000	4.8.2 ✔
L13	61.5 - 56.5 (13)	0.004	0.270	0.000	0.009	0.001	0.274 ✔	1.000	4.8.2 ✔
L14	56.5 - 51.5 (14)	0.005	0.295	0.000	0.009	0.000	0.300 ✔	1.000	4.8.2 ✔

Section No.	Elevation ft	Ratio $P_u/\phi P_n$	Ratio $M_{ux}/\phi M_{nx}$	Ratio $M_{uy}/\phi M_{ny}$	Ratio $V_u/\phi V_n$	Ratio $T_u/\phi T_n$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L15	51.5 - 44.98 (15)	0.005	0.305	0.000	0.009	0.000	0.310 ✔	1.000	4.8.2 ✔
L16	44.98 - 43.78 (16)	0.005	0.307	0.000	0.008	0.000	0.311 ✔	1.000	4.8.2 ✔
L17	43.78 - 38.78 (17)	0.005	0.315	0.000	0.008	0.000	0.320 ✔	1.000	4.8.2 ✔
L18	38.78 - 33.78 (18)	0.005	0.327	0.000	0.008	0.000	0.333 ✔	1.000	4.8.2 ✔
L19	33.78 - 32.75 (19)	0.005	0.328	0.000	0.008	0.000	0.333 ✔	1.000	4.8.2 ✔
L20	32.75 - 32.5 (20)	0.005	0.290	0.000	0.007	0.000	0.295 ✔	1.000	4.8.2 ✔
L21	32.5 - 27.5 (21)	0.005	0.301	0.000	0.008	0.000	0.306 ✔	1.000	4.8.2 ✔
L22	27.5 - 22.5 (22)	0.005	0.312	0.000	0.008	0.000	0.317 ✔	1.000	4.8.2 ✔
L23	22.5 - 17.5 (23)	0.006	0.317	0.000	0.008	0.000	0.323 ✔	1.000	4.8.2 ✔
L24	17.5 - 12.5 (24)	0.006	0.329	0.000	0.008	0.000	0.335 ✔	1.000	4.8.2 ✔
L25	12.5 - 7.5 (25)	0.006	0.333	0.000	0.008	0.000	0.340 ✔	1.000	4.8.2 ✔
L26	7.5 - 2.5 (26)	0.006	0.338	0.000	0.008	0.000	0.344 ✔	1.000	4.8.2 ✔
L27	2.5 - 0 (27)	0.007	0.335	0.000	0.008	0.000	0.342 ✔	1.000	4.8.2 ✔

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	102.7 - 97.7	Pole	TP13x13x0.25	1	-0.82	315.44	4.8	Pass
L2	97.7 - 92.7	Pole	TP13x13x0.25	2	-1.04	315.44	12.3	Pass
L3	92.7 - 89.78	Pole	TP13x13x0.25	3	-4.05	315.44	19.6	Pass
L4	89.78 - 84.78	Pole	TP14.5393x13x0.25	4	-4.33	842.40	22.4	Pass
L5	84.78 - 79.78	Pole	TP16.0787x14.5393x0.25	5	-6.90	933.15	33.5	Pass
L6	79.78 - 74.78	Pole	TP17.618x16.0787x0.25	6	-7.73	1023.90	44.1	Pass
L7	74.78 - 72.5	Pole	TP18.32x17.618x0.25	7	-8.15	1065.28	48.0	Pass
L8	72.5 - 72.25	Pole	TP18.3969x18.32x0.6625	8	-8.21	2770.57	19.5	Pass
L9	72.25 - 67.25	Pole	TP19.9363x18.3969x0.6125	9	-12.81	2791.03	25.1	Pass
L10	67.25 - 62.25	Pole	TP21.4756x19.9363x0.575	10	-13.78	2833.96	29.5	Pass
L11	62.25 - 61.75	Pole	TP21.6295x21.4756x0.575	11	-13.88	2854.83	29.8	Pass
L12	61.75 - 61.5	Pole	TP21.7065x21.6295x0.7125	12	-13.95	3527.34	24.6	Pass
L13	61.5 - 56.5	Pole	TP23.2459x21.7065x0.675	13	-15.22	3592.68	27.4	Pass
L14	56.5 - 51.5	Pole	TP24.7852x23.2459x0.6375	14	-16.54	3630.13	30.0	Pass
L15	51.5 - 44.98	Pole	TP26.7925x24.7852x0.625	15	-17.26	3684.21	31.0	Pass
L16	44.98 - 43.78	Pole	TP26.6475x25.1226x0.6625	16	-19.40	4059.53	31.1	Pass
L17	43.78 - 38.78	Pole	TP28.1725x26.6475x0.65	17	-20.88	4218.59	32.0	Pass
L18	38.78 - 33.78	Pole	TP29.6974x28.1725x0.625	18	-22.39	4284.78	33.3	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L19	33.78 - 32.75	Pole	TP30.0116x29.6974x0.625	19	-22.71	4331.07	33.3	Pass
L20	32.75 - 32.5	Pole	TP30.0878x30.0116x0.7125	20	-22.81	4935.53	29.5	Pass
L21	32.5 - 27.5	Pole	TP31.6128x30.0878x0.6875	21	-25.61	5013.64	30.6	Pass
L22	27.5 - 22.5	Pole	TP33.1377x31.6128x0.6625	22	-26.87	4978.17	31.7	Pass
L23	22.5 - 17.5	Pole	TP34.6627x33.1377x0.65	23	-27.71	4979.66	32.3	Pass
L24	17.5 - 12.5	Pole	TP36.1876x34.6627x0.625	24	-29.77	5016.57	33.5	Pass
L25	12.5 - 7.5	Pole	TP37.7126x36.1876x0.6125	25	-31.82	5138.30	34.0	Pass
L26	7.5 - 2.5	Pole	TP39.2375x37.7126x0.6	26	-33.90	5250.96	34.4	Pass
L27	2.5 - 0	Pole	TP40x39.2375x0.6	27	-36.00	5466.72	34.2	Pass
							Summary	
						Pole (L7)	48.0	Pass
						RATING =	**48.0***	**Pass**

*Due to limitations of the TnxTower software when analyzing monopoles with additional bolted plates, the above output has not been used to determine the governing tower usage. Please see additional calculation results in Appendix C which are based on the section forces generated in this output.

Additional Calculations

CCIpole

per TIA-222- G

Site BU: Stratford

Work Order:

Pole Geometry

	Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
1	102.7	12.92	0	0	13	13	0.25	n/a	A53-B-35
2	89.78	44.8	3.8	18	13.00	26.7925	0.25	1	A572-65
3	48.78	48.78	0	18	25.12	40	0.3125	1.25	A572-65

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	0	32.75	plate	MS-650 (1.1875")	4			1					1				1					1	
2	32.75	61.75	plate	MS-650 (1.1875")	3	1						1						1					
3	61.75	72.5	plate	MS-600 (1.1875")	3			1						1						1			
4																							
5																							
6																							
7																							
8																							
9																							
10																							

Reinforcement Details

	B (in)	H (in)	Gross Area (in^2)	Pole Face to Centroid (in)	Bottom Termination Length (in)	Top Termination Length (in)	L_u (in)	Net Area (in^2)	Bolt Hole Size (in)	Reinforcement Material
1	6.5	1.25	8.125	0.625	33.000	33.000	19.250	6.563	1.1875	A572-65
2	6.5	1.25	8.125	0.625	33.000	33.000	19.250	6.563	1.1875	A572-65
3	6	1	6	0.5	24.000	24.000	16.375	4.750	1.1875	A572-65

TNX Geometry Input

Increment (ft): 5

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	102.7 - 97.7	5		0	13.000	13.000	0.25	A53-B-35	1.000
2	97.7 - 92.7	5		0	13.000	13.000	0.25	A53-B-35	1.000
3	92.7 - 89.78	2.92	0	0	13.000	13.000	0.25	A53-B-35	1.000
4	89.78 - 84.78	5		18	13.000	14.539	0.25	A572-65	1.000
5	84.78 - 79.78	5		18	14.539	16.079	0.25	A572-65	1.000
6	79.78 - 74.78	5		18	16.079	17.618	0.25	A572-65	1.000
7	74.78 - 72.5	2.28		18	17.618	18.320	0.25	A572-65	1.000
8	72.5 - 72.25	0.25		18	18.320	18.397	0.6625	A572-65	0.869
9	72.25 - 67.25	5		18	18.397	19.936	0.6125	A572-65	0.895
10	67.25 - 62.25	5		18	19.936	21.476	0.575	A572-65	0.913
11	62.25 - 61.75	0.5		18	21.476	21.630	0.575	A572-65	0.910
12	61.75 - 61.5	0.25		18	21.630	21.707	0.7125	A572-65	0.872
13	61.5 - 56.5	5		18	21.707	23.246	0.675	A572-65	0.881
14	56.5 - 51.5	5		18	23.246	24.785	0.6375	A572-65	0.897
15	51.5 - 48.78	6.52	3.8	18	24.785	26.793	0.625	A572-65	0.898
16	48.78 - 43.78	5		18	25.123	26.648	0.6625	A572-65	0.924
17	43.78 - 38.78	5		18	26.648	28.172	0.65	A572-65	0.916
18	38.78 - 33.78	5		18	28.172	29.697	0.625	A572-65	0.928
19	33.78 - 32.75	1.03		18	29.697	30.012	0.625	A572-65	0.923
20	32.75 - 32.5	0.25		18	30.012	30.088	0.7125	A572-65	0.934
21	32.5 - 27.5	5		18	30.088	31.613	0.6875	A572-65	0.942
22	27.5 - 22.5	5		18	31.613	33.138	0.6625	A572-65	0.953
23	22.5 - 17.5	5		18	33.138	34.663	0.65	A572-65	0.949
24	17.5 - 12.5	5		18	34.663	36.188	0.625	A572-65	0.965
25	12.5 - 7.5	5		18	36.188	37.713	0.6125	A572-65	0.965
26	7.5 - 2.5	5		18	37.713	39.238	0.6	A572-65	0.966
27	2.5 - 0	2.5		18	39.238	40.000	0.6	A572-65	0.958

TNX Section Forces

Increment (ft):	5	TNX Output		
	Section Height (ft)	P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	102.7 - 97.7	0.8167	4.814	1.5025
2	97.7 - 92.7	1.0356	12.77	1.6803
3	92.7 - 89.78	4.0486	19.282	6.7822
4	89.78 - 84.78	4.3268	53.654	6.972
5	84.78 - 79.78	6.8966	98.596	11.583
6	79.78 - 74.78	7.7251	157.14	12.347
7	74.78 - 72.5	8.1505	185.48	12.671
8	72.5 - 72.25	8.2057	188.64	12.682
9	72.25 - 67.25	12.81	267.08	15.852
10	67.25 - 62.25	13.777	346.98	16.1
11	62.25 - 61.75	13.88	355.04	16.124
12	61.75 - 61.5	13.946	359.07	16.14
13	61.5 - 56.5	15.224	440.33	16.413
14	56.5 - 51.5	16.536	522.96	16.691
15	51.5 - 48.78	17.263	568.49	16.845
16	48.78 - 43.78	19.396	653.42	17.176
17	43.78 - 38.78	20.877	739.86	17.458
18	38.78 - 33.78	22.389	827.7	17.742
19	33.78 - 32.75	22.707	845.97	17.801
20	32.75 - 32.5	22.813	850.43	17.812
21	32.5 - 27.5	25.612	946.79	19.217
22	27.5 - 22.5	27.699	1043.3	19.507
23	22.5 - 17.5	29.764	1141.7	19.843
24	17.5 - 12.5	31.808	1241.7	20.107
25	12.5 - 7.5	33.885	1343.1	20.377
26	7.5 - 2.5	35.993	1445.9	20.652
27	2.5 - 0	37.06	1497.8	20.795

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
102.7 - 97.7	Pole	TP13x13x0.25	Pole	4.8%	Pass
97.7 - 92.7	Pole	TP13x13x0.25	Pole	12.3%	Pass
92.7 - 89.78	Pole	TP13x13x0.25	Pole	19.5%	Pass
89.78 - 84.78	Pole	TP14.539x13x0.25	Pole	22.4%	Pass
84.78 - 79.78	Pole	TP16.079x14.539x0.25	Pole	33.5%	Pass
79.78 - 74.78	Pole	TP17.618x16.079x0.25	Pole	44.0%	Pass
74.78 - 72.5	Pole	TP18.32x17.618x0.25	Pole	47.9%	Pass
72.5 - 72.25	Pole + Reinf.	TP18.397x18.32x0.6625	Reinf. 3 Tension Rupture	31.9%	Pass
72.25 - 67.25	Pole + Reinf.	TP19.936x18.397x0.6125	Reinf. 3 Tension Rupture	40.5%	Pass
67.25 - 62.25	Pole + Reinf.	TP21.476x19.936x0.575	Reinf. 3 Tension Rupture	47.2%	Pass
62.25 - 61.75	Pole + Reinf.	TP21.63x21.476x0.575	Reinf. 3 Tension Rupture	47.8%	Pass
61.75 - 61.5	Pole + Reinf.	TP21.707x21.63x0.7125	Reinf. 2 Tension Rupture	39.3%	Pass
61.5 - 56.5	Pole + Reinf.	TP23.246x21.707x0.675	Reinf. 2 Tension Rupture	43.9%	Pass
56.5 - 51.5	Pole + Reinf.	TP24.785x23.246x0.6375	Reinf. 2 Tension Rupture	47.7%	Pass
51.5 - 48.78	Pole + Reinf.	TP26.793x24.785x0.625	Reinf. 2 Tension Rupture	49.5%	Pass
48.78 - 43.78	Pole + Reinf.	TP26.648x25.123x0.6625	Reinf. 2 Tension Rupture	48.7%	Pass
43.78 - 38.78	Pole + Reinf.	TP28.172x26.648x0.65	Reinf. 2 Tension Rupture	50.7%	Pass
38.78 - 33.78	Pole + Reinf.	TP29.697x28.172x0.625	Reinf. 2 Tension Rupture	52.4%	Pass
33.78 - 32.75	Pole + Reinf.	TP30.012x29.697x0.625	Reinf. 2 Tension Rupture	52.7%	Pass
32.75 - 32.5	Pole + Reinf.	TP30.088x30.012x0.7125	Reinf. 1 Tension Rupture	45.6%	Pass
32.5 - 27.5	Pole + Reinf.	TP31.613x30.088x0.6875	Reinf. 1 Tension Rupture	47.3%	Pass
27.5 - 22.5	Pole + Reinf.	TP33.138x31.613x0.6625	Reinf. 1 Tension Rupture	48.6%	Pass
22.5 - 17.5	Pole + Reinf.	TP34.663x33.138x0.65	Reinf. 1 Tension Rupture	49.8%	Pass
17.5 - 12.5	Pole + Reinf.	TP36.188x34.663x0.625	Reinf. 1 Tension Rupture	50.7%	Pass
12.5 - 7.5	Pole + Reinf.	TP37.713x36.188x0.6125	Reinf. 1 Tension Rupture	51.6%	Pass
7.5 - 2.5	Pole + Reinf.	TP39.238x37.713x0.6	Reinf. 1 Tension Rupture	52.3%	Pass
2.5 - 0	Pole + Reinf.	TP40x39.238x0.6	Reinf. 1 Tension Rupture	52.6%	Pass
				Summary	
			Pole	47.9%	Pass
			Reinforcement	52.7%	Pass
			Overall	52.7%	Pass

Additional Calculations

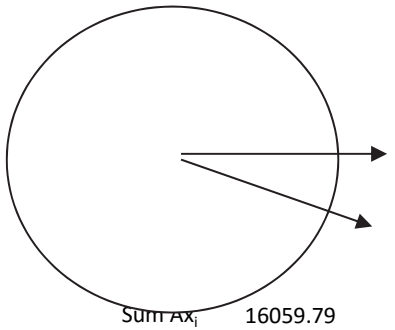
Section Elevation (ft)	Moment of Inertia (in^4)			Area (in^2)			% Capacity			
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3
102.7 - 97.7	204	n/a	204	10.01	n/a	10.01	4.8%			
97.7 - 92.7	204	n/a	204	10.01	n/a	10.01	12.3%			
92.7 - 89.78	204	n/a	204	10.01	n/a	10.01	19.5%			
89.78 - 84.78	292	n/a	292	11.34	n/a	11.34	22.4%			
84.78 - 79.78	397	n/a	397	12.56	n/a	12.56	33.5%			
79.78 - 74.78	525	n/a	525	13.78	n/a	13.78	44.0%			
74.78 - 72.5	591	n/a	591	14.34	n/a	14.34	47.9%			
72.5 - 72.25	599	874	1473	14.40	18.00	32.40	24.7%			31.9%
72.25 - 67.25	765	1014	1779	15.62	18.00	33.62	31.5%			40.5%
67.25 - 62.25	958	1164	2123	16.84	18.00	34.84	36.8%			47.2%
62.25 - 61.75	979	1180	2159	16.96	18.00	34.96	37.2%			47.8%
61.75 - 61.5	990	1650	2640	17.03	24.38	41.40	30.9%		39.3%	
61.5 - 56.5	1219	1873	3091	18.25	24.38	42.62	34.6%		43.9%	
56.5 - 51.5	1480	2110	3590	19.47	24.38	43.84	37.8%		47.7%	
51.5 - 48.78	1637	2245	3882	20.13	24.38	44.51	39.2%		49.5%	
48.78 - 43.78	2288	2416	4704	26.12	24.38	50.50	38.7%		48.7%	
43.78 - 38.78	2709	2682	5391	27.63	24.38	52.01	40.4%		50.7%	
38.78 - 33.78	3178	2963	6141	29.15	24.38	53.52	41.8%		52.4%	
33.78 - 32.75	3282	3022	6304	29.46	24.38	53.83	42.1%		52.7%	
32.75 - 32.5	3307	3930	7237	29.53	32.50	62.03	37.5%	45.6%		
32.5 - 27.5	3841	4316	8157	31.04	32.50	63.54	39.0%	47.3%		
27.5 - 22.5	4431	4720	9151	32.56	32.50	65.06	40.1%	48.6%		
22.5 - 17.5	5077	5142	10220	34.07	32.50	66.57	41.2%	49.8%		
17.5 - 12.5	5784	5583	11367	35.58	32.50	68.08	42.0%	50.7%		
12.5 - 7.5	6553	6042	12595	37.09	32.50	69.59	42.8%	51.6%		
7.5 - 2.5	7388	6520	13908	38.61	32.50	71.11	43.4%	52.3%		
2.5 - 0	7831	6765	14596	39.36	32.50	71.86	43.7%	52.6%		

Note: Section capacity checked in 5 degree increments.

BU#	
Site Name	Stratford
App #	

Number Of Bolts (Ext + Mod)	13
Diameter Of Exist. Bolt Circle(inch)	48
Moment (ft. kips)	1498
Axial Compression (kips)	37
Outer Diamter of Mod. Bolt Circle(inch)	56.5

17976 in. kips



Sum Ax_i 16059.79

	Bolt Diameter (inch)	Grade	Allowable Axial (kips)	Capacity
Existing	2.25	A615 (Gr 75)	195	56.2%
Mod	**2.25**	**A193 B7 (105 KSI)**	**272.9**	**44.3%**

T(+) C(-)

Bolt #	ϕ°	Bolt Circle	D (in)	Radians	$\text{Cos}(\phi^{\circ})$	x_i(inch)	x_i^2	Area	Ax_i	Ax_i^2	Force (Kip)	Capacities
1	288	48.00	2.25	5.027	0.309	7.416	55.003	3.98	29.49	218.70	30.2	15.5%
2	324	48.00	2.25	5.655	0.809	19.416	376.997	3.98	77.20	1498.97	83.6	42.9%
3	0	48.00	2.25	0.000	1.000	24.000	576.000	3.98	95.43	2290.22	104.0	53.3%
4	36	48.00	2.25	0.628	0.809	19.416	376.997	3.98	77.20	1498.97	83.6	42.9%
5	72	48.00	2.25	1.257	0.309	7.416	55.003	3.98	29.49	218.70	30.2	15.5%
6	108	48.00	2.25	1.885	-0.309	-7.416	55.003	3.98	-29.49	218.70	-35.9	18.4%
7	144	48.00	2.25	2.513	-0.809	-19.416	376.997	3.98	-77.20	1498.97	-89.3	45.8%
8	180	48.00	2.25	3.142	-1.000	-24.000	576.000	3.98	-95.43	2290.22	-109.7	56.2%
9	216	48.00	2.25	3.770	-0.809	-19.416	376.997	3.98	-77.20	1498.97	-89.3	45.8%
10	252	48.00	2.25	4.398	-0.309	-7.416	55.003	3.98	-29.49	218.70	-35.9	18.4%
11	270	56.50	2.25	4.712	0.000	0.000	0.000	3.98	0.00	0.00	-2.8	1.0%
12	10	56.50	2.25	0.175	0.985	27.821	773.998	3.98	110.62	3077.48	121.0	44.3%
13	134	56.50	2.25	2.339	-0.695	-19.624	385.105	3.98	-78.03	1531.21	-90.2	33.0%

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

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

Site Data

BU#:	
Site Name:	*Stratford*
App #:	
Pole Manufacturer:	*Other*

Reactions		
Mu:	1079	ft-kips
Axial, Pu:	26.7	kips
Shear, Vu:	15.1	kips
Eta Factor, η	0.5	TIA G (Fig. 4-4)

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

Anchor Rod Data		
Qty:	10	
Diam:	2.25	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	51	in

Plate Data		
Diam:	57	in
Thick:	1.75	in
Grade:	60	ksi
Single-Rod B-eff:	12.70	in

Stiffener Data (Welding at both sides)		
Config:	0	*
Weld Type:	Fillet	
Groove Depth:	0.25	<-- Disregard
Groove Angle:	45	<-- Disregard
Fillet H. Weld:	0.25	in
Fillet V. Weld:	0.3125	in
Width:	5	in
Height:	18	in
Thick:	0.75	in
Notch:	0.5	in
Grade:	36	ksi
Weld str.:	70	ksi

Pole Data		
Diam:	40	in
Thick:	0.3125	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round
Fu	60	ksi
Reinf. Fillet Weld	0	"0" if None

Base Plate Results Flexural Check

Base Plate Stress:	34.8 ksi	
Allowable Plate Stress:	54.0 ksi	
Base Plate Stress Ratio:	64.5%	**Pass**

Non-Rigid
AISC LRFD
φ*Fy
Y.L. Length: 31.64

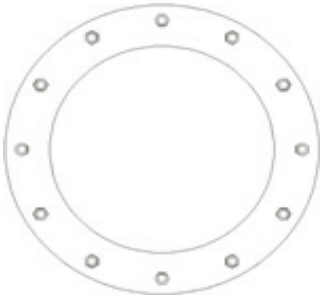
n/a

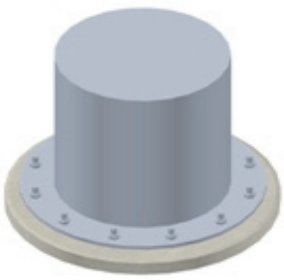
Stiffener Results

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

Pole Results

Pole Punching Shear Check: n/a





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

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

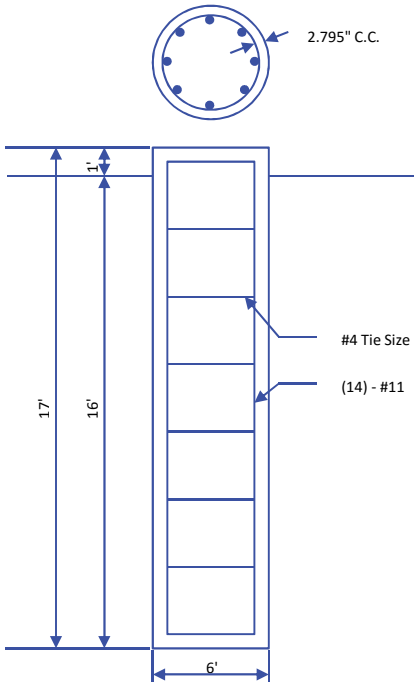
CCI Foundation Tool Suite - Monopole Pier

CCIFTS 1.2.108.14286 - Phase 1-2 Date: 11/3/2016

BU:	
Site Name:	Stratford
App Number:	
Work Order:	

Monopole Drilled Pier

Input



Criteria		
TIA Revision:	G	
ACI 318 Revision:	2008	
Seismic Category:	B	
Forces		
Compression	37	kips
Shear	21	kips
Moment	1498	k-ft
Swelling Force	0	kips
Foundation Dimensions		
Pier Diameter:	6	ft
Ext. above grade:	1	ft
Depth below grade:	16	ft
Material Properties		
Number of Rebar:	14	
Rebar Size:	11	
Tie Size	4	
Rebar tensile strength:	60	ksi
Concrete Strength:	4000	psi
Ultimate Concrete Strain	0.003	in/in
Clear Cover to Ties:	2.795	in

Soil Profile: West Bridgeport

Layer	Thickness (ft)	From (ft)	To (ft)	Unit Weight (pcf)	Cohesion (psf)	Friction Angle (deg)	Ultimate Uplift Skin Friction (ksf)	Ultimate Comp. Skin Friction (ksf)	Ultimate Bearing Capacity (ksf)	SPT 'N' Counts
1	3.33	0	3.33	100	0	0	0	0	0	
2	0.6	3.33	3.93	100	0	30	0	0	0	
3	15	3.93	18.93	169	0	42	0	0	5	

Analysis Results

Soil Lateral Capacity

Depth to Zero Shear:	4.82	ft
Max Moment, Mu:	1611.63	k-ft
Soil Safety Factor:	2.37	
Safety Factor Req'd:	1.33	
RATING:	56.1%	

Soil Axial Capacity

Skin Friction (k):	0.00	kips
End Bearing (k):	106.03	kips
Comp. Capacity (k), ϕCn:	106.03	kips
Comp. (k), Cu:	37.00	kips
RATING:	34.9%	

Concrete/Steel Check

Mu (from soil analysis)	1611.63	k-ft
ϕMn	3081.38	k-ft
RATING:	52.3%	
rho provided	0.54	
rho required	0.33	OK
Rebar Spacing	12.95	
Spacing required	22.56	OK
Dev. Length required	10.94	
Dev. Length provided	53.51	OK

Overall Foundation Rating: 56.1%

PROJECT INFORMATION

SCOPE OF WORK:
- AT&T ANTENNAS: (1) NEW ANTENNA PER SECTOR, FOR A TOTAL (3) NEW ANTENNAS. (2) EXISTING ANTENNAS PER SECTOR FOR 3 SECTORS, FOR A TOTAL OF (6) EXISTING ANTENNAS TO REMAIN. (1) EXISTING ANTENNA PER SECTOR FOR (3) SECTORS, FOR A TOTAL OF (3) EXISTING ANTENNAS TO BE REMOVED.
- AT&T RRUs: (1) NEW RRUs PER SECTOR WITH (3) SECTORS, FOR A TOTAL OF (3) NEW RRUs; (2) EXISTING RRU PER SECTOR TO BE REUSED, FOR A TOTAL OF (6) EXISTING RRUs, (1) NEW A2 MODULES PER SECTOR, (3) TOTAL NEW A2 MODULES
- AT&T TRIPLEXERS: (2) NEW TRIPLEXERS INSTALLED AT ANTENNAS PER SECTOR FOR A TOTAL OF (6) NEW TRIPLEXERS, (2) NEW TRIPLEXERS AT EQUIPMENT LOCATION PER SECTOR FOR A TOTAL OF (6) TRIPLEXERS AT EQUIPMENT LOCATION
- AT&T SQUID: (1) NEW DC6 SURGE, FOR A TOTAL OF (1) NEW SQUID, (1) EXISTING DC-6 SURGE PROTECTOR, FOR A TOTAL OF (1) EXISTING SQUID TO REMAIN.

SITE ADDRESS:	623 HONEYSPOT ROAD STRATFORD, CT 06615
LATITUDE:	41.1768811 41° 10' 36.7"N
LONGITUDE:	-73.1461661 -73° 08' 46.20"W
USID:	60398
TOWER OWNER:	CINGULAR SITES
TYPE OF SITE:	MONOPOLE/INDOOR EQUIPMENT
MONOPOLE HEIGHT:	102'-0"±
RAD CENTER:	90'-0"±
CURRENT USE:	UNMANNED WIRELESS TELECOMMUNICATIONS FACILITY
PROPOSED USE:	UNMANNED WIRELESS TELECOMMUNICATIONS FACILITY

DRAWING INDEX

APPROVALS

THE FOLLOWING PARTIES HEREBY APPROVE AND ACCEPT THESE DOCUMENTS AND AUTHORIZE THE SUBCONTRACTOR TO PROCEED WITH THE CONSTRUCTION DESCRIBED HEREIN, ALL DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT AMD MAY IMPOSE CHANGES OR SITE MODIFICATIONS.

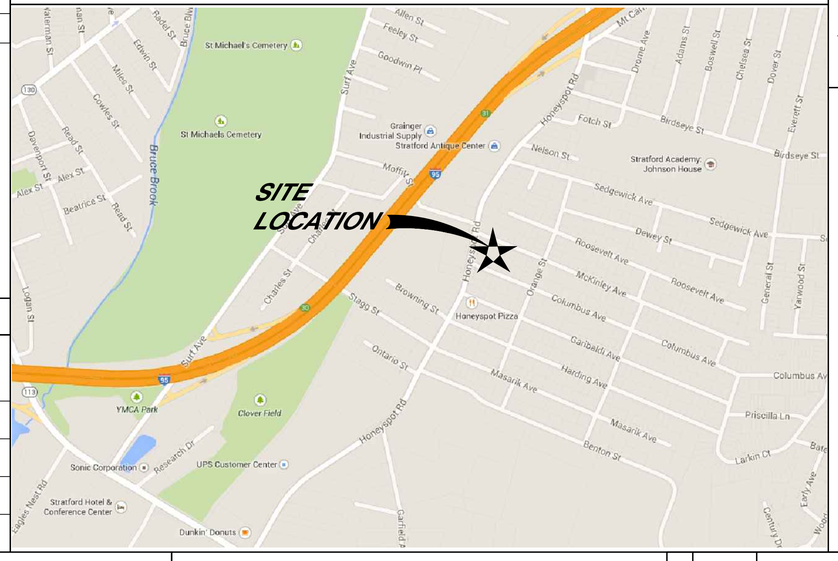
DISCIPLINE:	NAME:	
SITE ACQUISITION:		
CONSTRUCTION MANAGER:		
AT&T PROJECT MANAGER:		

at&t MOBILITY

FA CODE: 10071312
SITE NUMBER: CTU2112
SITE NAME: STRATFORD

VICINITY MAP

HEAD EAST ON COCHITUATE RD TOWARD BURR ST (322 FT), TAKE THE RAMP TO I-90 E/MASSPIKE W/SPRINGFIELD/BOSTON (0.6 MI), KEEP LEFT AT THE FORK, FOLLOW SIGNS FOR INTERSTATE 90 W/MASSACHUSETTS TURNPIKE/WORCHESTER/SPRINGFIELD AND MERGE ONTO I-90 W/MASSACHUSETTS TURNPIKE (0.5 MI), MERGE ONTO I-90 W/MASSACHUSETTS TURNPIKE (37.6 MI), TAKE EXIT 9 FOR I-84 TOWARD US-20/HARTFORD/NEW YORK CITY (0.9 MI), CONTINUE ONTO I-84 (40.9 MI), TAKE EXIT 57 ON THE LEFT FOR CT-15 S TOWARD I-91 S/CHARTER OAK BRIDGE/N Y. CITY (0.5 MI), CONTINUE ONTO CT-15 S (0.5 MI), CONTINUE ONTO CT-15 S/US-5 S (0.8 MI), TAKE EXIT 86 TO MERGE ONTO I-91 S TOWARD NEW HAVEN/NEW YORK CITY (36.6 MI), TAKE THE INTERSTATE 95 S EXIT ON THE LEFT TOWARD N.Y. CITY (0.5 MI), MERGE ONTO I-95 S (14.9 MI), TAKE EXIT 31 FOR SOUTH AVE (0.2 MI), CONTINUE ONTO SPADA BLVD (0.1 MI), TURN LEFT ONTO HONEYSPOT RD (0.4 MI), DESTINATION WILL BE ON THE LEFT.



PROJECT TEAM

CLIENT REPRESENTATIVE
COMPANY: EMPIRE TELECOM
ADDRESS: 16 ESQUIRE ROAD, BILLERICA, MA 01821
CONTACT: DAVID COOPER
PHONE: 617-639-4908
EMAIL: dcooper@empiretelecomm.com

SITE ACQUISITION:
COMPANY: EMPIRE TELECOM
ADDRESS: 16 ESQUIRE ROAD, BILLERICA, MA 01821
CONTACT: DAVID COOPER
PHONE: 617-639-4908
EMAIL: dcooper@empiretelecomm.com

COMPANY: EMPIRE TELECOM
ADDRESS: 16 ESQUIRE ROAD, BILLERICA, MA 01821
CONTACT: DAVID COOPER
PHONE: 617-639-4908
EMAIL: dcooper@empiretelecomm.com

ENGINEERING:
COMPANY: COM-EX CONSULTANTS, LLC
ADDRESS: 115 ROUTE 46, SUITE E39, MOUNTAIN LAKES, NJ 07046
CONTACT: NICHOLAS D. BARILE, P.E.
PHONE: 862-209-4300
EMAIL: nbarile@comexconsultants.com

RF ENGINEER:
COMPANY: AT&T MOBILITY - NEW ENGLAND
ADDRESS: 550 COCHITUATE ROAD, SUITE 550 13 & 14, FRAMINGHAM, MA 01701
CONTACT: CAMERON SYME
PHONE: 508-596-7146
EMAIL: cs6970@att.com

CONSTRUCTION MANAGEMENT:
COMPANY: EMPIRE TELECOM
ADDRESS: 16 ESQUIRE ROAD, BILLERICA, MA 01821
CONTACT: GRZEGORZ "GREG" DORMAN
PHONE: 484-683-1750
EMAIL: gdorman@empiretelecomm.com

GENERAL NOTES

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY, AND COPYRIGHTED WORK OF AT&T. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.
2. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE AT&T REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

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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: CTU2112
SITE NAME: STRATFORD
623 HONEYSPOT ROAD
STRATFORD, CT 06615
FAIRFIELD COUNTY

at&t MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
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0	03/01/16	ISSUED AS FINAL	NJM	NDB	NDB

SCALE: AS SHOWN | DESIGNED BY: NJM | DRAWN BY: TB

SEAL: STATE OF CONNECTICUT — NICHOLAS D. BARILE — 25040 — REGISTERED PROFESSIONAL ENGINEER — PROFESSIONAL ENGINEER — CT LICENSE NO. 25040

AT&T

DRAWING TITLE: TITLE SHEET

JOB NUMBER	DRAWING NUMBER	REV
15180-EMP	T-1	2

GROUNDING NOTES:

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.

2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.

3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS. TESTS SHALL BE PERFORMED IN ACCORDANCE WITH 25471-000-3PS-EG00-0001, DESIGN & TESTING OF FACILITY GROUNDING FOR CELL SITES.

4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.

5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS; 2 AWG STRANDED COPPER FOR OUTDOOR BTS.

6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.

7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.

8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED WITH STAINLESS STEEL HARDWARE TO THE BRIDGE AND THE TOWER GROUND BAR.

9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.

10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.

11. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.

12. GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G., NON-METALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.

13. ALL TOWER GROUNDING SYSTEMS SHALL COMPLY WITH THE REQUIREMENTS OF ANSI/TIA 222. FOR TOWERS BEING BUILT TO REV-G OF THE STANDARD, THE WIRE SIZE OF THE BURIED GROUND RING AND CONNECTIONS BETWEEN THE TOWER AND THE BURIED GROUND RING SHALL BE CHANGED FROM 2 AWG TO 2/0 AWG. IN ADDITION, THE MINIMUM LENGTH OF THE GROUND RODS SHALL BE INCREASED FROM EIGHT FEET (8') TO TEN FEET (10').

14. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE ½" OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID TINNED COPPER GROUND WIRE, PER NEC 250.50.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
   - CONTRACTOR – EMPIRE TELECOM
   - SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   - OWNER – AT&T MOBILITY
   - OEM – ORIGINAL EQUIPMENT MANUFACTURER

2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR (EMPIRE TELECOM).

3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.

5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

6. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

7. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.

8. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR. ROUTING OF TRENCHING SHALL BE APPROVED BY CONTRACTOR

9. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.

10. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OFF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

11. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

12. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

13. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS UNLESS OTHERWISE SPECIFIED. ALL CONCRETING WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.

14. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy=36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCH UP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.

15. CONSTRUCTION SHALL COMPLY WITH SPECIFICATION 25741-000-3APS-A00Z-00002, "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T MOBILITY SITES."

16. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.

17. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK MAY NEED TO BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.

18. SINCE THE CELL SITE MAY BE ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE REQUIRED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

19. SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.
   - INTERNATIONAL BUILDING CODE: IBC 2009 WITH LOCAL & COUNTY AMENDMENTS
   - NATIONAL ELECTRICAL CODE: NEC 2011 WITH LOCAL & COUNTY AMENDMENTS
   - FIRE/LIFE SAFETY CODE: NFPA-101 2009 WITH LOCAL & COUNTY AMENDMENTS

20. SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:
   - AMERICAN CONCRETE INSTITUTE (ACI) 318, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
   - AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC), MANUAL OF STEEL CONSTRUCTION, THIRTEENTH EDITION
   - AMERICAN SOCIETY OF TESTING OF MATERIALS, ASTM
   - TELECOMMUNICATIONS INDUSTRY ASSOCIATION (ANSI/TIA-222-G-1), STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES:
   - TIA 607, COMMERCIAL BUILDING GROUNDING AND BONDING REQUIREMENTS FOR TELECOMMUNICATIONS
   - OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION, OSHA
   - INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE) 81, GUIDE FOR MEASURING EARTH RESISTIVELY, GROUND IMPEDANCE, AND EARTH SURFACE POTENTIALS OF A GROUND SYSTEM IEEE 1100 (1999) RECOMMENDED PRACTICE FOR POWERING AND GROUNDING OF ELECTRONIC EQUIPMENT
   - TELCORDIA GR-1503, COAXIAL CABLE CONNECTIONS

21. FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

22. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES AND EXISTING CONDITIONS AT THE SITE PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA AND SUBMIT TO THE ENGINEER ANY DISCREPANCIES FROM THE DRAWINGS.

23. INFORMATION SHOWN ON THIS SET OF PLANS TAKEN FROM DRAWINGS PREPARED BY HUDSON DESIGN GROUP, LLC FOR A RECENT UPGRADE DATED 04/18/11. CONTRACTOR TO NOTIFY DESIGN ENGINEER OF ANY DISCREPANCIES PRIOR TO COMMENCEMENT OF CONSTRUCTION.

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: CTU2112
SITE NAME: STRATFORD

623 HONEYSPOT ROAD
STRATFORD, CT 06615
FAIRFIELD COUNTY

at&t MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
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0	03/01/16	ISSUED AS FINAL	NJM	NDB	NDB

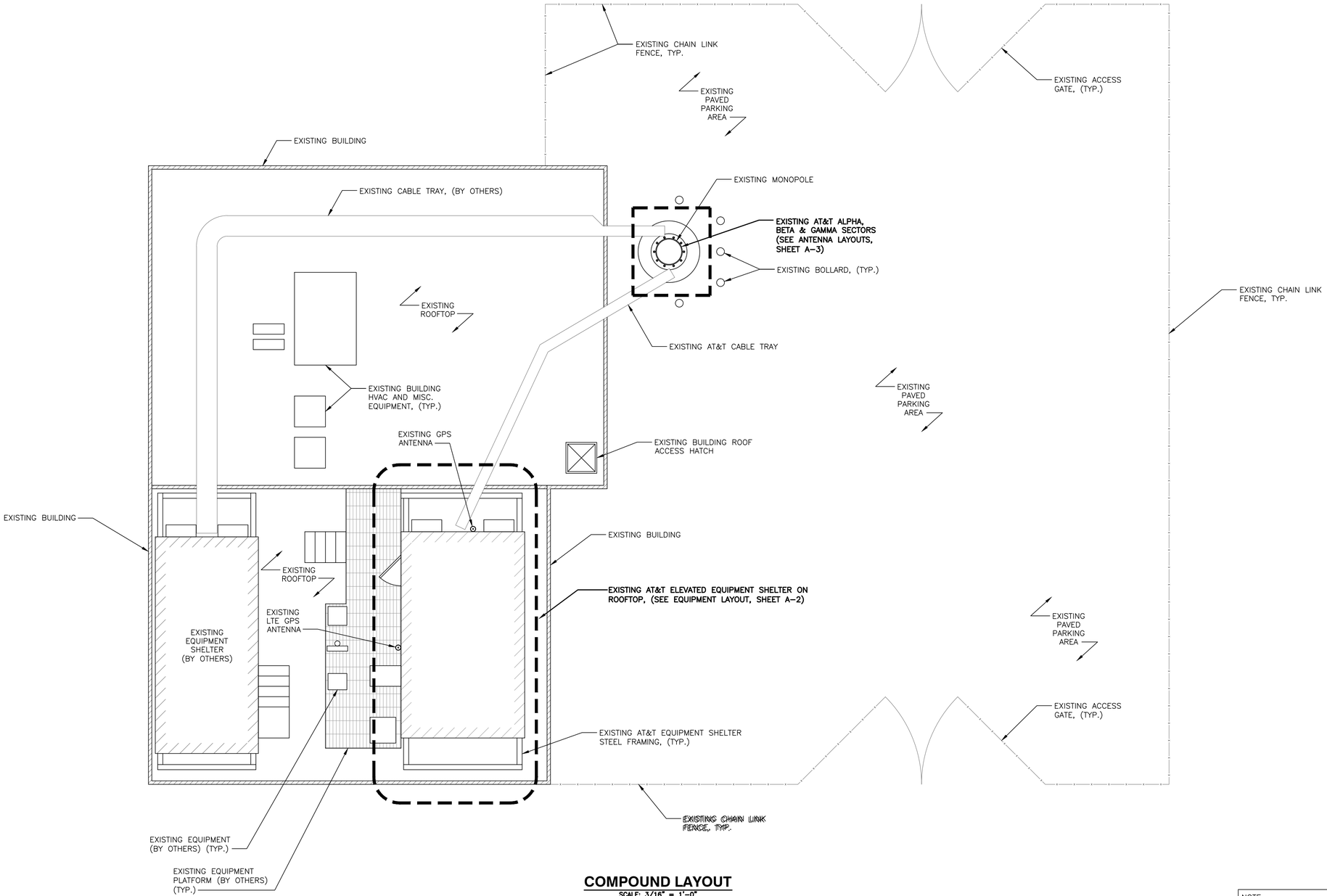
SCALE: AS SHOWN | DESIGNED BY: NJM | DRAWN BY: TB

SEAL:
STATE OF CONNECTICUT
DOUGLAS G. BALL
0023643
REGISTERED
PROFESSIONAL ENGINEER
PROFESSIONAL ENGINEER
CT LICENSE NO. 23643

AT&T

DRAWING TITLE:
GROUNDING & GENERAL NOTES

JOB NUMBER	DRAWING NUMBER	REV
15180-EMP	GN-1	2



COMPOUND LAYOUT

SCALE: 3/16" = 1'-0"

0 2'-8" 5'-4" 10'-8"

GRAPHIC SCALE: 3/16"=1'-0"

NORTH

NOTE:
CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES, AND EXISTING CONDITIONS AT THE SITE PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA AND SUBMIT TO THE ENGINEER ANY DISCREPANCIES FROM THE DRAWINGS.

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115 ROUTE 46
SUITE E39
MOUNTAIN LAKES, NJ 07046
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FAX: 862.209.4301

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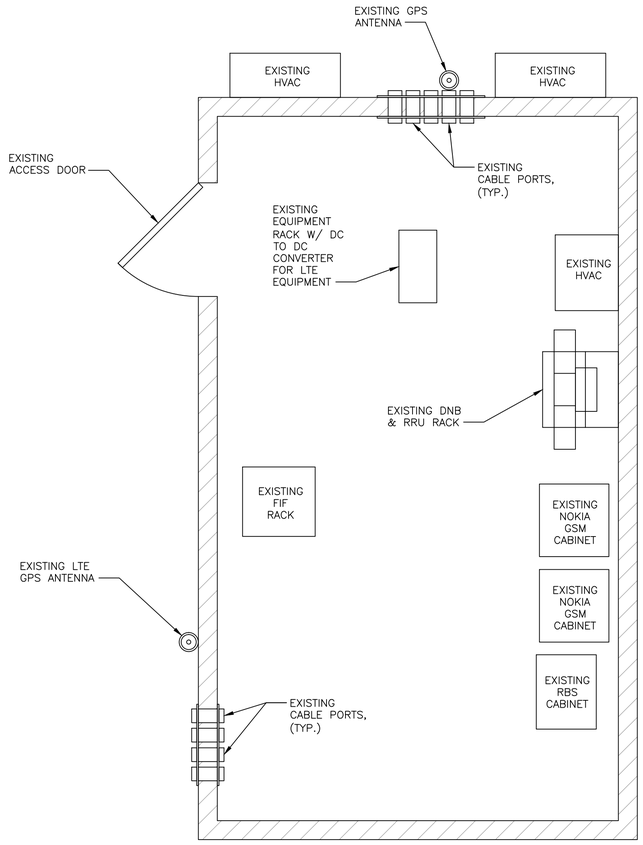
SCALE: AS SHOWN | DESIGNED BY: NJM | DRAWN BY: TB

SEAL:
STATE OF CONNECTICUT
DOUGLAS D. BAKER
No. 20643
REGISTERED PROFESSIONAL ENGINEER
PROFESSIONAL ENGINEER
CT 20643

AT&T

DRAWING TITLE:
COMPOUND LAYOUT

JOB NUMBER	DRAWING NUMBER	REV
15180-EMP	A-1	2



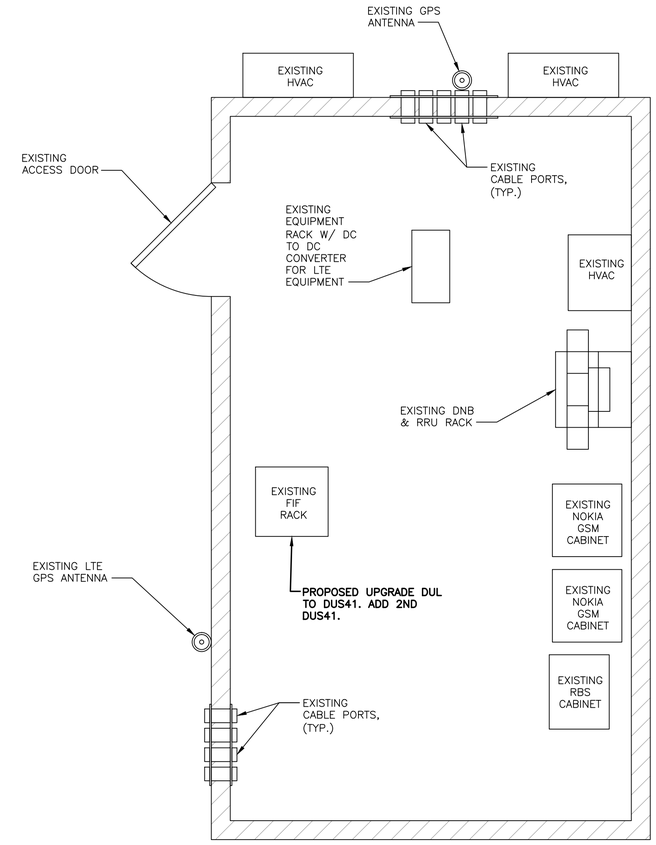
NORTH

EXISTING EQUIPMENT LAYOUT

SCALE: 1" = 2'-0"

2 0 1 2 4 8

(IN FEET)
1/2 Inch = 1 Foot



NORTH

PROPOSED EQUIPMENT LAYOUT

SCALE: 1" = 2'-0"

2 0 1 2 4 8

(IN FEET)
1/2 Inch = 1 Foot

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SUITE E39
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FAX: 862.209.4301

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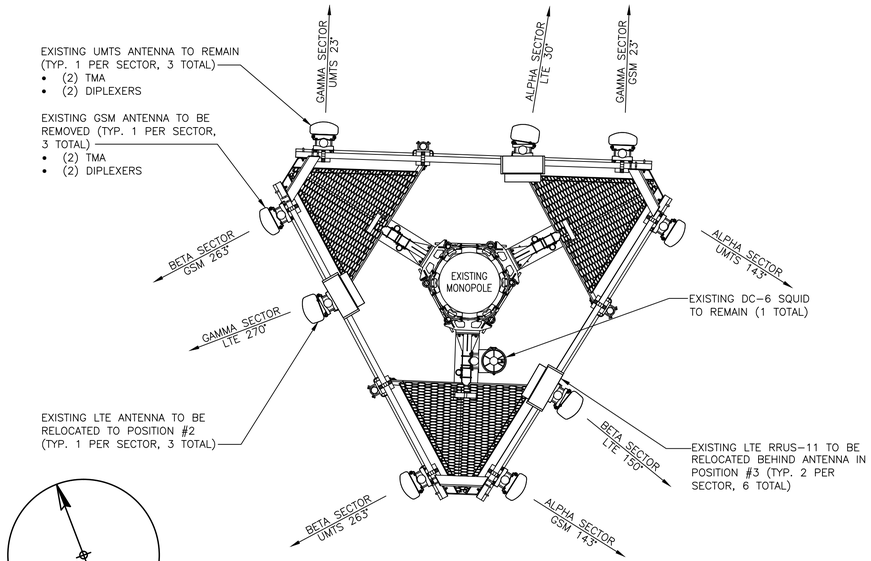
SEAL:
STATE OF CONNECTICUT
NICHOLAS D. BARTOLOMEO
PROFESSIONAL ENGINEER
CT LICENSE NO. 28643

AT&T

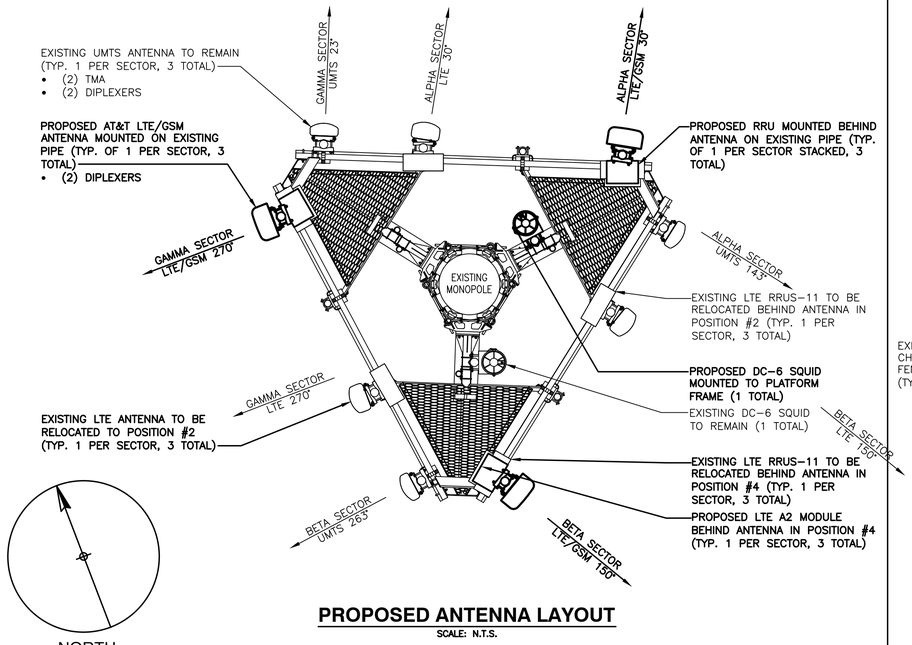
DRAWING TITLE:
EQUIPMENT LAYOUT

JOB NUMBER	DRAWING NUMBER	REV
15180-EMP	A-2	2



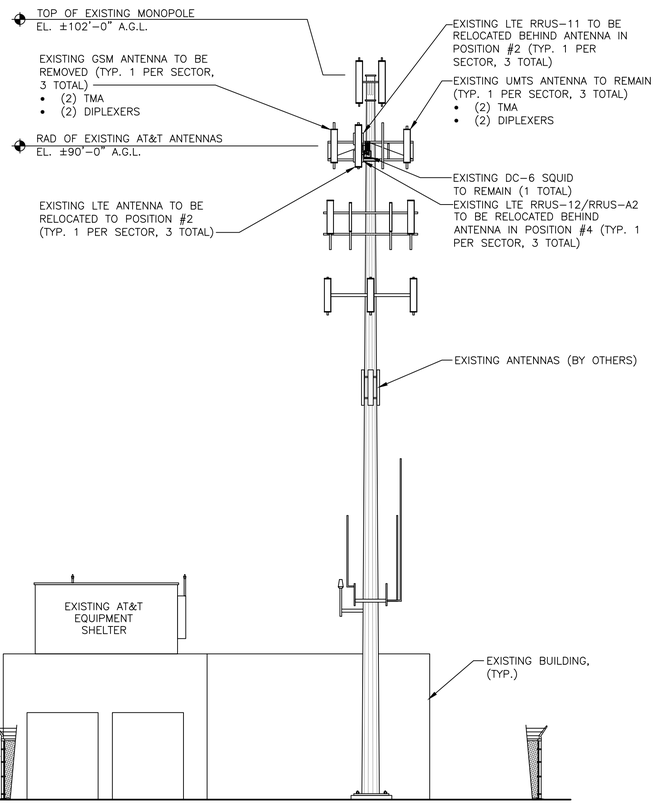
EXISTING ANTENNA LAYOUT

SCALE: N.T.S.



PROPOSED ANTENNA LAYOUT

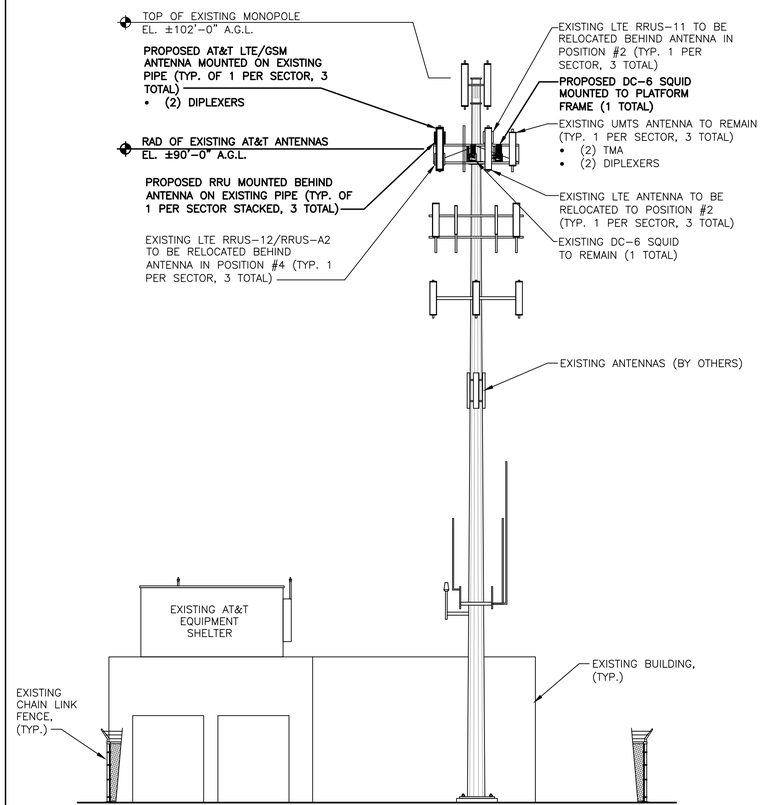
SCALE: N.T.S.



EXISTING TOWER ELEVATION

SCALE: NTS

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.



PROPOSED TOWER ELEVATION

SCALE: NTS

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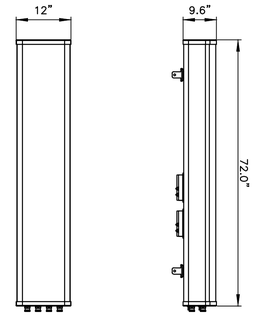
SCALE: AS SHOWN | DESIGNED BY: NJM | DRAWN BY: TB

SEAL:

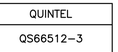
AT&T

DRAWING TITLE:
ANTENNA LAYOUTS & ELEVATIONS

JOB NUMBER	DRAWING NUMBER	REV
15180-EMP	A-3	2



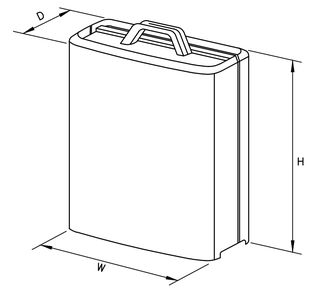
FRONT VIEW SIDE VIEW



BOTTOM VIEW

MANUFACTURER	QUINTEL
MODEL	QS66512-3
WEIGHT	105.0 LBS

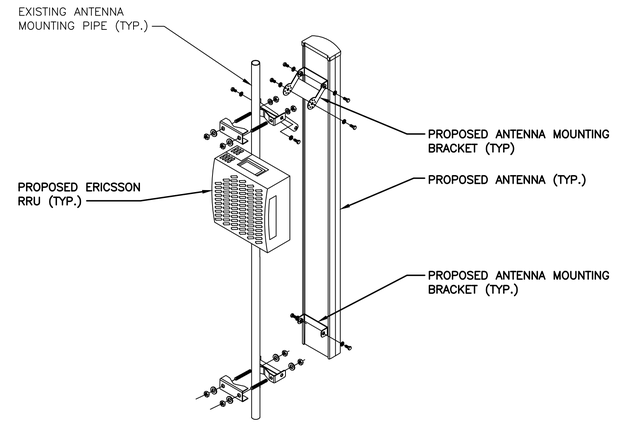
LTE ANTENNA DETAIL
SCALE: N.T.S.



MODEL	L x W x H	WEIGHT
*A2 MODULE	16.4" x 15.2" x 3.4"	22 LBS
*RRUS-12	20.4" x 18.5" x 7.5"	58 LBS
*RRUS-11	19.69" x 16.97" x 7.17"	50.7 LBS
RRUS-32	29.9"x13.3"x9.5"	77 LBS

*DENOTES EXISTING.

RRUS DETAIL
SCALE: N.T.S.



ANTENNA AND RRU MOUNTING DETAIL
SCALE: N.T.S.

EXISTING ANTENNA SCHEDULE

SECTOR	POSITION	MAKE	MODEL	SIZE (INCHES)
ALPHA	A1	POWERWAVE	7770.00.850.00	55"x11"x5"
	A2	–	–	–
	A3	KMW	AM-X-CD-16-65-00T-RET	72"x11.8"x5.9"
	A4	POWERWAVE	7770.00.850.00	55"x11"x5"
BETA	B1	POWERWAVE	7770.00.850.00	55"x11"x5"
	B2	–	–	–
	B3	KMW	AM-X-CD-16-65-00T-RET	72"x11.8"x5.9"
	B4	POWERWAVE	7770.00.850.00	55"x11"x5"
GAMMA	G1	POWERWAVE	7770.00.850.00	55"x11"x5"
	G2	–	–	–
	G3	KMW	AM-X-CD-16-65-00T-RET	72"x11.8"x5.9"
	G4	POWERWAVE	7770.00.850.00	55"x11"x5"

FINAL ANTENNA SCHEDULE

SECTOR	POSITION	MAKE	MODEL	SIZE (INCHES)
ALPHA	A1	POWERWAVE	7770.00.850.00	55"x11"x5"
	A2	KMW	AM-X-CD-16-65-00T-RET	72"x11.8"x5.9"
	A3	–	–	–
	A4	**QUINTEL**	**QS66512-3**	**72"x12"x9.6**
BETA	B1	POWERWAVE	7770.00.850.00	55"x11"x5"
	B2	KMW	AM-X-CD-16-65-00T-RET	72"x11.8"x5.9"
	B3	–	–	–
	B4	**QUINTEL**	**QS66512-3**	**72"x12"x9.6**
GAMMA	G1	POWERWAVE	7770.00.850.00	55"x11"x5"
	G2	KMW	AM-X-CD-16-65-00T-RET	72"x11.8"x5.9"
	G3	–	–	–
	G4	**QUINTEL**	**QS66512-3**	**72"x12"x9.6**

PROPOSED RRU SCHEDULE

SECTOR	MAKE	MODEL	SIZE (INCHES)	ADDITIONAL COMPONENT	SIZE (INCHES)
ALPHA	**ERICSSON**	**RRUS-32**	**29.9"x13.3"x9.5"**	–	–
	ERICSSON	RRUS-11 (EXISTING)	19.7"x16.9"x7.2"	**ERICSSON A2 MODULE**	**16.4"X15.2"X3.4"**
	ERICSSON	RRUS-11 (EXISTING)	19.7"x16.9"x7.2"		
BETA	**ERICSSON**	**RRUS-32**	**29.9"x13.3"x9.5"**	–	–
	ERICSSON	RRUS-11 (EXISTING)	20.4"x18.5"x9.5"	**ERICSSON A2 MODULE**	**16.4"X15.2"X3.4"**
	ERICSSON	RRUS-11 (EXISTING)	19.7"x16.9"x7.2"		
GAMMA	**ERICSSON**	**RRUS-32**	**29.9"x13.3"x9.5"**	–	–
	ERICSSON	RRUS-11 (EXISTING)	19.7"x16.9"x7.2"	**ERICSSON A2 MODULE**	**16.4"x15.2"x3.4"**
	ERICSSON	RRUS-11 (EXISTING)	19.7"x16.9"x7.2"		

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.

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: CTU2112
SITE NAME: STRATFORD

623 HONEYSPOT ROAD
STRATFORD, CT 06615
FAIRFIELD COUNTY

at&t MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
2	03/17/16	REVISED PER CLIENT COMMENTS	NJM	NDB	NDB
1	03/03/16	REVISED PER RFDS	NJM	NDB	NDB
0	03/01/16	ISSUED AS FINAL	NJM	NDB	NDB

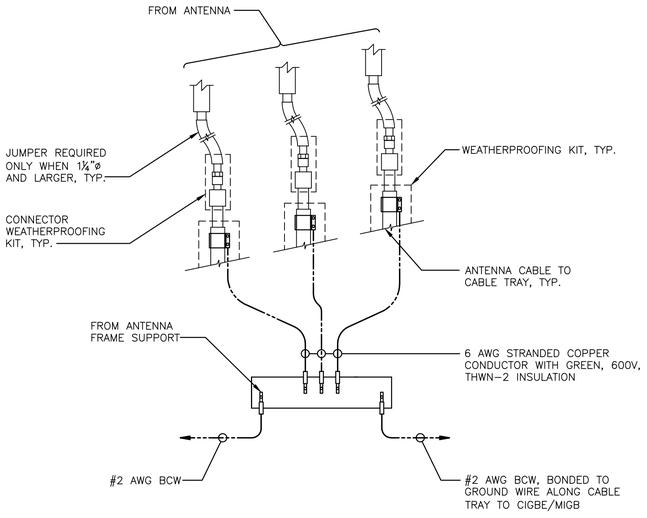
SCALE: AS SHOWN | DESIGNED BY: NJM | DRAWN BY: TB

SEAL:
STATE OF CONNECTICUT
NICHOLAS D. BALLER
LICENSED PROFESSIONAL ENGINEER
PROFESSIONAL ENGINEER
CT 28643

AT&T

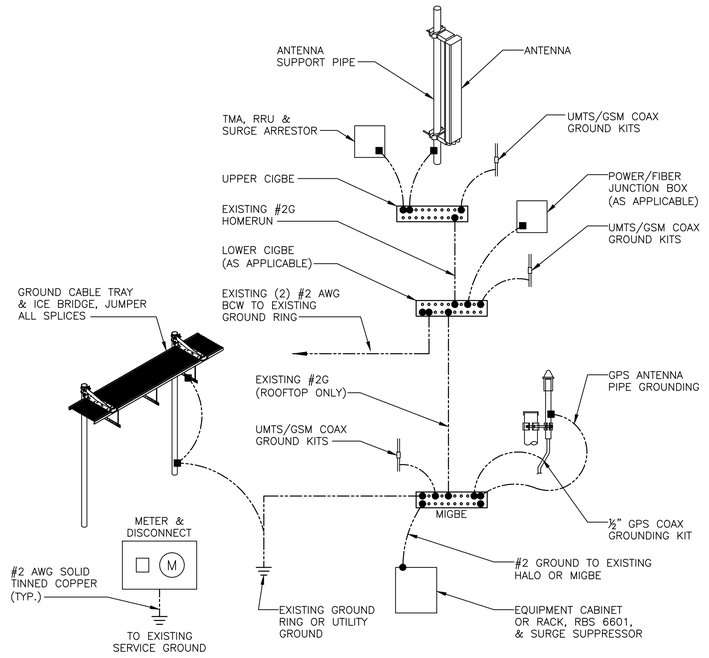
DRAWING TITLE:
DETAILS

JOB NUMBER	DRAWING NUMBER	REV
15180-EMP	A-4	2



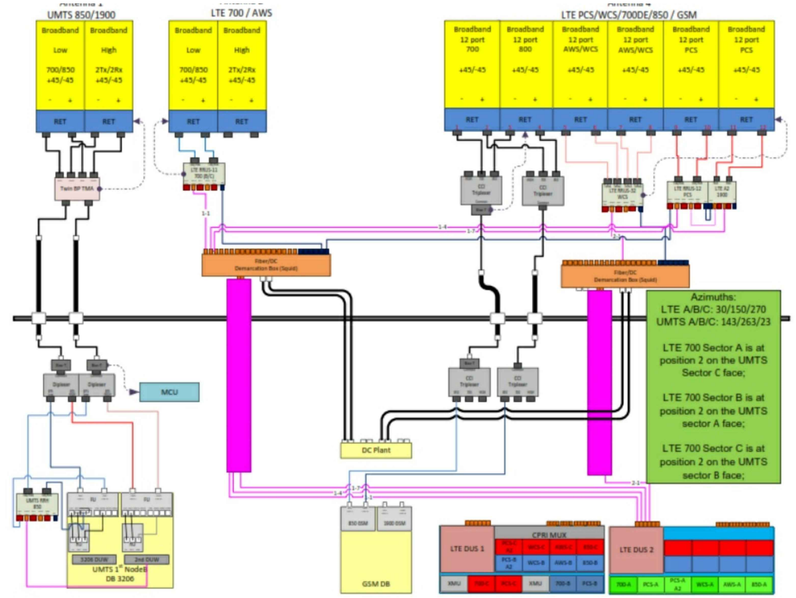
GROUND WIRE TO GROUND BAR CONNECTION DETAIL

SCALE: N.T.S.



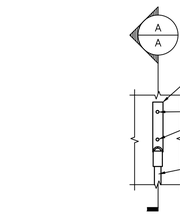
GROUNDING RISER DIAGRAM

SCALE: N.T.S.

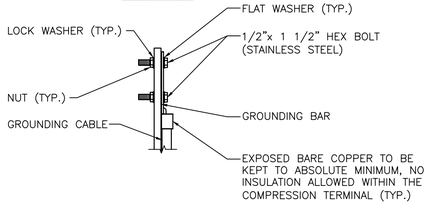


TYPICAL PLUMBING DIAGRAM (PER SECTOR)

SCALE: N.T.S.



ELEVATION



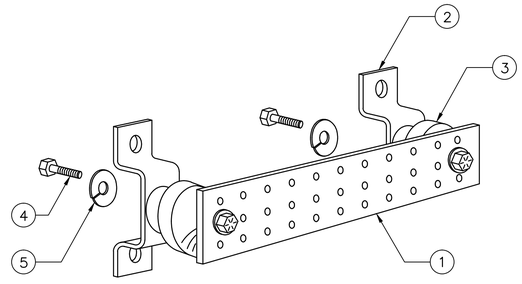
SECTION "A–A"

NOTE:

1. "DOUBLING UP" OR "STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB.

TYPICAL GROUND BAR CONNECTION DETAIL

SCALE: N.T.S.



ITEM NO.	QTY.	DESCRIPTION
1	1	SOLID GROUND BAR (20"x 4"x ¼")
2	2	WALL MOUNTING BRACKET
3	2	INSULATORS
4	4	⅝"–11x1" H.H.C.S.
5	4	⅝" LOCK WASHER

NOTES:

EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION

SECTION "P" – SURGE PRODUCERS
- CABLE ENTRY PORTS (HATCH PLATES) (#2)
- GENERATOR FRAMEWORK (IF AVAILABLE) (#2)
- TELCO GROUND BAR
- COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2)
- +24V POWER SUPPLY RETURN BAR (#2)
- –48V POWER SUPPLY RETURN BAR (#2)
- RECTIFIER FRAMES

SECTION "A" – SURGE ABSORBERS
- INTERIOR GROUND RING (#2)
- EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2)
- METALLIC COLD WATER PIPE (IF AVAILABLE) (#2)
- BUILDING STEEL (IF AVAILABLE) (#2)

GROUND BAR DETAIL

SCALE: N.T.S.

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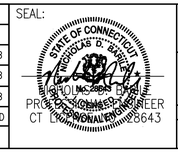
SCALE: AS SHOWN | DESIGNED BY: NJM | DRAWN BY: TB

SEAL:



AT&T

DRAWING TITLE:
GROUNDING, ONE–LINE DIAGRAM & DETAILS

JOB NUMBER	DRAWING NUMBER	REV
15180–EMP	G–1	2