February 7, 2023

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

Re: Notice of Exempt Modification New Cingular Wireless PCS LLC ("AT&T") Site CT5206
135 New Road, Madison, CT 06443 (the "Property")
Latitude: 41.293092 N Longitude: 72.578399 W

Dear Ms. Bachman:

AT&T currently maintains (6) antennas at the 77' level on the existing 180' guyed lattice tower ("Tower") located at 135 New Road, Madison, CT. The tower and property are owned by Connecticut Light & Power, d/b/a Eversource ("Eversource"). AT&T intends to modify its facility by replacing the (6) antennas with (3) SBNHH-1D65A & (3) DMP65R-BU4DA antennas at the 77' level of the tower. AT&T also intends on replacing (3) remote radio units, ("RRUs") with (3) 4449 B5/B12 & (3) 8843 B2/B66A RRUs. The height of AT&Ts existing & proposed antennas and RRUs is 77.'

This modification may include B2, B5, B17, B14, B29, B30, B66 & n77 hardware that is 4G(LTE) and/or 5GNR capable through remote software configuration and either or both services may be turned on or off at various times.

The Town of Madison cannot locate a copy of the original approval-see attached email. The AT&T Facility was approved by the CT Siting Council ("Council") under EM-AT&T-076-020927 on October 7, 2002. AT&Ts modification complies with the above-mentioned approval.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies ("R.C.S.A") §16-50j-73 for construction that constitutes an exempt modification pursuant to R.C.S.A §16-50j-72(b)(2). In accordance with to R.C.S.A §16-50j-73, a copy of this letter is being sent to Hon. Peggy Lyons, First Selectwoman, Town of Madison, Ms. Erin Mannix, Town Planner, Town of Madison, and Eversource, the tower & property owner.

The planned modification of the facility falls squarely within those activities explicitly provided for in R.C.S.A §16-50j-72(b)(2). Specifically:

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

2. The proposed modifications will not require an extension of the site boundary.

3. The proposed modification 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 modified facility 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 foundation can support the proposed loading.

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

Sincerely,

Hollis M. Redding

Hollis M. Redding
SAI Communications, LLC
12 Industrial Way
Salem, NH 03079
Mobile: 860-834-6964
hredding@saigrp.com

Enclosures

Cc:
Hon. Peggy Lyons, First Selectwoman, Town of Madison
Ms. Erin Mannix, Town Planer, Town of Madison
Connecticut Light & Power, the tower & property owner

SAI Group
12 Industrial Way
Salem, NH 03079
(603) 421-0470
www.saigrp.com

Radio Frequency Exposure Theoretical Study

Prepared For:

AT&T Mobility

Site Name:	Madison East
FA#:	10071098
Site ID:	CTL05206
Address:	135 New Road, Madison, CT 06443

Prepared by: **SAI Group**
12 Industrial Way
Salem, NH 03079
(603) 421-0470

Date of Report: February 02, 2023

Statement of Compliance

AT&T's proposed antenna installation along with other existing antennas is calculated to be within *2.28%* of FCC Standard for General Public/Uncontrolled Maximum Permissible Exposure (MPE).

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1 General Summary

SAI Group was contracted by AT&T Mobility to conduct a Radio Frequency (RF) Analysis for a wireless facility located at 135 New Road, Madison, CT to determine whether the radio facility is in compliance with Federal Communications Commission (FCC) regulations and standards regarding RF exposure.

RF exposure is calculated in accordance with FCC's suggested prediction methods.

2 Site Compliance Summary

Compliance Summary (General Public Limit)	
Site Compliance	Yes
Maximum Calculated %MPE at 0-6' Ground Level (Cumulative)	2.28% at about 457ft South-East from the tower.

3 RF Design Specifications

Table below shows the technical data used for the calculation of cumulative %MPE results.

Ant ID	Operator	Antenna Make	Antenna Model	Type	TX Freq (MHz)	Az (Deg)	Ant Gain (dBd)	Total ERP (Watts)	Z Rad Center (ft)
1	AT&T	COMMSCOPE	SBNHH-1D65A	Panel	1900	0	14.84	2438	77
1	AT&T	COMMSCOPE	SBNHH-1D65A	Panel	1900	0	14.84	2438	77
2	AT&T	CCI	DMP65R-BU4DA	Panel	850	0	10.25	1000	77
2	AT&T	CCI	DMP65R-BU4DA	Panel	2130	0	14.15	4160	77
2	AT&T	CCI	DMP65R-BU4DA	Panel	750	0	9.95	791	77
3	AT&T	COMMSCOPE	SBNHH-1D65A	Panel	1900	120	14.8	2416	77
3	AT&T	COMMSCOPE	SBNHH-1D65A	Panel	1900	120	14.8	2416	77
4	AT&T	CCI	DMP65R-BU4DA	Panel	850	120	10.25	1000	77
4	AT&T	CCI	DMP65R-BU4DA	Panel	2130	120	14.25	4257	77
4	AT&T	CCI	DMP65R-BU4DA	Panel	750	120	9.95	791	77
5	AT&T	COMMSCOPE	SBNHH-1D65A	Panel	1900	240	14.8	2416	77
5	AT&T	COMMSCOPE	SBNHH-1D65A	Panel	1900	240	14.8	2416	77
6	AT&T	CCI	DMP65R-BU4DA	Panel	850	240	10.25	1000	77
6	AT&T	CCI	DMP65R-BU4DA	Panel	2130	240	14.25	4257	77
6	AT&T	CCI	DMP65R-BU4DA	Panel	750	240	9.95	791	77
7	T-Mobile	RFS	APXVAALL24_43-U-NA20	Panel	600	0	12.95	2367	159
7	T-Mobile	RFS	APXVAALL24_43-U-NA20	Panel	600	0	12.95	2367	159
7	T-Mobile	RFS	APXVAALL24_43-U-NA20	Panel	700	0	13.65	3708	159
7	T-Mobile	RFS	APXVAALL24_43-U-NA20	Panel	2100	0	16.45	3533	159
7	T-Mobile	RFS	APXVAALL24_43-U-NA20	Panel	1900	0	15.45	2806	159
7	T-Mobile	RFS	APXVAALL24_43-U-NA20	Panel	1900	0	15.45	2806	159
7	T-Mobile	RFS	APXVAALL24_43-U-NA20	Panel	2100	0	16.45	3533	159
8	T-Mobile	ERICSSON	AIR6419 B41	Panel	2500	0	22.05	19239	159
8	T-Mobile	ERICSSON	AIR6419 B41	Panel	2500	0	22.05	19239	159
9	T-Mobile	RFS	APXVAALL24_43-U-NA20	Panel	600	120	12.95	2367	159
9	T-Mobile	RFS	APXVAALL24_43-U-NA20	Panel	600	120	12.95	2367	159
9	T-Mobile	RFS	APXVAALL24_43-U-NA20	Panel	700	120	13.65	3708	159
9	T-Mobile	RFS	APXVAALL24_43-U-NA20	Panel	2100	120	16.45	3533	159
9	T-Mobile	RFS	APXVAALL24_43-U-NA20	Panel	1900	120	15.45	2806	159
9	T-Mobile	RFS	APXVAALL24_43-U-NA20	Panel	1900	120	15.45	2806	159
9	T-Mobile	RFS	APXVAALL24_43-U-NA20	Panel	2100	120	16.45	3533	159
10	T-Mobile	ERICSSON	AIR6419 B41	Panel	2500	120	22.05	19239	159
10	T-Mobile	ERICSSON	AIR6419 B41	Panel	2500	120	22.05	19239	159
11	T-Mobile	RFS	APXVAALL24_43-U-NA20	Panel	600	240	12.95	2367	159
11	T-Mobile	RFS	APXVAALL24_43-U-NA20	Panel	600	240	12.95	2367	159
11	T-Mobile	RFS	APXVAALL24_43-U-NA20	Panel	700	240	13.65	3708	159
11	T-Mobile	RFS	APXVAALL24_43-U-NA20	Panel	2100	240	16.45	3533	159
11	T-Mobile	RFS	APXVAALL24_43-U-NA20	Panel	1900	240	15.45	2806	159
11	T-Mobile	RFS	APXVAALL24_43-U-NA20	Panel	1900	240	15.45	2806	159
11	T-Mobile	RFS	APXVAALL24_43-U-NA20	Panel	2100	240	16.45	3533	159
12	T-Mobile	ERICSSON	AIR6419 B41	Panel	2500	240	22.05	19239	159
12	T-Mobile	ERICSSON	AIR6419 B41	Panel	2500	240	22.05	19239	159
13	SPRINT	RFS	APXVSPP18-C-A20	Panel	1900	0	15.85	1731	126
13	SPRINT	RFS	APXVSPP18-C-A20	Panel	1900	0	15.85	1731	126
13	SPRINT	RFS	APXVSPP18-C-A20	Panel	1900	0	15.85	1731	126
13	SPRINT	RFS	APXVSPP18-C-A20	Panel	1900	0	15.85	1731	126

13	SPRINT	RFS	APXVSPP18-C-A20	Panel	850	0	13.35	1081	126
13	SPRINT	RFS	APXVSPP18-C-A20	Panel	850	0	13.35	1081	126
14	SPRINT	RFS	APXVSPP18-C-A20	Panel	1900	120	15.85	1731	126
14	SPRINT	RFS	APXVSPP18-C-A20	Panel	1900	120	15.85	1731	126
14	SPRINT	RFS	APXVSPP18-C-A20	Panel	1900	120	15.85	1731	126
14	SPRINT	RFS	APXVSPP18-C-A20	Panel	1900	120	15.85	1731	126
14	SPRINT	RFS	APXVSPP18-C-A20	Panel	850	120	13.35	1081	126
14	SPRINT	RFS	APXVSPP18-C-A20	Panel	850	120	13.35	1081	126
15	SPRINT	RFS	APXVSPP18-C-A20	Panel	1900	240	15.85	1731	126
15	SPRINT	RFS	APXVSPP18-C-A20	Panel	1900	240	15.85	1731	126
15	SPRINT	RFS	APXVSPP18-C-A20	Panel	1900	240	15.85	1731	126
15	SPRINT	RFS	APXVSPP18-C-A20	Panel	1900	240	15.85	1731	126
15	SPRINT	RFS	APXVSPP18-C-A20	Panel	850	240	13.35	973	126
15	SPRINT	RFS	APXVSPP18-C-A20	Panel	850	240	13.35	1081	126
16	EVERSOURCE	dbSpectra	DS2C03F36D	Omni	160	0	3	239	177
17	EVERSOURCE	GENERIC	OMNI 20FT	Omni	450	0	12	251	180
18	EVERSOURCE	GENERIC	OMNI 20FT	Omni	450	0	12	251	180
19	EVERSOURCE	GENERIC	OMNI 14FT	Omni	850	0	10	100	180
20	EVERSOURCE	GENERIC	MICROWAVE 8FT	Dish	10000	0	41.35	546	175
21	EVERSOURCE	GENERIC	OMNI 20FT	Omni	450	0	12	991	147
22	EVERSOURCE	GENERIC	OMNI 2FT	Omni	2400	0	2.85	193	143
23	EVERSOURCE	GENERIC	OMNI 2FT	Omni	2400	0	2.85	193	141

NOTE: The Z value indicates the distance of radiation center of the antenna height above the ground site level unless otherwise indicated. Effective Radiated Power (ERP) is provided by the operator or calculated based on SAI Group experience. SAI Group has assumed transmission parameters for “Unknown” RF emitters based on either similar installations found at other radio communications sites or from the latest data available for the site. “Generic” antenna models have been used where existing antenna part numbers or radiation patterns are not available. The frequencies presented in this table may have been assumed in order to represent the approximate band of operation and to support a worst-case calculation of power density

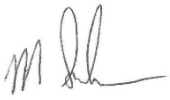
4 Conclusion

I certify to the best of my knowledge that the statements contained in this report are true and accurate. The theoretical computations contained are based on FCC recommended methods, with industry standard assumptions & formulas, and complies with FCC mandated Maximum Permissible RF Exposure requirements.

A comprehensive field survey was not performed prior to the generation of this report. If questions arise regarding the calculations herein, SAI Group recommends that a comprehensive field survey be performed to resolve any disputes.

Sanket Joshi
RF Engineer
SAI Group

February 02, 2023
Date



Matthew Smelcer
RF Engineering Manager

February 02, 2023
Date

Appendix A – FCC Rules and Regulations

In 1996, the Federal Communication Commission (FCC) adopted procedures and guidelines for evaluating of the effects of RF exposure. This guideline from the FCC Office of Engineering and Technology is Bulletin 65 ("OET Bulletin 65"), *Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields*, Edition 97-01, published August 1997. Since 1996 the FCC periodically reviews these rules and regulations as per their congressional mandate.

Maximum Permissible Exposure (MPE) limits utilized in this analysis are outlined in the following Tables and diagram:

Table 1. MPE Limits for General Population/ Uncontrolled Exposure

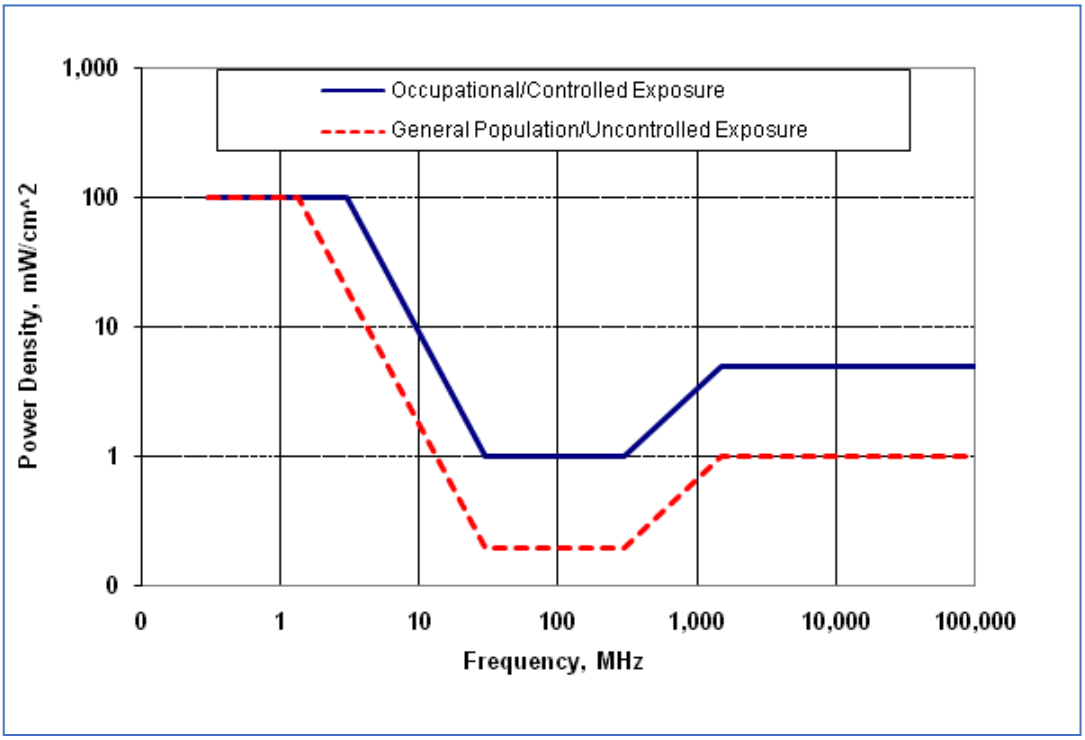
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Averaging Time for $\|E\|^2$, $\|H\|^2$, or S (Minutes)
0.3 – 1.34	614	1.63	(100)*	30
1.34 -30	824/f	2.19/f	$(180/f^2)$*	30
30 – 300	27.5	0.073	0.2	30
300 – 1500	--	--	f/1500	30
1500– 100,000	--	--	1.0	30
f = frequency in MHz		* = Plane wave equivalent power density		

General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can't exercise control over their exposure. A site is evaluated with General Public limits if there is no access controls or no RF warning signage present.

Table 2. MPE Limits for Occupational/Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Averaging Time for $\|E\|^2$, $\|H\|^2$, or S (Minutes)
0.3 – 3.0	614	1.63	(100)*	6
3.0 – 30	1842/f	4.89/f	$(900/f^2)$*	6
30 – 300	61.4	0.163	1.0	6
300 – 1500	--	--	f/300	6
1500– 100,000	--	--	5.0	6
f = frequency in MHz		* = Plane wave equivalent power density		

Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where such occupational/controlled limits apply provided he or she is made aware of the potential for exposure. Typical criteria to remediate controlled environment are restricted access to the areas where antennas are located along with appropriate RF warning signage. A site with Controlled environment is evaluated with Occupational limits.



Maximum Permissible Exposures. Occupational/Controlled and General Population/Uncontrolled MPE's are functions of frequency.

Appendix B – Calculations Methodology and Assumptions

SAI Group has performed theoretical analysis using Waterford Consultants' RoofMaster™ 2020 Version 30.5.26.2022 which uses a cylindrical model for very conservative power density calculations within the near field of the antenna where the antenna pattern has not truly formed yet. The Cylindrical Model is used to determine the spatially averaged power density in the near field directly in front of an antenna. In order to implement this model in all directions, the calculations utilize the antenna manufacturer horizontal pattern data. Additionally, the model also incorporates factors that reduce the power density by inverse square of horizontal and vertical distances beyond the near field region.

RoofMaster™ uses far field model to calculate the spatial peak power density. The RoofMaster™ implementation of this model incorporated manufacturer's horizontal and vertical pattern data to determine the power density in all directions.

The calculations are based on worst-case assumptions that, all antennas are always operating at full power.

The site has been modeled with these assumptions to show the maximum RF energy density. Areas modeled with exposure greater than 100% of the General Public MPE level may not actually occur, but are shown as a prediction that could be realized.

Appendix C – Informative References

The following references can be followed for further information about RF Health and Safety.

FCC Radio Frequency Safety
http://www.fcc.gov/encyclopedia/radio-frequency-safety

FCC OET Bulletin 56
https://transition.fcc.gov/Bureaus/Engineering_Technology/Documents/bulletins/oet56/oet56e4.pdf

FCC OET Bulletin 65
https://transition.fcc.gov/Bureaus/Engineering_Technology/Documents/bulletins/oet65/oet65.pdf

National Council on Radiation Protection and Measurements (NCRP)
http://www.ncrponline.org

American National Standards Institute (ANSI)
http://www.ansi.org

Environmental Protection Agency (EPA)
https://www3.epa.gov/radtown/wireless-technology.html

National Institutes of Health (NIH)
http://www.niehs.nih.gov/health/topics/agents/emf/

Occupational Safety and Health Agency (OSHA)
http://www.osha.gov/SLTC/radiofrequencyradiation/

International Commission on Non-Ionizing Radiation Protection (ICNIRP)
http://www.icnirp.org/

PROJECT INFORMATION

SCOPE OF WORK:

ITEMS TO BE MOUNTED ON THE EXISTING GUYED TOWER:
- NEW AT&T ANTENNAS: SBNHH-1D65A (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T ANTENNAS: DMP65R-BU4DA (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T RRUS: B5/B12 4449 (850/700) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T RRUS: B2/B66A 8843 (PCS/AWS) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- ADD (6) Y-CABLES.

ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION:
- REPLACE DUS WITH 5216.
- ADD XMU.
- ADD RBS 6630.
- ADD IDLe.
- INSTALL NETSURE 5100 OD W/FLEX (TO REPLACE EXISTING).

ITEMS TO BE REMOVED:
- EXISTING AT&T ANTENNAS: 7770 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T ANTENNAS: AM-X-CD-14-65-00T-RET (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T RRUS: RRUS-11 B12 (700) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING (6) COAX CABLES.
- RIP POWER PLANT.

ITEMS TO REMAIN:
- (1) SURGE ARRESTOR. (2) AWG6 DC POWER & (1) 12-PAIR FIBER.

SITE ADDRESS:	135 NEW ROAD MADISON, CT 06443
LATITUDE:	41.293091° N, 41° 17' 35.13" N
LONGITUDE:	72.578398° W, 72° 34' 42.23" W
TYPE OF SITE:	GUYED TOWER / OUTDOOR
STRUCTURE HEIGHT:	180'-0"±
RAD CENTER:	77'-0"±
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

DRAWING INDEX

SHEET NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	3
GN-1	GENERAL NOTES	3
A-1	COMPOUND & EQUIPMENT PLANS	3
A-2	ANTENNA LAYOUTS & ELEVATION	3
A-3	DETAILS	3
G-1	GROUNDING DETAILS	3
RF-1	RF PLUMBING DIAGRAM	3

SITE NUMBER: CTL05206

SITE NAME: MADISON EAST

FA CODE: 10071098

PACE ID: MRCTB033530, MRCTB033653, MRCTB033595, MRCTB033805

PROJECT: LTE 2C,3C,4C 2022 UPGRADE

VICINITY MAP

DIRECTIONS TO SITE:

I-95N TO EXIT 62. AT TOP OF RAMP MAKE LEFT AND CROSS OVER HIGHWAY. AT NEXT INTERSECTION, MAKE LEFT ONTO NEW ROAD. AFTER MAKING TURN, LOOK FOR ARAMARK SIGN AT 135 NEW ROAD ON YOUR RIGHT AND ENTER HERE. AFTER PASSING ARAMARK SIGN, TAKE DRIVEWAY ON YOUR RIGHT AND HEAD STRAIGHT TO CL&P GATE. PROCEED THROUGH GATE AND DRIVE TOWARD REAR OF COMPLEX WHERE TOWER IS LOCATED.

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 MOBILITY REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.
4. CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN.

72 HOURS

CALL
BEFORE YOU DIG
CALL TOLL FREE 1-800-922-4455
OR CALL 811

UNDERGROUND SERVICE ALERT

STATE OF CONNECTICUT · DANIEL P. DEMM · No. 24178 · LICENSED PROFESSIONAL ENGINEER

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CTL05206
SITE NAME: MADISON EAST

135 NEW ROAD
MADISON, CT 06443
NEW HAVEN COUNTY

at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
3	09/09/22	ISSUED FOR REVIEW	GA	HC	DPH
2	08/30/22	ISSUED FOR REVIEW	MR	HC	DPH
1	05/26/22	ISSUED FOR CONSTRUCTION	JC	HC	DPH
A	04/26/22	ISSUED FOR REVIEW	GA	HC	DPH

SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: GA

AT&T

TITLE SHEET
LTE 2C,3C,4C 2022 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CTL05206	T-1	3

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 STANDARDS) 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.

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 AND #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 TO 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 SHALL BE 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. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

   CONTRACTOR – SAI
   SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – AT&T MOBILITY

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.

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. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.

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

8. 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.

9. 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.

10. 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.

11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF 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.

12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

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

14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.

15. 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) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (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.

16. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T SITES."

17. 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.

18. 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 SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.

19. SINCE THE CELL SITE IS 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 ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

20. **APPLICABLE BUILDING CODES:**
    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.

    BUILDING CODE: IBC 2015 WITH 2018 CT STATE BUILDING CODE AMENDMENTS
    ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE (NFPA 70-2017)

    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, ASD, FOURTEENTH EDITION;

    TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-H, STRUCTURAL STANDARDS FOR STEEL

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.

ABBREVIATIONS

AGL	ABOVE GRADE LEVEL	EQ	EQUAL	REQ	REQUIRED
AWG	AMERICAN WIRE GAUGE	GC	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
BBU	BATTERY BACKUP UNIT	GRC	GALVANIZED RIGID CONDUIT	TBD	TO BE DETERMINED
BTCW	BARE TINNED SOLID COPPER WIRE	MGB	MASTER GROUND BAR	TBR	TO BE REMOVED
BGR	BURIED GROUND RING	MIN	MINIMUM	TBRR	TO BE REMOVED AND REPLACED
BTS	BASE TRANSCEIVER STATION	P	PROPOSED	TYP	TYPICAL
E	EXISTING	NTS	NOT TO SCALE	UG	UNDER GROUND
EGB	EQUIPMENT GROUND BAR	RAD	RADIATION CENTER (MAIN ANTENNA)	VIF	VERIFY IN FIELD
EGR	EQUIPMENT GROUND RING	RFDS	RF DESIGN		

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12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CTL05206
SITE NAME: MADISON EAST

135 NEW ROAD
MADISON, CT 06443
NEW HAVEN COUNTY

at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
3	09/09/22	ISSUED FOR REVIEW	GA	HC	DPH
2	08/30/22	ISSUED FOR REVIEW	MR	HC	DPH
1	05/26/22	ISSUED FOR CONSTRUCTION	JC	HC	DPH
A	04/26/22	ISSUED FOR REVIEW	GA	HC	DPH

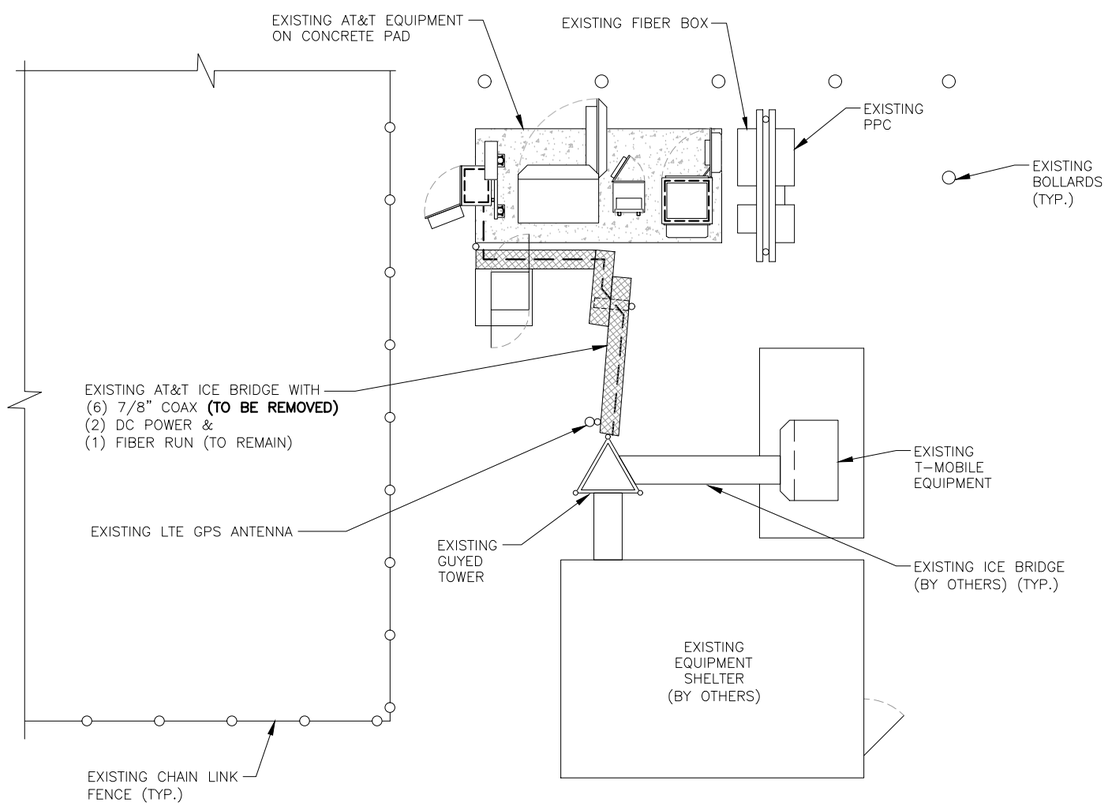
SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: GA

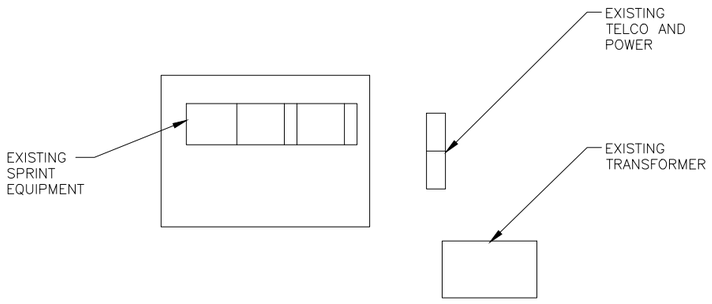
STATE OF CONNECTICUT
DANIEL P. HAMM
No. 24178
LICENSED PROFESSIONAL ENGINEER

AT&T

GENERAL NOTES
LTE 2C,3C,4C 2022 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CTL05206	GN-1	3





COMPOUND PLAN (1 / A-1)
22x34 SCALE: 1/4"=1'-0"
11x17 SCALE: 1/8"=1'-0"

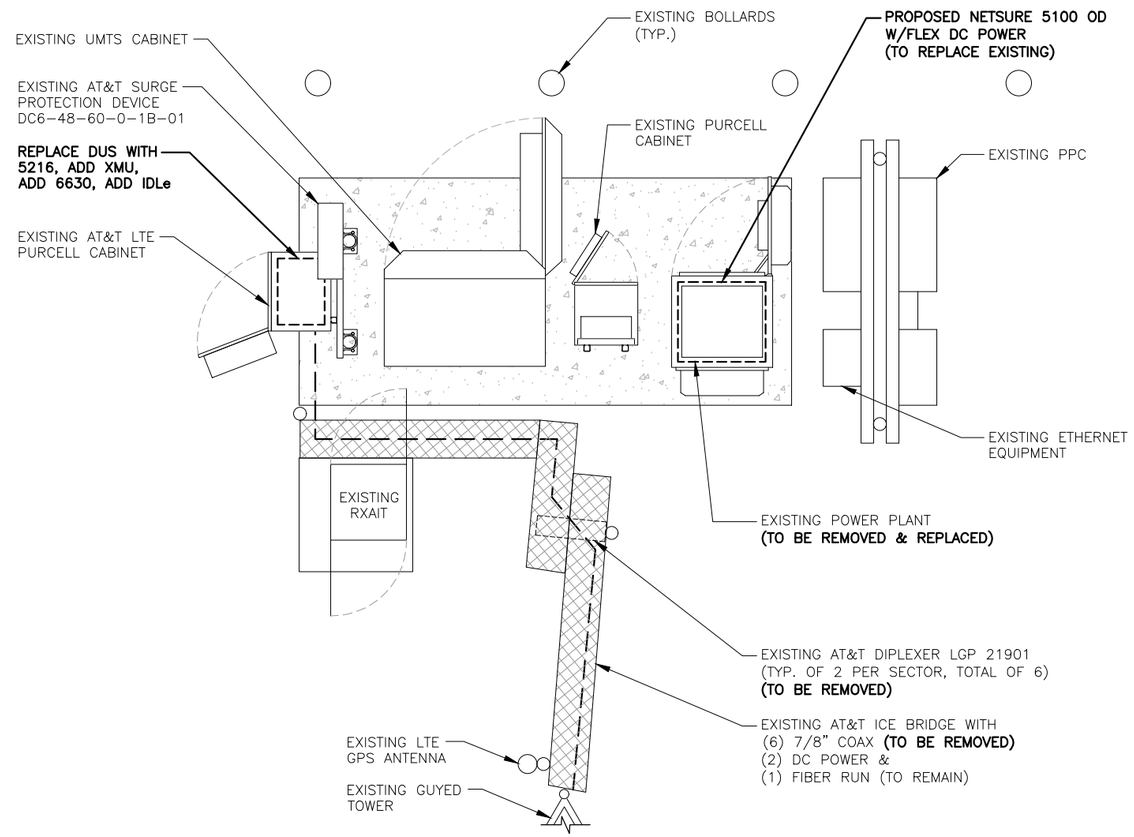
0 2'-0" 4'-0" 8'-0" 12'-0"

NOTE:

REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

REFER TO **STRUCTURAL ANALYSIS** BY: CENTEK ENGINEERING.
DATED: FEBRUARY 23, 2022
FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.



EQUIPMENT PLAN (2 / A-1)
22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"

0 2'-0" 4'-0" 6'-0"

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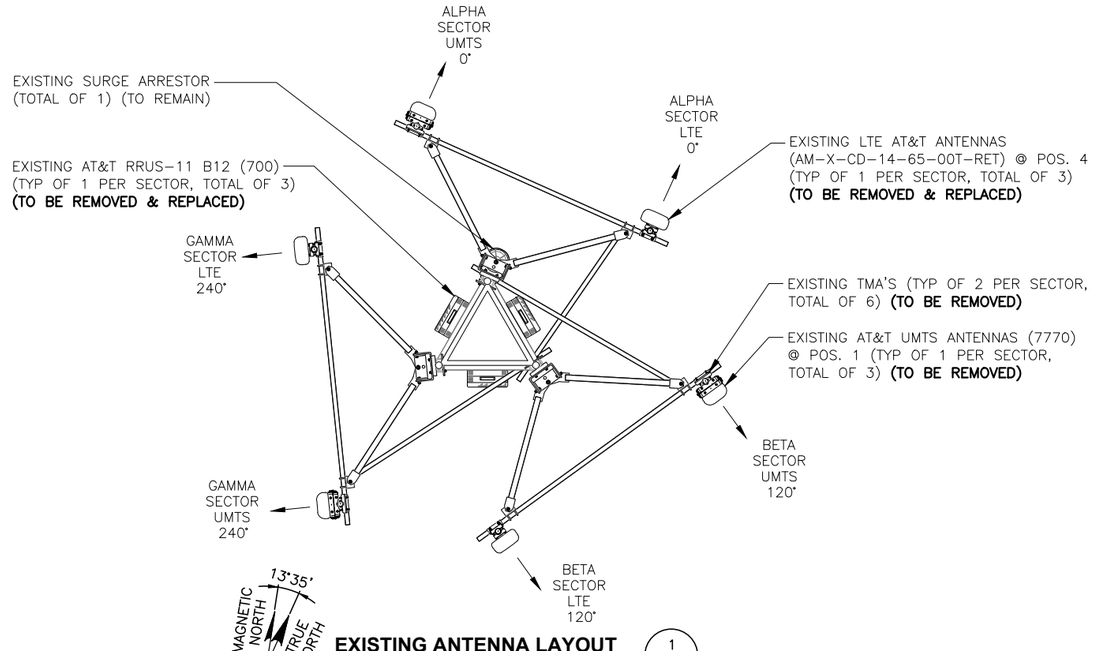
SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: GA

STATE OF CONNECTICUT DANIEL P. HAMM No. 24178 LICENSED PROFESSIONAL ENGINEER

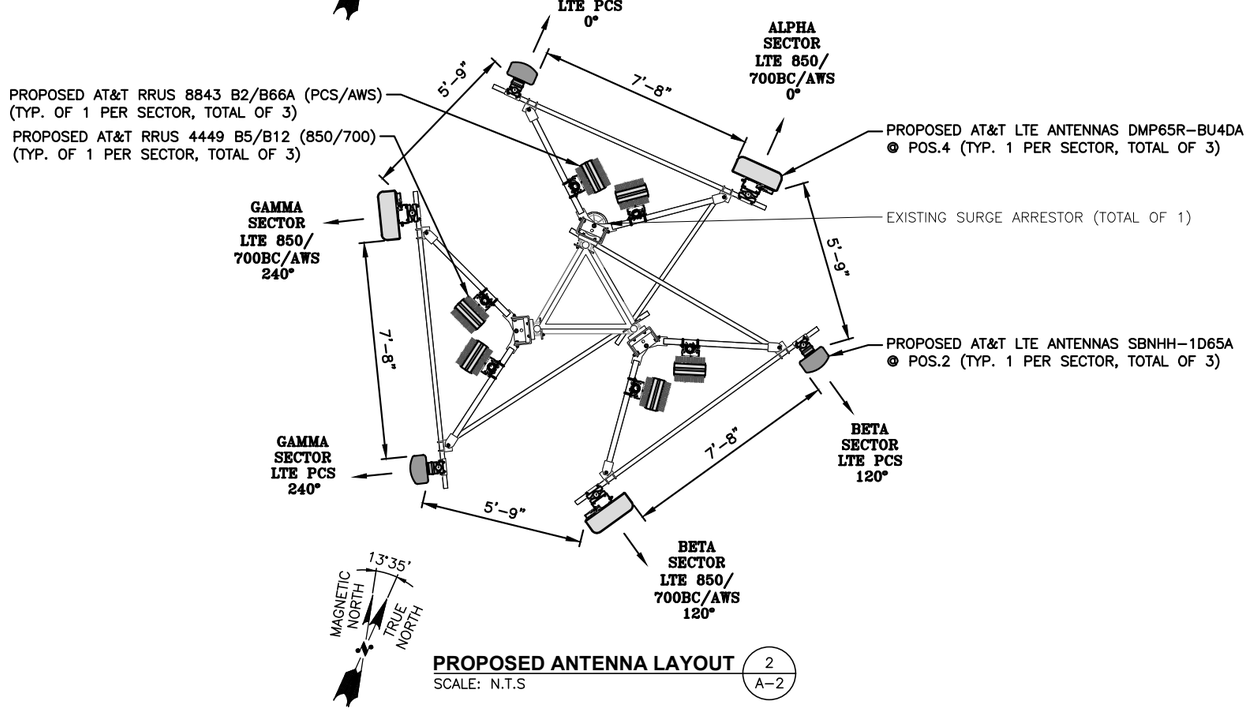
AT&T

COMPOUND & EQUIPMENT PLANS
LTE 2C,3C,4C 2022 UPGRADE

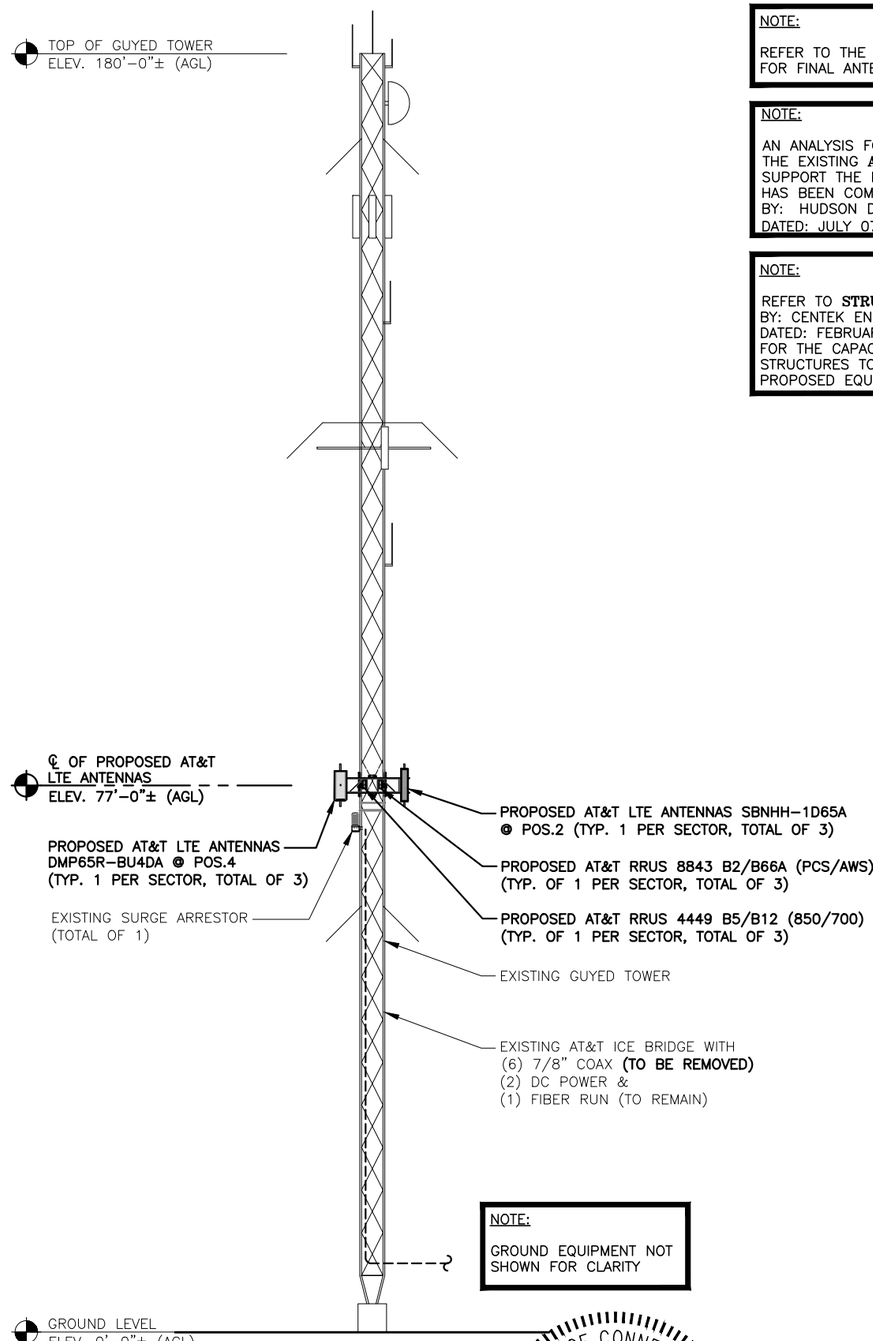
SITE NUMBER	DRAWING NUMBER	REV
CTL05206	A-1	3



EXISTING ANTENNA LAYOUT (1 / A-2)
SCALE: N.T.S



PROPOSED ANTENNA LAYOUT (2 / A-2)
SCALE: N.T.S



ELEVATION (3 / A-2)
22x34 SCALE: 3/32"=1'-0"
11x17 SCALE: 3/64"=1'-0"

NOTE:

REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED
BY: HUDSON DESIGN GROUP, LLC.
DATED: JULY 07, 2022 (REV.1)

NOTE:

REFER TO **STRUCTURAL ANALYSIS**
BY: CENTEK ENGINEERING.
DATED: FEBRUARY 23, 2022
FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

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SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: GA

STATE OF CONNECTICUT — DANIEL P. HAMM — No. 24178 — LICENSED PROFESSIONAL ENGINEER

AT&T

ANTENNA LAYOUTS & ELEVATION
LTE 2C,3C,4C 2022 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CTL05206	A-2	3

ANTENNA SCHEDULE

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA ℄ HEIGHT	AZIMUTH	TMA/ DIPLEXER	RRU	SIZE (INCHES) (L x W x D)	FEEDER	RAYCAP
A1	–	–	–	–	–	–	–	–	–		(E) (1) RAYCAP DC6-48-60-18-8F
A2	PROPOSED	LTE PCS	SBNHH-1D65A	55X11.9X7.1	77'-0"±	0°	–	(1)(P) 8843 B2/B66A (PCS/AWS)	14.9X13.2X10.9	(2)(E) DC POWER & (1) FIBER	
A3	–	–	–	–	–	–	–	–	–	(1)(P) Y-CABLE	
A4	PROPOSED	LTE 850/ 700BC/AWS	DMP65R-BU4DA	48X20.7X7.7	77'-0"±	0°	–	(1)(P) 4449 B5/B12 (850/700)	17.9X13.2X10.4	(1)(P) Y-CABLE	
B1	–	–	–	–	–	–	–	–	–	–	1
B2	PROPOSED	LTE PCS	SBNHH-1D65A	55X11.9X7.1	77'-0"±	120°	–	(1)(P) 8843 B2/B66A (PCS/AWS)	14.9X13.2X10.9	–	
B3	–	–	–	–	–	–	–	–	–	(1)(P) Y-CABLE	
B4	PROPOSED	LTE 850/ 700BC/AWS	DMP65R-BU4DA	48X20.7X7.7	77'-0"±	120°	–	(1)(P) 4449 B5/B12 (850/700)	17.9X13.2X10.4	(1)(P) Y-CABLE	
C1	–	–	–	–	–	–	–	–	–	–	1
C2	PROPOSED	LTE PCS	SBNHH-1D65A	55X11.9X7.1	77'-0"±	240°	–	(1)(P) 8843 B2/B66A (PCS/AWS)	14.9X13.2X10.9	–	
C3	–	–	–	–	–	–	–	–	–	(1)(P) Y-CABLE	
C4	PROPOSED	LTE 850/ 700BC/AWS	DMP65R-BU4DA	48X20.7X7.7	77'-0"±	240°	–	(1)(P) 4449 B5/B12 (850/700)	17.9X13.2X10.4	(1)(P) Y-CABLE	

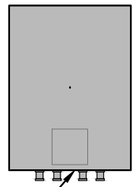
RRU CHART

QUANTITY	MODEL	SIZE (L x W x D)
3(P)	4449 (850/700)	17.9"x13.2"x10.4"
3(P)	8843 (PCS/AWS)	14.9"x13.2"x10.9"

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS

NOTE:

SEE RFDS FOR RRH FREQUENCY AND MODEL NUMBER



PROPOSED RRU REFER TO THE FINAL RFDS AND CHART FOR QUANTITY, MODEL AND DIMENSIONS

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

PROPOSED RRUS DETAIL (2 / A-3)
SCALE: N.T.S

NOTE:

REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

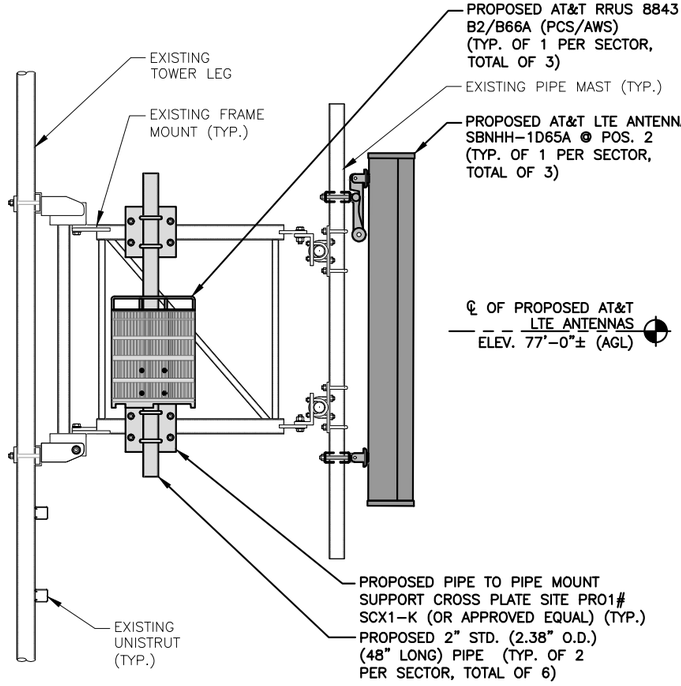
NOTE:

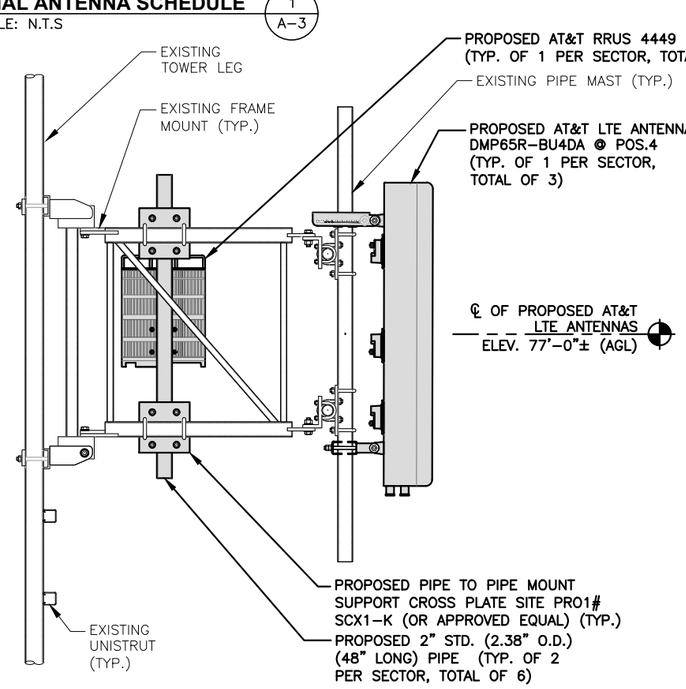
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED
BY: HUDSON DESIGN GROUP, LLC.
DATED: JULY 07, 2022 (REV.1)

NOTE:

REFER TO **STRUCTURAL ANALYSIS**
BY: CENTEK ENGINEERING.
DATED: FEBRUARY 23, 2022
FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

FINAL ANTENNA SCHEDULE (1 / A-3)
SCALE: N.T.S





PROPOSED LTE ANTENNA MOUNTING DETAIL @ POS. 2 (3 / A-3)
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"
0 0'-6" 1'-0" 2'-0" 3'-0"

PROPOSED LTE ANTENNA MOUNTING DETAIL @ POS.4 (4 / A-3)
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"
0 0'-6" 1'-0" 2'-0" 3'-0"

PROPOSED NETSURE 5100 OD W/ FLEX DC POWER PLANT DETAIL (5)
SCALE: N.T.S

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SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: GA

STATE OF CONNECTICUT · DANIEL P. HAMM · No. 24178 · LICENSED PROFESSIONAL ENGINEER

AT&T

DETAILS
LTE 2C,3C,4C 2022 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CTL05206	A-3	3

STRUCTURAL NOTES:

1. DESIGN REQUIREMENTS ARE PER STATE BUILDING CODE AND APPLICABLE SUPPLEMENTS, INTERNATIONAL BUILDING CODE, EIA/TIA-222-H STRUCTURAL STANDARDS FOR STEEL ANTENNA, TOWERS AND ANTENNA SUPPORTING STRUCTURES.
2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND ENGINEER OF RECORD.
3. DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION. "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
4. STRUCTURAL STEEL SHALL CONFORM TO ASTM A992 (Fy=50 ksi), MISCELLANEOUS STEEL SHALL CONFORM TO ASTM A36 UNLESS OTHERWISE INDICATED.
5. STEEL PIPE SHALL CONFORM TO ASTM A500 "COLD-FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING", GRADE B, OR ASTM A53 PIPE STEEL BLACK AND HOT-DIPPED ZINC-COATED WELDED AND SEAMLESS TYPE E OR S, GRADE B. PIPE SIZES INDICATED ARE NOMINAL. ACTUAL OUTSIDE DIAMETER IS LARGER.
6. STRUCTURAL CONNECTION BOLTS SHALL BE HIGH STRENGTH BOLTS (BEARING TYPE) AND CONFORM TO ASTM A325 TYPE-X "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS". ALL BOLTS SHALL BE 3/4" DIA UON.
7. ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
8. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
9. FIELD WELDS, DRILL HOLES, SAW CUTS AND ALL DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED WITH AN ORGANIC ZINC REPAIR PAINT COMPLYING WITH REQUIREMENTS OF ASTM A780. GALVANIZING REPAIR PAINT SHALL HAVE 65 PERCENT ZINC BY WEIGHT, ZIRP BY DUNCAN GALVANIZING, GALVA BRIGHT PREMIUM BY CROWN OR EQUAL. THICKNESS OF APPLIED GALVANIZING REPAIR PAINT SHALL BE NOT NOT LESS THAN 4 COATS (ALLOW TIME TO DRY BETWEEN COATS) WITH A RESULTING COATING THICKNESS REQUIRED BY ASTM A123 OR A153 AS APPLICABLE.
10. CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND DI.I. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "STEEL CONSTRUCTION MANUAL". 14TH EDITION.
11. INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON-CONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE CONSTRUCTION MANAGER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE CONSTRUCTION MANAGER APPROVAL.
12. UNISTRUT SHALL BE FORMED STEEL CHANNEL STRUT FRAMING AS MANUFACTURED BY UNISTRUT CORP., WAYNE, MI OR EQUAL. STRUT MEMBERS SHALL BE 1 5/8"x1 5/8"x12GA, UNLESS OTHERWISE NOTED, AND SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
13. EPOXY ANCHOR ASSEMBLY SHALL CONSIST OF STAINLESS STEEL ANCHOR ROD WITH NUTS & WASHERS. AN INTERNALLY THREADED INSERT, A SCREEN TUBE AND A EPOXY ADHESIVE. THE ANCHORING SYSTEM SHALL BE THE HILTI-HIT HY-270 AND OR HY-200 SYSTEMS (AS SPECIFIED IN DWG.) OR ENGINEERS APPROVED EQUAL.
14. EXPANSION BOLTS SHALL CONFORM TO FEDERAL SPECIFICATION FF-S-325, GROUP II, TYPE 4, CLASS I, HILTI KWIK BOLT III OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
15. LUMBER SHALL COMPLY WITH THE REQUIREMENTS OF THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION AND THE NATIONAL FOREST PRODUCTS ASSOCIATION'S NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION. ALL LUMBER SHALL BE PRESSURE TREATED AND SHALL BE STRUCTURAL GRADE NO. 2 OR BETTER.
16. WHERE ROOF PENETRATIONS ARE REQUIRED, THE CONTRACTOR SHALL CONTACT AND COORDINATE RELATED WORK WITH THE BUILDING OWNER AND THE EXISTING ROOF INSTALLER. WORK SHALL BE PERFORMED IN SUCH A MANNER AS TO NOT VOID THE EXISTING ROOF WARRANTY. ROOF SHALL BE WATERTIGHT.
17. ALL FIBERGLASS MEMBERS USED ARE AS MANUFACTURED BY STRONGWELL COMPANY OF BRISTOL, VA 24203. ALL DESIGN CRITERIA FOR THESE MEMBERS IS BASED ON INFORMATION PROVIDED IN THE DESIGN MANUAL. ALL REQUIREMENTS PUBLISHED IN SAID MANUAL MUST BE STRICTLY ADHERED TO.
18. NO MATERIALS TO BE ORDERED AND NO WORK TO BE COMPLETED UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED AND APPROVED IN WRITING.
19. SUBCONTRACTOR SHALL FIREPROOF ALL STEEL TO PRE-EXISTING CONDITIONS.

MASSACHUSETTS AMENDMENTS TO THE IBC (REFERENCE 780 CMR):

107.6 CONSTRUCTION CONTROL.
107.6.1 GENERAL. THIS SECTION SHALL APPLY TO THE CONSTRUCTION CONTROLS, PROFESSIONAL SERVICES AND CONTRACTOR SERVICES REQUIRED FOR BUILDINGS AND STRUCTURES NEEDING REGISTERED DESIGN PROFESSIONAL SERVICES.

107.6.1.1 SPECIALIZED STRUCTURES. TELECOMMUNICATION TOWERS, WIND TURBINE TOWERS, AND SIMILAR STRUCTURES ARE ENGINEERED STRUCTURES AND SHALL BE SUBJECT TO THE REQUIREMENTS OF SECTION 107.6.

107.6.2.2 CONSTRUCTION. THE REGISTERED DESIGN PROFESSIONALS WHO ARE RESPONSIBLE FOR THE DESIGN, PLANS, CALCULATIONS, AND SPECIFICATIONS, THEIR DESIGNEE OR THE REGISTERED DESIGN PROFESSIONALS WHO HAVE BEEN RETAINED FOR CONSTRUCTION PHASE SERVICES, SHALL PERFORM THE FOLLOWING TASKS:

1. REVIEW, FOR CONFORMANCE TO 780 CMR AND THE DESIGN CONCEPT, SHOP DRAWINGS, SAMPLES AND OTHER SUBMITTALS BY THE CONTRACTOR IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONSTRUCTION DOCUMENTS.
2. PERFORM THE DUTIES FOR REGISTERED DESIGN PROFESSIONALS IN 780 CMR 17.00 SPECIAL INSPECTIONS AND TESTS.
3. BE PRESENT AT INTERVALS APPROPRIATE TO THE STAGE OF CONSTRUCTION TO BECOME GENERALLY FAMILIAR WITH THE PROGRESS AND QUALITY OF THE WORK AND TO DETERMINE IF THE WORK IS BEING PERFORMED IN A MANNER CONSISTENT WITH THE CONSTRUCTION DOCUMENTS AND 780 CMR.

THE PERMIT APPLICATION SHALL NOT BE DEEMED COMPLETED UNTIL ALL OF THE CONSTRUCTION DOCUMENTS REQUIRED BY 780 CMR HAVE BEEN SUBMITTED. DOCUMENTATION INDICATING THAT WORK COMPLIES WITH THE PLANS AND SPECIFICATIONS SHALL BE PROVIDED AT THE COMPLETION OF EACH PHASE WHEN REQUIRED BY THE BUILDING OFFICIAL. UPON COMPLETION OF THE WORK, THE REGISTERED DESIGN PROFESSIONAL SHALL FILE A FINAL DOCUMENT TO THE BUILDING OFFICIAL INDICATING THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE WORK HAS BEEN PERFORMED IN ACCORDANCE WITH THW APPROVED PLANS AND 780 CMR. FORMS FOR CONSTRUCTION CONTROL WHEN REQUIRED BY THE BUILDING OFFICIAL SHALL BE THOSE FOUND AT http://www.mass.gov/ocabr/government/oca-agencies/dpl-lp/opsi/.

107.6.2.3 SPECIAL INSPECTIONS AND TESTS. SPECIAL INSPECTIONS AND TESTS SHALL BE PROVIDED IN ACCORDANCE WITH 780 CMR 17.00 SPECIAL INSPECTIONS AND TESTS.

170.6.2.4 NON STRUCTURAL SYSTEM TEST AND INSPECTION. TESTS AND INSPECTIONS OF NON-STRUCTURAL SYSTEMS SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE ENGINEERING PRACTICE STANDARDS, REFERENCED STANDARDS LISTED IN 780 CMR 35.00: REFERENCED STANDARDS, OR AS OTHERWISE SPECIFIED IN 780 CMR.

107.6.3 CONSTRUCTION CONTRACTOR SERVICES. THE ACTUAL CONSTRUCTION OF THE WORK SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AS IDENTIFIED ON THE APPROVED PERMIT AND SHALL INVOLVE THE FOLLOWING:

1. EXECUTION OF ALL WORK IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS.
2. EXECUTION AND CONTROL OF ALL METHODS OF CONSTRUCTION IN A SAFE AND SATISFACTORY MANNER IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL STATUTES AND REGULATIONS.
3. UPON COMPLETION OF THE CONSTRUCTION, CERTIFICATION IN WRITING TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE THAT, TO THE BEST OF THE CONTRACTOR'S KNOWLEDGE AND BELIEF, CONSTRUCTION HAS BEEN DONE IN SUBSTANTIAL ACCORD WITH SECTION 107.6 AND WITH ALL PERTINENT DEVIATIONS SPECIFICALLY NOTED. THE BUILDING OFFICIAL MAY REQUIRE A COPY OF THIS CERTIFICATION.

107.6.4 PROJECT REPRESENTATION. A PROJECT REPRESENTATIVE MAY BE REQUIRED BY THE BUILDING OFFICIAL. THIS REPRESENTATIVE SHALL KEEP DAILY RECORDS AND SUBMIT REPORTS AS MAY BE REQUIRED BY THE BUILDING OFFICIAL. THIS PROJECT REPRESENTATION REQUIREMENT SHALL BE DETERMINED PRIOR TO THE ISSUANCE OF THE PERMIT AND MAY BE A PREREQUISITE FOR PERMIT ISSUANCE. REFUSAL BY THE APPLICANT TO PROVIDE SUCH SERVICE IF REQUIRED BY THE BUILDING OFFICIAL SHALL RESULT IN THE DENIAL OF THE PERMIT. ALL FEES AND COSTS RELATED TO THE PERFORMANCE OF PROJECT REPRESENTATION SHALL BE BORNE BY THE OWNER. WHEN APPLICATIONS FOR UNUSUAL DESIGNS OR MAGNITUDE OF CONSTRUCTION ARE FILED, OR WHERE REFERENCE STANDARDS REQUIRE SPECIAL ARCHITECTURAL OR ENGINEERING INSPECTIONS, THE BUILDING OFFICIAL MAY REQUIRE THAT THE PROJECT REPRESENTATIVE BE A REGISTERED DESIGN PROFESSIONAL IN ADDITION TO THOSE REGISTERED DESIGN PROFESSIONALS REQUIRED ELSEWHERE IN ACCORDANCE WITH SECTION 107.6.

107.6.5 BUILDING OFFICIAL RESPONSIBILITY. NOTHING CONTAINED IN SECTION 107.6 SHALL HAVE THE EFFECT OF WAIVING OR LIMITING THE BUILDING OFFICIAL'S AUTHORITY TO ENFORCE 780 CMR WITH RESPECT TO EXAMINATION OF THE CONTRACT DOCUMENTS, INCLUDING PLANS, COMPUTATIONS AND SPECIFICATIONS, AND FIELD INSPECTIONS.

SPECIAL INSPECTIONS (REFERENCE IBC CHAPTER 17):

GENERAL: WHERE APPLICATION IS MADE FOR CONSTRUCTION, THE OWNER OR THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE ACTING AS THE OWNER'S AGENT SHALL EMPLOY ONE OR MORE APPROVED AGENCIES TO PERFORM INSPECTIONS DURING CONSTRUCTION ON THE TYPES OF WORK LISTED IN THE INSPECTION CHECKLIST ABOVE.

THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE AND ENGINEERS OF RECORD INVOLVED IN THE DESIGN OF THE PROJECT ARE PERMITTED TO ACT AS THE APPROVED AGENCY AND THEIR PERSONNEL ARE PERMITTED TO ACT AS THE SPECIAL INSPECTOR FOR THE WORK DESIGNED BY THEM, PROVIDED THOSE PERSONNEL MEET THE QUALIFICATION REQUIREMENTS.

STATEMENT OF SPECIAL INSPECTIONS: THE APPLICANT SHALL SUBMIT A STATEMENT OF SPECIAL INSPECTIONS PREPARED BY THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE IN ACCORDANCE WITH SECTION 107.1 AS A CONDITION FOR ISSUANCE. THIS STATEMENT SHALL BE IN ACCORDANCE WITH SECTION 1705.

REPORT REQUIREMENT: SPECIAL INSPECTORS SHALL KEEP RECORDS OF INSPECTIONS. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. REPORTS SHALL INDICATE THAT WORK INSPECTED WAS OR WAS NOT COMPLETED IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THEY ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS SHALL BE SUBMITTED.

REQUIRED INSPECTIONS AND SITE REVIEW DOCUMENT AS A CONDITION OF THE BUILDING PERMIT THE FOLLOWING INSPECTIONS AND SITE REVIEWS IDENTIFIED BY THE BUILDING OFFICIAL ARE REQUIRED FOR WORK PER THE 9TH EDITION OF THE MASSACHUSETTS STATE BUILDING CODE, 780 CMR, SECTION 110 AND CHAPTER 17

REQUIRED SITE REVIEW AND DOCUMENTATION FOR PORTIONS OR PHASES CONSTRUCTION [1,6,7]
(TO BE PERFORMED BY THE APPROPRIATE REGISTERED DESIGN PROFESSIONAL OR HIS/HER DESIGNEE OR M.G.L.C 112 §81R CONTRACTOR)

SITE REVIEW AND DOCUMENTATION	X	SITE REVIEW AND DOCUMENTATION	X
SOIL CONDITION/ANALYSIS/REPORT		ENERGY EFFICIENCY REQUIREMENTS	
FOOTING AND FOUNDATION (INCLUDING REINFORCEMENT AND FOUNDATION ATTACHMENT)		FIRE ALARM INSTALLATION[2]	
CONCRETE FLOOR AND UNDER FLOOR		FIRE SUPPRESSION INSTALLATION[3]	
LOWEST FLOOR FLOOD ELEVATION		FIELD REPORTS[5]	
STRUCTURAL FRAME – WALL/FLOOR/ROOF	X	CARBON MONOXIDE DETECTION SYSTEM[4]	
LATH AND PLASTER/GYPSUM		SEISMIC REINFORCEMENT	
FIRE RESISTANT WALL/PARTITIONS FRAMING		SMOKE CONTROL SYSTEMS	
FIRE RESISTANT WALL/PARTITIONS FINISH ATTACHMENTS		SMOKE AND HEAT VENTS	
ABOVE CEILING INSPECTION		ACCESSIBILITY (521 CMR)	
FIRE BLOCKING/STOPPING SYSTEM		OTHER:	
EMERGENCY LIGHTING/EXIT SIGNAGE			
MEANS OF EGRESS COMPONENTS		SPECIAL INSPECTIONS (SECTION 1704):	X
ROOFING, COPING/SYSTEM			
VENTING SYSTEMS (KITCHEN, CHEMICAL, FUME)			
MECHANICAL SYSTEMS			

NOTES:

1. ALL CONNECTIONS TO BE SHOP WELDED & FIELD BOLTED USING 3/4"ø A325-X BOLTS, UNLESS OTHERWISE NOTIFIED.
2. SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED BEFORE ORDERING MATERIAL.
3. SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED PRIOR TO STEEL FABRICATION.
4. VERIFICATION OF EXISTING ROOF CONSTRUCTION IS REQUIRED PRIOR TO THE INSTALLATION OF THE ROOF PLATFORM. ENGINEER OF RECORD IS TO APPROVE EXISTING CONDITIONS IN ORDER TO MOVE FORWARD.
5. CENTERLINE OF PROPOSED STEEL PLATFORM SUPPORT COLUMNS TO BE CENTRALLY LOCATED OVER THE EXISTING BUILDING COLUMNS.
6. EXISTING BRICK MASONRY COLUMNS/BEARING TO BE REPAIRED/REPLACED AT ALL PROPOSED PLATFORM SUPPORT POINTS. ENGINEER OF RECORD TO REVIEW AND APPROVE.

NOTES:

1. REQUIRED FOR ANY NEW SHOP FABRICATED FRP OR STEEL.
2. PROVIDED BY MANUFACTURER, REQUIRED IF HIGH STRENGTH BOLTS OR STEEL.
3. PROVIDED BY GENERAL CONTRACTOR; PROOF OF MATERIALS.
4. HIGH WIND ZONE INSPECTION CATB 120MPH OR CAT C,D 110MPH INSPECT FRAMING OF WALLS, ANCHORING, FASTENING SCHEDULE.
5. ADHESIVE FOR REBAR AND ANCHORS SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ACI 355.4 AND ICC-ES AC308 FOR CRACKED CONCRETE AND SEISMIC APPLICATIONS. DESIGN ADHESIVE BOND STRENGTH HAS BEEN BASED ON ACI 355.4 TEMPERATURE CATEGORY B WITH INSTALLATIONS INTO DRY HOLES DRILLED USING A CARBIDE BIT INTO CRACKED CONCRETE THAT HAS CURED FOR AT LEAST 21 DAYS. ADHESIVE ANCHORS REQUIRING CERTIFIED INSTALLATIONS SHALL BE INSTALLED BY A CERTIFIED ADHESIVE ANCHOR INSTALLER PER ACI 318-11 D.9.2.2. INSTALLATIONS REQUIRING CERTIFIED INSTALLERS SHALL BE INSPECTED PER ACI 318-11 D.8.2.4.
6. AS REQUIRED; FOR ANY FIELD CHANGES TO THE ITEMS IN THIS TABLE.

SPECIAL INSPECTION CHECKLIST

BEFORE CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	ENGINEER OF RECORD APPROVED SHOP DRAWINGS [1]
REQUIRED	MATERIAL SPECIFICATIONS REPORT [2]
N/A	FABRICATOR NDE INSPECTION
REQUIRED	PACKING SLIPS [3]
ADDITIONAL TESTING AND INSPECTIONS:	
DURING CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	STEEL INSPECTIONS
N/A	HIGH STRENGTH BOLT INSPECTIONS
N/A	HIGH WIND ZONE INSPECTIONS [4]
N/A	FOUNDATION INSPECTIONS
N/A	CONCRETE COMP. STRENGTH, SLUMP TESTS AND PLACEMENT
N/A	POST INSTALLED ANCHOR VERIFICATION [5]
N/A	GROUT VERIFICATION
N/A	CERTIFIED WELD INSPECTION
N/A	EARTHWORK: LIFT AND DENSITY
N/A	ON SITE COLD GALVANIZING VERIFICATION
N/A	GUY WIRE TENSION REPORT
ADDITIONAL TESTING AND INSPECTIONS:	
AFTER CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	MODIFICATION INSPECTOR REDLINE OR RECORD DRAWINGS [6]
N/A	POST INSTALLED ANCHOR PULL-OUT TESTING
REQUIRED	PHOTOGRAPHS
ADDITIONAL TESTING AND INSPECTIONS:	

1. IT IS THE RESPONSIBILITY OF THE PERMIT APPLICANT TO NOTIFY THE BUILDING OFFICIAL OF REQUIRED INSPECTIONS (X). INSPECTION OF 780 CMR FIRE PROTECTION SYSTEMS MAY BE WITNESSED BY THE FIRE OFFICIAL AND INSTALLATION PERMITS ARE REQUIRED FROM THE FIRE DEPARTMENT PER 527 CMR.
2. INCLUDE NFPA 72 TEST AND ACCEPTANCE DOCUMENTATION
3. INCLUDE APPLICABLE NFPA 13, 13R, 13D, 14, 15, 17, 20, 241, ETC. – TEST AND ACCEPTANCE DOCUMENTATION
4. INCLUDE NFPA 720 RECORD OF COMPLETION AND INSPECTION AND TEST FORM
5. INCLUDE FIELD REPORTS AND RELATED DOCUMENTATION
6. WORK SHALL NOT PROCEED, OR BE CONCEALED, UNTIL THE REQUIRED INSPECTION HAS BEEN APPROVED BY THE BUILDING OFFICIAL, AND NOTHING WITHIN CONSTRUCTION CONTROL SHALL HAVE THE EFFECT OF WAIVING OR LIMITING THE BUILDING OFFICIAL'S AUTHORITY TO ENFORCE THIS CODE WITH RESPECT TO EXAMINATION OF THE CONTRACT DOCUMENTS, INCLUDING PLANS, COMPUTATIONS AND SPECIFICATIONS, AND FIELD INSPECTIONS.
7. ROUGH AND/OR FINISH INSPECTIONS OF ELECTRICAL, PLUMBING, OR SHEET METAL SHALL BE INSPECTED PRIOR TO ROUGH AND FINISH INSPECTIONS BY THE BUILDING OFFICIAL.

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SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CTL05206
SITE NAME: MADISON EAST

135 NEW ROAD
MADISON, CT 06443
NEW HAVEN COUNTY

at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
3	09/09/22	ISSUED FOR REVIEW	GA	HC	DPH
2	08/30/22	ISSUED FOR REVIEW	MR	HC	DPH
1	05/26/22	ISSUED FOR CONSTRUCTION	JC	HC	DPH
A	04/26/22	ISSUED FOR REVIEW	GA	HC	DPH

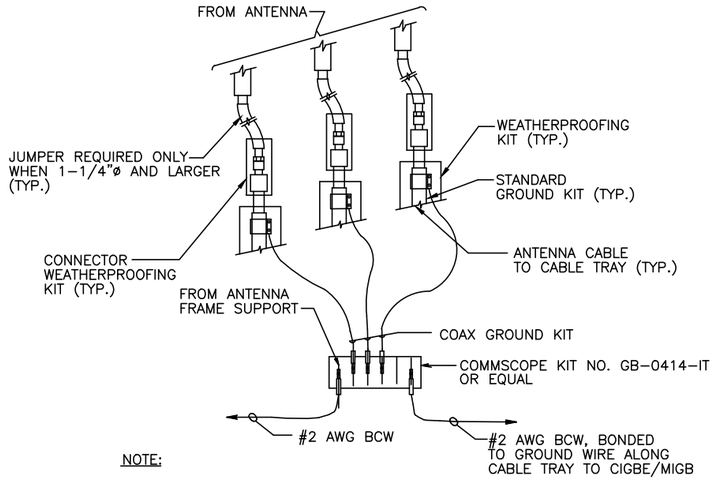
SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: GA

STATE OF CONNECTICUT · DANIEL P. HAMM · No. 24178 · LICENSED PROFESSIONAL ENGINEER

AT&T

STRUCTURAL NOTES
LTE 2C,3C,4C 2022 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CTL05206	SN-1	3

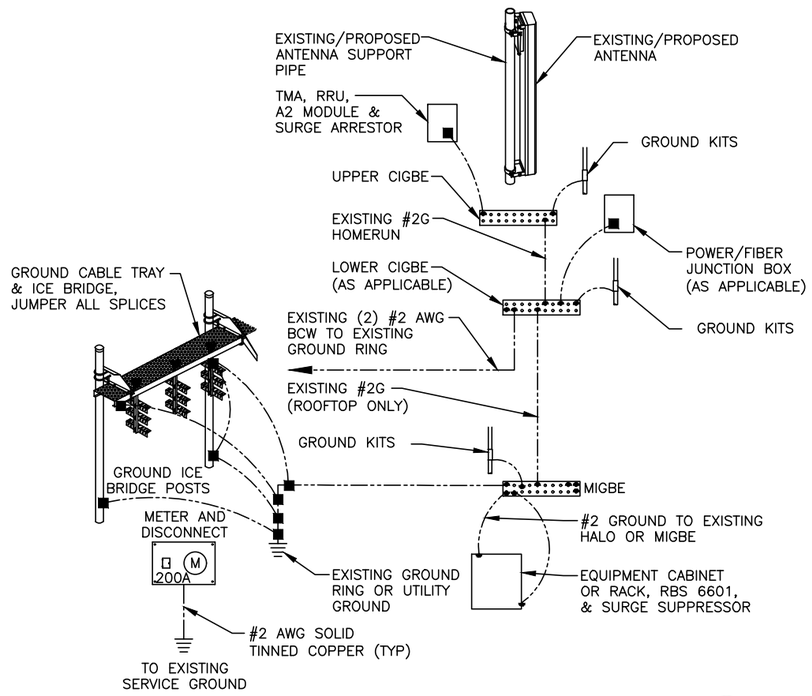


NOTE:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE.

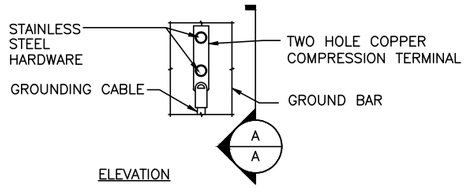
GROUND WIRE TO GROUND BAR CONNECTION DETAIL (1 / G-1)

SCALE: N.T.S



GROUNDING RISER DIAGRAM (2 / G-1)

SCALE: N.T.S



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

TYPICAL GROUND BAR CONNECTION DETAIL (3 / G-1)

SCALE: N.T.S

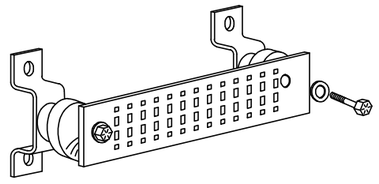
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" – SURGE PRODUCERS

CABLE ENTRY PORTS (HATCH PLATES) (#2 AWG)
GENERATOR FRAMEWORK (IF AVAILABLE) (#2 AWG)
TELCO GROUND BAR
COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2 AWG)
+24V POWER SUPPLY RETURN BAR (#2 AWG)
-48V POWER SUPPLY RETURN BAR (#2 AWG)
RECTIFIER FRAMES.

SECTION "A" – SURGE ABSORBERS

INTERIOR GROUND RING (#2 AWG)
EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2 AWG)
METALLIC COLD WATER PIPE (IF AVAILABLE) (#2 AWG)
BUILDING STEEL (IF AVAILABLE) (#2 AWG)



GROUND BAR - DETAIL (AS REQUIRED)

SCALE: N.T.S

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SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: GA

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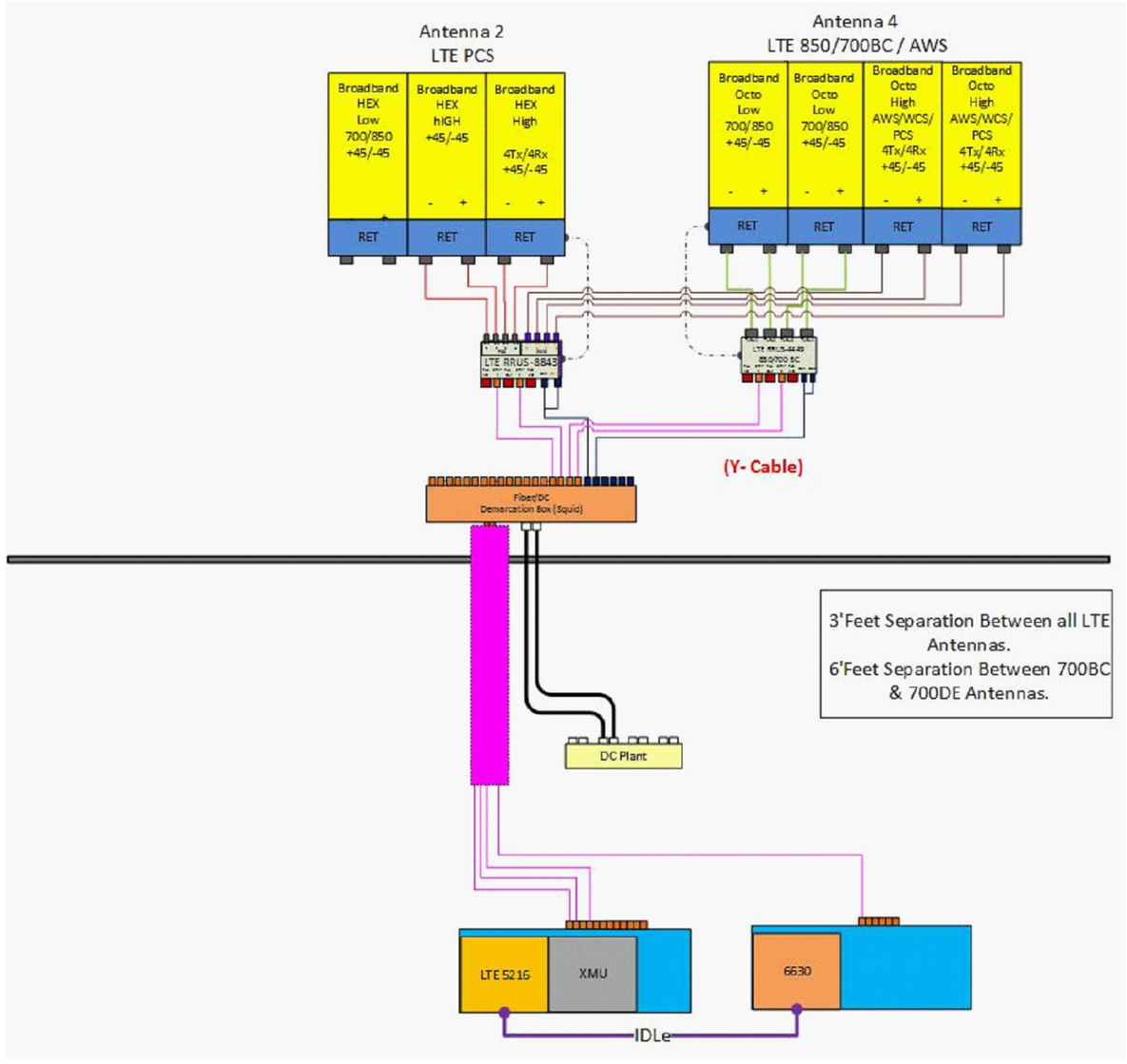
GROUNDING DETAILS
LTE 2C,3C,4C 2022 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CTL05206	G-1	3



RF PLUMBING DIAGRAM (1 / RF–1)
SCALE: N.T.S

NOTE:
1. CONTRACTOR TO CONFIRM ALL PARTS.
2. INSTALL ALL EQUIPMENT TO MANUFACTURER'S RECOMMENDATIONS

NOTE:

REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

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SITE NUMBER: CTL05206
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SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: GA

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RF PLUMBING DIAGRAM
LTE 2C,3C,4C 2022 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CTL05206	RF–1	3

CENTEK engineering

Centered on Solutions℠

Structural Analysis Report

180-ft Existing ROHN Guyed Lattice Tower

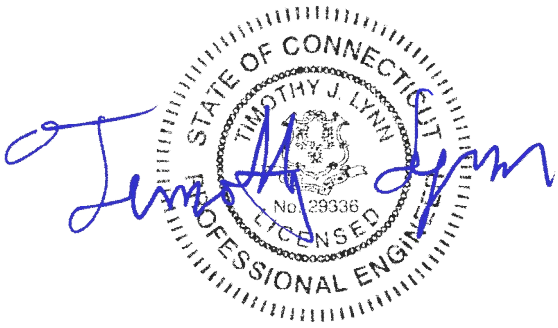
Proposed AT&T Antenna Upgrade

Site Ref: CT5206

135 New Road
Madison, CT 06443

CENTEK Project No. 22003.00

Date: February 23, 2022



Prepared for:
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Introduction

The purpose of this report is to summarize the results of the non-linear, P-Δ structural analysis of the antenna upgrade proposed by AT&T on the existing guyed lattice tower located in Madison, Connecticut.

The host tower is a 180-ft, three legged, Model 80 guyed lattice tower originally designed and manufactured by UNR-ROHN. The tower geometry and structure member size information were obtained from a previous structural analysis report prepared by Black and Veatch project no. 403093 dated March 4, 2020.

Antenna and appurtenance inventory were obtained from the aforementioned structural analysis report and a RF data sheet.

The tower consists of nine (9) vertical sections consisting of ROHN steel pipe legs conforming to ASTM A572-50. Diagonal and horizontal lateral support bracing consists of a combination of steel angle and pipe construction conforming to ASTM A36 and A53 Gr. B 35ksi. All connections are bolted. The width of the tower face is 3.41-ft at the top and bottom with a 5-ft tall tapered base section.

Antenna and Appurtenance Summary

The existing and proposed loads considered in the analysis consist of the following:

- EVERSOURCE (Existing):
  Antenna: One (1) dbspectra DS2C03F36D-D Omni-directional whip antenna mounted on a standoff to a leg of the existing tower with an elevation of ±177-ft above grade level.
  Coax Cable: Two (2) 7/8" ∅ coax cables running on a leg/face of the existing tower as specified in Section 3 of this report.
- EVERSOURCE (Existing):
  Antenna: Two (2) 20-ft and one (1) 14-ft Omni-directional whip antennas mounted to a leg of the existing tower with an elevation of ±180-ft above grade level.
  Coax Cable: One (1) 1-5/8" ∅ and one (1) 7/8" ∅ coax cable running on a leg/face of the existing tower as specified in Section 3 of this report.
- EVERSOURCE (Existing):
  Antenna: One (1) 8.5-ft ∅ Microwave dish antenna with radome mounted to the leg of the existing tower with a RAD center elevation of ±175-ft above grade level.
  Coax Cable: One (1) Elliptical coax cable running on a leg/face of the existing tower as specified in Section 3 of this report.

- T-MOBILE (Existing):
  Antennas: Three (3) Andrew LNX-6515DS panel antennas, six (6) Ericsson AIR 21 panel antennas, three (3) Ericsson KRY 112 144/1 TMAs and three (3) Ericsson RRUS-11 remote radio heads mounted on three (3) Site Pro 12ft-6in. lightweight T-frames with a RAD center elevation of 159-ft above grade level.
  Coax Cables: Six (6) 1-5/8" ∅ coax cables, one (1) 1-1/4" ∅ lmu bundle and one (1) 1-5/8" ∅ fiber cable running on the face of the existing tower as specified in Section 3 of this report.
- EVERSOURCE (Existing):
  Antenna: One (1) 20-ft Omni-directional whip antenna pipe mounted with RAD center elevation of ±147-ft above grade level.
  Coax Cable: Two (2) 7/8" ∅ coax cables running on a leg/face of the existing tower as specified in Section 3 of this report.
- EVERSOURCE (Existing):
  Antenna: Two (2) 2-ft Omni-directional whip antennas mounted on a 2-ft stand-off with RAD center elevations of ±143-ft and 141-ft above grade level.
  Coax Cable: Two (2) 7/8" ∅ coax cables running on a leg/face of the existing tower as specified in Section 3 of this report.
- SPRINT (Existing):
  Antennas: Three (3) RFS APXVSPP18C panel antennas, three (3) RRH2x50-800 radio heads and three (3) 1900MHz 4X45 Remote Radio Heads mounted to three (3) existing 6-ft x 12-ft ROHN boom gates with a RAD center elevation of ±126-ft above grade level.
  Cables: Three (3) 1-1/4" ∅ Hybriflex cables running on the face of the existing tower as specified in Section 3 of this report.
- SPRINT (Existing):
  Antenna: One (1) GPS antenna mounted on a 2-ft stand-off with a RAD center elevation of ±88-ft above grade level.
  Coax Cable: One (1) 1/2" ∅ coax cable running on a leg/face of the existing tower as specified in Section 3 of this report.

- AT&T (Existing to Remain):
  Surge Arrestor: One (1) Raycap DC6-48-60-18-8F Surge Arrestor mounted to the leg of the existing tower with a RAD center elevation of 72-ft above grade level.
  Coax Cables: One (1) 5/8" ∅ fiber optic cable and two (2) #8 DC control cables running on the face of the existing tower as specified in Section 3 of this report.

- AT&T (Existing to Remove):
  Antennas: Three (3) KMW AM-X-CD-14-65-00T panel antennas, three (3) Powerwave 7770 panel antennas, six (6) TMAs and three (3) Ericsson RRUS-11 mounted to three (3) 12-ft V-Frames with a RAD center elevation of 78-ft above grade level.
  Coax Cables: Six (6) 7/8" ∅ coax cables running on the face of the existing tower as specified in Section 3 of this report.

- **AT&T (Proposed):**
  Antennas: Three (3) Commscope SBNHH-1D65A panel antennas and three (3) CCI DMP65R-BU4D panel antennas mounted to three (3) 12-ft V-Frames with a RAD center elevation of 78-ft above grade level.
  Appurtenances: Three (3) Ericsson B2/B66A 8843 and three (3) Ericsson B5/B12 4449 remote radio heads mounted to the V-Frame outriggers with a RAD center elevation of 78-ft above grade level.

Primary Assumptions Used in the Analysis

- The tower structure's theoretical capacity not including any assessment of the condition of the tower.
- The tower carries the horizontal and vertical loads due to the weight of antennas, ice load and wind.
- Tower is properly installed and maintained.
- Tower is in plumb condition.
- Tower loading for antennas and mounts as listed in this report.
- All bolts are appropriately tightened providing the necessary connection continuity.
- All welds are fabricated with ER-70S-6 electrodes.
- All members are assumed to be as specified in the original tower design documents.
- All members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
- All member protective coatings are in good condition.
- All tower members were properly designed, detailed, fabricated, installed and have been properly maintained since erection.
- Any deviation from the analyzed antenna loading will require a new analysis for verification of structural adequacy.
- All coax cables routed as specified in Section 3 of this report.

Analysis

The existing tower was analyzed using a comprehensive computer program entitled tnxTower. The program analyzes the tower, considering the worst case loading condition. The tower is considered as loaded by concentric forces along the tower, and the model assumes that the tower members are subjected to bending, axial, and shear forces.

The existing tower was analyzed for the controlling basic wind speed (3-second gust) with no ice and the applicable wind and ice combination to determine stresses in members as per guidelines of TIA-222-H entitled "Structural Standard for Antenna Support Structures, Antennas and Small Wind Turbine Support Structures", the American Institute of Steel Construction (AISC) and the Manual of Steel Construction; Load and Resistance Factor Design (LRFD).

The controlling wind speed is determined by evaluating the local available wind speed data as provided in Appendix N of the CSBC[1] and the wind speed data available in the TIA-222-H Standard.

Tower Loading

Tower loading was determined by the basic wind speed as applied to projected surface areas with modification factors per TIA-222-H, gravity loads of the tower structure and its components, and the application of 1.0" radial ice on the tower structure and its components.

Load Cases:	Load Case 1; 140 mph (Risk Cat III) wind speed w/ no ice plus gravity load – used in calculation of tower stresses and rotation.	*[Appendix N of the 2018 CT Building Code]*
	Load Case 2; 50 mph wind speed w/ 1.00" radial ice plus gravity load – used in calculation of tower stresses.	*[Annex B of TIA-222-H]*

[1] The 2015 International Building Code as amended by the 2018 Connecticut State Building Code (CSBC).

Tower Capacity

- Calculated stresses were found to be within allowable limits.

Tower Section	Elevation (ATB)	Stress Ratio (percentage of capacity)	Result
Leg (T8)	20'-0"-40'-0"	67.8%	**PASS**
Diagonal (T2)	140'-0"-160'-0"	70.0%	**PASS**
Guy A @ 184-ft radius (T1)	127'-8"	52.2%	**PASS**

- The tower combined deflection is **0.3839 degrees**.

Deflection Criteria	Proposed (degrees)
Sway (Tilt)	0.1702
Twist	0.3441
Combined	0.3839

Note 1: *Tower deflection calculated utilizing the service wind load combination and nominal wind speed of 108 mph.*

Foundations and Anchorage

The existing guy anchorage foundation system consists of three (3) inner and three (3) outer reinforced concrete guy anchor foundations and one pad and pier type base foundation, located below existing grade. The properties used in the analysis of the existing anchor foundations were obtained from the aforementioned structural analysis report prepared by Centek Engineering, Inc.

- The worst case tower base and guy anchor reactions developed from the governing Load Case were used in the verification of the anchorage foundations:

Tower Guy Reactions		
Vector	**Proposed Reactions Guy Anchor A at Radius of 150-ft**	**Proposed Reactions Guy Anchor A at Radius of 184-ft**
Horizontal (In Plane of GW)	**13.0 kips**	**33.0 kips**
Horizontal (Out of Plane of GW)	**0.5 kips**	**1.0 kips**
Vertical	**5.0 kips**	**26.0 kips**
Resultant Force at end of Guy Wire	**14.0 kips**	**42.0 kips**
Tower Base Reactions		
Vector	**Proposed Reaction**	
Horizontal Shear	**1.0 kips**	
Axial Compression	**119.0 kips**	

Foundation	**Design Limit**	**TIA-222-H Section 9.4 FS**[1]	**Proposed Loading (FS)**[1]	**Result**
Reinf. Conc. Anchor Block (A) at 150-ft radius.	Uplift	1.0	7.9	**PASS**
	Sliding	1.0	3.8	**PASS**
Reinf. Conc. Anchor Block (A) at 184-ft radius.	Uplift	1.0	2.6	**PASS**
	Sliding	1.0	2.6	**PASS**
		Ultimate	**Proposed**	
Base Foundation	Bearing	16.0 ksf [2]	5.2 ksf	**PASS**

Note 1: FS denotes 'Factor of Safety'.
Note 2: Based on soil boring prepared by Clarence Welti dated 6/16/97 which indicated weathered rock.

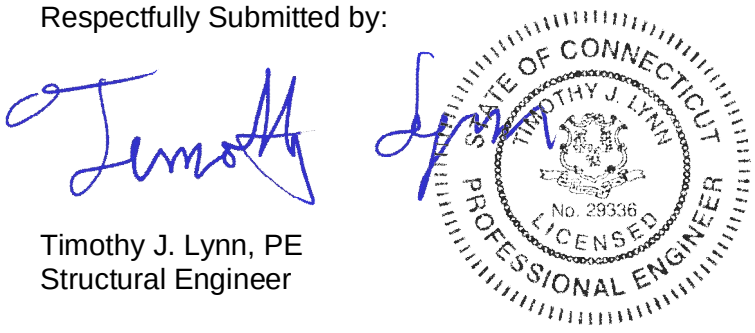
C o n c l u s i o n

This analysis shows that the subject tower **is adequate** to support the proposed equipment upgrade.

The analysis is based, in part on the information provided to this office by Eversource and AT&T. If the existing conditions are different than the information in this report, CENTEK engineering, Inc. must be contacted for resolution of any potential issues.

Please feel free to call with any questions or comments.

Respectfully Submitted by:



Timothy J. Lynn, PE
Structural Engineer

Standard Conditions for Furnishing of Professional Engineering Services on Existing Structures

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessarily limited to:

- Information supplied by the client regarding the structure itself, its foundations, the soil conditions, the antenna and feed line loading on the structure and its components, or other relevant information.
- Information from the field and/or drawings in the possession of Centek Engineering, Inc. or generated by field inspections or measurements of the structure.
- It is the responsibility of the client to ensure that the information provided to Centek Engineering, Inc. and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and are in an un-corroded condition and have not deteriorated. It is therefore assumed that its capacity has not significantly changed from the “as new” condition.
- All services will be performed to the codes specified by the client, and we do not imply to meet any other codes or requirements unless explicitly agreed in writing. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement. In the absence of information to the contrary, all work will be performed in accordance with the latest revision of ANSI/ASCE10 & ANSI/EIA-222
- All services performed, results obtained, and recommendations made are in accordance with generally accepted engineering principles and practices. Centek Engineering, Inc. is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

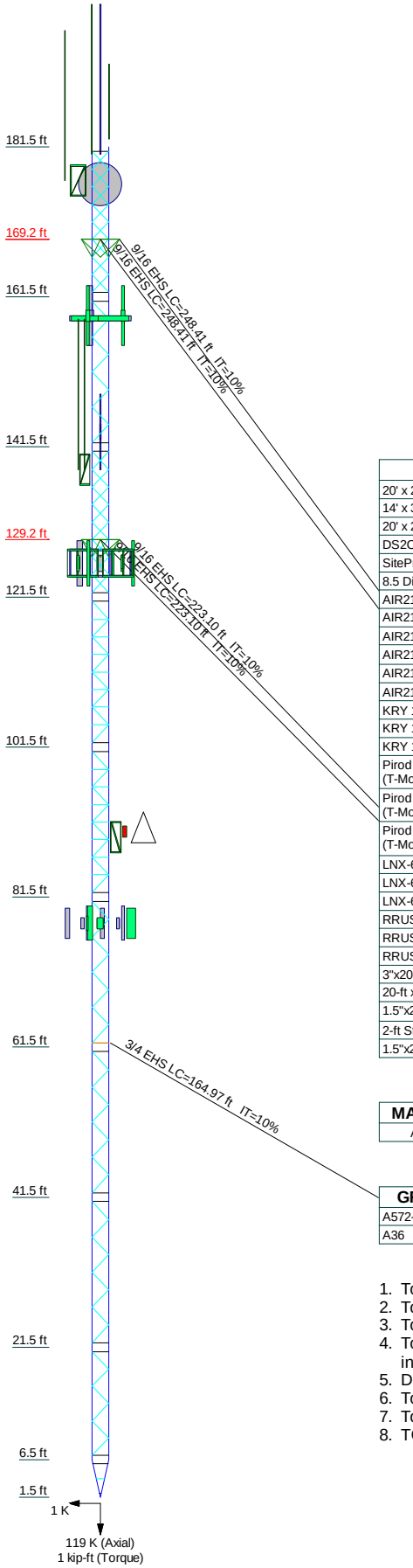
GENERAL DESCRIPTION OF STRUCTURAL ANALYSIS PROGRAM

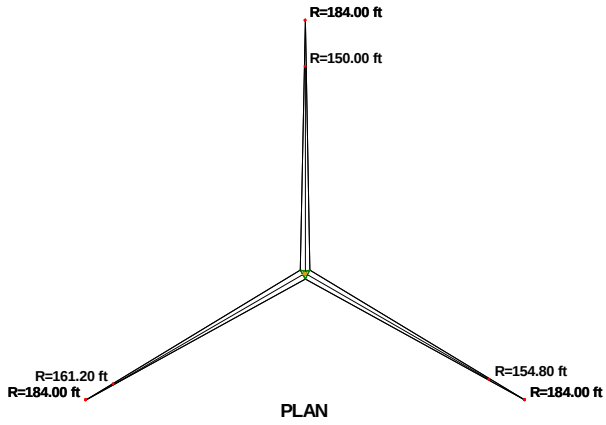
tnxTower, is an integrated structural analysis and design software package for Designed specifically for the telecommunications industry, RISATower, formerly ERITower, automates much of the tower analysis and design required by the TIA/EIA 222 Standard.

tnxTower Features:

- tnxTower can analyze and design 3- and 4-sided guyed towers, 3- and 4-sided self-supporting towers and either round or tapered ground mounted poles with or without guys.
- The program analyzes towers using the TIA-222-G (2005) standard or any of the previous TIA/EIA standards back to RS-222 (1959). Steel design is checked using the AISC ASD 9th Edition or the AISC LRFD specifications.
- Linear and non-linear (P-delta) analyses can be used in determining displacements and forces in the structure. Wind pressures and forces are automatically calculated.
- Extensive graphics plots include material take-off, shear-moment, leg compression, displacement, twist, feed line, guy anchor and stress plots.
- tnxTower contains unique features such as True Cable behavior, hog rod take-up, foundation stiffness and much more.

Section	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	
Legs					P2.5x.203						3.41
Leg Grade					A572-50						
Diagonals	L1 3/4x1 3/4x3/16	ROHN TS1.5x16 ga	L2x2x3/16	L2 1/2x2 1/2x1/2	ROHN TS1.5x16 ga	L2 1/2x2 1/2x1/2		ROHN TS1.5x16 ga	L2 1/2x2 1/2x1/2	N.A.	72 @ 2.34635
Diagonal Grade	A36	A53-B-35	A36		A53-B-35	A36		A53-B-35	A36	N.A.	
Top Girts	L1 3/4x1 3/4x3/16	ROHN TS1.5x16 ga	L2x2x3/16	L2 1/2x2 1/2x1/2	ROHN TS1.5x16 ga	L2 1/2x2 1/2x1/2		ROHN TS1.5x16 ga	L2 1/2x2 1/2x1/2	A	
Bottom Girts	L1 3/4x1 3/4x3/16	ROHN TS1.5x16 ga	L2x2x3/16	L2 1/2x2 1/2x1/2	ROHN TS1.5x16 ga	L2 1/2x2 1/2x1/2		ROHN TS1.5x16 ga	L2 1/2x2 1/2x1/2	A	
Horizontals		N.A.		L2 1/2x2 1/2x1/2				N.A.		A	
Top Guy Pull-Offs		N.A.		N.A.		4 1/2x3/8		N.A.			7 @ 2.29514
Face Width (ft)		0.5		1.4	1.8	1.0	1.3	1.1	0.5	0.4	3 @ 2
# Panels @ (ft)	13								1.0		10.3
Weight (K)											





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
20' x 2" Dia Omni (Eversource)	180.5	3-ft Side Arm (Eversource)	138.5
14' x 3" Dia Omni (Eversource)	180.5	FD-RRH 2x50 800 (Sprint)	126
20' x 2" Dia Omni (Eversource)	180.5	FD-RRH 2x50 800 (Sprint)	126
DS2C03F36D-D (Eversource)	177	FD-RRH 4x45 1900 (Sprint)	126
SitePro USF-4U (Eversource)	177	FD-RRH 4x45 1900 (Sprint)	126
8.5 Dishw/radome (NU)	176.5	FD-RRH 4x45 1900 (Sprint)	126
AIR21 (T-Mobile)	159	Rohn 6' x 12' Boom Gate (1) (Sprint)	126
AIR21 (T-Mobile)	159	Rohn 6' x 12' Boom Gate (1) (Sprint)	126
AIR21 (T-Mobile)	159	Rohn 6' x 12' Boom Gate (1) (Sprint)	126
AIR21 (T-Mobile)	159	APXVSPP18-C-A20 (Sprint)	126
AIR21 (T-Mobile)	159	APXVSPP18-C-A20 (Sprint)	126
AIR21 (T-Mobile)	159	APXVSPP18-C-A20 (Sprint)	126
KRY 112 TMA (T-Mobile)	159	FD-RRH 2x50 800 (Sprint)	126
KRY 112 TMA (T-Mobile)	159	GPS (Sprint)	89.5
KRY 112 TMA (T-Mobile)	159	3' GPS Stand-off Mount (Sprint)	89.5
Pirod 12' T-Frame Sector Mount (1) (T-Mobile)	159	DC6-48-60-18-8F Surge Arrestor (ATI)	78
		12' V-Frame (ATI)	78
Pirod 12' T-Frame Sector Mount (1) (T-Mobile)	159	12' V-Frame (ATI)	78
		DMP65R-BU4D (ATI - Proposed)	78
Pirod 12' T-Frame Sector Mount (1) (T-Mobile)	159	DMP65R-BU4D (ATI - Proposed)	78
		DMP65R-BU4D (ATI - Proposed)	78
LNX-6515DS (T-Mobile)	159	SBNHH-1D65A (ATI - Proposed)	78
LNX-6515DS (T-Mobile)	159	8843 B2/B66A (ATI - Proposed)	78
LNX-6515DS (T-Mobile)	159	SBNHH-1D65A (ATI - Proposed)	78
RRUS-11 (T-Mobile)	159	4449 B5/B12 (ATI - Proposed)	78
RRUS-11 (T-Mobile)	159	4449 B5/B12 (ATI - Proposed)	78
RRUS-11 (T-Mobile)	159	12' V-Frame (ATI)	78
3"x20-ft Omni (Eversource)	148.5	SBNHH-1D65A (ATI - Proposed)	78
20-ft x 1.9in Support Pipe (Eversource)	148.5	8843 B2/B66A (ATI - Proposed)	78
1.5"x2'omni (Eversource)	144.5	8843 B2/B66A (ATI - Proposed)	78
2-ft Stand Off (Eversource)	143.5	4449 B5/B12 (ATI - Proposed)	78
1.5"x2'omni (Eversource)	142.5		

SYMBOL LIST

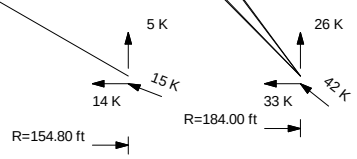
MARK	SIZE	MARK	SIZE
A	C12x20.7		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A53-B-35	35 ksi	63 ksi
A36	36 ksi	58 ksi			

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 140 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 108 mph wind.
6. Tower Risk Category III.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 70%



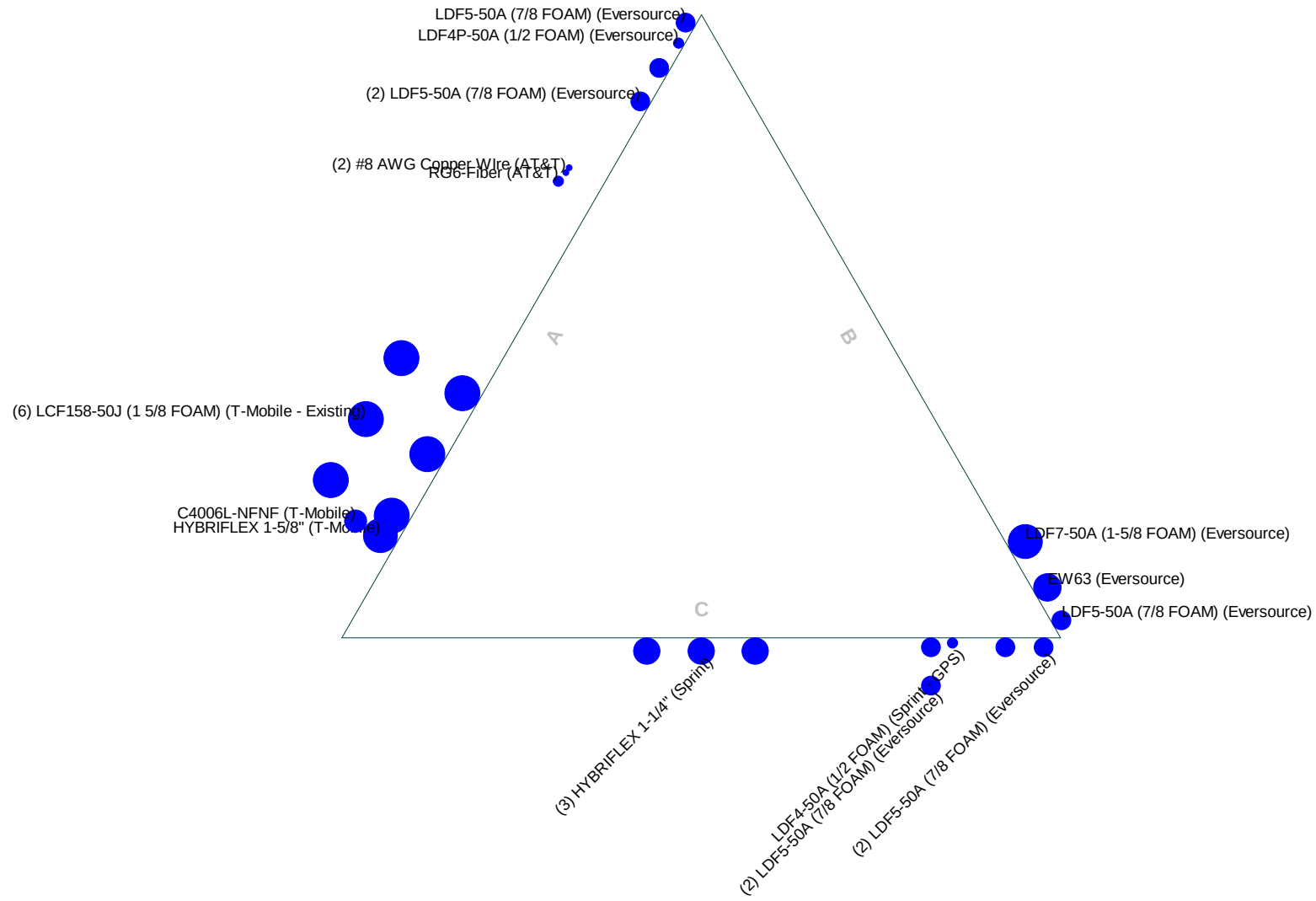
ALL REACTIONS ARE FACTORED

Centek Engineering Inc.
63-2 North Branford Rd.
Branford, CT 06405
Phone: (203) 488-0580
FAX: (203) 488-8587

Job: 22003.00 - CT5206			
Project: 180' Guyed Lattice Tower - 125 New Rd., Madison, CT			
Client: AT&T	Drawn by: TJL	App'd:	
Code: TIA-222-H	Date: 02/23/22	Scale: NTS	
Path: J:\Jobs\2200300.WI\05_Structural\Backup Documentation\ERI\180-ft Guyed Lattice Tower_Madison_CT.eri		Dwg No. E-1	

Feed Line Plan

Round Flat App In Face App Out Face

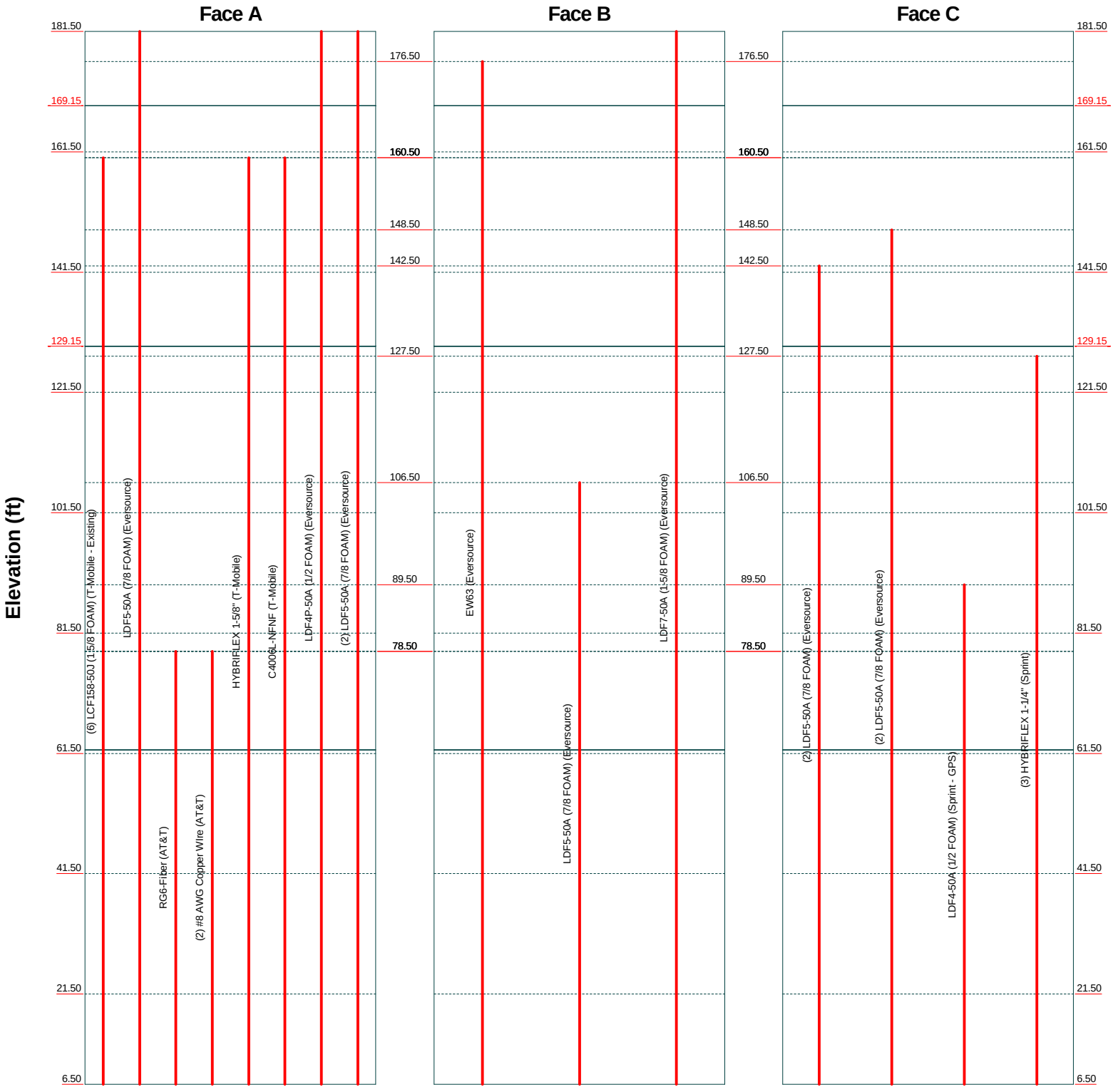


Centek Engineering Inc.
63-2 North Branford Rd.
Branford, CT 06405
Phone: (203) 488-0580
FAX: (203) 488-8587

Job: **22003.00 - CT5206**		
Project: ***180' Guyed Lattice Tower - 125 New Rd., Madison, CT***		
Client: AT&T	Drawn by: TJL	App'd:
Code: TIA-222-H	Date: 02/23/22	Scale: NTS
Path: J:\Jobs\2200300.WI\05_Structural\Backup Documentation\ERI\180-ft Guyed Lattice Tower_Madison_CT.eri		Dwg No. E-7

Feed Line Distribution Chart
6'6" - 181'6"

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



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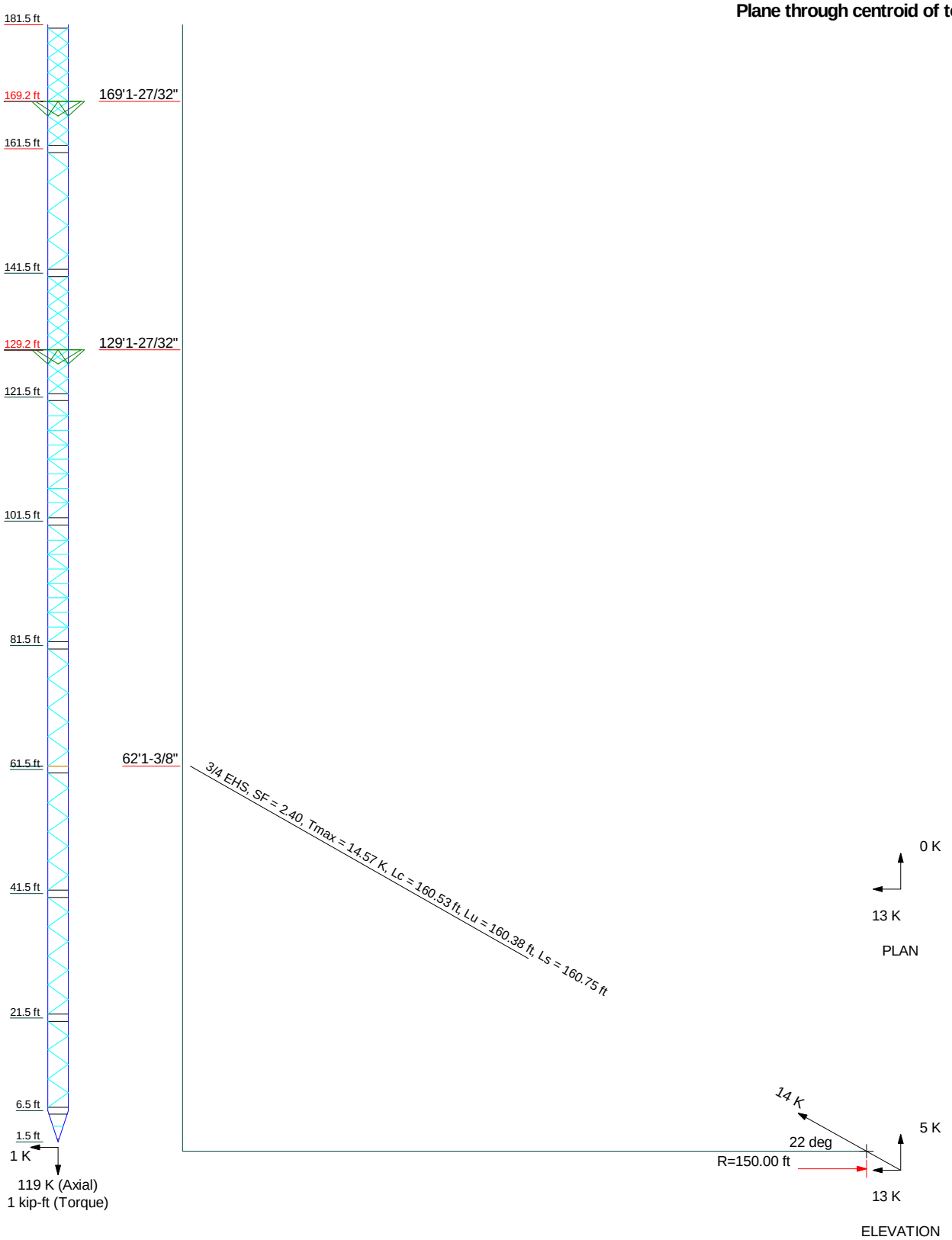
Client: AT&T	Drawn by: TJL	App'd:
Code: TIA-222-H	Date: 02/23/22	Scale: NTS
Path: J:\Jobs\2200300.WI\05_Structural\Backup Documentation\ERI\180-ft Guyed Lattice Tower_Madison_CT.eri		Dwg No. E-7

Guy Tensions and Tower Reactions

TIA-222-H - 140 mph/50 mph 1.0000 in Ice Exposure B

Maximum Values
Anchor 'A'@150 ft Azimuth 0 deg Elev 0 ft
Plane through centroid of tower



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Job: ***22003.00 - CT5206***		
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Client: AT&T	Drawn by: TJL	App'd:
Code: TIA-222-H	Date: 02/23/22	Scale: NTS
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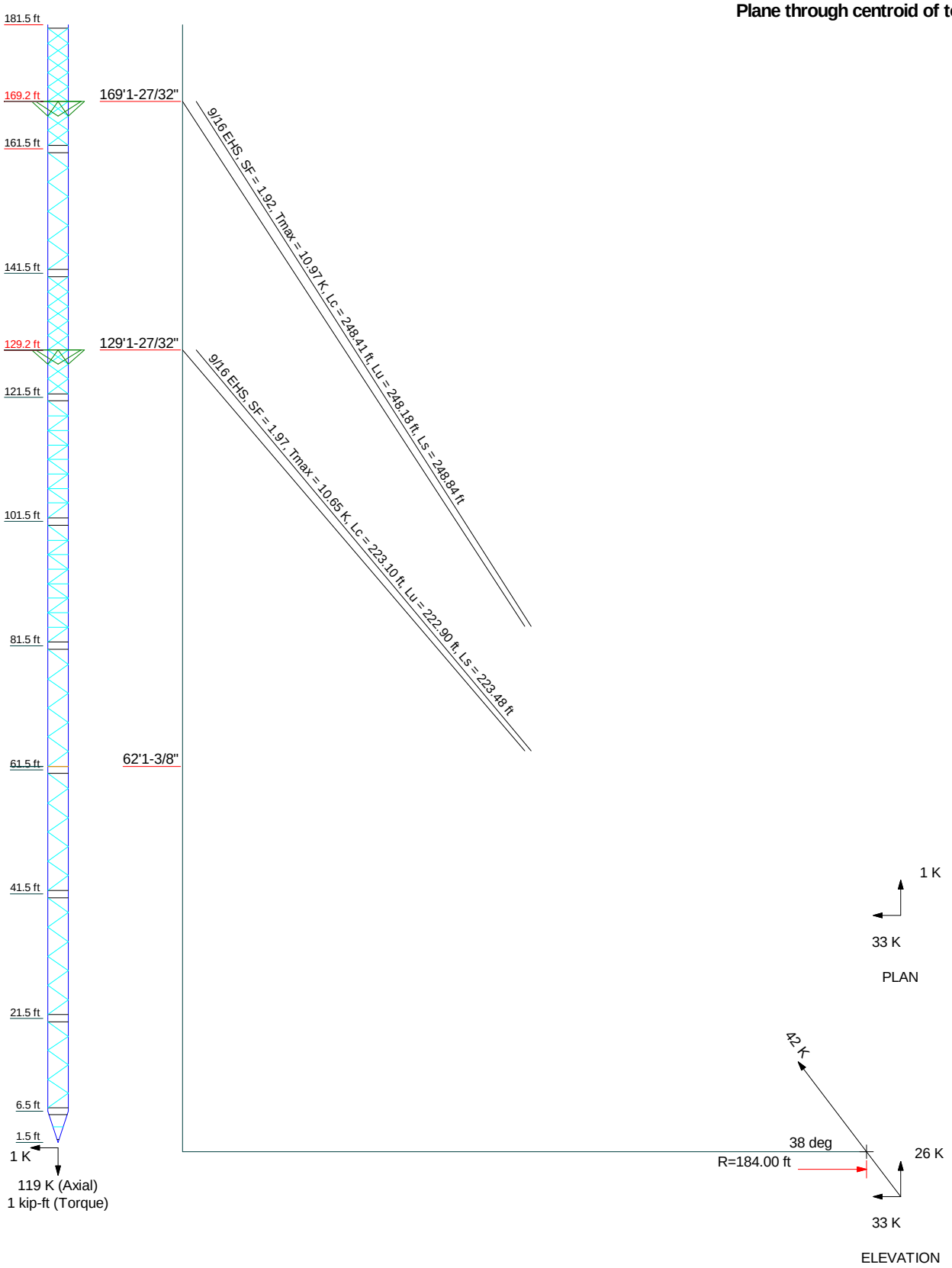
Guy Tensions and Tower Reactions

TIA-222-H - 140 mph/50 mph 1.0000 in Ice Exposure B

Maximum Values

Anchor 'A'@184 ft Azimuth 0 deg Elev 0 ft

Plane through centroid of tower



Centek Engineering Inc. 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job: ***22003.00 - CT5206***		
	Project: ***180' Guyed Lattice Tower - 125 New Rd., Madison, CT***		
	Client: AT&T	Drawn by: TJL	App'd:
	Code: TIA-222-H	Date: 02/23/22	Scale: NTS
	Path: J:\Jobs\22003\00.WI\05_Structural\Backup Documentation\ERI\180-ft Guyed Lattice Tower_Madison_CT.eri		Dwg No. E-6

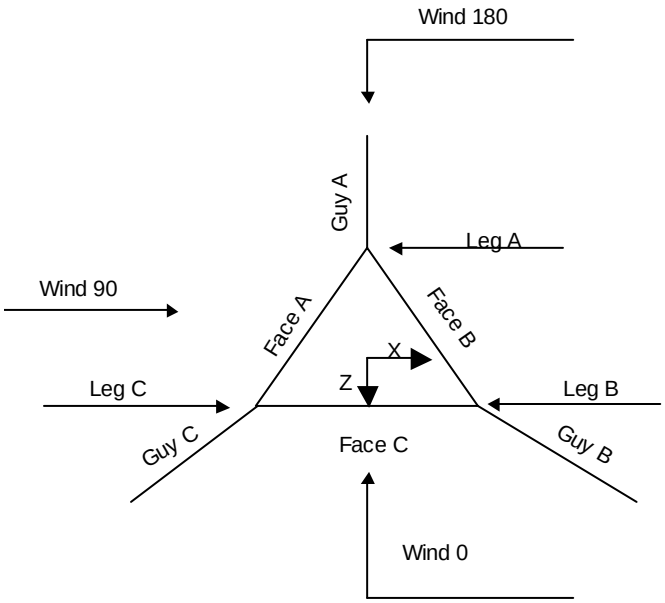
Tower Input Data

The main tower is a 3x guyed tower with an overall height of 181.50 ft above the ground line.
The base of the tower is set at an elevation of 1.50 ft above the ground line.
The face width of the tower is 3.41 ft at the top and tapered at the base.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

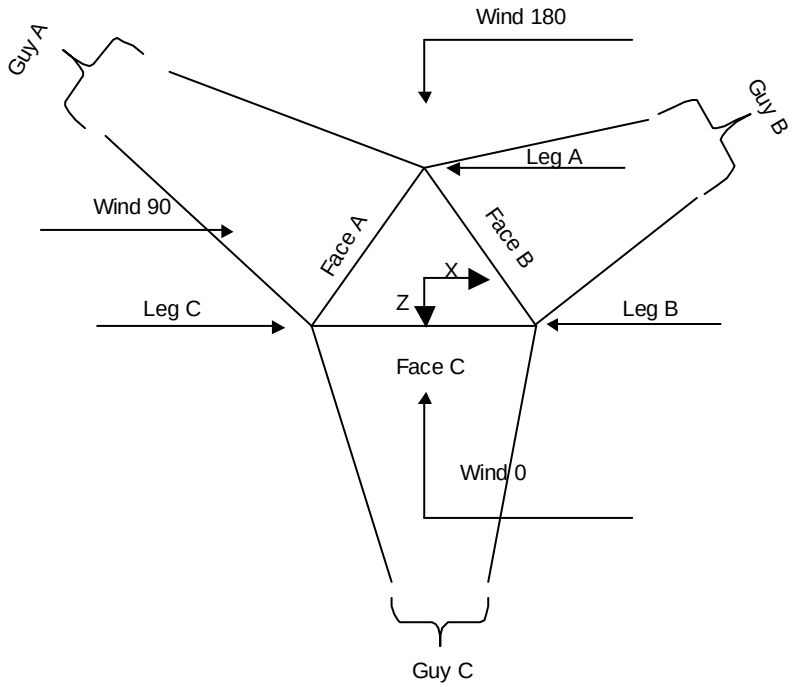
Tower is located in New Haven County, Connecticut.
Tower base elevation above sea level: 1.50 ft.
Basic wind speed of 140 mph.
Risk Category III.
Exposure Category B.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.00 ft.
Nominal ice thickness of 1.0000 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 108 mph.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.
Safety factor used in guy 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-H Bracing Resist. Exemption
√	Include Bolts In Member Capacity	√	Autocalc Torque Arm Areas		Use TIA-222-H 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		Ignore KL/ry For 60 Deg. Angle Legs		Pole Without Linear Attachments
					Pole With Shroud Or No Appurtenances
					Outside and Inside Corner Radii Are Known



Corner & Starmount Guyed Tower



Face Guyed

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	181.50-161.50			3.41	1	20.00
T2	161.50-141.50			3.41	1	20.00
T3	141.50-121.50			3.41	1	20.00
T4	121.50-101.50			3.41	1	20.00
T5	101.50-81.50			3.41	1	20.00
T6	81.50-61.50			3.41	1	20.00
T7	61.50-41.50			3.41	1	20.00
T8	41.50-21.50			3.41	1	20.00
T9	21.50-6.50			3.41	1	15.00
T10	6.50-1.50			3.41	1	5.00

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	181.50-161.50	2.35	X Brace	No	Yes	7.3750	7.3750
T2	161.50-141.50	2.35	K Brace Left	No	Yes	7.3750	7.3750
T3	141.50-121.50	2.35	X Brace	No	Yes	7.3750	7.3750
T4	121.50-101.50	2.35	K Brace Left	No	Yes	7.3750	7.3750
T5	101.50-81.50	2.35	K Brace Left	No	Yes	7.3750	7.3750
T6	81.50-61.50	2.35	K Brace Left	No	Yes	7.3750	7.3750
T7	61.50-41.50	2.35	K Brace Left	No	Yes	7.3750	7.3750
T8	41.50-21.50	2.35	K Brace Left	No	Yes	7.3750	7.3750
T9	21.50-6.50	2.30	K Brace Left	No	Yes	7.3750	7.3750
T10	6.50-1.50	2.00	X Brace	No	Yes	6.0000	6.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 181.50-161.50	Pipe	P2.5x.203	A572-50 (50 ksi)	Equal Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)
T2 161.50-141.50	Pipe	P2.5x.203	A572-50 (50 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-35 (35 ksi)
T3 141.50-121.50	Pipe	P2.5x.203	A572-50 (50 ksi)	Equal Angle	L2x2x3/16	A36 (36 ksi)
T4 121.50-101.50	Pipe	P2.5x.203	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x1/2	A36 (36 ksi)
T5 101.50-81.50	Pipe	P2.5x.203	A572-50 (50 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-35 (35 ksi)
T6 81.50-61.50	Pipe	P2.5x.203	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x1/2	A36 (36 ksi)
T7 61.50-41.50	Pipe	P2.5x.203	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x1/2	A36 (36 ksi)
T8 41.50-21.50	Pipe	P2.5x.203	A572-50 (50 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-35 (35 ksi)
T9 21.50-6.50	Pipe	P2.5x.203	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x1/2	A36 (36 ksi)
T10 6.50-1.50	Pipe	P2.5x.203	A572-50 (50 ksi)	Equal Angle		A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 181.50-161.50	Equal Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)	Equal Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)
T2 161.50-141.50	Pipe	ROHN TS1.5x16 ga	A36 (36 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-35 (35 ksi)
T3 141.50-121.50	Equal Angle	L2x2x3/16	A36 (36 ksi)	Equal Angle	L2x2x3/16	A36 (36 ksi)
T4 121.50-101.50	Equal Angle	L2 1/2x2 1/2x1/2	A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x1/2	A36 (36 ksi)
T5 101.50-81.50	Pipe	ROHN TS1.5x16 ga	A36	Pipe	ROHN TS1.5x16 ga	A53-B-35

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T6 81.50-61.50	Equal Angle	L2 1/2x2 1/2x1/2	(36 ksi) A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x1/2	(35 ksi) A36 (36 ksi)
T7 61.50-41.50	Pipe	ROHN TS1.5x16 ga	A36 (36 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-35 (35 ksi)
T8 41.50-21.50	Pipe	ROHN TS1.5x16 ga	A36 (36 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-35 (35 ksi)
T9 21.50-6.50	Equal Angle	L2 1/2x2 1/2x1/2	A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x1/2	A36 (36 ksi)
T10 6.50-1.50	Channel	C12x20.7	A36 (36 ksi)	Channel	C12x20.7	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T4 121.50-101.50	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x1/2	A572-50 (50 ksi)
T5 101.50-81.50	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x1/2	A572-50 (50 ksi)
T10 6.50-1.50	None	Channel		A36 (36 ksi)	Channel	C12x20.7	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 181.50-161.50	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	36.0000	36.0000
T2 161.50-141.50	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	36.0000	36.0000
T3 141.50-121.50	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	36.0000	36.0000
T4 121.50-101.50	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	36.0000	36.0000
T5 101.50-81.50	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	36.0000	36.0000
T6 81.50-61.50	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	36.0000	36.0000
T7 61.50-41.50	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	36.0000	36.0000
T8 41.50-21.50	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	36.0000	36.0000
T9 21.50-6.50	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	36.0000	36.0000
T10 6.50-1.50	0.00	0.0000	A36	1	1	1	0.0000	36.0000	36.0000

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
			(36 ksi)						

Tower Section Geometry *(cont'd)*

Tower Elevation	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X	X Brace Diags Y	K Single Diags X	K Single Diags Y	Girts X	Girts Y	Horiz. X	Horiz. Y	Sec. Horiz. X	Sec. Horiz. Y	Inner Brace X	Inner Brace Y
ft															
T1	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1
181.50-161.50				1	1	1	1	1	1	1	1	1	1	1	1
T2	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1
161.50-141.50				1	1	1	1	1	1	1	1	1	1	1	1
T3	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1
141.50-121.50				1	1	1	1	1	1	1	1	1	1	1	1
T4	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1
121.50-101.50				1	1	1	1	1	1	1	1	1	1	1	1
T5	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1
101.50-81.50				1	1	1	1	1	1	1	1	1	1	1	1
T6	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1
81.50-61.50				1	1	1	1	1	1	1	1	1	1	1	1
T7	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1
61.50-41.50				1	1	1	1	1	1	1	1	1	1	1	1
T8	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1
41.50-21.50				1	1	1	1	1	1	1	1	1	1	1	1
T9 21.50-6.50	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1	1	1	1	1	1
T10 6.50-1.50	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1	1	1	1	1	1

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

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Net Width Deduct in	Leg U	Diagonal Net Width Deduct in	Diagonal U	Top Girt Net Width Deduct in	Top Girt U	Bottom Girt Net Width Deduct in	Bottom Girt U	Mid Girt Net Width Deduct in	Mid Girt U	Long Horizontal Net Width Deduct in	Long Horizontal U	Short Horizontal Net Width Deduct in	Short Horizontal U
T1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
181.50-161.50														
T2	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
161.50-141.50														
T3	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
141.50-121.50														
T4	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
121.50-101.50														

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T5 101.50-81.50	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 81.50-61.50	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 61.50-41.50	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 41.50-21.50	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 21.50-6.50	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T10 6.50-1.50	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 181.50-161.50	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 161.50-141.50	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 141.50-121.50	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 121.50-101.50	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 101.50-81.50	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 81.50-61.50	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 61.50-41.50	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 41.50-21.50	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 21.50-6.50	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T10 6.50-1.50	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 181.50-161.50	Flange	0.7500 A325N	4	0.5000 A325N	1	0.5000 A325N	1	0.5000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T2 161.50-141.50	Flange	0.7500 A325N	4	0.5000 A325N	1	0.5000 A325N	1	0.5000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T3 141.50-121.50	Flange	0.7500 A325N	4	0.5000 A325N	1	0.5000 A325N	1	0.5000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T4 121.50-101.50	Flange	0.7500 A325N	4	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T5 101.50-81.50	Flange	0.7500 A325N	4	0.5000 A325X	1	0.5000 A325N	1	0.5000 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T6 81.50-61.50	Flange	0.7500 A325N	4	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Tower Elevation ft	Leg Connection Type	Leg Bolt Size in	Leg No.	Diagonal Bolt Size in	Diagonal No.	Top Girt Bolt Size in	Top Girt No.	Bottom Girt Bolt Size in	Bottom Girt No.	Mid Girt Bolt Size in	Mid Girt No.	Long Horizontal Bolt Size in	Long Horizontal No.	Short Horizontal Bolt Size in	Short Horizontal No.
T7 61.50-41.50	Flange	0.7500 A325N	4	0.6250 A325N	1	0.5000 A325N	1	0.5000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T8 41.50-21.50	Flange	0.7500 A325N	4	0.5000 A325N	1	0.5000 A325N	1	0.5000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T9 21.50-6.50	Flange	0.7500 A325N	4	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T10 6.50-1.50	Flange	0.7500 A325N	4	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Guy Data

Guy Elevation ft	Guy Grade		Guy Size	Initial Tension K	%	Guy Modulus ksi	Guy Weight plf	L_u ft	Anchor Radius ft	Anchor Azimuth Adj. °	Anchor Elevation ft	End Fitting Efficiency %
169.154	EHS	A	9/16	3.50	10%	21000	0.671	248.21	184.00	0.0000	0.00	100%
		B	9/16	3.50	10%	21000	0.671	248.21	184.00	0.0000	0.00	100%
		C	9/16	3.50	10%	21000	0.671	248.21	184.00	0.0000	0.00	100%
129.154	EHS	A	9/16	3.50	10%	21000	0.671	222.92	184.00	0.0000	0.00	100%
		B	9/16	3.50	10%	21000	0.671	222.92	184.00	0.0000	0.00	100%
		C	9/16	3.50	10%	21000	0.671	222.92	184.00	0.0000	0.00	100%
62.1146	EHS	A	3/4	5.83	10%	19000	1.155	160.39	150.00	0.0000	0.00	100%
		B	3/4	5.83	10%	19000	1.155	164.83	154.80	0.0000	0.00	100%
		C	3/4	5.83	10%	19000	1.155	170.77	161.20	0.0000	0.00	100%

Guy Data *(cont'd)*

Guy Elevation ft	Mount Type	Torque-Arm Spread ft	Torque-Arm Leg Angle °	Torque-Arm Style	Torque-Arm Grade	Torque-Arm Type	Torque-Arm Size
169.154	Torque Arm	7.33	30.0000	Bat Ear	A53-B-35 (35 ksi)	Pipe	P4x.237
129.154	Torque Arm	7.33	30.0000	Bat Ear	A53-B-35 (35 ksi)	Pipe	P4x.237
62.1146	Corner						

Guy Data *(cont'd)*

Guy Elevation ft	Diagonal Grade	Diagonal Type	Upper Diagonal Size	Lower Diagonal Size	Is Strap.	Pull-Off Grade	Pull-Off Type	Pull-Off Size
169.15	A572-50 (50 ksi)	Solid Round				A36 (36 ksi)	Solid Round	
129.15	A572-50	Solid Round				A36	Solid Round	

Guy Elevation ft	Diagonal Grade	Diagonal Type	Upper Diagonal Size	Lower Diagonal Size	Is Strap.	Pull-Off Grade	Pull-Off Type	Pull-Off Size
62.11	(50 ksi) A572-50 (50 ksi)	Solid Round			Yes	(36 ksi) A36 (36 ksi)	Flat Bar	4 1/2x3/8

Guy Data *(cont'd)*

Guy Elevation ft	Cable Weight A K	Cable Weight B K	Cable Weight C K	Cable Weight D K	Tower Intercept A ft	Tower Intercept B ft	Tower Intercept C ft	Tower Intercept D ft
169.154	0.17	0.17	0.17		5.82 4.2 sec/pulse	5.82 4.2 sec/pulse	5.82 4.2 sec/pulse	
129.154	0.15	0.15	0.15		4.71 3.7 sec/pulse	4.71 3.7 sec/pulse	4.71 3.7 sec/pulse	
62.1146	0.19	0.19	0.20		2.54 2.7 sec/pulse	2.68 2.8 sec/pulse	2.87 2.9 sec/pulse	

Guy Data *(cont'd)*

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Torque Arm K_x	Torque Arm K_y	Pull Off K_x	Pull Off K_y	Diagonal K_x	Diagonal K_y
169.154	No	No	1	1	1	1	1	1
129.154	No	No	1	1	1	1	1	1
62.1146	No	No			1	1	1	1

Guy Data *(cont'd)*

Guy Elevation ft	Torque-Arm Bolt Size in	Torque-Arm Number	Torque-Arm Net Width Deduct in	Torque-Arm U	Pull Off Bolt Size in	Pull Off Number	Pull Off Net Width Deduct in	Pull Off U	Diagonal Bolt Size in	Diagonal Number	Diagonal Net Width Deduct in	Diagonal U
169.154	0.0000 A325N	0	0.0000	1	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
129.154	0.0000 A325N	0	0.0000	1	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
62.1146	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	4	0.0000	1	0.0000 A325N	0	0.0000	1

Guy Pressures

Guy Elevation ft	Guy Location	z ft	q_z psf	q_z Ice psf	Ice Thickness in
169.154	A	84.58	40	5	1.2635
	B	84.58	40	5	1.2635
	C	84.58	40	5	1.2635
129.154	A	64.58	37	5	1.2299
	B	64.58	37	5	1.2299
	C	64.58	37	5	1.2299
62.1146	A	31.06	30	4	1.1430
	B	31.06	30	4	1.1430
	C	31.06	30	4	1.1430

Guy-Mast Forces (Excluding Wind) - No Ice

Guy Elevation ft	Guy Location	Chord Angle °	Guy Tension Top / Bottom K	F_x K	F_y K	F_z K	M_x kip-ft	M_y kip-ft	M_z kip-ft
169.154	A	42.9174	3.61 / 3.50	-0.05	2.51	-2.60	-5.30	9.66	-9.19
	A	42.9174	3.61 / 3.50	0.05	2.51	-2.60	-5.30	-9.66	9.19
	B	42.9174	3.61 / 3.50	2.28	2.51	1.26	10.61	9.66	0.00
	B	42.9174	3.61 / 3.50	2.23	2.51	1.35	-5.30	-9.66	-9.19
	C	42.9174	3.61 / 3.50	-2.23	2.51	1.35	-5.30	9.66	9.19
	C	42.9174	3.61 / 3.50	-2.28	2.51	1.26	10.61	-9.66	0.00
			Sum:	0.00	15.03	0.00	-0.00	0.00	0.00
129.154	A	35.3728	3.59 / 3.50	-0.06	2.13	-2.89	-4.50	10.71	-7.79
	A	35.3728	3.59 / 3.50	0.06	2.13	-2.89	-4.50	-10.71	7.79
	B	35.3728	3.59 / 3.50	2.53	2.13	1.39	9.00	10.71	0.00
	B	35.3728	3.59 / 3.50	2.47	2.13	1.49	-4.50	-10.71	-7.79
	C	35.3728	3.59 / 3.50	-2.47	2.13	1.49	-4.50	10.71	7.79
	C	35.3728	3.59 / 3.50	-2.53	2.13	1.39	9.00	-10.71	0.00
			Sum:	0.00	12.76	0.00	-0.00	0.00	0.00
62.1146	A	22.7631	5.90 / 5.83	0.00	2.36	-5.41	-4.65	0.00	0.00
	B	22.1181	5.90 / 5.83	4.71	2.30	2.72	2.27	0.00	-3.93
	C	21.3103	5.90 / 5.83	-4.73	2.23	2.73	2.20	-0.00	3.80
			Sum:	**-0.03**	6.90	**0.04**	**-0.19**	0.00	**-0.13**

Guy-Mast Forces (Excluding Wind) - Ice

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top / Bottom	F_x	F_y	F_z	M_x	M_y	M_z
ft		°	K	K	K	K	kip-ft	kip-ft	kip-ft
169.154	A	42.9174	6.67 6.08	-0.09	4.77	-4.66	-10.10	17.28	-17.50
	A	42.9174	6.67 6.08	0.09	4.77	-4.66	-10.10	-17.28	17.50
	B	42.9174	6.67 6.08	4.08	4.77	2.25	20.20	17.28	0.00
	B	42.9174	6.67 6.08	3.99	4.77	2.41	-10.10	-17.28	-17.50
	C	42.9174	6.67 6.08	-3.99	4.77	2.41	-10.10	17.28	17.50
	C	42.9174	6.67 6.08	-4.08	4.77	2.25	20.20	-17.28	0.00
			Sum:	0.00	28.63	0.00	-0.00	0.00	0.00
129.154	A	35.3728	6.50 6.07	-0.10	4.01	-5.12	-8.50	18.98	-14.72
	A	35.3728	6.50 6.07	0.10	4.01	-5.12	-8.50	-18.98	14.72
	B	35.3728	6.50 6.07	4.48	4.01	2.47	16.99	18.98	0.00
	B	35.3728	6.50 6.07	4.38	4.01	2.65	-8.50	-18.98	-14.72
	C	35.3728	6.50 6.07	-4.38	4.01	2.65	-8.50	18.98	14.72
	C	35.3728	6.50 6.07	-4.48	4.01	2.47	16.99	-18.98	0.00
			Sum:	0.00	24.08	0.00	-0.00	0.00	0.00
62.1146	A	22.7631	8.92 8.68	0.00	3.71	-8.11	-7.30	0.00	0.00
	B	22.1181	8.96 8.73	7.09	3.64	4.09	3.59	0.00	-6.21
	C	21.3103	9.02 8.79	-7.18	3.56	4.15	3.50	-0.00	6.07
			Sum:	**-0.09**	10.91	**0.13**	**-0.21**	0.00	**-0.14**

Guy-Mast Forces (Excluding Wind) - Service

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top / Bottom	F_x	F_y	F_z	M_x	M_y	M_z
ft		°	K	K	K	K	kip-ft	kip-ft	kip-ft
169.154	A	42.9174	3.61 3.50	-0.05	2.51	-2.60	-5.30	9.66	-9.19
	A	42.9174	3.61 3.50	0.05	2.51	-2.60	-5.30	-9.66	9.19
	B	42.9174	3.61 3.50	2.28	2.51	1.26	10.61	9.66	0.00
	B	42.9174	3.61 3.50	2.23	2.51	1.35	-5.30	-9.66	-9.19
	C	42.9174	3.61 3.50	-2.23	2.51	1.35	-5.30	9.66	9.19
	C	42.9174	3.61 3.50	-2.28	2.51	1.26	10.61	-9.66	0.00
			Sum:	0.00	15.03	0.00	-0.00	0.00	0.00

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom K	F_x	F_y	F_z	M_x	M_y	M_z
ft		°		K	K	K	kip-ft	kip-ft	kip-ft
129.154	A	35.3728	3.59 3.50	-0.06	2.13	-2.89	-4.50	10.71	-7.79
	A	35.3728	3.59 3.50	0.06	2.13	-2.89	-4.50	-10.71	7.79
	B	35.3728	3.59 3.50	2.53	2.13	1.39	9.00	10.71	0.00
	B	35.3728	3.59 3.50	2.47	2.13	1.49	-4.50	-10.71	-7.79
	C	35.3728	3.59 3.50	-2.47	2.13	1.49	-4.50	10.71	7.79
	C	35.3728	3.59 3.50	-2.53	2.13	1.39	9.00	-10.71	0.00
			Sum:	0.00	12.76	0.00	-0.00	0.00	0.00
62.1146	A	22.7631	5.90 5.83	0.00	2.36	-5.41	-4.65	0.00	0.00
	B	22.1181	5.90 5.83	4.71	2.30	2.72	2.27	0.00	-3.93
	C	21.3103	5.90 5.83	-4.73	2.23	2.73	2.20	-0.00	3.80
			Sum:	**-0.03**	6.90	**0.04**	**-0.19**	0.00	**-0.13**

Guy-Tensioning Information

Guy Elevation		H	V	Temperature At Time Of Tensioning: 0 F Initial Tension	0 F Intercept	20 F Initial Tension	20 F Intercept	40 F Initial Tension	40 F Intercept	60 F Initial Tension	60 F Intercept	80 F Initial Tension	80 F Intercept	100 F Initial Tension	100 F Intercept	120 F Initial Tension	120 F Intercept
ft		ft	ft	K	ft	K	ft	K	ft	K	ft	K	ft	K	ft	K	ft
169.154	A	181.92	169.15	4.289	4.76	4.022	5.07	3.759	5.42	3.500	5.82	3.247	6.26	3.001	6.77	2.764	7.34
	B	181.92	169.15	4.289	4.76	4.022	5.07	3.759	5.42	3.500	5.82	3.247	6.26	3.001	6.77	2.764	7.34
	C	181.92	169.15	4.289	4.76	4.022	5.07	3.759	5.42	3.500	5.82	3.247	6.26	3.001	6.77	2.764	7.34
129.154	A	181.92	129.15	4.481	3.69	4.149	3.98	3.821	4.32	3.500	4.71	3.188	5.17	2.887	5.70	2.602	6.31
	B	181.92	129.15	4.481	3.69	4.149	3.98	3.821	4.32	3.500	4.71	3.188	5.17	2.887	5.70	2.602	6.31
	C	181.92	129.15	4.481	3.69	4.149	3.98	3.821	4.32	3.500	4.71	3.188	5.17	2.887	5.70	2.602	6.31
62.1146	A	148.03	62.11	7.848	1.89	7.166	2.06	6.493	2.28	5.830	2.54	5.183	2.85	4.560	3.24	3.970	3.71
	B	152.83	62.11	7.861	1.99	7.174	2.18	6.496	2.40	5.830	2.68	5.181	3.01	4.557	3.42	3.968	3.92
	C	159.23	62.11	7.875	2.13	7.183	2.33	6.500	2.58	5.830	2.87	5.179	3.23	4.554	3.67	3.968	4.21

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
LDF5-50A (7/8 FOAM) (Eversource)	C	No	No	Ar (CaAa)	142.50 - 6.50	0.0000	-0.32	2	1	1.0900	1.0900		0.33
LDF5-50A (7/8 FOAM) (Eversource)	C	No	No	Ar (CaAa)	148.50 - 6.50	0.0000	-0.45	2	2	1.0900	1.0900		0.33
LDF4-50A (1/2 FOAM)	C	No	No	Ar (CaAa)	89.50 - 6.50	0.0000	-0.35	1	1	0.6300	0.6300		0.15

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
(Sprint - GPS) EW63 (Eversource)	B	No	No	Ar (CaAa)	176.50 - 6.50	0.0000	0.43	1	1	1.5742	1.5742		0.51
LDF5-50A (7/8 FOAM) (Eversource)	B	No	No	Ar (CaAa)	106.50 - 6.50	0.0000	0.48	1	1	1.0900	1.0900		0.33
LDF7-50A (1-5/8 FOAM) (Eversource)	B	No	No	Ar (CaAa)	181.50 - 6.50	0.0000	0.36	1	1	1.9800	1.9800		0.82
LCF158-50J (1 5/8 FOAM) (T-Mobile - Existing)	A	No	No	Ar (CaAa)	160.50 - 6.50	0.0000	-0.22	6	3	2.0100	2.0100		0.92
LDF5-50A (7/8 FOAM) (Eversource)	A	No	No	Ar (CaAa)	181.50 - 6.50	0.0000	0.48	1	1	1.0900	1.0900		0.33
RG6-Fiber (AT&T)	A	No	No	Ar (CaAa)	78.50 - 6.50	2.0000	0.2	1	1	0.0000	0.6250		0.50
#8 AWG Copper WIre (AT&T)	A	No	No	Ar (CaAa)	78.50 - 6.50	2.0000	0.22	2	2	0.0000	0.3400		0.05
HYBRIFLEX 1-1/4" (Sprint)	C	No	No	Ar (CaAa)	127.50 - 6.50	0.0000	0	3	3	1.5400	1.5400		1.30
HYBRIFLEX 1-5/8" (T-Mobile)	A	No	No	Ar (CaAa)	160.50 - 6.50	0.0000	-0.35	1	1	1.9800	1.9800		1.90
C4006L-NFNF (T-Mobile)	A	No	No	Ar (CaAa)	160.50 - 6.50	2.0000	-0.35	1	1	1.2800	1.2800		0.56
LDF4P-50A (1/2 FOAM) (Eversource)	A	No	No	Ar (CaAa)	181.50 - 6.50	0.0000	0.45	1	1	0.6300	0.6300		0.15
LDF5-50A (7/8 FOAM) (Eversource)	A	No	No	Ar (CaAa)	181.50 - 6.50	0.0000	0.38	2	2	1.0900	1.0900		0.33

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	181.50-161.50	A	0.000	0.000	7.800	0.000	0.02
		B	0.000	0.000	6.321	0.000	0.02
		C	0.000	0.000	0.000	0.000	0.00
T2	161.50-141.50	A	0.000	0.000	36.908	0.000	0.17
		B	0.000	0.000	7.108	0.000	0.03
		C	0.000	0.000	1.744	0.000	0.01
T3	141.50-121.50	A	0.000	0.000	38.440	0.000	0.18
		B	0.000	0.000	7.108	0.000	0.03
		C	0.000	0.000	11.492	0.000	0.05
T4	121.50-101.50	A	0.000	0.000	38.440	0.000	0.18
		B	0.000	0.000	7.653	0.000	0.03
		C	0.000	0.000	17.960	0.000	0.10
T5	101.50-81.50	A	0.000	0.000	38.440	0.000	0.18
		B	0.000	0.000	9.288	0.000	0.03

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	18.464	0.000	0.11
T6	81.50-61.50	A	0.000	0.000	40.658	0.000	0.19
		B	0.000	0.000	9.288	0.000	0.03
		C	0.000	0.000	19.220	0.000	0.11
T7	61.50-41.50	A	0.000	0.000	41.050	0.000	0.19
		B	0.000	0.000	9.288	0.000	0.03
		C	0.000	0.000	19.220	0.000	0.11
T8	41.50-21.50	A	0.000	0.000	41.050	0.000	0.19
		B	0.000	0.000	9.288	0.000	0.03
		C	0.000	0.000	19.220	0.000	0.11
T9	21.50-6.50	A	0.000	0.000	30.787	0.000	0.15
		B	0.000	0.000	6.966	0.000	0.02
		C	0.000	0.000	14.415	0.000	0.08
T10	6.50-1.50	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	181.50-161.50	A	1.356	0.000	0.000	32.009	0.000	0.31
		B		0.000	0.000	15.814	0.000	0.21
		C		0.000	0.000	0.000	0.000	0.00
T2	161.50-141.50	A	1.339	0.000	0.000	84.761	0.000	1.28
		B		0.000	0.000	17.823	0.000	0.23
		C		0.000	0.000	7.042	0.000	0.06
T3	141.50-121.50	A	1.321	0.000	0.000	86.989	0.000	1.32
		B		0.000	0.000	17.672	0.000	0.23
		C		0.000	0.000	43.316	0.000	0.42
T4	121.50-101.50	A	1.299	0.000	0.000	86.344	0.000	1.30
		B		0.000	0.000	19.343	0.000	0.24
		C		0.000	0.000	62.397	0.000	0.65
T5	101.50-81.50	A	1.273	0.000	0.000	85.585	0.000	1.28
		B		0.000	0.000	24.570	0.000	0.30
		C		0.000	0.000	64.423	0.000	0.66
T6	81.50-61.50	A	1.242	0.000	0.000	98.961	0.000	1.36
		B		0.000	0.000	24.198	0.000	0.29
		C		0.000	0.000	67.482	0.000	0.68
T7	61.50-41.50	A	1.202	0.000	0.000	99.845	0.000	1.34
		B		0.000	0.000	23.716	0.000	0.28
		C		0.000	0.000	66.510	0.000	0.66
T8	41.50-21.50	A	1.145	0.000	0.000	97.488	0.000	1.29
		B		0.000	0.000	23.024	0.000	0.26
		C		0.000	0.000	65.113	0.000	0.62
T9	21.50-6.50	A	1.056	0.000	0.000	70.384	0.000	0.91
		B		0.000	0.000	16.466	0.000	0.18
		C		0.000	0.000	47.219	0.000	0.43
T10	6.50-1.50	A	0.931	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	0.00

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
T1	181.50-161.50	1.3590	-1.6786	1.2050	-2.9681
T2	161.50-141.50	-4.4789	-0.5523	-3.0553	-1.8824
T3	141.50-121.50	-2.3110	0.7118	-0.5584	0.4787
T4	121.50-101.50	-2.0527	1.3497	-0.4208	1.3256
T5	101.50-81.50	-1.9666	1.6795	0.0493	1.7303
T6	81.50-61.50	-1.8707	1.3965	-0.1726	1.1659
T7	61.50-41.50	-1.9982	1.4103	-0.2730	1.0897
T8	41.50-21.50	-2.3073	1.5747	-0.3242	1.1713
T9	21.50-6.50	-1.9275	1.3699	-0.3534	1.1514
T10	6.50-1.50	0.0000	0.0000	0.0000	0.0000

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	5	EW63	161.50 - 176.50	0.6000	0.4339
T1	7	LDF7-50A (1-5/8 FOAM)	161.50 - 181.50	0.6000	0.4339
T1	9	LDF5-50A (7/8 FOAM)	161.50 - 181.50	0.6000	0.4339
T1	16	LDF4P-50A (1/2 FOAM)	161.50 - 181.50	0.6000	0.4339
T1	17	LDF5-50A (7/8 FOAM)	161.50 - 181.50	0.6000	0.4339
T2	1	LDF5-50A (7/8 FOAM)	141.50 - 142.50	0.6000	0.5941
T2	2	LDF5-50A (7/8 FOAM)	141.50 - 148.50	0.6000	0.5941
T2	5	EW63	141.50 - 161.50	0.6000	0.5941
T2	7	LDF7-50A (1-5/8 FOAM)	141.50 - 161.50	0.6000	0.5941
T2	8	LCF158-50J (1 5/8 FOAM)	141.50 - 160.50	0.6000	0.5941
T2	9	LDF5-50A (7/8 FOAM)	141.50 - 161.50	0.6000	0.5941
T2	13	HYBRIFLEX 1-5/8"	141.50 - 160.50	0.6000	0.5941
T2	14	C4006L-NFNF	141.50 - 160.50	0.6000	0.5941
T2	16	LDF4P-50A (1/2 FOAM)	141.50 - 161.50	0.6000	0.5941
T2	17	LDF5-50A (7/8 FOAM)	141.50 - 161.50	0.6000	0.5941
T3	1	LDF5-50A (7/8 FOAM)	121.50 - 141.50	0.6000	0.4230
T3	2	LDF5-50A (7/8 FOAM)	121.50 - 141.50	0.6000	0.4230
T3	5	EW63	121.50 - 141.50	0.6000	0.4230
T3	7	LDF7-50A (1-5/8 FOAM)	121.50 - 141.50	0.6000	0.4230
T3	8	LCF158-50J (1 5/8 FOAM)	121.50 -	0.6000	0.4230

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T3	9	LDF5-50A (7/8 FOAM)	121.50 - 141.50	0.6000	0.4230
T3	12	HYBRIFLEX 1-1/4"	121.50 - 127.50	0.6000	0.4230
T3	13	HYBRIFLEX 1-5/8"	121.50 - 141.50	0.6000	0.4230
T3	14	C4006L-NFNF	121.50 - 141.50	0.6000	0.4230
T3	16	LDF4P-50A (1/2 FOAM)	121.50 - 141.50	0.6000	0.4230
T3	17	LDF5-50A (7/8 FOAM)	121.50 - 141.50	0.6000	0.4230
T4	1	LDF5-50A (7/8 FOAM)	101.50 - 121.50	0.6000	0.4381
T4	2	LDF5-50A (7/8 FOAM)	101.50 - 121.50	0.6000	0.4381
T4	5	EW63	101.50 - 121.50	0.6000	0.4381
T4	6	LDF5-50A (7/8 FOAM)	101.50 - 106.50	0.6000	0.4381
T4	7	LDF7-50A (1-5/8 FOAM)	101.50 - 121.50	0.6000	0.4381
T4	8	LCF158-50J (1 5/8 FOAM)	101.50 - 121.50	0.6000	0.4381
T4	9	LDF5-50A (7/8 FOAM)	101.50 - 121.50	0.6000	0.4381
T4	12	HYBRIFLEX 1-1/4"	101.50 - 121.50	0.6000	0.4381
T4	13	HYBRIFLEX 1-5/8"	101.50 - 121.50	0.6000	0.4381
T4	14	C4006L-NFNF	101.50 - 121.50	0.6000	0.4381
T4	16	LDF4P-50A (1/2 FOAM)	101.50 - 121.50	0.6000	0.4381
T4	17	LDF5-50A (7/8 FOAM)	101.50 - 121.50	0.6000	0.4381
T5	1	LDF5-50A (7/8 FOAM)	81.50 - 101.50	0.6000	0.4830
T5	2	LDF5-50A (7/8 FOAM)	81.50 - 101.50	0.6000	0.4830
T5	4	LDF4-50A (1/2 FOAM)	81.50 - 89.50	0.6000	0.4830
T5	5	EW63	81.50 - 101.50	0.6000	0.4830
T5	6	LDF5-50A (7/8 FOAM)	81.50 - 101.50	0.6000	0.4830
T5	7	LDF7-50A (1-5/8 FOAM)	81.50 - 101.50	0.6000	0.4830
T5	8	LCF158-50J (1 5/8 FOAM)	81.50 - 101.50	0.6000	0.4830
T5	9	LDF5-50A (7/8 FOAM)	81.50 - 101.50	0.6000	0.4830
T5	12	HYBRIFLEX 1-1/4"	81.50 - 101.50	0.6000	0.4830
T5	13	HYBRIFLEX 1-5/8"	81.50 - 101.50	0.6000	0.4830
T5	14	C4006L-NFNF	81.50 - 101.50	0.6000	0.4830
T5	16	LDF4P-50A (1/2 FOAM)	81.50 - 101.50	0.6000	0.4830
T5	17	LDF5-50A (7/8 FOAM)	81.50 - 101.50	0.6000	0.4830
T6	1	LDF5-50A (7/8 FOAM)	61.50 - 81.50	0.6000	0.5445
T6	2	LDF5-50A (7/8 FOAM)	61.50 - 81.50	0.6000	0.5445
T6	4	LDF4-50A (1/2 FOAM)	61.50 - 81.50	0.6000	0.5445
T6	5	EW63	61.50 - 81.50	0.6000	0.5445
T6	6	LDF5-50A (7/8 FOAM)	61.50 - 81.50	0.6000	0.5445
T6	7	LDF7-50A (1-5/8 FOAM)	61.50 - 81.50	0.6000	0.5445
T6	8	LCF158-50J (1 5/8 FOAM)	61.50 - 81.50	0.6000	0.5445
T6	9	LDF5-50A (7/8 FOAM)	61.50 - 81.50	0.6000	0.5445
T6	10	RG6-Fiber	61.50 - 78.50	0.6000	0.5445
T6	11	#8 AWG Copper WIre	61.50 - 78.50	0.6000	0.5445
T6	12	HYBRIFLEX 1-1/4"	61.50 - 81.50	0.6000	0.5445
T6	13	HYBRIFLEX 1-5/8"	61.50 - 81.50	0.6000	0.5445

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T6	14	C4006L-NFNF	61.50 - 81.50	0.6000	0.5445
T6	16	LDF4P-50A (1/2 FOAM)	61.50 - 81.50	0.6000	0.5445
T6	17	LDF5-50A (7/8 FOAM)	61.50 - 81.50	0.6000	0.5445
T7	1	LDF5-50A (7/8 FOAM)	41.50 - 61.50	0.6000	0.5812
T7	2	LDF5-50A (7/8 FOAM)	41.50 - 61.50	0.6000	0.5812
T7	4	LDF4-50A (1/2 FOAM)	41.50 - 61.50	0.6000	0.5812
T7	5	EW63	41.50 - 61.50	0.6000	0.5812
T7	6	LDF5-50A (7/8 FOAM)	41.50 - 61.50	0.6000	0.5812
T7	7	LDF7-50A (1-5/8 FOAM)	41.50 - 61.50	0.6000	0.5812
T7	8	LCF158-50J (1 5/8 FOAM)	41.50 - 61.50	0.6000	0.5812
T7	9	LDF5-50A (7/8 FOAM)	41.50 - 61.50	0.6000	0.5812
T7	10	RG6-Fiber	41.50 - 61.50	0.6000	0.5812
T7	11	#8 AWG Copper WIre	41.50 - 61.50	0.6000	0.5812
T7	12	HYBRIFLEX 1-1/4"	41.50 - 61.50	0.6000	0.5812
T7	13	HYBRIFLEX 1-5/8"	41.50 - 61.50	0.6000	0.5812
T7	14	C4006L-NFNF	41.50 - 61.50	0.6000	0.5812
T7	16	LDF4P-50A (1/2 FOAM)	41.50 - 61.50	0.6000	0.5812
T7	17	LDF5-50A (7/8 FOAM)	41.50 - 61.50	0.6000	0.5812
T8	1	LDF5-50A (7/8 FOAM)	21.50 - 41.50	0.6000	0.6000
T8	2	LDF5-50A (7/8 FOAM)	21.50 - 41.50	0.6000	0.6000
T8	4	LDF4-50A (1/2 FOAM)	21.50 - 41.50	0.6000	0.6000
T8	5	EW63	21.50 - 41.50	0.6000	0.6000
T8	6	LDF5-50A (7/8 FOAM)	21.50 - 41.50	0.6000	0.6000
T8	7	LDF7-50A (1-5/8 FOAM)	21.50 - 41.50	0.6000	0.6000
T8	8	LCF158-50J (1 5/8 FOAM)	21.50 - 41.50	0.6000	0.6000
T8	9	LDF5-50A (7/8 FOAM)	21.50 - 41.50	0.6000	0.6000
T8	10	RG6-Fiber	21.50 - 41.50	0.6000	0.6000
T8	11	#8 AWG Copper WIre	21.50 - 41.50	0.6000	0.6000
T8	12	HYBRIFLEX 1-1/4"	21.50 - 41.50	0.6000	0.6000
T8	13	HYBRIFLEX 1-5/8"	21.50 - 41.50	0.6000	0.6000
T8	14	C4006L-NFNF	21.50 - 41.50	0.6000	0.6000
T8	16	LDF4P-50A (1/2 FOAM)	21.50 - 41.50	0.6000	0.6000
T8	17	LDF5-50A (7/8 FOAM)	21.50 - 41.50	0.6000	0.6000
T9	1	LDF5-50A (7/8 FOAM)	6.50 - 21.50	0.6000	0.5868
T9	2	LDF5-50A (7/8 FOAM)	6.50 - 21.50	0.6000	0.5868
T9	4	LDF4-50A (1/2 FOAM)	6.50 - 21.50	0.6000	0.5868
T9	5	EW63	6.50 - 21.50	0.6000	0.5868
T9	6	LDF5-50A (7/8 FOAM)	6.50 - 21.50	0.6000	0.5868
T9	7	LDF7-50A (1-5/8 FOAM)	6.50 - 21.50	0.6000	0.5868
T9	8	LCF158-50J (1 5/8 FOAM)	6.50 - 21.50	0.6000	0.5868
T9	9	LDF5-50A (7/8 FOAM)	6.50 - 21.50	0.6000	0.5868
T9	10	RG6-Fiber	6.50 - 21.50	0.6000	0.5868
T9	11	#8 AWG Copper WIre	6.50 - 21.50	0.6000	0.5868
T9	12	HYBRIFLEX 1-1/4"	6.50 - 21.50	0.6000	0.5868
T9	13	HYBRIFLEX 1-5/8"	6.50 - 21.50	0.6000	0.5868
T9	14	C4006L-NFNF	6.50 - 21.50	0.6000	0.5868
T9	16	LDF4P-50A (1/2 FOAM)	6.50 - 21.50	0.6000	0.5868
T9	17	LDF5-50A (7/8 FOAM)	6.50 - 21.50	0.6000	0.5868

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
GPS	B	From Leg	3.50	0.0000	89.50	No Ice	1.00	1.00	0.01
(Sprint)			0.00			1/2" Ice	1.50	1.50	0.01
			0.00			1" Ice	2.00	2.00	0.02
3' GPS Stand-off Mount	B	From Leg	1.50	0.0000	89.50	No Ice	2.45	2.45	0.05
(Sprint)			0.00			1/2" Ice	3.98	3.98	0.07
			0.00			1" Ice	5.51	5.51	0.10
APXVSPP18-C-A20	A	From Leg	3.00	0.0000	126.00	No Ice	8.02	5.28	0.06
(Sprint)			-4.00			1/2" Ice	8.48	5.74	0.11
			0.00			1" Ice	8.94	6.20	0.16
APXVSPP18-C-A20	B	From Leg	3.00	0.0000	126.00	No Ice	8.02	5.28	0.06
(Sprint)			-4.00			1/2" Ice	8.48	5.74	0.11
			0.00			1" Ice	8.94	6.20	0.16
APXVSPP18-C-A20	C	From Leg	3.00	0.0000	126.00	No Ice	8.02	5.28	0.06
(Sprint)			-4.00			1/2" Ice	8.48	5.74	0.11
			0.00			1" Ice	8.94	6.20	0.16
FD-RRH 2x50 800	A	From Leg	3.00	0.0000	126.00	No Ice	2.06	1.93	0.06
(Sprint)			0.00			1/2" Ice	2.24	2.11	0.09
			0.00			1" Ice	2.43	2.29	0.11
FD-RRH 2x50 800	B	From Leg	3.00	0.0000	126.00	No Ice	2.06	1.93	0.06
(Sprint)			0.00			1/2" Ice	2.24	2.11	0.09
			0.00			1" Ice	2.43	2.29	0.11
FD-RRH 2x50 800	C	From Leg	3.00	0.0000	126.00	No Ice	2.06	1.93	0.06
(Sprint)			0.00			1/2" Ice	2.24	2.11	0.09
			0.00			1" Ice	2.43	2.29	0.11
FD-RRH 4x45 1900	A	From Leg	3.00	0.0000	126.00	No Ice	2.32	2.38	0.06
(Sprint)			0.00			1/2" Ice	2.52	2.59	0.08
			0.00			1" Ice	2.74	2.80	0.11
FD-RRH 4x45 1900	B	From Leg	3.00	0.0000	126.00	No Ice	2.32	2.38	0.06
(Sprint)			0.00			1/2" Ice	2.52	2.59	0.08
			0.00			1" Ice	2.74	2.80	0.11
FD-RRH 4x45 1900	C	From Leg	3.00	0.0000	126.00	No Ice	2.32	2.38	0.06
(Sprint)			0.00			1/2" Ice	2.52	2.59	0.08
			0.00			1" Ice	2.74	2.80	0.11
Rohn 6' x 12' Boom Gate (1)	A	From Leg	2.00	0.0000	126.00	No Ice	16.60	16.60	0.56
(Sprint)			0.00			1/2" Ice	19.80	19.80	0.70
			0.00			1" Ice	23.00	23.00	0.84
Rohn 6' x 12' Boom Gate (1)	B	From Leg	2.00	0.0000	126.00	No Ice	16.60	16.60	0.56
(Sprint)			0.00			1/2" Ice	19.80	19.80	0.70
			0.00			1" Ice	23.00	23.00	0.84
Rohn 6' x 12' Boom Gate (1)	C	From Leg	2.00	0.0000	126.00	No Ice	16.60	16.60	0.56
(Sprint)			0.00			1/2" Ice	19.80	19.80	0.70
			0.00			1" Ice	23.00	23.00	0.84
1.5"x2'omni	A	From Leg	3.00	0.0000	144.50	No Ice	0.25	0.25	0.01
(Eversource)			0.00			1/2" Ice	0.38	0.38	0.01
			1.00			1" Ice	0.51	0.51	0.01
1.5"x2'omni	A	From Leg	3.00	0.0000	142.50	No Ice	0.25	0.25	0.01
(Eversource)			0.00			1/2" Ice	0.38	0.38	0.01
			-1.00			1" Ice	0.51	0.51	0.01
2-ft Stand Off	A	From Leg	1.00	0.0000	143.50	No Ice	1.07	1.07	0.02
(Eversource)			0.00			1/2" Ice	1.62	1.62	0.03
			0.00			1" Ice	2.17	2.17	0.04
3"x20-ft Omni	C	From Leg	3.00	0.0000	148.50	No Ice	3.56	3.56	0.02
(Eversource)			0.00			1/2" Ice	7.13	7.13	0.05
			0.00			1" Ice	10.70	10.70	0.07
3-ft Side Arm	C	From Leg	1.50	0.0000	138.50	No Ice	0.66	0.66	0.01
(Eversource)			0.00			1/2" Ice	1.14	1.14	0.03
			0.00			1" Ice	1.62	1.62	0.04

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
20-ft x 1.9in Support Pipe	C	From Leg	1.50	0.0000	148.50	No Ice	3.80	3.80	0.05
(Eversource)			0.00			1/2" Ice	5.82	5.82	0.08
			0.00			1" Ice	7.84	7.84	0.11
20' x 2" Dia Omni	A	From Leg	0.00	0.0000	180.50	No Ice	4.00	4.00	0.02
(Eversource)			0.00			1/2" Ice	6.03	6.03	0.05
			10.00			1" Ice	8.07	8.07	0.09
14' x 3" Dia Omni	B	From Leg	0.00	0.0000	180.50	No Ice	4.20	4.20	0.04
(Eversource)			0.00			1/2" Ice	5.63	5.63	0.07
			7.00			1" Ice	7.08	7.08	0.11
20' x 2" Dia Omni	C	From Leg	0.00	0.0000	180.50	No Ice	4.00	4.00	0.02
(Eversource)			0.00			1/2" Ice	6.03	6.03	0.05
			10.00			1" Ice	8.07	8.07	0.09
SBNHH-1D65A	A	From Face	3.00	0.0000	78.00	No Ice	5.88	3.86	0.04
(AT&T - Proposed)			2.00			1/2" Ice	6.25	4.22	0.08
			0.00			1" Ice	6.62	4.57	0.12
SBNHH-1D65A	B	From Face	3.00	0.0000	78.00	No Ice	5.88	3.86	0.04
(AT&T - Proposed)			2.00			1/2" Ice	6.25	4.22	0.08
			0.00			1" Ice	6.62	4.57	0.12
SBNHH-1D65A	C	From Face	3.00	0.0000	78.00	No Ice	5.88	3.86	0.04
(AT&T - Proposed)			2.00			1/2" Ice	6.25	4.22	0.08
			0.00			1" Ice	6.62	4.57	0.12
DMP65R-BU4D	A	From Face	3.00	0.0000	78.00	No Ice	8.00	3.51	0.07
(AT&T - Proposed)			-6.00			1/2" Ice	8.38	3.81	0.12
			0.00			1" Ice	8.77	4.12	0.17
DMP65R-BU4D	B	From Face	3.00	0.0000	78.00	No Ice	8.00	3.51	0.07
(AT&T - Proposed)			-6.00			1/2" Ice	8.38	3.81	0.12
			0.00			1" Ice	8.77	4.12	0.17
DMP65R-BU4D	C	From Face	3.00	0.0000	78.00	No Ice	8.00	3.51	0.07
(AT&T - Proposed)			-6.00			1/2" Ice	8.38	3.81	0.12
			0.00			1" Ice	8.77	4.12	0.17
8843 B2/B66A	A	From Face	3.00	0.0000	78.00	No Ice	1.64	1.35	0.07
(AT&T - Proposed)			0.00			1/2" Ice	1.80	1.50	0.09
			0.00			1" Ice	1.97	1.65	0.11
8843 B2/B66A	B	From Face	3.00	0.0000	78.00	No Ice	1.64	1.35	0.07
(AT&T - Proposed)			0.00			1/2" Ice	1.80	1.50	0.09
			0.00			1" Ice	1.97	1.65	0.11
8843 B2/B66A	C	From Face	3.00	0.0000	78.00	No Ice	1.64	1.35	0.07
(AT&T - Proposed)			0.00			1/2" Ice	1.80	1.50	0.09
			0.00			1" Ice	1.97	1.65	0.11
4449 B5/B12	A	From Face	3.00	0.0000	78.00	No Ice	1.97	1.41	0.07
(AT&T - Proposed)			0.00			1/2" Ice	2.14	1.56	0.09
			0.00			1" Ice	2.33	1.73	0.11
4449 B5/B12	B	From Face	3.00	0.0000	78.00	No Ice	1.97	1.41	0.07
(AT&T - Proposed)			0.00			1/2" Ice	2.14	1.56	0.09
			0.00			1" Ice	2.33	1.73	0.11
4449 B5/B12	C	From Face	3.00	0.0000	78.00	No Ice	1.97	1.41	0.07
(AT&T - Proposed)			0.00			1/2" Ice	2.14	1.56	0.09
			0.00			1" Ice	2.33	1.73	0.11
DC6-48-60-18-8F Surge	C	From Leg	1.00	0.0000	78.00	No Ice	1.91	1.91	0.02
Arrestor			0.00			1/2" Ice	2.10	2.10	0.04
(AT&T)			0.00			1" Ice	2.29	2.29	0.06
12' V-Frame	A	From Leg	2.00	0.0000	78.00	No Ice	9.22	12.97	0.30
(AT&T)			0.00			1/2" Ice	9.22	12.97	0.40
			0.00			1" Ice	9.22	12.97	0.50
12' V-Frame	B	From Leg	2.00	0.0000	78.00	No Ice	9.22	12.97	0.30
(AT&T)			0.00			1/2" Ice	9.22	12.97	0.40
			0.00			1" Ice	9.22	12.97	0.50

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' V-Frame	C	From Leg	2.00	0.0000	78.00	No Ice	9.22	12.97	0.30
(AT&T)			0.00			1/2" Ice	9.22	12.97	0.40
			0.00			1" Ice	9.22	12.97	0.50
AIR21	A	From Leg	2.00	0.0000	159.00	No Ice	6.53	4.36	0.08
(T-Mobile)			-2.00			1/2" Ice	6.98	4.77	0.12
			0.00			1" Ice	7.43	5.20	0.17
AIR21	A	From Leg	2.00	0.0000	159.00	No Ice	6.53	4.36	0.08
(T-Mobile)			2.00			1/2" Ice	6.98	4.77	0.12
			0.00			1" Ice	7.43	5.20	0.17
AIR21	B	From Leg	2.00	0.0000	159.00	No Ice	6.53	4.36	0.08
(T-Mobile)			-2.00			1/2" Ice	6.98	4.77	0.12
			0.00			1" Ice	7.43	5.20	0.17
AIR21	B	From Leg	2.00	0.0000	159.00	No Ice	6.53	4.36	0.08
(T-Mobile)			2.00			1/2" Ice	6.98	4.77	0.12
			0.00			1" Ice	7.43	5.20	0.17
AIR21	C	From Leg	2.00	0.0000	159.00	No Ice	6.53	4.36	0.08
(T-Mobile)			-2.00			1/2" Ice	6.98	4.77	0.12
			0.00			1" Ice	7.43	5.20	0.17
AIR21	C	From Leg	2.00	0.0000	159.00	No Ice	6.53	4.36	0.08
(T-Mobile)			2.00			1/2" Ice	6.98	4.77	0.12
			0.00			1" Ice	7.43	5.20	0.17
KRY 112 TMA	A	From Leg	2.00	0.0000	159.00	No Ice	0.78	0.49	0.03
(T-Mobile)			0.00			1/2" Ice	0.90	0.59	0.03
			0.00			1" Ice	1.03	0.70	0.04
KRY 112 TMA	B	From Leg	2.00	0.0000	159.00	No Ice	0.78	0.49	0.03
(T-Mobile)			0.00			1/2" Ice	0.90	0.59	0.03
			0.00			1" Ice	1.03	0.70	0.04
KRY 112 TMA	C	From Leg	2.00	0.0000	159.00	No Ice	0.78	0.49	0.03
(T-Mobile)			0.00			1/2" Ice	0.90	0.59	0.03
			0.00			1" Ice	1.03	0.70	0.04
Pirod 12' T-Frame Sector	A	From Leg	1.00	0.0000	159.00	No Ice	13.60	13.60	0.47
Mount (1)			0.00			1/2" Ice	18.40	18.40	0.60
(T-Mobile)			0.00			1" Ice	23.20	23.20	0.73
Pirod 12' T-Frame Sector	B	From Leg	1.00	0.0000	159.00	No Ice	13.60	13.60	0.47
Mount (1)			0.00			1/2" Ice	18.40	18.40	0.60
(T-Mobile)			0.00			1" Ice	23.20	23.20	0.73
Pirod 12' T-Frame Sector	C	From Leg	1.00	0.0000	159.00	No Ice	13.60	13.60	0.47
Mount (1)			0.00			1/2" Ice	18.40	18.40	0.60
(T-Mobile)			0.00			1" Ice	23.20	23.20	0.73
LNX-6515DS	A	From Leg	2.00	0.0000	159.00	No Ice	11.45	7.70	0.06
(T-Mobile)			-2.00			1/2" Ice	12.06	8.29	0.12
			0.00			1" Ice	12.69	8.89	0.19
LNX-6515DS	B	From Leg	2.00	0.0000	159.00	No Ice	11.45	7.70	0.06
(T-Mobile)			-2.00			1/2" Ice	12.06	8.29	0.12
			0.00			1" Ice	12.69	8.89	0.19
LNX-6515DS	C	From Leg	2.00	0.0000	159.00	No Ice	11.45	7.70	0.06
(T-Mobile)			-2.00			1/2" Ice	12.06	8.29	0.12
			0.00			1" Ice	12.69	8.89	0.19
RRUS-11	A	From Leg	2.00	0.0000	159.00	No Ice	2.57	1.07	0.05
(T-Mobile)			-2.00			1/2" Ice	2.76	1.21	0.07
			0.00			1" Ice	2.97	1.36	0.09
RRUS-11	B	From Leg	2.00	0.0000	159.00	No Ice	2.57	1.07	0.05
(T-Mobile)			-2.00			1/2" Ice	2.76	1.21	0.07
			0.00			1" Ice	2.97	1.36	0.09
RRUS-11	C	From Leg	2.00	0.0000	159.00	No Ice	2.57	1.07	0.05
(T-Mobile)			-2.00			1/2" Ice	2.76	1.21	0.07
			0.00			1" Ice	2.97	1.36	0.09

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
DS2C03F36D-D (Eversource)	C	From Leg	6.00 0.00 10.00	0.0000	177.00	No Ice 1/2" Ice 1" Ice	7.30 9.77 12.25	7.30 9.77 12.25	0.08 0.13 0.20
SitePro USF-4U (Eversource)	C	From Leg	3.00 0.00 0.00	0.0000	177.00	No Ice 1/2" Ice 1" Ice	5.75 8.00 10.25	5.75 8.00 10.25	0.16 0.21 0.26

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
8.5 Dishw/radome (NU)	A	Paraboloid w/o Radome	From Leg	0.00 0.00 0.00	0.0000		176.50	8.50	No Ice 1/2" Ice 1" Ice	56.75 57.56 58.37	0.07 0.30 0.52

Tower Pressures - No Ice

G_H = 0.850

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft^2	Face	A_F ft^2	A_R ft^2	A_{leg} ft^2	Leg %	C_AA_A In Face ft^2	C_AA_A Out Face ft^2
T1 181.50-161.50	171.50	1.153	49	72.992	A	9.904	9.583	9.583	49.18	7.800	0.000
					B	9.904	9.583		49.18	6.321	0.000
					C	9.904	9.583		49.18	0.000	0.000
T2 161.50-141.50	151.50	1.113	47	72.992	A	0.000	14.224	9.583	67.37	36.908	0.000
					B	0.000	14.224		67.37	7.108	0.000
					C	0.000	14.224		67.37	1.744	0.000
T3 141.50-121.50	131.50	1.069	46	72.992	A	11.319	9.583	9.583	45.85	38.440	0.000
					B	11.319	9.583		45.85	7.108	0.000
					C	11.319	9.583		45.85	11.492	0.000
T4 121.50-101.50	111.50	1.019	43	72.992	A	12.359	9.583	9.583	43.68	38.440	0.000
					B	12.359	9.583		43.68	7.653	0.000
					C	12.359	9.583		43.68	17.960	0.000
T5 101.50-81.50	91.50	0.963	41	72.992	A	4.624	14.224	9.583	50.85	38.440	0.000
					B	4.624	14.224		50.85	9.288	0.000
					C	4.624	14.224		50.85	18.464	0.000
T6 81.50-61.50	71.50	0.898	38	72.992	A	8.924	9.583	9.583	51.78	40.658	0.000
					B	8.924	9.583		51.78	9.288	0.000
					C	8.924	9.583		51.78	19.220	0.000
T7 61.50-41.50	51.50	0.818	35	72.992	A	6.414	10.376	9.583	57.08	41.050	0.000
					B	6.414	10.376		57.08	9.288	0.000
					C	6.414	10.376		57.08	19.220	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
T8 41.50-21.50	31.50	0.71	30	72.992	A	0.000	14.224	9.583	67.37	41.050	0.000
					B	0.000	14.224		67.37	9.288	0.000
					C	0.000	14.224		67.37	19.220	0.000
T9 21.50-6.50	14.00	0.7	30	54.744	A	6.098	7.188	7.188	54.10	30.787	0.000
					B	6.098	7.188		54.10	6.966	0.000
					C	6.098	7.188		54.10	14.415	0.000
T10 6.50-1.50	4.00	0.7	30	9.791	A	4.396	2.575	2.575	36.94	0.000	0.000
					B	4.396	2.575		36.94	0.000	0.000
					C	4.396	2.575		36.94	0.000	0.000

Tower Pressure - With Ice

$G_H = 0.850$

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1	171.50	1.153	6	1.3560	77.512	A	9.904	33.973	18.624	42.44	32.009	0.000
181.50-161.50						B	9.904	33.973		42.44	15.814	0.000
						C	9.904	33.973		42.44	0.000	0.000
T2	151.50	1.113	6	1.3393	77.456	A	0.000	31.441	18.512	58.88	84.761	0.000
161.50-141.50						B	0.000	31.441		58.88	17.823	0.000
						C	0.000	31.441		58.88	7.042	0.000
T3	131.50	1.069	6	1.3205	77.393	A	11.319	33.334	18.387	41.18	86.989	0.000
141.50-121.50						B	11.319	33.334		41.18	17.672	0.000
						C	11.319	33.334		41.18	43.316	0.000
T4	111.50	1.019	6	1.2989	77.321	A	12.359	31.085	18.243	41.99	86.344	0.000
121.50-101.50						B	12.359	31.085		41.99	19.343	0.000
						C	12.359	31.085		41.99	62.397	0.000
T5 101.50-81.50	91.50	0.963	5	1.2735	77.237	A	4.624	35.305	18.073	45.26	85.585	0.000
						B	4.624	35.305		45.26	24.570	0.000
						C	4.624	35.305		45.26	64.423	0.000
T6 81.50-61.50	71.50	0.898	5	1.2424	77.133	A	8.924	26.211	17.866	50.85	98.961	0.000
						B	8.924	26.211		50.85	24.198	0.000
						C	8.924	26.211		50.85	67.482	0.000
T7 61.50-41.50	51.50	0.818	4	1.2023	76.999	A	6.414	25.832	17.599	54.58	99.845	0.000
						B	6.414	25.832		54.58	23.716	0.000
						C	6.414	25.832		54.58	66.510	0.000
T8 41.50-21.50	31.50	0.71	4	1.1447	76.807	A	0.000	28.939	17.214	59.49	97.488	0.000
						B	0.000	28.939		59.49	23.024	0.000
						C	0.000	28.939		59.49	65.113	0.000
T9 21.50-6.50	14.00	0.7	4	1.0555	57.383	A	6.098	17.614	12.465	52.57	70.384	0.000
						B	6.098	17.614		52.57	16.466	0.000
						C	6.098	17.614		52.57	47.219	0.000
T10 6.50-1.50	4.00	0.7	4	0.9312	10.611	A	4.396	4.925	4.243	45.52	0.000	0.000
						B	4.396	4.925		45.52	0.000	0.000
						C	4.396	4.925		45.52	0.000	0.000

Tower Pressure - Service

$G_H = 0.850$

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1	171.50	1.153	29	72.992	A	9.904	9.583	9.583	49.18	7.800	0.000
181.50-161.50					B	9.904	9.583		49.18	6.321	0.000
					C	9.904	9.583		49.18	0.000	0.000
T2	151.50	1.113	28	72.992	A	0.000	14.224	9.583	67.37	36.908	0.000
161.50-141.50					B	0.000	14.224		67.37	7.108	0.000
					C	0.000	14.224		67.37	1.744	0.000
T3	131.50	1.069	27	72.992	A	11.319	9.583	9.583	45.85	38.440	0.000
141.50-121.50					B	11.319	9.583		45.85	7.108	0.000
					C	11.319	9.583		45.85	11.492	0.000
T4	111.50	1.019	26	72.992	A	12.359	9.583	9.583	43.68	38.440	0.000
121.50-101.50					B	12.359	9.583		43.68	7.653	0.000
					C	12.359	9.583		43.68	17.960	0.000
T5	91.50	0.963	24	72.992	A	4.624	14.224	9.583	50.85	38.440	0.000
101.50-81.50					B	4.624	14.224		50.85	9.288	0.000
					C	4.624	14.224		50.85	18.464	0.000
T6 81.50-61.50	71.50	0.898	23	72.992	A	8.924	9.583	9.583	51.78	40.658	0.000
					B	8.924	9.583		51.78	9.288	0.000
					C	8.924	9.583		51.78	19.220	0.000
T7 61.50-41.50	51.50	0.818	21	72.992	A	6.414	10.376	9.583	57.08	41.050	0.000
					B	6.414	10.376		57.08	9.288	0.000
					C	6.414	10.376		57.08	19.220	0.000
T8 41.50-21.50	31.50	0.71	18	72.992	A	0.000	14.224	9.583	67.37	41.050	0.000
					B	0.000	14.224		67.37	9.288	0.000
					C	0.000	14.224		67.37	19.220	0.000
T9 21.50-6.50	14.00	0.7	18	54.744	A	6.098	7.188	7.188	54.10	30.787	0.000
					B	6.098	7.188		54.10	6.966	0.000
					C	6.098	7.188		54.10	14.415	0.000
T10 6.50-1.50	4.00	0.7	18	9.791	A	4.396	2.575	2.575	36.94	0.000	0.000
					B	4.396	2.575		36.94	0.000	0.000
					C	4.396	2.575		36.94	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
T1	0.05	0.81	A	0.267	2.388	49	1	1	15.552	1.91	95.30	C
181.50-161.50		TA 0.52	B	0.267	2.388		1	1	15.552			
			C	0.267	2.388		1	1	15.552			
T2	0.21	0.46	A	0.195	2.613	47	1	1	8.159	1.97	98.39	C
161.50-141.50			B	0.195	2.613		1	1	8.159			
			C	0.195	2.613		1	1	8.159			
T3	0.26	0.88	A	0.286	2.333	46	1	1	17.019	2.86	143.20	C
141.50-121.50		TA 0.52	B	0.286	2.333		1	1	17.019			
			C	0.286	2.333		1	1	17.019			
T4	0.32	1.81	A	0.301	2.294	43	1	1	18.100	2.96	147.76	C
121.50-101.50			B	0.301	2.294		1	1	18.100			
			C	0.301	2.294		1	1	18.100			
T5	0.32	1.00	A	0.258	2.413	41	1	1	12.974	2.48	124.03	C
101.50-81.50			B	0.258	2.413		1	1	12.974			
			C	0.258	2.413		1	1	12.974			
T6	0.33	1.32	A	0.254	2.427	38	1	1	14.539	2.50	124.97	C
81.50-61.50			B	0.254	2.427		1	1	14.539			
			C	0.254	2.427		1	1	14.539			
T7	0.34	1.13	A	0.23	2.499	35	1	1	12.436	2.16	107.90	C

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
61.50-41.50			B	0.23	2.499		1	1	12.436			
			C	0.23	2.499		1	1	12.436			
T8	0.34	0.46	A	0.195	2.613	30	1	1	8.159	1.62	81.20	C
41.50-21.50			B	0.195	2.613		1	1	8.159			
			C	0.195	2.613		1	1	8.159			
T9 21.50-6.50	0.25	0.98	A	0.243	2.46	30	1	1	10.290	1.44	95.77	C
			B	0.243	2.46		1	1	10.290			
			C	0.243	2.46		1	1	10.290			
T10 6.50-1.50	0.00	0.41	A	0.712	1.777	30	1	1	6.507	0.29	58.69	C
			B	0.712	1.777		1	1	6.507			
			C	0.712	1.777		1	1	6.507			
Sum Weight:	2.40	10.31								20.18		

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 ft^2	F K	w plf	Ctrl. Face
T1	0.05	0.81	A	0.267	2.388	49	0.8	1	13.572	1.71	85.42	C
181.50-161.50		TA 0.52	B	0.267	2.388		0.8	1	13.572			
			C	0.267	2.388		0.8	1	13.572			
T2	0.21	0.46	A	0.195	2.613	47	0.8	1	8.159	1.97	98.39	C
161.50-141.50			B	0.195	2.613		0.8	1	8.159			
			C	0.195	2.613		0.8	1	8.159			
T3	0.26	0.88	A	0.286	2.333	46	0.8	1	14.756	2.66	132.97	C
141.50-121.50		TA 0.52	B	0.286	2.333		0.8	1	14.756			
			C	0.286	2.333		0.8	1	14.756			
T4	0.32	1.81	A	0.301	2.294	43	0.8	1	15.628	2.75	137.28	C
121.50-101.50			B	0.301	2.294		0.8	1	15.628			
			C	0.301	2.294		0.8	1	15.628			
T5	0.32	1.00	A	0.258	2.413	41	0.8	1	12.049	2.40	120.14	C
101.50-81.50			B	0.258	2.413		0.8	1	12.049			
			C	0.258	2.413		0.8	1	12.049			
T6	0.33	1.32	A	0.254	2.427	38	0.8	1	12.754	2.36	117.92	C
81.50-61.50			B	0.254	2.427		0.8	1	12.754			
			C	0.254	2.427		0.8	1	12.754			
T7	0.34	1.13	A	0.23	2.499	35	0.8	1	11.153	2.06	103.15	C
61.50-41.50			B	0.23	2.499		0.8	1	11.153			
			C	0.23	2.499		0.8	1	11.153			
T8	0.34	0.46	A	0.195	2.613	30	0.8	1	8.159	1.62	81.20	C
41.50-21.50			B	0.195	2.613		0.8	1	8.159			
			C	0.195	2.613		0.8	1	8.159			
T9 21.50-6.50	0.25	0.98	A	0.243	2.46	30	0.8	1	9.071	1.36	90.70	C
			B	0.243	2.46		0.8	1	9.071			
			C	0.243	2.46		0.8	1	9.071			
T10 6.50-1.50	0.00	0.41	A	0.712	1.777	30	0.8	1	5.628	0.25	50.76	C
			B	0.712	1.777		0.8	1	5.628			
			C	0.712	1.777		0.8	1	5.628			
Sum Weight:	2.40	10.31								19.14		

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 ft^2	F K	w plf	Ctrl. Face
T1	0.05	0.81	A	0.267	2.388	49	0.85	1	14.067	1.76	87.89	C
181.50-161.50		TA 0.52	B	0.267	2.388		0.85	1	14.067			
			C	0.267	2.388		0.85	1	14.067			
T2	0.21	0.46	A	0.195	2.613	47	0.85	1	8.159	1.97	98.39	C
161.50-141.50			B	0.195	2.613		0.85	1	8.159			
			C	0.195	2.613		0.85	1	8.159			
T3	0.26	0.88	A	0.286	2.333	46	0.85	1	15.322	2.71	135.53	C
141.50-121.50		TA 0.52	B	0.286	2.333		0.85	1	15.322			
			C	0.286	2.333		0.85	1	15.322			
T4	0.32	1.81	A	0.301	2.294	43	0.85	1	16.246	2.80	139.90	C
121.50-101.50			B	0.301	2.294		0.85	1	16.246			
			C	0.301	2.294		0.85	1	16.246			
T5	0.32	1.00	A	0.258	2.413	41	0.85	1	12.281	2.42	121.11	C
101.50-81.50			B	0.258	2.413		0.85	1	12.281			
			C	0.258	2.413		0.85	1	12.281			
T6	0.33	1.32	A	0.254	2.427	38	0.85	1	13.200	2.39	119.68	C
81.50-61.50			B	0.254	2.427		0.85	1	13.200			
			C	0.254	2.427		0.85	1	13.200			
T7	0.34	1.13	A	0.23	2.499	35	0.85	1	11.474	2.09	104.34	C
61.50-41.50			B	0.23	2.499		0.85	1	11.474			
			C	0.23	2.499		0.85	1	11.474			
T8	0.34	0.46	A	0.195	2.613	30	0.85	1	8.159	1.62	81.20	C
41.50-21.50			B	0.195	2.613		0.85	1	8.159			
			C	0.195	2.613		0.85	1	8.159			
T9 21.50-6.50	0.25	0.98	A	0.243	2.46	30	0.85	1	9.375	1.38	91.97	C
			B	0.243	2.46		0.85	1	9.375			
			C	0.243	2.46		0.85	1	9.375			
T10 6.50-1.50	0.00	0.41	A	0.712	1.777	30	0.85	1	5.847	0.26	52.74	C
			B	0.712	1.777		0.85	1	5.847			
			C	0.712	1.777		0.85	1	5.847			
Sum Weight:	2.40	10.31								19.40		

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 ft^2	F K	w plf	Ctrl. Face
T1	0.52	2.62	A	0.566	1.829	6	1	1	34.460	0.45	22.33	C
181.50-161.50		TA 0.99	B	0.566	1.829		1	1	34.460			
			C	0.566	1.829		1	1	34.460			
T2	1.57	1.43	A	0.406	2.052	6	1	1	20.085	0.55	27.36	C
161.50-141.50			B	0.406	2.052		1	1	20.085			
			C	0.406	2.052		1	1	20.085			
T3	1.96	2.75	A	0.577	1.82	6	1	1	35.633	0.63	31.49	C
141.50-121.50		TA 0.97	B	0.577	1.82		1	1	35.633			
			C	0.577	1.82		1	1	35.633			
T4	2.19	3.68	A	0.562	1.833	6	1	1	34.748	0.65	32.37	C
121.50-101.50			B	0.562	1.833		1	1	34.748			
			C	0.562	1.833		1	1	34.748			

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
T5	2.24	2.44	A	0.517	1.879	5	1	1	29.136	0.62	30.98	C
101.50-81.50			B	0.517	1.879		1	1	29.136			
			C	0.517	1.879		1	1	29.136			
T6	2.33	2.66	A	0.456	1.965	5	1	1	26.275	0.65	32.26	C
81.50-61.50			B	0.456	1.965		1	1	26.275			
			C	0.456	1.965		1	1	26.275			
T7	2.27	2.26	A	0.419	2.028	4	1	1	23.064	0.59	29.72	C
61.50-41.50			B	0.419	2.028		1	1	23.064			
			C	0.419	2.028		1	1	23.064			
T8	2.17	1.24	A	0.377	2.112	4	1	1	18.130	0.49	24.58	C
41.50-21.50			B	0.377	2.112		1	1	18.130			
			C	0.377	2.112		1	1	18.130			
T9 21.50-6.50	1.52	1.77	A	0.413	2.038	4	1	1	17.408	0.37	24.63	C
			B	0.413	2.038		1	1	17.408			
			C	0.413	2.038		1	1	17.408			
T10 6.50-1.50	0.00	0.71	A	0.879	1.895	4	1	1	9.065	0.06	11.12	C
			B	0.879	1.895		1	1	9.065			
			C	0.879	1.895		1	1	9.065			
Sum Weight:	16.78	23.52								5.05		

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
T1	0.52	2.62	A	0.566	1.829	6	0.8	1	32.479	0.43	21.36	C
181.50-161.50		TA 0.99	B	0.566	1.829		0.8	1	32.479			
			C	0.566	1.829		0.8	1	32.479			
T2	1.57	1.43	A	0.406	2.052	6	0.8	1	20.085	0.55	27.36	C
161.50-141.50			B	0.406	2.052		0.8	1	20.085			
			C	0.406	2.052		0.8	1	20.085			
T3	1.96	2.75	A	0.577	1.82	6	0.8	1	33.370	0.61	30.47	C
141.50-121.50		TA 0.97	B	0.577	1.82		0.8	1	33.370			
			C	0.577	1.82		0.8	1	33.370			
T4	2.19	3.68	A	0.562	1.833	6	0.8	1	32.276	0.63	31.30	C
121.50-101.50			B	0.562	1.833		0.8	1	32.276			
			C	0.562	1.833		0.8	1	32.276			
T5	2.24	2.44	A	0.517	1.879	5	0.8	1	28.211	0.61	30.59	C
101.50-81.50			B	0.517	1.879		0.8	1	28.211			
			C	0.517	1.879		0.8	1	28.211			
T6	2.33	2.66	A	0.456	1.965	5	0.8	1	24.491	0.63	31.54	C
81.50-61.50			B	0.456	1.965		0.8	1	24.491			
			C	0.456	1.965		0.8	1	24.491			
T7	2.27	2.26	A	0.419	2.028	4	0.8	1	21.782	0.58	29.23	C
61.50-41.50			B	0.419	2.028		0.8	1	21.782			
			C	0.419	2.028		0.8	1	21.782			
T8	2.17	1.24	A	0.377	2.112	4	0.8	1	18.130	0.49	24.58	C
41.50-21.50			B	0.377	2.112		0.8	1	18.130			
			C	0.377	2.112		0.8	1	18.130			
T9 21.50-6.50	1.52	1.77	A	0.413	2.038	4	0.8	1	16.188	0.36	24.10	C
			B	0.413	2.038		0.8	1	16.188			
			C	0.413	2.038		0.8	1	16.188			
T10 6.50-1.50	0.00	0.71	A	0.879	1.895	4	0.8	1	8.186	0.05	10.04	C

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
			B	0.879	1.895		0.8	1	8.186			
			C	0.879	1.895		0.8	1	8.186			
Sum Weight:	16.78	23.52								4.94		

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 ft^2	F K	w plf	Ctrl. Face
T1	0.52	2.62	A	0.566	1.829	6	0.85	1	32.974	0.43	21.61	C
181.50-161.50		TA 0.99	B	0.566	1.829		0.85	1	32.974			
			C	0.566	1.829		0.85	1	32.974			
T2	1.57	1.43	A	0.406	2.052	6	0.85	1	20.085	0.55	27.36	C
161.50-141.50			B	0.406	2.052		0.85	1	20.085			
			C	0.406	2.052		0.85	1	20.085			
T3	1.96	2.75	A	0.577	1.82	6	0.85	1	33.936	0.61	30.73	C
141.50-121.50		TA 0.97	B	0.577	1.82		0.85	1	33.936			
			C	0.577	1.82		0.85	1	33.936			
T4	2.19	3.68	A	0.562	1.833	6	0.85	1	32.894	0.63	31.57	C
121.50-101.50			B	0.562	1.833		0.85	1	32.894			
			C	0.562	1.833		0.85	1	32.894			
T5	2.24	2.44	A	0.517	1.879	5	0.85	1	28.442	0.61	30.69	C
101.50-81.50			B	0.517	1.879		0.85	1	28.442			
			C	0.517	1.879		0.85	1	28.442			
T6	2.33	2.66	A	0.456	1.965	5	0.85	1	24.937	0.63	31.72	C
81.50-61.50			B	0.456	1.965		0.85	1	24.937			
			C	0.456	1.965		0.85	1	24.937			
T7	2.27	2.26	A	0.419	2.028	4	0.85	1	22.102	0.59	29.35	C
61.50-41.50			B	0.419	2.028		0.85	1	22.102			
			C	0.419	2.028		0.85	1	22.102			
T8	2.17	1.24	A	0.377	2.112	4	0.85	1	18.130	0.49	24.58	C
41.50-21.50			B	0.377	2.112		0.85	1	18.130			
			C	0.377	2.112		0.85	1	18.130			
T9 21.50-6.50	1.52	1.77	A	0.413	2.038	4	0.85	1	16.493	0.36	24.23	C
			B	0.413	2.038		0.85	1	16.493			
			C	0.413	2.038		0.85	1	16.493			
T10 6.50-1.50	0.00	0.71	A	0.879	1.895	4	0.85	1	8.406	0.05	10.31	C
			B	0.879	1.895		0.85	1	8.406			
			C	0.879	1.895		0.85	1	8.406			
Sum Weight:	16.78	23.52								4.97		

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 ft^2	F K	w plf	Ctrl. Face
T1	0.05	0.81	A	0.267	2.388	29	1	1	15.552	1.13	56.71	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
181.50-161.50		TA 0.52	B	0.267	2.388		1	1	15.552			
			C	0.267	2.388		1	1	15.552			
T2	0.21	0.46	A	0.195	2.613	28	1	1	8.159	1.17	58.55	C
161.50-141.50			B	0.195	2.613		1	1	8.159			
			C	0.195	2.613		1	1	8.159			
T3	0.26	0.88	A	0.286	2.333	27	1	1	17.019	1.70	85.22	C
141.50-121.50		TA 0.52	B	0.286	2.333		1	1	17.019			
			C	0.286	2.333		1	1	17.019			
T4	0.32	1.81	A	0.301	2.294	26	1	1	18.100	1.76	87.93	C
121.50-101.50			B	0.301	2.294		1	1	18.100			
			C	0.301	2.294		1	1	18.100			
T5	0.32	1.00	A	0.258	2.413	24	1	1	12.974	1.48	73.81	C
101.50-81.50			B	0.258	2.413		1	1	12.974			
			C	0.258	2.413		1	1	12.974			
T6	0.33	1.32	A	0.254	2.427	23	1	1	14.539	1.49	74.37	C
81.50-61.50			B	0.254	2.427		1	1	14.539			
			C	0.254	2.427		1	1	14.539			
T7	0.34	1.13	A	0.23	2.499	21	1	1	12.436	1.28	64.21	C
61.50-41.50			B	0.23	2.499		1	1	12.436			
			C	0.23	2.499		1	1	12.436			
T8	0.34	0.46	A	0.195	2.613	18	1	1	8.159	0.97	48.32	C
41.50-21.50			B	0.195	2.613		1	1	8.159			
			C	0.195	2.613		1	1	8.159			
T9 21.50-6.50	0.25	0.98	A	0.243	2.46	18	1	1	10.290	0.85	56.99	C
			B	0.243	2.46		1	1	10.290			
			C	0.243	2.46		1	1	10.290			
T10 6.50-1.50	0.00	0.41	A	0.712	1.777	18	1	1	6.507	0.17	34.93	C
			B	0.712	1.777		1	1	6.507			
			C	0.712	1.777		1	1	6.507			
Sum Weight:	2.40	10.31								12.01		

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 ft²	F K	w plf	Ctrl. Face
T1	0.05	0.81	A	0.267	2.388	29	0.8	1	13.572	1.02	50.83	C
181.50-161.50		TA 0.52	B	0.267	2.388		0.8	1	13.572			
			C	0.267	2.388		0.8	1	13.572			
T2	0.21	0.46	A	0.195	2.613	28	0.8	1	8.159	1.17	58.55	C
161.50-141.50			B	0.195	2.613		0.8	1	8.159			
			C	0.195	2.613		0.8	1	8.159			
T3	0.26	0.88	A	0.286	2.333	27	0.8	1	14.756	1.58	79.13	C
141.50-121.50		TA 0.52	B	0.286	2.333		0.8	1	14.756			
			C	0.286	2.333		0.8	1	14.756			
T4	0.32	1.81	A	0.301	2.294	26	0.8	1	15.628	1.63	81.69	C
121.50-101.50			B	0.301	2.294		0.8	1	15.628			
			C	0.301	2.294		0.8	1	15.628			
T5	0.32	1.00	A	0.258	2.413	24	0.8	1	12.049	1.43	71.49	C
101.50-81.50			B	0.258	2.413		0.8	1	12.049			
			C	0.258	2.413		0.8	1	12.049			
T6	0.33	1.32	A	0.254	2.427	23	0.8	1	12.754	1.40	70.17	C
81.50-61.50			B	0.254	2.427		0.8	1	12.754			

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
			C	0.254	2.427		0.8	1	12.754			
T7	0.34	1.13	A	0.23	2.499	21	0.8	1	11.153	1.23	61.38	C
61.50-41.50			B	0.23	2.499		0.8	1	11.153			
			C	0.23	2.499		0.8	1	11.153			
T8	0.34	0.46	A	0.195	2.613	18	0.8	1	8.159	0.97	48.32	C
41.50-21.50			B	0.195	2.613		0.8	1	8.159			
			C	0.195	2.613		0.8	1	8.159			
T9 21.50-6.50	0.25	0.98	A	0.243	2.46	18	0.8	1	9.071	0.81	53.97	C
			B	0.243	2.46		0.8	1	9.071			
			C	0.243	2.46		0.8	1	9.071			
T10 6.50-1.50	0.00	0.41	A	0.712	1.777	18	0.8	1	5.628	0.15	30.21	C
			B	0.712	1.777		0.8	1	5.628			
			C	0.712	1.777		0.8	1	5.628			
Sum Weight:	2.40	10.31								11.39		

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 ft^2	F K	w plf	Ctrl. Face
T1	0.05	0.81	A	0.267	2.388	29	0.85	1	14.067	1.05	52.30	C
181.50-161.50		TA 0.52	B	0.267	2.388		0.85	1	14.067			
			C	0.267	2.388		0.85	1	14.067			
T2	0.21	0.46	A	0.195	2.613	28	0.85	1	8.159	1.17	58.55	C
161.50-141.50			B	0.195	2.613		0.85	1	8.159			
			C	0.195	2.613		0.85	1	8.159			
T3	0.26	0.88	A	0.286	2.333	27	0.85	1	15.322	1.61	80.65	C
141.50-121.50		TA 0.52	B	0.286	2.333		0.85	1	15.322			
			C	0.286	2.333		0.85	1	15.322			
T4	0.32	1.81	A	0.301	2.294	26	0.85	1	16.246	1.67	83.25	C
121.50-101.50			B	0.301	2.294		0.85	1	16.246			
			C	0.301	2.294		0.85	1	16.246			
T5	0.32	1.00	A	0.258	2.413	24	0.85	1	12.281	1.44	72.07	C
101.50-81.50			B	0.258	2.413		0.85	1	12.281			
			C	0.258	2.413		0.85	1	12.281			
T6	0.33	1.32	A	0.254	2.427	23	0.85	1	13.200	1.42	71.22	C
81.50-61.50			B	0.254	2.427		0.85	1	13.200			
			C	0.254	2.427		0.85	1	13.200			
T7	0.34	1.13	A	0.23	2.499	21	0.85	1	11.474	1.24	62.09	C
61.50-41.50			B	0.23	2.499		0.85	1	11.474			
			C	0.23	2.499		0.85	1	11.474			
T8	0.34	0.46	A	0.195	2.613	18	0.85	1	8.159	0.97	48.32	C
41.50-21.50			B	0.195	2.613		0.85	1	8.159			
			C	0.195	2.613		0.85	1	8.159			
T9 21.50-6.50	0.25	0.98	A	0.243	2.46	18	0.85	1	9.375	0.82	54.73	C
			B	0.243	2.46		0.85	1	9.375			
			C	0.243	2.46		0.85	1	9.375			
T10 6.50-1.50	0.00	0.41	A	0.712	1.777	18	0.85	1	5.847	0.16	31.39	C
			B	0.712	1.777		0.85	1	5.847			
			C	0.712	1.777		0.85	1	5.847			
Sum Weight:	2.40	10.31								11.55		

Discrete Appurtenance Pressures - No Ice $G_H = 0.850$

Description	Aiming Azimuth °	Weight K	$Offset_x$ ft	$Offset_z$ ft	z ft	K_z	q_z psf	C_AA_C Front ft^2	C_AA_C Side ft^2
Torque Arm Face C	180.0000	0.00	0.00	2.61	168.50	1.147	49	2.32	3.86
Torque Arm Face B	60.0000	0.00	2.26	-1.30	168.50	1.147	49	2.32	3.86
Torque Arm Face A	300.0000	0.00	-2.26	-1.30	168.50	1.147	49	2.32	3.86
Torque Arm Face C	180.0000	0.00	0.00	2.61	128.50	1.062	45	2.36	3.94
Torque Arm Face B	60.0000	0.00	2.26	-1.30	128.50	1.062	45	2.36	3.94
Torque Arm Face A	300.0000	0.00	-2.26	-1.30	128.50	1.062	45	2.36	3.94
GPS	120.0000	0.01	4.74	2.73	89.50	0.957	41	1.00	1.00
3' GPS Stand-off Mount	120.0000	0.05	3.00	1.73	89.50	0.957	41	2.45	2.45
APXVSPP18-C-A20	0.0000	0.06	-4.00	-4.97	126.00	1.056	45	8.02	5.28
APXVSPP18-C-A20	120.0000	0.06	6.30	-0.98	126.00	1.056	45	8.02	5.28
APXVSPP18-C-A20	240.0000	0.06	-2.30	5.95	126.00	1.056	45	8.02	5.28
FD-RRH 2x50 800	0.0000	0.06	0.00	-4.97	126.00	1.056	45	2.06	1.93
FD-RRH 2x50 800	120.0000	0.06	4.30	2.48	126.00	1.056	45	2.06	1.93
FD-RRH 2x50 800	240.0000	0.06	-4.30	2.48	126.00	1.056	45	2.06	1.93
FD-RRH 4x45 1900	0.0000	0.06	0.00	-4.97	126.00	1.056	45	2.32	2.38
FD-RRH 4x45 1900	120.0000	0.06	4.30	2.48	126.00	1.056	45	2.32	2.38
FD-RRH 4x45 1900	240.0000	0.06	-4.30	2.48	126.00	1.056	45	2.32	2.38
Rohn 6' x 12' Boom Gate (1)	0.0000	0.56	0.00	-3.97	126.00	1.056	45	16.60	16.60
Rohn 6' x 12' Boom Gate (1)	120.0000	0.56	3.44	1.98	126.00	1.056	45	16.60	16.60
Rohn 6' x 12' Boom Gate (1)	240.0000	0.56	-3.44	1.98	126.00	1.056	45	16.60	16.60
1.5"x2'omni	0.0000	0.01	0.00	-4.97	145.50	1.100	47	0.25	0.25
1.5"x2'omni	0.0000	0.01	0.00	-4.97	141.50	1.091	47	0.25	0.25
2-ft Stand Off	0.0000	0.02	0.00	-2.97	143.50	1.096	47	1.07	1.07
3"x20-ft Omni	240.0000	0.02	-4.30	2.48	148.50	1.106	47	3.56	3.56
3-ft Side Arm	240.0000	0.01	-3.00	1.73	138.50	1.085	46	0.66	0.66
20-ft x 1.9in Support Pipe	240.0000	0.05	-3.00	1.73	148.50	1.106	47	3.80	3.80
20' x 2" Dia Omni	0.0000	0.02	0.00	-1.97	190.50	1.188	51	4.00	4.00
14' x 3" Dia Omni	120.0000	0.04	1.71	0.98	187.50	1.183	50	4.20	4.20
20' x 2" Dia Omni	240.0000	0.02	-1.71	0.98	190.50	1.188	51	4.00	4.00
SBNHH-1D65A	300.0000	0.04	-2.45	-3.72	78.00	0.921	39	5.88	3.86
SBNHH-1D65A	60.0000	0.04	4.45	-0.26	78.00	0.921	39	5.88	3.86
SBNHH-1D65A	180.0000	0.04	-2.00	3.98	78.00	0.921	39	5.88	3.86
DMP65R-BU4D	300.0000	0.07	-6.45	3.20	78.00	0.921	39	8.00	3.51
DMP65R-BU4D	60.0000	0.07	0.45	-7.19	78.00	0.921	39	8.00	3.51
DMP65R-BU4D	180.0000	0.07	6.00	3.98	78.00	0.921	39	8.00	3.51
8843 B2/B66A	300.0000	0.07	-3.45	-1.99	78.00	0.921	39	1.64	1.35
8843 B2/B66A	60.0000	0.07	3.45	-1.99	78.00	0.921	39	1.64	1.35
8843 B2/B66A	180.0000	0.07	0.00	3.98	78.00	0.921	39	1.64	1.35
4449 B5/B12	300.0000	0.07	-3.45	-1.99	78.00	0.921	39	1.97	1.41
4449 B5/B12	60.0000	0.07	3.45	-1.99	78.00	0.921	39	1.97	1.41
4449 B5/B12	180.0000	0.07	0.00	3.98	78.00	0.921	39	1.97	1.41
DC6-48-60-18-8F Surge Arrestor	240.0000	0.02	-2.57	1.48	78.00	0.921	39	1.91	1.91
12' V-Frame	0.0000	0.30	0.00	-3.97	78.00	0.921	39	9.22	12.97
12' V-Frame	120.0000	0.30	3.44	1.98	78.00	0.921	39	9.22	12.97
12' V-Frame	240.0000	0.30	-3.44	1.98	78.00	0.921	39	9.22	12.97
AIR21	0.0000	0.08	-2.00	-3.97	159.00	1.128	48	6.53	4.36
AIR21	0.0000	0.08	2.00	-3.97	159.00	1.128	48	6.53	4.36
AIR21	120.0000	0.08	4.44	0.25	159.00	1.128	48	6.53	4.36
AIR21	120.0000	0.08	2.44	3.72	159.00	1.128	48	6.53	4.36
AIR21	240.0000	0.08	-2.44	3.72	159.00	1.128	48	6.53	4.36

Description	Aiming Azimuth °	Weight K	$Offset_x$ ft	$Offset_z$ ft	z ft	K_z	q_z psf	C_AA_C Front ft^2	C_AA_C Side ft^2
AIR21	240.0000	0.08	-4.44	0.25	159.00	1.128	48	6.53	4.36
KRY 112 TMA	0.0000	0.03	0.00	-3.97	159.00	1.128	48	0.78	0.49
KRY 112 TMA	120.0000	0.03	3.44	1.98	159.00	1.128	48	0.78	0.49
KRY 112 TMA	240.0000	0.03	-3.44	1.98	159.00	1.128	48	0.78	0.49
Pirod 12' T-Frame Sector Mount (1)	0.0000	0.47	0.00	-2.97	159.00	1.128	48	13.60	13.60
Pirod 12' T-Frame Sector Mount (1)	120.0000	0.47	2.57	1.48	159.00	1.128	48	13.60	13.60
Pirod 12' T-Frame Sector Mount (1)	240.0000	0.47	-2.57	1.48	159.00	1.128	48	13.60	13.60
LNX-6515DS	0.0000	0.06	-2.00	-3.97	159.00	1.128	48	11.45	7.70
LNX-6515DS	120.0000	0.06	4.44	0.25	159.00	1.128	48	11.45	7.70
LNX-6515DS	240.0000	0.06	-2.44	3.72	159.00	1.128	48	11.45	7.70
RRUS-11	0.0000	0.05	-2.00	-3.97	159.00	1.128	48	2.57	1.07
RRUS-11	120.0000	0.05	4.44	0.25	159.00	1.128	48	2.57	1.07
RRUS-11	240.0000	0.05	-2.44	3.72	159.00	1.128	48	2.57	1.07
DS2C03F36D-D	240.0000	0.08	-6.90	3.98	187.00	1.182	50	7.30	7.30
SitePro USF-4U	240.0000	0.16	-4.30	2.48	177.00	1.163	50	5.75	5.75
	Sum Weight:	6.70							

Discrete Appurtenance Pressures - With Ice $G_H = 0.850$

Description	Aiming Azimuth °	Weight K	$Offset_x$ ft	$Offset_z$ ft	z ft	K_z	q_z psf	C_AA_C Front ft^2	C_AA_C Side ft^2	t_z in
Torque Arm Face C	180.0000	0.00	0.00	2.61	168.50	1.147	6	4.12	6.88	1.3560
Torque Arm Face B	60.0000	0.00	2.26	-1.30	168.50	1.147	6	4.12	6.88	1.3560
Torque Arm Face A	300.0000	0.00	-2.26	-1.30	168.50	1.147	6	4.12	6.88	1.3560
Torque Arm Face C	180.0000	0.00	0.00	2.61	128.50	1.062	6	4.08	6.82	1.3205
Torque Arm Face B	60.0000	0.00	2.26	-1.30	128.50	1.062	6	4.08	6.82	1.3205
Torque Arm Face A	300.0000	0.00	-2.26	-1.30	128.50	1.062	6	4.08	6.82	1.3205
GPS	120.0000	0.02	4.74	2.73	89.50	0.957	5	2.27	2.27	1.2707
3' GPS Stand-off Mount	120.0000	0.11	3.00	1.73	89.50	0.957	5	6.34	6.34	1.2707
APXVSPP18-C-A20	0.0000	0.20	-4.00	-4.97	126.00	1.056	6	9.24	6.49	1.3149
APXVSPP18-C-A20	120.0000	0.20	6.30	-0.98	126.00	1.056	6	9.24	6.49	1.3149
APXVSPP18-C-A20	240.0000	0.20	-2.30	5.95	126.00	1.056	6	9.24	6.49	1.3149
FD-RRH 2x50 800	0.0000	0.13	0.00	-4.97	126.00	1.056	6	2.55	2.42	1.3149
FD-RRH 2x50 800	120.0000	0.13	4.30	2.48	126.00	1.056	6	2.55	2.42	1.3149
FD-RRH 2x50 800	240.0000	0.13	-4.30	2.48	126.00	1.056	6	2.55	2.42	1.3149
FD-RRH 4x45 1900	0.0000	0.13	0.00	-4.97	126.00	1.056	6	2.88	2.95	1.3149
FD-RRH 4x45 1900	120.0000	0.13	4.30	2.48	126.00	1.056	6	2.88	2.95	1.3149
FD-RRH 4x45 1900	240.0000	0.13	-4.30	2.48	126.00	1.056	6	2.88	2.95	1.3149
Rohn 6' x 12' Boom Gate (1)	0.0000	0.93	0.00	-3.97	126.00	1.056	6	25.02	25.02	1.3149
Rohn 6' x 12' Boom Gate (1)	120.0000	0.93	3.44	1.98	126.00	1.056	6	25.02	25.02	1.3149
Rohn 6' x 12' Boom Gate (1)	240.0000	0.93	-3.44	1.98	126.00	1.056	6	25.02	25.02	1.3149
1.5"x2'omni	0.0000	0.01	0.00	-4.97	145.50	1.100	6	0.60	0.60	1.3339
1.5"x2'omni	0.0000	0.01	0.00	-4.97	141.50	1.091	6	0.60	0.60	1.3302
2-ft Stand Off	0.0000	0.04	0.00	-2.97	143.50	1.096	6	2.54	2.54	1.3321
3"x20-ft Omni	240.0000	0.08	-4.30	2.48	148.50	1.106	6	13.10	13.10	1.3367
3-ft Side Arm	240.0000	0.05	-3.00	1.73	138.50	1.085	6	1.93	1.93	1.3274
20-ft x 1.9in Support Pipe	240.0000	0.13	-3.00	1.73	148.50	1.106	6	9.20	9.20	1.3367
20' x 2" Dia Omni	0.0000	0.14	0.00	-1.97	190.50	1.188	6	9.60	9.60	1.3704
14' x 3" Dia Omni	120.0000	0.15	1.71	0.98	187.50	1.183	6	8.14	8.14	1.3682

Description	Aiming Azimuth °	Weight K	$Offset_x$ ft	$Offset_z$ ft	z ft	K_z	q_z psf	C_AA_C Front ft^2	C_AA_C Side ft^2	t_z in
20' x 2" Dia Omni	240.0000	0.14	-1.71	0.98	190.50	1.188	6	9.60	9.60	1.3704
SBNHH-1D65A	300.0000	0.15	-2.45	-3.72	78.00	0.921	5	6.81	4.75	1.2533
SBNHH-1D65A	60.0000	0.15	4.45	-0.26	78.00	0.921	5	6.81	4.75	1.2533
SBNHH-1D65A	180.0000	0.15	-2.00	3.98	78.00	0.921	5	6.81	4.75	1.2533
DMP65R-BU4D	300.0000	0.21	-6.45	3.20	78.00	0.921	5	8.97	4.28	1.2533
DMP65R-BU4D	60.0000	0.21	0.45	-7.19	78.00	0.921	5	8.97	4.28	1.2533
DMP65R-BU4D	180.0000	0.21	6.00	3.98	78.00	0.921	5	8.97	4.28	1.2533
8843 B2/B66A	300.0000	0.12	-3.45	-1.99	78.00	0.921	5	2.06	1.74	1.2533
8843 B2/B66A	60.0000	0.12	3.45	-1.99	78.00	0.921	5	2.06	1.74	1.2533
8843 B2/B66A	180.0000	0.12	0.00	3.98	78.00	0.921	5	2.06	1.74	1.2533
4449 B5/B12	300.0000	0.12	-3.45	-1.99	78.00	0.921	5	2.43	1.81	1.2533
4449 B5/B12	60.0000	0.12	3.45	-1.99	78.00	0.921	5	2.43	1.81	1.2533
4449 B5/B12	180.0000	0.12	0.00	3.98	78.00	0.921	5	2.43	1.81	1.2533
DC6-48-60-18-8F Surge Arrestor	240.0000	0.08	-2.57	1.48	78.00	0.921	5	2.40	2.40	1.2533
12' V-Frame	0.0000	0.55	0.00	-3.97	78.00	0.921	5	9.22	12.97	1.2533
12' V-Frame	120.0000	0.55	3.44	1.98	78.00	0.921	5	9.22	12.97	1.2533
12' V-Frame	240.0000	0.55	-3.44	1.98	78.00	0.921	5	9.22	12.97	1.2533
AIR21	0.0000	0.21	-2.00	-3.97	159.00	1.128	6	7.75	5.51	1.3458
AIR21	0.0000	0.21	2.00	-3.97	159.00	1.128	6	7.75	5.51	1.3458
AIR21	120.0000	0.21	4.44	0.25	159.00	1.128	6	7.75	5.51	1.3458
AIR21	120.0000	0.21	2.44	3.72	159.00	1.128	6	7.75	5.51	1.3458
AIR21	240.0000	0.21	-2.44	3.72	159.00	1.128	6	7.75	5.51	1.3458
AIR21	240.0000	0.21	-4.44	0.25	159.00	1.128	6	7.75	5.51	1.3458
KRY 112 TMA	0.0000	0.05	0.00	-3.97	159.00	1.128	6	1.13	0.78	1.3458
KRY 112 TMA	120.0000	0.05	3.44	1.98	159.00	1.128	6	1.13	0.78	1.3458
KRY 112 TMA	240.0000	0.05	-3.44	1.98	159.00	1.128	6	1.13	0.78	1.3458
Pirod 12' T-Frame Sector Mount (1)	0.0000	0.83	0.00	-2.97	159.00	1.128	6	26.52	26.52	1.3458
Pirod 12' T-Frame Sector Mount (1)	120.0000	0.83	2.57	1.48	159.00	1.128	6	26.52	26.52	1.3458
Pirod 12' T-Frame Sector Mount (1)	240.0000	0.83	-2.57	1.48	159.00	1.128	6	26.52	26.52	1.3458
LNX-6515DS	0.0000	0.25	-2.00	-3.97	159.00	1.128	6	13.12	9.31	1.3458
LNX-6515DS	120.0000	0.25	4.44	0.25	159.00	1.128	6	13.12	9.31	1.3458
LNX-6515DS	240.0000	0.25	-2.44	3.72	159.00	1.128	6	13.12	9.31	1.3458
RRUS-11	0.0000	0.11	-2.00	-3.97	159.00	1.128	6	3.12	1.47	1.3458
RRUS-11	120.0000	0.11	4.44	0.25	159.00	1.128	6	3.12	1.47	1.3458
RRUS-11	240.0000	0.11	-2.44	3.72	159.00	1.128	6	3.12	1.47	1.3458
DS2C03F36D-D	240.0000	0.26	-6.90	3.98	187.00	1.182	6	14.10	14.10	1.3678
SitePro USF-4U	240.0000	0.29	-4.30	2.48	177.00	1.163	6	11.87	11.87	1.3603
	Sum Weight:	14.14								

Discrete Appurtenance Pressures - Service $G_H = 0.850$

Description	Aiming Azimuth °	Weight K	$Offset_x$ ft	$Offset_z$ ft	z ft	K_z	q_z psf	C_AA_C Front ft^2	C_AA_C Side ft^2
Torque Arm Face C	180.0000	0.00	0.00	2.61	168.50	1.147	29	2.32	3.86
Torque Arm Face B	60.0000	0.00	2.26	-1.30	168.50	1.147	29	2.32	3.86
Torque Arm Face A	300.0000	0.00	-2.26	-1.30	168.50	1.147	29	2.32	3.86
Torque Arm Face C	180.0000	0.00	0.00	2.61	128.50	1.062	27	2.36	3.94
Torque Arm Face B	60.0000	0.00	2.26	-1.30	128.50	1.062	27	2.36	3.94
Torque Arm Face A	300.0000	0.00	-2.26	-1.30	128.50	1.062	27	2.36	3.94
GPS	120.0000	0.01	4.74	2.73	89.50	0.957	24	1.00	1.00
3' GPS Stand-off Mount	120.0000	0.05	3.00	1.73	89.50	0.957	24	2.45	2.45
APXVSPP18-C-A20	0.0000	0.06	-4.00	-4.97	126.00	1.056	27	8.02	5.28

Description	Aiming Azimuth °	Weight K	$Offset_x$ ft	$Offset_z$ ft	z ft	K_z	q_z psf	C_AA_C Front ft^2	C_AA_C Side ft^2
APXVSPP18-C-A20	120.0000	0.06	6.30	-0.98	126.00	1.056	27	8.02	5.28
APXVSPP18-C-A20	240.0000	0.06	-2.30	5.95	126.00	1.056	27	8.02	5.28
FD-RRH 2x50 800	0.0000	0.06	0.00	-4.97	126.00	1.056	27	2.06	1.93
FD-RRH 2x50 800	120.0000	0.06	4.30	2.48	126.00	1.056	27	2.06	1.93
FD-RRH 2x50 800	240.0000	0.06	-4.30	2.48	126.00	1.056	27	2.06	1.93
FD-RRH 4x45 1900	0.0000	0.06	0.00	-4.97	126.00	1.056	27	2.32	2.38
FD-RRH 4x45 1900	120.0000	0.06	4.30	2.48	126.00	1.056	27	2.32	2.38
FD-RRH 4x45 1900	240.0000	0.06	-4.30	2.48	126.00	1.056	27	2.32	2.38
Rohn 6' x 12' Boom Gate (1)	0.0000	0.56	0.00	-3.97	126.00	1.056	27	16.60	16.60
Rohn 6' x 12' Boom Gate (1)	120.0000	0.56	3.44	1.98	126.00	1.056	27	16.60	16.60
Rohn 6' x 12' Boom Gate (1)	240.0000	0.56	-3.44	1.98	126.00	1.056	27	16.60	16.60
1.5"x2'omni	0.0000	0.01	0.00	-4.97	145.50	1.100	28	0.25	0.25
1.5"x2'omni	0.0000	0.01	0.00	-4.97	141.50	1.091	28	0.25	0.25
2-ft Stand Off	0.0000	0.02	0.00	-2.97	143.50	1.096	28	1.07	1.07
3"x20-ft Omni	240.0000	0.02	-4.30	2.48	148.50	1.106	28	3.56	3.56
3-ft Side Arm	240.0000	0.01	-3.00	1.73	138.50	1.085	28	0.66	0.66
20-ft x 1.9in Support Pipe	240.0000	0.05	-3.00	1.73	148.50	1.106	28	3.80	3.80
20' x 2" Dia Omni	0.0000	0.02	0.00	-1.97	190.50	1.188	30	4.00	4.00
14' x 3" Dia Omni	120.0000	0.04	1.71	0.98	187.50	1.183	30	4.20	4.20
20' x 2" Dia Omni	240.0000	0.02	-1.71	0.98	190.50	1.188	30	4.00	4.00
SBNHH-1D65A	300.0000	0.04	-2.45	-3.72	78.00	0.921	23	5.88	3.86
SBNHH-1D65A	60.0000	0.04	4.45	-0.26	78.00	0.921	23	5.88	3.86
SBNHH-1D65A	180.0000	0.04	-2.00	3.98	78.00	0.921	23	5.88	3.86
DMP65R-BU4D	300.0000	0.07	-6.45	3.20	78.00	0.921	23	8.00	3.51
DMP65R-BU4D	60.0000	0.07	0.45	-7.19	78.00	0.921	23	8.00	3.51
DMP65R-BU4D	180.0000	0.07	6.00	3.98	78.00	0.921	23	8.00	3.51
8843 B2/B66A	300.0000	0.07	-3.45	-1.99	78.00	0.921	23	1.64	1.35
8843 B2/B66A	60.0000	0.07	3.45	-1.99	78.00	0.921	23	1.64	1.35
8843 B2/B66A	180.0000	0.07	0.00	3.98	78.00	0.921	23	1.64	1.35
4449 B5/B12	300.0000	0.07	-3.45	-1.99	78.00	0.921	23	1.97	1.41
4449 B5/B12	60.0000	0.07	3.45	-1.99	78.00	0.921	23	1.97	1.41
4449 B5/B12	180.0000	0.07	0.00	3.98	78.00	0.921	23	1.97	1.41
DC6-48-60-18-8F Surge Arrestor	240.0000	0.02	-2.57	1.48	78.00	0.921	23	1.91	1.91
12' V-Frame	0.0000	0.30	0.00	-3.97	78.00	0.921	23	9.22	12.97
12' V-Frame	120.0000	0.30	3.44	1.98	78.00	0.921	23	9.22	12.97
12' V-Frame	240.0000	0.30	-3.44	1.98	78.00	0.921	23	9.22	12.97
AIR21	0.0000	0.08	-2.00	-3.97	159.00	1.128	29	6.53	4.36
AIR21	0.0000	0.08	2.00	-3.97	159.00	1.128	29	6.53	4.36
AIR21	120.0000	0.08	4.44	0.25	159.00	1.128	29	6.53	4.36
AIR21	120.0000	0.08	2.44	3.72	159.00	1.128	29	6.53	4.36
AIR21	240.0000	0.08	-2.44	3.72	159.00	1.128	29	6.53	4.36
AIR21	240.0000	0.08	-4.44	0.25	159.00	1.128	29	6.53	4.36
KRY 112 TMA	0.0000	0.03	0.00	-3.97	159.00	1.128	29	0.78	0.49
KRY 112 TMA	120.0000	0.03	3.44	1.98	159.00	1.128	29	0.78	0.49
KRY 112 TMA	240.0000	0.03	-3.44	1.98	159.00	1.128	29	0.78	0.49
Pirod 12' T-Frame Sector Mount (1)	0.0000	0.47	0.00	-2.97	159.00	1.128	29	13.60	13.60
Pirod 12' T-Frame Sector Mount (1)	120.0000	0.47	2.57	1.48	159.00	1.128	29	13.60	13.60
Pirod 12' T-Frame Sector Mount (1)	240.0000	0.47	-2.57	1.48	159.00	1.128	29	13.60	13.60
LNX-6515DS	0.0000	0.06	-2.00	-3.97	159.00	1.128	29	11.45	7.70
LNX-6515DS	120.0000	0.06	4.44	0.25	159.00	1.128	29	11.45	7.70
LNX-6515DS	240.0000	0.06	-2.44	3.72	159.00	1.128	29	11.45	7.70
RRUS-11	0.0000	0.05	-2.00	-3.97	159.00	1.128	29	2.57	1.07
RRUS-11	120.0000	0.05	4.44	0.25	159.00	1.128	29	2.57	1.07

Description	Aiming Azimuth °	Weight K	$Offset_x$ ft	$Offset_z$ ft	z ft	K_z	q_z psf	C_AA_C Front ft^2	C_AA_C Side ft^2
RRUS-11	240.0000	0.05	-2.44	3.72	159.00	1.128	29	2.57	1.07
DS2C03F36D-D	240.0000	0.08	-6.90	3.98	187.00	1.182	30	7.30	7.30
SitePro USF-4U	240.0000	0.16	-4.30	2.48	177.00	1.163	30	5.75	5.75
	Sum Weight:	6.70							

Dish Pressures - No Ice

Elevation ft	Dish Description	Aiming Azimuth °	Weight K	$Offset_x$ ft	$Offset_z$ ft	K_z	A_A ft^2	q_z psf
176.50	8.5 Dishw/radome	0.0000	0.07	0.00	-1.97	1.162	56.75	50
		Sum Weight:	0.07					

Dish Pressures - With Ice

Elevation ft	Dish Description	Aiming Azimuth °	Weight K	$Offset_x$ ft	$Offset_z$ ft	K_z	A_A ft^2	q_z psf	t_z in
176.50	8.5 Dishw/radome	0.0000	0.60	0.00	-1.97	1.162	58.67	6	1.1826
		Sum Weight:	0.60						

Dish Pressures - Service

Elevation ft	Dish Description	Aiming Azimuth °	Weight K	$Offset_x$ ft	$Offset_z$ ft	K_z	A_A ft^2	q_z psf
176.50	8.5 Dishw/radome	0.0000	0.07	0.00	-1.97	1.162	56.75	30
		Sum Weight:	0.07					

Force Totals (Does not include forces on guys)

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Torques kip-ft
Leg Weight	3.14			
Bracing Weight	7.17			
Total Member Self-Weight	10.31			
Guy Weight	2.47			
Total Weight	21.95			
Wind 0 deg - No Ice		0.00	-34.14	-7.32
Wind 30 deg - No Ice		16.35	-28.56	-8.40
Wind 60 deg - No Ice		27.57	-16.38	-5.27
Wind 90 deg - No Ice		31.66	-0.03	-0.30
Wind 120 deg - No Ice		27.96	19.75	7.74
Wind 150 deg - No Ice		15.34	30.42	9.34

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Torques kip-ft
Wind 180 deg - No Ice		0.00	34.29	7.32
Wind 210 deg - No Ice		-15.34	30.42	3.35
Wind 240 deg - No Ice		-27.96	19.75	-0.42
Wind 270 deg - No Ice		-31.66	-0.03	0.30
Wind 300 deg - No Ice		-27.57	-16.38	-2.06
Wind 330 deg - No Ice		-16.35	-28.56	-4.29
Member Ice	13.21			
Guy Ice	9.11			
Total Weight Ice	66.62			
Wind 0 deg - Ice		0.00	-7.62	-1.36
Wind 30 deg - Ice		3.73	-6.49	-1.25
Wind 60 deg - Ice		6.36	-3.73	-0.54
Wind 90 deg - Ice		7.32	-0.00	0.37
Wind 120 deg - Ice		6.39	4.16	1.57
Wind 150 deg - Ice		3.59	6.73	1.77
Wind 180 deg - Ice		0.00	7.67	1.36
Wind 210 deg - Ice		-3.59	6.73	0.58
Wind 240 deg - Ice		-6.39	4.16	-0.21
Wind 270 deg - Ice		-7.32	-0.00	-0.37
Wind 300 deg - Ice		-6.36	-3.73	-0.82
Wind 330 deg - Ice		-3.73	-6.49	-1.11
Total Weight	21.95			
Wind 0 deg - Service		0.00	-20.32	-4.36
Wind 30 deg - Service		9.73	-16.99	-5.00
Wind 60 deg - Service		16.41	-9.75	-3.14
Wind 90 deg - Service		18.84	-0.02	-0.18
Wind 120 deg - Service		16.64	11.75	4.61
Wind 150 deg - Service		9.13	18.11	5.56
Wind 180 deg - Service		0.00	20.40	4.36
Wind 210 deg - Service		-9.13	18.11	1.99
Wind 240 deg - Service		-16.64	11.75	-0.25
Wind 270 deg - Service		-18.84	-0.02	0.18
Wind 300 deg - Service		-16.41	-9.75	-1.22
Wind 330 deg - Service		-9.73	-16.99	-2.55

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice+1.0 Guy
3	1.2 Dead+1.0 Wind 30 deg - No Ice+1.0 Guy
4	1.2 Dead+1.0 Wind 60 deg - No Ice+1.0 Guy
5	1.2 Dead+1.0 Wind 90 deg - No Ice+1.0 Guy
6	1.2 Dead+1.0 Wind 120 deg - No Ice+1.0 Guy
7	1.2 Dead+1.0 Wind 150 deg - No Ice+1.0 Guy
8	1.2 Dead+1.0 Wind 180 deg - No Ice+1.0 Guy
9	1.2 Dead+1.0 Wind 210 deg - No Ice+1.0 Guy
10	1.2 Dead+1.0 Wind 240 deg - No Ice+1.0 Guy
11	1.2 Dead+1.0 Wind 270 deg - No Ice+1.0 Guy
12	1.2 Dead+1.0 Wind 300 deg - No Ice+1.0 Guy
13	1.2 Dead+1.0 Wind 330 deg - No Ice+1.0 Guy
14	1.2 Dead+1.0 Ice+1.0 Temp+Guy
15	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy

Comb. No.	Description
16	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy
17	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy
18	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy
19	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy
20	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy
21	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy
22	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy
23	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy
24	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy
25	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy
26	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy
27	Dead+Wind 0 deg - Service+Guy
28	Dead+Wind 30 deg - Service+Guy
29	Dead+Wind 60 deg - Service+Guy
30	Dead+Wind 90 deg - Service+Guy
31	Dead+Wind 120 deg - Service+Guy
32	Dead+Wind 150 deg - Service+Guy
33	Dead+Wind 180 deg - Service+Guy
34	Dead+Wind 210 deg - Service+Guy
35	Dead+Wind 240 deg - Service+Guy
36	Dead+Wind 270 deg - Service+Guy
37	Dead+Wind 300 deg - Service+Guy
38	Dead+Wind 330 deg - Service+Guy

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
T1	181.5 - 161.5	Leg	Max Tension	8	17.95	0.03	-0.08
			Max. Compression	10	-16.22	0.33	-0.10
			Max. Mx	11	-4.21	1.46	0.00
			Max. My	2	-4.83	-0.02	1.34
			Max. Vy	5	-1.87	-1.37	0.01
			Max. Vx	7	1.63	0.06	-0.12
		Diagonal	Max Tension	7	3.14	0.00	0.00
			Max. Compression	7	-3.34	0.00	0.00
			Max. Mx	8	2.28	-0.04	-0.00
			Max. My	3	-2.43	-0.01	0.02
			Max. Vy	8	-0.02	0.00	0.00
			Max. Vx	3	-0.01	-0.01	0.02
		Top Girt	Max Tension	2	0.07	0.00	0.00
			Max. Compression	8	-0.14	0.00	0.00
			Max. Mx	23	-0.04	-0.01	0.00
			Max. My	7	0.05	0.00	-0.00
			Max. Vy	23	-0.02	0.00	0.00
			Max. Vx	7	0.00	0.00	0.00
		Bottom Girt	Max Tension	11	0.77	0.00	0.00
			Max. Compression	5	-0.74	0.00	0.00
			Max. Mx	24	0.19	-0.01	0.00
			Max. My	7	0.71	0.00	-0.00
			Max. Vy	24	-0.02	0.00	0.00
			Max. Vx	7	0.00	0.00	0.00
		Guy A	Bottom Tension	8	10.85		
			Top Tension	8	10.97		
			Top Cable Vert	8	7.58		
			Top Cable Norm	8	7.93		
			Top Cable Tan	8	0.00		
			Bot Cable Vert	8	-7.25		

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Bot Cable Norm	8	8.08		
			Bot Cable Tan	8	0.00		
		Guy B	Bottom Tension	12	9.32		
			Top Tension	12	9.43		
			Top Cable Vert	12	6.54		
			Top Cable Norm	12	6.80		
			Top Cable Tan	12	0.00		
			Bot Cable Vert	12	-6.21		
			Bot Cable Norm	12	6.95		
			Bot Cable Tan	12	0.00		
		Guy C	Bottom Tension	4	9.58		
			Top Tension	4	9.69		
			Top Cable Vert	4	6.71		
			Top Cable Norm	4	6.99		
			Top Cable Tan	4	0.01		
			Bot Cable Vert	4	-6.38		
			Bot Cable Norm	4	7.14		
			Bot Cable Tan	4	0.00		
		Torque Arm Top	Max Tension	3	11.84	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	22	9.08	0.04	0.00
			Max. My	7	6.83	0.00	-0.00
			Max. Vy	22	-0.04	0.00	0.00
			Max. Vx	7	0.00	0.00	0.00
		Torque Arm Bottom	Max Tension	6	1.71	0.00	0.00
			Max. Compression	8	-16.24	0.00	0.00
			Max. Mx	19	-9.40	0.05	0.00
			Max. My	7	-4.44	0.00	-0.00
			Max. Vy	19	-0.04	0.00	0.00
			Max. Vx	7	0.00	0.00	0.00
T2	161.5 - 141.5	Leg	Max Tension	5	0.29	-0.16	-0.00
			Max. Compression	6	-17.79	-0.58	0.13
			Max. Mx	12	-4.45	-1.32	-0.35
			Max. My	2	-11.26	-0.20	-1.36
			Max. Vy	5	-1.87	-0.22	0.01
			Max. Vx	2	1.62	-0.20	0.35
		Diagonal	Max Tension	5	2.92	0.00	0.00
			Max. Compression	3	-3.42	0.00	0.00
			Max. Mx	19	0.38	0.01	0.00
			Max. My	20	0.26	0.00	-0.00
			Max. Vy	19	-0.01	0.00	0.00
			Max. Vx	20	-0.00	0.00	0.00
		Top Girt	Max Tension	11	2.01	0.00	0.00
			Max. Compression	5	-2.02	0.00	0.00
			Max. Mx	24	-0.22	0.01	0.00
			Max. My	7	-0.78	0.00	0.00
			Max. Vy	24	-0.01	0.00	0.00
			Max. Vx	7	-0.00	0.00	0.00
		Bottom Girt	Max Tension	3	1.48	0.00	0.00
			Max. Compression	8	-1.42	0.00	0.00
			Max. Mx	14	0.02	0.01	0.00
			Max. My	7	-1.26	0.00	0.00
			Max. Vy	14	-0.01	0.00	0.00
			Max. Vx	7	-0.00	0.00	0.00
T3	141.5 - 121.5	Leg	Max Tension	8	11.04	0.01	-0.07
			Max. Compression	19	-27.18	0.01	-0.15
			Max. Mx	5	-8.83	-0.87	0.10
			Max. My	2	-15.15	0.01	0.92
			Max. Vy	11	1.41	0.82	-0.01
			Max. Vx	2	1.48	0.01	0.92
		Diagonal	Max Tension	3	3.42	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	9	-3.38	0.00	-0.01
			Max. Mx	8	2.17	-0.07	-0.00
			Max. My	3	-1.86	-0.01	0.03
			Max. Vy	8	-0.04	0.00	0.00
			Max. Vx	3	-0.01	-0.01	0.03
		Top Girt	Max Tension	2	0.69	0.00	0.00
			Max. Compression	4	-0.37	0.00	0.00
			Max. Mx	14	0.27	-0.01	0.00
			Max. My	7	0.56	0.00	-0.00
			Max. Vy	14	0.02	0.00	0.00
			Max. Vx	7	0.00	0.00	0.00
		Bottom Girt	Max Tension	10	0.86	0.00	0.00
			Max. Compression	4	-0.33	0.00	0.00
			Max. Mx	14	0.38	-0.01	0.00
			Max. My	7	0.71	0.00	-0.00
			Max. Vy	14	0.02	0.00	0.00
			Max. Vx	7	0.00	0.00	0.00
		Guy A	Bottom Tension	8	10.56		
			Top Tension	8	10.65		
			Top Cable Vert	8	6.26		
			Top Cable Norm	8	8.62		
			Top Cable Tan	8	0.00		
			Bot Cable Vert	8	-6.00		
			Bot Cable Norm	8	8.69		
			Bot Cable Tan	8	0.00		
		Guy B	Bottom Tension	12	10.29		
			Top Tension	12	10.37		
			Top Cable Vert	12	6.10		
			Top Cable Norm	12	8.39		
			Top Cable Tan	12	0.00		
			Bot Cable Vert	12	-5.84		
			Bot Cable Norm	12	8.47		
			Bot Cable Tan	12	0.00		
		Guy C	Bottom Tension	4	10.31		
			Top Tension	4	10.39		
			Top Cable Vert	4	6.11		
			Top Cable Norm	4	8.41		
			Top Cable Tan	4	0.00		
			Bot Cable Vert	4	-5.85		
			Bot Cable Norm	4	8.49		
			Bot Cable Tan	4	0.00		
		Torque Arm Top	Max Tension	6	11.28	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	24	7.92	0.04	0.00
			Max. My	7	9.78	0.00	0.00
			Max. Vy	24	0.04	0.00	0.00
			Max. Vx	7	-0.00	0.00	0.00
		Torque Arm Bottom	Max Tension	6	3.15	0.00	0.00
			Max. Compression	3	-14.85	0.00	0.00
			Max. Mx	19	-7.89	0.04	0.00
			Max. My	7	-3.75	0.00	-0.00
			Max. Vy	19	-0.04	0.00	0.00
			Max. Vx	7	0.00	0.00	0.00
T4	121.5 - 101.5	Leg	Max Tension	5	2.10	0.23	-0.17
			Max. Compression	4	-35.27	-0.06	-0.20
			Max. Mx	11	-9.28	-0.90	-0.13
			Max. My	2	-19.32	-0.09	-0.94
			Max. Vy	11	1.40	-0.05	-0.07
			Max. Vx	2	1.48	0.08	0.02
		Diagonal	Max Tension	5	3.85	0.00	0.00
			Max. Compression	11	-4.52	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. Mx	19	0.27	-0.03	0.00
			Max. My	7	-1.51	0.00	0.00
			Max. Vy	19	0.03	0.00	0.00
			Max. Vx	7	0.00	0.00	0.00
		Horizontal	Max Tension	12	1.17	0.00	0.00
			Max. Compression	6	-0.44	0.00	0.00
			Max. Mx	21	0.81	-0.02	0.00
			Max. My	7	0.33	0.00	0.00
			Max. Vy	21	0.03	0.00	0.00
			Max. Vx	7	-0.00	0.00	0.00
		Top Girt	Max Tension	2	2.05	0.00	0.00
			Max. Compression	8	-1.80	0.00	0.00
			Max. Mx	24	-0.18	-0.02	0.00
			Max. My	6	-1.15	0.00	-0.00
			Max. Vy	24	0.03	0.00	0.00
			Max. Vx	6	-0.00	0.00	0.00
		Bottom Girt	Max Tension	7	0.73	0.00	0.00
			Max. Compression	10	-0.30	0.00	0.00
			Max. Mx	23	0.30	-0.02	0.00
			Max. My	7	0.01	0.00	0.00
			Max. Vy	23	0.03	0.00	0.00
			Max. Vx	7	0.00	0.00	0.00
T5	101.5 - 81.5	Leg	Max Tension	6	2.54	0.12	-0.10
			Max. Compression	4	-35.68	0.18	0.20
			Max. Mx	11	-3.20	-0.56	-0.05
			Max. My	8	-11.95	0.04	0.48
			Max. Vy	11	-1.01	0.07	-0.02
			Max. Vx	2	-0.94	-0.10	0.20
		Diagonal	Max Tension	13	1.95	0.00	0.00
			Max. Compression	3	-2.30	0.00	0.00
			Max. Mx	18	0.28	0.01	0.00
			Max. My	19	-0.55	0.00	-0.00
			Max. Vy	18	-0.01	0.00	0.00
			Max. Vx	19	0.00	0.00	0.00
		Horizontal	Max Tension	4	0.68	0.00	0.00
			Max. Compression	6	-0.13	0.00	0.00
			Max. Mx	25	0.41	-0.02	0.00
			Max. My	7	0.58	0.00	0.00
			Max. Vy	25	-0.03	0.00	0.00
			Max. Vx	7	-0.00	0.00	0.00
		Top Girt	Max Tension	10	0.41	0.00	0.00
			Max. Compression	5	-0.16	0.00	0.00
			Max. Mx	26	0.19	0.01	0.00
			Max. My	7	0.19	0.00	-0.00
			Max. Vy	26	-0.01	0.00	0.00
			Max. Vx	7	0.00	0.00	0.00
		Bottom Girt	Max Tension	5	0.85	0.00	0.00
			Max. Compression	12	-0.72	0.00	0.00
			Max. Mx	23	-0.04	0.01	0.00
			Max. My	7	0.61	0.00	-0.00
			Max. Vy	23	-0.01	0.00	0.00
			Max. Vx	7	0.00	0.00	0.00
T6	81.5 - 61.5	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	15	-39.06	0.10	0.12
			Max. Mx	5	-36.21	-1.11	-0.00
			Max. My	2	-35.85	0.19	1.09
			Max. Vy	11	1.60	1.04	0.07
			Max. Vx	8	-1.56	-0.09	-1.04
		Diagonal	Max Tension	5	5.21	0.00	0.00
			Max. Compression	5	-5.19	0.00	0.00
			Max. Mx	18	1.07	-0.03	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. My	7	-2.49	0.00	0.00
			Max. Vy	18	0.03	0.00	0.00
			Max. Vx	7	-0.00	0.00	0.00
		Top Girt	Max Tension	11	1.08	0.00	0.00
			Max. Compression	5	-0.89	0.00	0.00
			Max. Mx	14	0.16	-0.02	0.00
			Max. My	7	-0.48	0.00	0.00
			Max. Vy	14	-0.03	0.00	0.00
			Max. Vx	7	0.00	0.00	0.00
		Bottom Girt	Max Tension	2	4.22	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	2.59	-0.02	0.00
			Max. My	7	3.06	0.00	0.00
			Max. Vy	14	-0.03	0.00	0.00
			Max. Vx	7	0.00	0.00	0.00
		Guy A	Bottom Tension	8	14.49		
			Top Tension	8	14.57		
			Top Cable Vert	8	5.73		
			Top Cable Norm	8	13.39		
			Top Cable Tan	8	0.00		
			Bot Cable Vert	8	-5.50		
			Bot Cable Norm	8	13.41		
			Bot Cable Tan	8	0.00		
		Guy B	Bottom Tension	12	14.60		
			Top Tension	12	14.68		
			Top Cable Vert	12	5.62		
			Top Cable Norm	12	13.56		
			Top Cable Tan	12	0.00		
			Bot Cable Vert	12	-5.39		
			Bot Cable Norm	12	13.57		
			Bot Cable Tan	12	0.00		
		Guy C	Bottom Tension	4	14.43		
			Top Tension	4	14.50		
			Top Cable Vert	4	5.37		
			Top Cable Norm	4	13.47		
			Top Cable Tan	4	0.00		
			Bot Cable Vert	4	-5.13		
			Bot Cable Norm	4	13.49		
			Bot Cable Tan	4	0.00		
		Top Guy Pull-Off	Max Tension	2	3.17	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	1.94	0.02	0.00
			Max. My	7	2.29	0.00	-0.00
			Max. Vy	14	-0.03	0.00	0.00
			Max. Vx	7	0.00	0.00	0.00
T7	61.5 - 41.5	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	15	-39.07	0.05	-0.13
			Max. Mx	11	-7.59	-0.92	-0.08
			Max. My	8	-4.90	0.15	0.87
			Max. Vy	11	1.59	0.06	-0.00
			Max. Vx	8	-1.56	0.03	-0.08
		Diagonal	Max Tension	13	3.57	0.00	0.00
			Max. Compression	7	-3.83	0.00	0.00
			Max. Mx	20	-1.12	-0.03	0.00
			Max. My	7	-1.15	0.00	0.00
			Max. Vy	20	-0.03	0.00	0.00
			Max. Vx	7	0.00	0.00	0.00
		Top Girt	Max Tension	7	2.02	0.00	0.00
			Max. Compression	4	-1.73	0.00	0.00
			Max. Mx	14	0.09	0.01	0.00
			Max. My	7	2.02	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. Vy	14	-0.01	0.00	0.00
			Max. Vx	7	0.00	0.00	0.00
		Bottom Girt	Max Tension	13	0.99	0.00	0.00
			Max. Compression	7	-0.90	0.00	0.00
			Max. Mx	14	0.09	0.01	0.00
			Max. My	7	-0.90	0.00	-0.00
			Max. Vy	14	-0.01	0.00	0.00
			Max. Vx	7	0.00	0.00	0.00
T8	41.5 - 21.5	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	21	-40.26	0.11	0.11
			Max. Mx	11	-23.89	-0.44	-0.07
			Max. My	8	-24.27	0.12	0.45
			Max. Vy	4	-0.63	-0.02	-0.07
			Max. Vx	8	-0.72	0.06	0.01
		Diagonal	Max Tension	13	1.78	0.00	0.00
			Max. Compression	7	-2.03	0.00	0.00
			Max. Mx	22	-0.09	0.01	0.00
			Max. My	19	0.12	0.00	-0.00
			Max. Vy	22	-0.01	0.00	0.00
			Max. Vx	19	0.00	0.00	0.00
		Top Girt	Max Tension	7	0.92	0.00	0.00
			Max. Compression	13	-0.78	0.00	0.00
			Max. Mx	14	0.07	0.01	0.00
			Max. My	7	0.92	0.00	-0.00
			Max. Vy	14	-0.01	0.00	0.00
			Max. Vx	7	0.00	0.00	0.00
		Bottom Girt	Max Tension	13	0.28	0.00	0.00
			Max. Compression	7	-0.23	0.00	0.00
			Max. Mx	14	0.08	0.01	0.00
			Max. My	7	-0.21	0.00	-0.00
			Max. Vy	14	-0.01	0.00	0.00
			Max. Vx	7	0.00	0.00	0.00
T9	21.5 - 6.5	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	21	-40.40	0.04	0.08
			Max. Mx	18	-39.94	-2.21	1.07
			Max. My	21	-39.93	0.15	-2.45
			Max. Vy	24	-4.32	2.05	1.32
			Max. Vx	21	4.94	0.15	-2.45
		Diagonal	Max Tension	6	1.54	0.00	0.00
			Max. Compression	2	-1.80	0.00	0.00
			Max. Mx	22	0.15	-0.03	0.00
			Max. My	6	0.61	0.00	0.00
			Max. Vy	22	0.03	0.00	0.00
			Max. Vx	6	-0.00	0.00	0.00
		Top Girt	Max Tension	7	0.47	0.00	0.00
			Max. Compression	13	-0.25	0.00	0.00
			Max. Mx	14	0.11	-0.02	0.00
			Max. My	7	0.32	0.00	0.00
			Max. Vy	14	-0.03	0.00	0.00
			Max. Vx	7	0.00	0.00	0.00
		Bottom Girt	Max Tension	24	3.19	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	23	3.00	-0.02	0.00
			Max. My	7	2.16	0.00	0.00
			Max. Vy	23	-0.03	0.00	0.00
			Max. Vx	7	0.00	0.00	0.00
T10	6.5 - 1.5	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	22	-43.05	-0.29	-0.04
			Max. Mx	23	-37.24	-3.06	0.12
			Max. My	7	-25.27	-0.65	0.62
			Max. Vy	23	10.14	-3.02	0.19

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	7	-1.99	-0.65	0.62
		Horizontal	Max Tension	4	0.03	-0.13	-0.00
			Max. Compression	7	-0.02	0.51	0.08
			Max. Mx	7	0.01	-0.96	-0.10
			Max. My	7	0.01	-0.96	-0.10
			Max. Vy	7	-0.89	-0.92	-0.07
			Max. Vx	7	-0.11	-0.96	-0.10
		Top Girt	Max Tension	19	6.23	-1.79	0.01
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	20	6.20	-2.21	-0.06
			Max. My	7	4.13	-2.05	-0.11
			Max. Vy	7	-0.49	-2.05	-0.11
			Max. Vx	7	-0.06	-2.05	-0.11
		Bottom Girt	Max Tension	1	0.00	0.00	0.00
			Max. Compression	15	-2.39	-0.89	-0.01
			Max. Mx	7	-1.31	-1.47	-0.12
			Max. My	6	-1.63	0.11	0.14
			Max. Vy	7	-5.47	-1.33	0.01
			Max. Vx	6	-0.69	-1.03	-0.09

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Mast	Max. Vert	23	118.66	0.32	-0.19
	Max. H_x	11	71.81	1.31	0.02
	Max. H_z	2	74.72	-0.01	1.39
	Max. M_x	1	0.00	-0.00	0.00
	Max. M_z	1	0.00	-0.00	0.00
	Max. Torsion	13	1.26	0.67	1.12
	Min. Vert	1	54.14	-0.00	0.00
	Min. H_x	5	71.50	-1.33	0.01
	Min. H_z	8	72.08	0.01	-1.32
	Min. M_x	1	0.00	-0.00	0.00
	Min. M_z	1	0.00	-0.00	0.00
	Min. Torsion	7	-1.47	-0.62	-1.18
Guy C @ 184 ft Elev 0 ft Azimuth 240 deg	Max. Vert	10	-0.81	-0.63	0.36
	Max. H_x	10	-0.81	-0.63	0.36
	Max. H_z	4	-23.87	-26.44	15.29
	Min. Vert	4	-23.87	-26.44	15.29
	Min. H_x	4	-23.87	-26.44	15.29
	Min. H_z	10	-0.81	-0.63	0.36
Guy B @ 184 ft Elev 0 ft Azimuth 120 deg	Max. Vert	6	-0.82	0.64	0.37
	Max. H_x	12	-23.88	26.45	15.27
	Max. H_z	12	-23.88	26.45	15.27
	Min. Vert	12	-23.88	26.45	15.27
	Min. H_x	6	-0.82	0.64	0.37
	Min. H_z	6	-0.82	0.64	0.37
Guy A @ 184 ft Elev 0 ft Azimuth 0 deg	Max. Vert	2	-0.81	-0.00	-0.72
	Max. H_x	11	-12.43	0.93	-15.69

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Max. H_z	2	-0.81	-0.00	-0.72
	Min. Vert	8	-25.76	0.02	-32.64
	Min. H_x	5	-12.42	-0.93	-15.67
	Min. H_z	8	-25.76	0.02	-32.64
Guy C @ 161.2 ft Elev 0 ft Azimuth 240 deg	Max. Vert	10	-0.21	-0.63	0.36
	Max. H_x	10	-0.21	-0.63	0.36
	Max. H_z	4	-5.13	-11.68	6.74
	Min. Vert	4	-5.13	-11.68	6.74
	Min. H_x	4	-5.13	-11.68	6.74
	Min. H_z	10	-0.21	-0.63	0.36
Guy B @ 154.8 ft Elev 0 ft Azimuth 120 deg	Max. Vert	6	-0.20	0.57	0.33
	Max. H_x	12	-5.39	11.76	6.79
	Max. H_z	12	-5.39	11.76	6.79
	Min. Vert	12	-5.39	11.76	6.79
	Min. H_x	6	-0.20	0.57	0.33
	Min. H_z	6	-0.20	0.57	0.33
Guy A @ 150 ft Elev 0 ft Azimuth 0 deg	Max. Vert	2	-0.19	-0.00	-0.62
	Max. H_x	11	-2.95	0.17	-7.27
	Max. H_z	2	-0.19	-0.00	-0.62
	Min. Vert	8	-5.50	0.00	-13.41
	Min. H_x	5	-2.93	-0.17	-7.21
	Min. H_z	8	-5.50	0.00	-13.41

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	54.14	0.00	-0.00	0.00	0.00	-0.00
1.2 Dead+1.0 Wind 0 deg - No Ice+1.0 Guy	74.72	0.01	-1.39	0.00	0.00	-1.04
1.2 Dead+1.0 Wind 30 deg - No Ice+1.0 Guy	72.69	0.68	-1.13	0.00	0.00	-0.57
1.2 Dead+1.0 Wind 60 deg - No Ice+1.0 Guy	70.45	1.14	-0.65	0.00	0.00	-0.05
1.2 Dead+1.0 Wind 90 deg - No Ice+1.0 Guy	71.50	1.33	-0.01	0.00	0.00	0.54
1.2 Dead+1.0 Wind 120 deg - No Ice+1.0 Guy	74.85	1.18	0.74	0.00	0.00	1.25
1.2 Dead+1.0 Wind 150 deg - No Ice+1.0 Guy	73.21	0.62	1.18	0.00	0.00	1.47
1.2 Dead+1.0 Wind 180 deg - No Ice+1.0 Guy	72.08	-0.01	1.32	0.00	0.00	1.08
1.2 Dead+1.0 Wind 210 deg - No Ice+1.0 Guy	73.35	-0.62	1.17	0.00	0.00	0.35
1.2 Dead+1.0 Wind 240 deg - No Ice+1.0 Guy	75.13	-1.17	0.73	0.00	0.00	-0.23
1.2 Dead+1.0 Wind 270 deg - No Ice+1.0 Guy	71.81	-1.31	-0.02	0.00	0.00	-0.55
1.2 Dead+1.0 Wind 300 deg - No Ice+1.0 Guy	70.71	-1.13	-0.65	0.00	0.00	-1.05

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
1.2 Dead+1.0 Wind 330 deg - No Ice+1.0 Guy	72.79	-0.67	-1.12	0.00	0.00	-1.26
1.2 Dead+1.0 Ice+1.0 Temp+Guy	117.18	0.02	-0.01	0.00	0.00	-0.02
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy	118.50	0.02	-0.40	0.00	0.00	-0.09
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy	118.02	0.19	-0.34	0.00	0.00	0.04
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy	117.61	0.33	-0.19	0.00	0.00	0.08
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy	118.06	0.39	0.00	0.00	0.00	0.10
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy	118.58	0.35	0.19	0.00	0.00	0.18
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy	118.18	0.22	0.30	0.00	0.00	0.18
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy	117.79	0.02	0.35	0.00	0.00	0.05
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy	118.22	-0.18	0.30	0.00	0.00	-0.09
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy	118.66	-0.32	0.19	0.00	0.00	-0.14
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy	118.16	-0.35	0.00	0.00	0.00	-0.14
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy	117.70	-0.29	-0.19	0.00	0.00	-0.19
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy	118.07	-0.15	-0.34	0.00	0.00	-0.19
Dead+Wind 0 deg - Service+Guy	56.43	0.01	-0.96	0.00	0.00	-0.60
Dead+Wind 30 deg - Service+Guy	57.51	0.43	-0.77	0.00	0.00	-0.31
Dead+Wind 60 deg - Service+Guy	58.23	0.72	-0.42	0.00	0.00	0.00
Dead+Wind 90 deg - Service+Guy	57.42	0.87	0.02	0.00	0.00	0.32
Dead+Wind 120 deg - Service+Guy	56.66	0.82	0.50	0.00	0.00	0.71
Dead+Wind 150 deg - Service+Guy	58.02	0.44	0.76	0.00	0.00	0.84
Dead+Wind 180 deg - Service+Guy	58.94	-0.00	0.84	0.00	0.00	0.61
Dead+Wind 210 deg - Service+Guy	58.09	-0.45	0.76	0.00	0.00	0.21
Dead+Wind 240 deg - Service+Guy	56.82	-0.82	0.50	0.00	0.00	-0.12
Dead+Wind 270 deg - Service+Guy	57.63	-0.87	0.02	0.00	0.00	-0.33
Dead+Wind 300 deg - Service+Guy	58.40	-0.72	-0.41	0.00	0.00	-0.62
Dead+Wind 330 deg - Service+Guy	57.60	-0.42	-0.76	0.00	0.00	-0.75

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.00	-21.95	0.00	0.00	21.95	-0.00	0.002%
2	-0.00	-26.14	-37.81	0.00	26.14	37.80	0.006%
3	18.17	-25.85	-31.71	-18.17	25.85	31.71	0.003%
4	30.73	-25.55	-18.21	-30.73	25.55	18.21	0.004%
5	35.29	-25.85	-0.03	-35.29	25.85	0.03	0.002%
6	31.13	-26.15	21.59	-31.12	26.15	-21.59	0.006%
7	17.17	-25.85	33.59	-17.17	25.85	-33.59	0.003%
8	0.00	-25.55	37.95	-0.01	25.55	-37.95	0.002%
9	-17.16	-25.85	33.58	17.16	25.85	-33.58	0.003%
10	-31.12	-26.15	21.58	31.12	26.15	-21.58	0.006%
11	-35.29	-25.85	-0.03	35.29	25.85	0.03	0.002%
12	-30.74	-25.55	-18.22	30.74	25.55	18.22	0.004%
13	-18.18	-25.85	-31.72	18.18	25.85	31.72	0.003%
14	0.00	-70.52	0.00	-0.00	70.52	0.00	0.002%
15	-0.00	-70.71	-10.08	0.00	70.71	10.08	0.004%
16	4.95	-70.52	-8.61	-4.95	70.52	8.61	0.003%
17	8.49	-70.32	-4.96	-8.49	70.32	4.96	0.002%
18	9.76	-70.52	-0.00	-9.76	70.52	0.00	0.003%
19	8.51	-70.71	5.40	-8.51	70.71	-5.39	0.004%
20	4.82	-70.52	8.86	-4.82	70.52	-8.86	0.003%
21	0.00	-70.32	10.13	-0.00	70.32	-10.13	0.002%
22	-4.82	-70.52	8.85	4.81	70.52	-8.85	0.003%
23	-8.51	-70.71	5.39	8.51	70.71	-5.39	0.004%
24	-9.76	-70.52	-0.01	9.76	70.52	0.01	0.003%
25	-8.49	-70.32	-4.97	8.49	70.32	4.97	0.002%
26	-4.95	-70.52	-8.61	4.95	70.52	8.61	0.003%
27	-0.00	-22.13	-22.50	0.00	22.13	22.50	0.002%
28	10.81	-21.95	-18.87	-10.81	21.95	18.87	0.005%
29	18.29	-21.77	-10.84	-18.29	21.77	10.84	0.005%
30	21.00	-21.95	-0.02	-21.00	21.95	0.02	0.004%
31	18.52	-22.13	12.85	-18.52	22.13	-12.85	0.002%
32	10.22	-21.95	19.99	-10.22	21.95	-19.99	0.004%
33	0.00	-21.77	22.58	-0.00	21.77	-22.58	0.003%
34	-10.21	-21.95	19.98	10.21	21.95	-19.98	0.004%
35	-18.52	-22.13	12.84	18.52	22.13	-12.84	0.002%
36	-21.00	-21.95	-0.02	21.00	21.95	0.02	0.004%
37	-18.29	-21.77	-10.84	18.29	21.77	10.84	0.004%
38	-10.82	-21.95	-18.88	10.82	21.95	18.88	0.004%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	8	0.00000001	0.00004880
2	Yes	16	0.00009624	0.00009260
3	Yes	16	0.00000001	0.00004600
4	Yes	12	0.00000001	0.00007107
5	Yes	16	0.00000001	0.00003791
6	Yes	16	0.00009767	0.00009062
7	Yes	16	0.00000001	0.00004263
8	Yes	11	0.00000001	0.00007359
9	Yes	16	0.00000001	0.00004427
10	Yes	16	0.00009714	0.00009061
11	Yes	16	0.00000001	0.00003646
12	Yes	12	0.00000001	0.00006071
13	Yes	16	0.00000001	0.00004532

14	Yes	8	0.00000001	0.00006745
15	Yes	11	0.00000001	0.00008507
16	Yes	11	0.00000001	0.00006118
17	Yes	11	0.00000001	0.00004392
18	Yes	11	0.00000001	0.00007120
19	Yes	11	0.00000001	0.00009530
20	Yes	11	0.00000001	0.00007146
21	Yes	11	0.00000001	0.00004175
22	Yes	11	0.00000001	0.00006445
23	Yes	11	0.00000001	0.00008921
24	Yes	11	0.00000001	0.00006697
25	Yes	11	0.00000001	0.00004112
26	Yes	11	0.00000001	0.00006189
27	Yes	13	0.00000001	0.00004490
28	Yes	12	0.00000001	0.00007768
29	Yes	10	0.00000001	0.00008839
30	Yes	12	0.00000001	0.00007947
31	Yes	13	0.00000001	0.00004558
32	Yes	12	0.00000001	0.00007611
33	Yes	10	0.00000001	0.00006169
34	Yes	12	0.00000001	0.00007436
35	Yes	13	0.00000001	0.00004411
36	Yes	12	0.00000001	0.00007855
37	Yes	10	0.00000001	0.00008116
38	Yes	12	0.00000001	0.00007687

Maximum Tower Deflections - Service Wind

Section No.	*Elevation* ft	*Horz. Deflection* in	*Gov. Load Comb.*	*Tilt* °	*Twist* °
T1	181.5 - 161.5	4.143	33	0.1702	0.3441
T2	161.5 - 141.5	3.645	33	0.1487	0.3130
T3	141.5 - 121.5	3.221	33	0.0978	0.2260
T4	121.5 - 101.5	3.042	29	0.0877	0.2094
T5	101.5 - 81.5	3.068	31	0.0717	0.2278
T6	81.5 - 61.5	2.663	35	0.1792	0.2522
T7	61.5 - 41.5	1.911	35	0.1626	0.2497
T8	41.5 - 21.5	1.396	35	0.1261	0.2334
T9	21.5 - 6.5	0.817	35	0.1708	0.1364
T10	6.5 - 1.5	0.219	35	0.2027	0.1133

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	*Appurtenance*	*Gov. Load Comb.*	*Deflection* in	*Tilt* °	*Twist* °	*Radius of Curvature* ft
180.50	20' x 2" Dia Omni	33	4.118	0.1698	0.3435	89255
177.00	DS2C03F36D-D	33	4.030	0.1681	0.3412	89255
176.50	8.5 Dishw/radome	33	4.017	0.1679	0.3408	89255
169.15	Guy	33	3.833	0.1619	0.3323	36146
159.00	AIR21	33	3.585	0.1422	0.3034	22640
148.50	3"x20-ft Omni	33	3.351	0.1111	0.2542	22854
144.50	1.5"x2'omni	33	3.273	0.1028	0.2367	19963
143.50	2-ft Stand Off	33	3.255	0.1012	0.2329	19450
142.50	1.5"x2'omni	33	3.238	0.0995	0.2293	19062

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
138.50	3-ft Side Arm	33	3.174	0.0961	0.2180	18757
129.15	Guy	33	3.066	0.0978	0.2077	19954
126.00	APXVSPP18-C-A20	33	3.041	0.0962	0.2078	20416
89.50	GPS	35	2.896	0.1419	0.2451	8174
78.00	SBNHH-1D65A	35	2.537	0.1875	0.2527	16599
62.11	Guy	35	1.931	0.1647	0.2495	9291

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	181.5 - 161.5	8.384	10	0.2975	0.6934
T2	161.5 - 141.5	7.861	10	0.2343	0.6369
T3	141.5 - 121.5	7.528	2	0.1804	0.4470
T4	121.5 - 101.5	7.418	2	0.0811	0.4090
T5	101.5 - 81.5	7.274	6	0.1500	0.4344
T6	81.5 - 61.5	6.141	6	0.3680	0.4553
T7	61.5 - 41.5	4.428	6	0.3698	0.4457
T8	41.5 - 21.5	3.144	6	0.3095	0.4145
T9	21.5 - 6.5	1.771	6	0.3822	0.2393
T10	6.5 - 1.5	0.467	6	0.4356	0.1983

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
180.50	20' x 2" Dia Omni	10	8.357	0.2942	0.6929	68398
177.00	DS2C03F36D-D	10	8.261	0.2830	0.6904	68398
176.50	8.5 Dishw/radome	10	8.248	0.2813	0.6900	68398
169.15	Guy	10	8.052	0.2579	0.6759	27700
159.00	AIR21	10	7.803	0.2269	0.6165	19941
148.50	3"x20-ft Omni	2	7.620	0.1982	0.5092	15489
144.50	1.5"x2'omni	2	7.564	0.1897	0.4707	12521
143.50	2-ft Stand Off	2	7.551	0.1874	0.4622	12022
142.50	1.5"x2'omni	2	7.539	0.1843	0.4542	11634
138.50	3-ft Side Arm	2	7.496	0.1639	0.4293	11154
129.15	Guy	2	7.434	0.1071	0.4064	11892
126.00	APXVSPP18-C-A20	2	7.424	0.0944	0.4061	12178
89.50	GPS	6	6.718	0.2931	0.4513	4846
78.00	SBNHH-1D65A	6	5.849	0.3864	0.4540	10213
62.11	Guy	6	4.476	0.3718	0.4454	5379

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	181.5	Leg	A325N	0.7500	4	0.00	30.10	0.000 ✔	1	Bolt Tension
		Diagonal	A325N	0.5000	1	3.14	6.20	0.507 ✔	1	Member Bearing
		Top Girt	A325N	0.5000	1	0.14	8.84	0.016 ✔	1	Bolt Shear
T2	161.5	Leg	A325N	0.7500	4	1.29	30.10	0.043 ✔	1	Bolt Tension
		Diagonal	A325N	0.5000	1	2.92	4.17	0.700 ✔	1	Member Bearing
		Top Girt	A325N	0.5000	1	2.01	3.83	0.524 ✔	1	Member Bearing
T3	141.5	Leg	A325N	0.7500	4	1.30	30.10	0.043 ✔	1	Bolt Tension
		Diagonal	A325N	0.5000	1	3.42	6.20	0.552 ✔	1	Member Bearing
		Top Girt	A325N	0.5000	1	0.69	6.20	0.112 ✔	1	Member Bearing
T4	121.5	Leg	A325N	0.7500	4	2.27	30.10	0.075 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	1	4.52	13.81	0.327 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	1	1.17	13.81	0.085 ✔	1	Bolt Shear
		Top Girt	A325N	0.6250	1	2.05	13.81	0.148 ✔	1	Bolt Shear
T5	101.5	Leg	A325N	0.7500	4	2.94	30.10	0.098 ✔	1	Bolt Tension
		Diagonal	A325X	0.5000	1	1.95	4.17	0.468 ✔	1	Member Bearing
		Horizontal	A325N	0.6250	1	0.68	13.81	0.049 ✔	1	Bolt Shear
		Top Girt	A325N	0.5000	1	0.62	3.83	0.161 ✔	1	Member Bearing
T6	81.5	Leg	A325N	0.7500	4	2.61	30.10	0.087 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	1	5.21	13.81	0.378 ✔	1	Bolt Shear
		Top Girt	A325N	0.6250	1	1.08	13.81	0.078 ✔	1	Bolt Shear
		Top Guy Pull-Off@62.1146	A325N	0.6250	4	0.79	13.81	0.057 ✔	1	Bolt Shear
T7	61.5	Leg	A325N	0.7500	4	3.26	30.10	0.108 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	1	3.83	13.81	0.277 ✔	1	Bolt Shear
		Top Girt	A325N	0.5000	1	2.02	3.83	0.526 ✔	1	Member Bearing
T8	41.5	Leg	A325N	0.7500	4	3.17	30.10	0.105 ✔	1	Bolt Tension
		Diagonal	A325N	0.5000	1	1.78	4.17	0.428 ✔	1	Member Bearing
		Top Girt	A325N	0.5000	1	0.92	3.83	0.240 ✔	1	Member Bearing
T9	21.5	Leg	A325N	0.7500	4	3.36	30.10	0.111 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	1	1.80	13.81	0.130 ✔	1	Bolt Shear
		Top Girt	A325N	0.6250	1	0.70	13.81	0.051 ✔	1	Bolt Shear
T10	6.5	Leg	A325N	0.7500	4	3.25	30.10	0.108 ✔	1	Bolt Tension

Guy Design Data

Section No.	Elevation ft	Size	Initial Tension K	Breaking Load K	Actual T_u K	Allowable ϕT_n K	Required S.F.	Actual S.F.

Section No.	Elevation ft	Size	Initial Tension K	Breaking Load K	Actual T_u K	Allowable ϕT_n K	Required S.F.	Actual S.F.
T1	169.15 (A) (406)	9/16 EHS	3.50	35.00	10.34	21.00	1.000	2.030 ✔
	169.15 (A) (407)	9/16 EHS	3.50	35.00	10.97	21.00	1.000	1.915 ✔
	169.15 (B) (400)	9/16 EHS	3.50	35.00	9.35	21.00	1.000	2.245 ✔
	169.15 (B) (401)	9/16 EHS	3.50	35.00	9.43	21.00	1.000	2.227 ✔
	169.15 (C) (394)	9/16 EHS	3.50	35.00	9.69	21.00	1.000	2.168 ✔
	169.15 (C) (395)	9/16 EHS	3.50	35.00	9.02	21.00	1.000	2.329 ✔
T3	129.15 (A) (424)	9/16 EHS	3.50	35.00	10.12	21.00	1.000	2.076 ✔
	129.15 (A) (425)	9/16 EHS	3.50	35.00	10.65	21.00	1.000	1.972 ✔
	129.15 (B) (418)	9/16 EHS	3.50	35.00	10.37	21.00	1.000	2.025 ✔
	129.15 (B) (419)	9/16 EHS	3.50	35.00	10.10	21.00	1.000	2.080 ✔
	129.15 (C) (412)	9/16 EHS	3.50	35.00	10.39	21.00	1.000	2.021 ✔
	129.15 (C) (413)	9/16 EHS	3.50	35.00	10.15	21.00	1.000	2.070 ✔
T6	62.11 (A) (435)	3/4 EHS	5.83	58.30	14.57	34.98	1.000	2.402 ✔
	62.11 (B) (434)	3/4 EHS	5.83	58.30	14.68	34.98	1.000	2.383 ✔
	62.11 (C) (430)	3/4 EHS	5.83	58.30	14.50	34.98	1.000	2.412 ✔

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	181.5 - 161.5	P2.5x.203	20.00	2.35	29.7 K=1.00	1.7040	-16.22	71.89	0.226 [1] ✔
T2	161.5 - 141.5	P2.5x.203	20.00	2.35	59.4 K=2.00	1.7040	-17.79	59.23	0.300 [1] ✔
T3	141.5 - 121.5	P2.5x.203	20.00	2.35	29.7 K=1.00	1.7040	-26.89	71.89	0.374 [1] ✔
T4	121.5 - 101.5	P2.5x.203	20.00	2.35	29.7 K=1.00	1.7040	-34.59	71.89	0.481 [1] ✔
T5	101.5 - 81.5	P2.5x.203	20.00	2.35	29.7 K=1.00	1.7040	-35.68	71.89	0.496 [1] ✔
T6	81.5 - 61.5	P2.5x.203	20.00	2.35	59.4 K=2.00	1.7040	-36.13	59.23	0.610 [1] ✔
T7	61.5 - 41.5	P2.5x.203	20.00	2.35	59.4 K=2.00	1.7040	-38.65	59.23	0.653 [1] ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T8	41.5 - 21.5	P2.5x.203	20.00	2.35	59.4 K=2.00	1.7040	-40.15	59.23	0.678 [1] ✔
T9	21.5 - 6.5	P2.5x.203	15.00	2.30	58.1 K=2.00	1.7040	-40.40	59.89	0.674 [1] ✔
T10	6.5 - 1.5	P2.5x.203	5.37	2.15	27.2 K=1.00	1.7040	-43.05	72.64	0.593 [1] ✔

[1] P_u / ϕP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	181.5 - 161.5	L1 3/4x1 3/4x3/16	4.14	1.82	77.7 K=1.22	0.6211	-3.34	18.12	0.185 [1] ✔
T2	161.5 - 141.5	ROHN TS1.5x16 ga	4.14	3.85	90.5 K=1.00	0.2627	-3.42	5.44	0.629 [1] ✔
T3	141.5 - 121.5	L2x2x3/16	4.14	1.82	71.6 K=1.29	0.7150	-3.38	21.59	0.157 [1] ✔
T4	121.5 - 101.5	L2 1/2x2 1/2x1/2	4.14	3.61	104.5 K=1.17	2.2500	-4.52	53.21	0.085 [1] ✔
T5	101.5 - 81.5	ROHN TS1.5x16 ga	4.14	3.85	90.5 K=1.00	0.2627	-2.30	5.44	0.423 [1] ✔
T6	81.5 - 61.5	L2 1/2x2 1/2x1/2	4.14	3.61	104.5 K=1.17	2.2500	-5.19	53.21	0.098 [1] ✔
T7	61.5 - 41.5	L2 1/2x2 1/2x1/2	4.14	3.61	104.5 K=1.17	2.2500	-3.83	53.21	0.072 [1] ✔
T8	41.5 - 21.5	ROHN TS1.5x16 ga	4.14	3.85	90.5 K=1.00	0.2627	-2.03	5.44	0.372 [1] ✔
T9	21.5 - 6.5	L2 1/2x2 1/2x1/2	4.11	3.58	104.1 K=1.18	2.2500	-1.80	53.38	0.034 [1] ✔

[1] P_u / ϕP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T4	121.5 - 101.5	L2 1/2x2 1/2x1/2	3.41	2.93	96.1 K=1.33	2.2500	-0.61	67.12	0.009 [1] ✔
T5	101.5 - 81.5	L2 1/2x2 1/2x1/2	3.41	2.93	96.1 K=1.33	2.2500	-0.62	67.12	0.009 [1] ✔
T10	6.5 - 1.5	C12x20.7	1.70	1.47	22.0 K=1.00	6.0900	-0.79	192.35	0.004 [1] ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$

[1] P_u / ϕP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	181.5 - 161.5	L1 3/4x1 3/4x3/16	3.41	2.96	111.7 K=1.08	0.6211	-0.14	13.58	0.011 [1] ✔
T2	161.5 - 141.5	ROHN TS1.5x16 ga	3.41	3.17	74.6 K=1.00	0.2627	-2.02	6.35	0.319 [1] ✔
T3	141.5 - 121.5	L2x2x3/16	3.41	2.96	105.1 K=1.17	0.7150	-0.47	16.80	0.028 [1] ✔
T4	121.5 - 101.5	L2 1/2x2 1/2x1/2	3.41	2.93	96.1 K=1.33	2.2500	-1.80	57.47	0.031 [1] ✔
T5	101.5 - 81.5	ROHN TS1.5x16 ga	3.41	3.17	74.6 K=1.00	0.2627	-0.62	6.35	0.097 [1] ✔
T6	81.5 - 61.5	L2 1/2x2 1/2x1/2	3.41	2.93	96.1 K=1.33	2.2500	-0.89	57.47	0.015 [1] ✔
T7	61.5 - 41.5	ROHN TS1.5x16 ga	3.41	3.17	74.6 K=1.00	0.2627	-1.73	6.35	0.273 [1] ✔
T8	41.5 - 21.5	ROHN TS1.5x16 ga	3.41	3.17	74.6 K=1.00	0.2627	-0.78	6.35	0.123 [1] ✔
T9	21.5 - 6.5	L2 1/2x2 1/2x1/2	3.41	2.93	96.1 K=1.33	2.2500	-0.70	57.47	0.012 [1] ✔
T10	6.5 - 1.5	C12x20.7	3.07	2.83	42.5 K=1.00	6.0900	-0.79	179.42	0.004 [1] ✔

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	181.5 - 161.5	L1 3/4x1 3/4x3/16	3.41	3.17	115.4 K=1.04	0.6211	-0.74	13.00	0.057 [1] ✔
T2	161.5 - 141.5	ROHN TS1.5x16 ga	3.41	3.17	74.6 K=1.00	0.2627	-1.42	6.23	0.227 [1] ✔
T3	141.5 - 121.5	L2x2x3/16	3.41	3.17	108.3 K=1.12	0.7150	-0.47	16.25	0.029 [1] ✔
T4	121.5 - 101.5	L2 1/2x2 1/2x1/2	3.41	3.17	99.1 K=1.27	2.2500	-0.61	56.01	0.011 [1] ✔
T5	101.5 - 81.5	ROHN TS1.5x16 ga	3.41	3.17	74.6 K=1.00	0.2627	-0.72	6.23	0.115 [1] ✔
T6	81.5 - 61.5	L2 1/2x2 1/2x1/2	3.41	3.17	99.1	2.2500	-0.68	56.01	0.012 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T7	61.5 - 41.5	ROHN TS1.5x16 ga	3.41	3.17	K=1.27 74.6 K=1.00	0.2627	-0.90	6.23	✔ 0.145 [1] ✔
T8	41.5 - 21.5	ROHN TS1.5x16 ga	3.41	3.17	74.6 K=1.00	0.2627	-0.70	6.23	0.112 [1] ✔
T9	21.5 - 6.5	L2 1/2x2 1/2x1/2	3.41	3.17	99.1 K=1.27	2.2500	-0.70	56.01	0.012 [1] ✔
T10	6.5 - 1.5	C12x20.7	0.34	0.10	1.5 K=1.00	6.0900	-2.39	197.29	0.012 [1] ✔

[1] P_u / ϕP_n controls

Torque-Arm Bottom Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	181.5 - 161.5 (398)	P4x.237	4.36	4.21	33.5 K=1.00	3.1741	-14.44	94.40	0.153 [1] ✔
T1	181.5 - 161.5 (399)	P4x.237	4.36	4.21	33.5 K=1.00	3.1741	-16.24	94.40	0.172 [1] ✔
T1	181.5 - 161.5 (404)	P4x.237	4.36	4.21	33.5 K=1.00	3.1741	-14.25	94.40	0.151 [1] ✔
T1	181.5 - 161.5 (405)	P4x.237	4.36	4.21	33.5 K=1.00	3.1741	-14.16	94.40	0.150 [1] ✔
T1	181.5 - 161.5 (410)	P4x.237	4.36	4.21	33.5 K=1.00	3.1741	-14.16	94.40	0.150 [1] ✔
T1	181.5 - 161.5 (411)	P4x.237	4.36	4.21	33.5 K=1.00	3.1741	-16.13	94.40	0.171 [1] ✔
T3	141.5 - 121.5 (416)	P4x.237	4.36	4.21	33.5 K=1.00	3.1741	-14.85	94.40	0.157 [1] ✔
T3	141.5 - 121.5 (417)	P4x.237	4.36	4.21	33.5 K=1.00	3.1741	-14.84	94.40	0.157 [1] ✔
T3	141.5 - 121.5 (422)	P4x.237	4.36	4.21	33.5 K=1.00	3.1741	-14.69	94.40	0.156 [1] ✔
T3	141.5 - 121.5 (423)	P4x.237	4.36	4.21	33.5 K=1.00	3.1741	-14.66	94.40	0.155 [1] ✔
T3	141.5 - 121.5 (428)	P4x.237	4.36	4.21	33.5 K=1.00	3.1741	-14.37	94.40	0.152 [1] ✔
T3	141.5 - 121.5 (429)	P4x.237	4.36	4.21	33.5 K=1.00	3.1741	-14.60	94.40	0.155 [1] ✔

[1] P_u / ϕP_n controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T1	181.5 - 161.5	P2.5x.203	20.00	2.35	29.7	1.7040	17.95	76.68	0.234 [1] ✔
T2	161.5 - 141.5	P2.5x.203	20.00	2.35	29.7	1.7040	0.29	76.68	0.004 [1] ✔
T3	141.5 - 121.5	P2.5x.203	20.00	2.35	29.7	1.7040	11.04	76.68	0.144 [1] ✔
T4	121.5 - 101.5	P2.5x.203	20.00	2.35	29.7	1.7040	2.10	76.68	0.027 [1] ✔
T5	101.5 - 81.5	P2.5x.203	20.00	2.35	29.7	1.7040	2.54	76.68	0.033 [1] ✔

[1] $P_u / \phi P_n$ controls

Diagonal Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T1	181.5 - 161.5	L1 3/4x1 3/4x3/16	4.14	1.82	43.0	0.3779	3.14	16.44	0.191 [1] ✔
T2	161.5 - 141.5	ROHN TS1.5x16 ga	4.14	3.85	90.5	0.2627	2.92	8.28	0.353 [1] ✔
T3	141.5 - 121.5	L2x2x3/16	4.14	1.82	37.4	0.4484	3.42	19.50	0.175 [1] ✔
T4	121.5 - 101.5	L2 1/2x2 1/2x1/2	4.14	3.61	62.5	1.4063	3.85	61.17	0.063 [1] ✔
T5	101.5 - 81.5	ROHN TS1.5x16 ga	4.14	3.85	90.5	0.2627	1.95	8.28	0.235 [1] ✔
T6	81.5 - 61.5	L2 1/2x2 1/2x1/2	4.14	3.61	62.5	1.4063	5.21	61.17	0.085 [1] ✔
T7	61.5 - 41.5	L2 1/2x2 1/2x1/2	4.14	3.61	62.5	1.4063	3.57	61.17	0.058 [1] ✔
T8	41.5 - 21.5	ROHN TS1.5x16 ga	4.14	3.85	90.5	0.2627	1.78	8.28	0.215 [1] ✔
T9	21.5 - 6.5	L2 1/2x2 1/2x1/2	4.11	3.58	62.1	1.4063	1.54	61.17	0.025 [1] ✔

[1] $P_u / \phi P_n$ controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T4	121.5 - 101.5	L2 1/2x2 1/2x1/2	3.41	2.93	51.5	1.4063	1.17	68.55	0.017 [1] ✔
T5	101.5 - 81.5	L2 1/2x2 1/2x1/2	3.41	2.93	51.5	1.4063	0.68	68.55	0.010 [1] ✔
T10	6.5 - 1.5	C12x20.7	1.70	1.47	22.0	6.0900	0.79	197.32	0.004 [1] ✔

[1] P_u / ϕP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	181.5 - 161.5	L1 3/4x1 3/4x3/16	3.41	2.96	70.9	0.3779	0.07	16.44	0.004 [1] ✔
T2	161.5 - 141.5	ROHN TS1.5x16 ga	3.41	3.17	74.6	0.2627	2.01	8.51	0.236 [1] ✔
T3	141.5 - 121.5	L2x2x3/16	3.41	2.96	61.7	0.4484	0.69	19.50	0.036 [1] ✔
T4	121.5 - 101.5	L2 1/2x2 1/2x1/2	3.41	2.93	51.5	1.4063	2.05	61.17	0.033 [1] ✔
T5	101.5 - 81.5	ROHN TS1.5x16 ga	3.41	3.17	74.6	0.2627	0.62	8.51	0.073 [1] ✔
T6	81.5 - 61.5	L2 1/2x2 1/2x1/2	3.41	2.93	51.5	1.4063	1.08	61.17	0.018 [1] ✔
T7	61.5 - 41.5	ROHN TS1.5x16 ga	3.41	3.17	74.6	0.2627	2.02	8.51	0.237 [1] ✔
T8	41.5 - 21.5	ROHN TS1.5x16 ga	3.41	3.17	74.6	0.2627	0.92	8.51	0.108 [1] ✔
T9	21.5 - 6.5	L2 1/2x2 1/2x1/2	3.41	2.93	51.5	1.4063	0.70	61.17	0.011 [1] ✔
T10	6.5 - 1.5	C12x20.7	3.07	2.83	42.5	6.0900	6.23	197.32	0.032 [1] ✔

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	181.5 - 161.5	L1 3/4x1 3/4x3/16	3.41	3.17	70.9	0.6211	0.77	20.12	0.038 [1] ✔
T2	161.5 - 141.5	ROHN TS1.5x16 ga	3.41	3.17	74.6	0.2627	1.48	8.28	0.179 [1] ✔
T3	141.5 - 121.5	L2x2x3/16	3.41	3.17	61.7	0.7150	0.86	23.17	0.037 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T4	121.5 - 101.5	L2 1/2x2 1/2x1/2	3.41	3.17	51.5	2.2500	0.73	72.90	0.010 [1]
T5	101.5 - 81.5	ROHN TS1.5x16 ga	3.41	3.17	74.6	0.2627	0.85	8.28	0.103 [1]
T6	81.5 - 61.5	L2 1/2x2 1/2x1/2	3.41	3.17	51.5	2.2500	4.22	72.90	0.058 [1]
T7	61.5 - 41.5	ROHN TS1.5x16 ga	3.41	3.17	74.6	0.2627	0.99	8.28	0.120 [1]
T8	41.5 - 21.5	ROHN TS1.5x16 ga	3.41	3.17	74.6	0.2627	0.70	8.28	0.084 [1]
T9	21.5 - 6.5	L2 1/2x2 1/2x1/2	3.41	3.17	51.5	2.2500	3.19	72.90	0.044 [1]

[1] P_u / ϕP_n controls

Top Guy Pull-Off Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T6	81.5 - 61.5	4 1/2x3/8	3.41	3.17	351.4	1.6875	3.17	54.67	0.058 [1]

[1] P_u / ϕP_n controls

Top Guy Pull-Off 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 $\frac{M_{uy}}{\phi M_{ny}}$
T6	81.5 - 61.5	4 1/2x3/8	0.00	5.13	0.000	0.00	0.43	0.000

Top Guy Pull-Off Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T6	81.5 - 61.5	4 1/2x3/8	0.058	0.000	0.000	0.058 [1]	1.000	4.8.1

[1] P_u / ϕP_n controls

Torque-Arm Top Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	181.5 - 161.5 (396)	P4x.237	3.67	3.55	28.2	3.1741	11.60	99.98	0.116 [1] ✔
T1	181.5 - 161.5 (397)	P4x.237	3.67	3.55	28.2	3.1741	10.84	99.98	0.108 [1] ✔
T1	181.5 - 161.5 (402)	P4x.237	3.67	3.55	28.2	3.1741	11.06	99.98	0.111 [1] ✔
T1	181.5 - 161.5 (403)	P4x.237	3.67	3.55	28.2	3.1741	11.84	99.98	0.118 [1] ✔
T1	181.5 - 161.5 (408)	P4x.237	3.67	3.55	28.2	3.1741	11.09	99.98	0.111 [1] ✔
T1	181.5 - 161.5 (409)	P4x.237	3.67	3.55	28.2	3.1741	11.47	99.98	0.115 [1] ✔
T3	141.5 - 121.5 (414)	P4x.237	3.67	3.55	28.2	3.1741	11.28	99.98	0.113 [1] ✔
T3	141.5 - 121.5 (415)	P4x.237	3.67	3.55	28.2	3.1741	10.33	99.98	0.103 [1] ✔
T3	141.5 - 121.5 (420)	P4x.237	3.67	3.55	28.2	3.1741	10.39	99.98	0.104 [1] ✔
T3	141.5 - 121.5 (421)	P4x.237	3.67	3.55	28.2	3.1741	11.26	99.98	0.113 [1] ✔
T3	141.5 - 121.5 (426)	P4x.237	3.67	3.55	28.2	3.1741	10.86	99.98	0.109 [1] ✔
T3	141.5 - 121.5 (427)	P4x.237	3.67	3.55	28.2	3.1741	10.72	99.98	0.107 [1] ✔

[1] P_u / ϕP_n controls

Torque-Arm Bottom Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	181.5 - 161.5 (398)	P4x.237	4.36	4.21	33.5	3.1741	1.65	99.98	0.016 [1] ✔
T1	181.5 - 161.5 (399)	P4x.237	4.36	4.21	33.5	3.1741	1.26	99.98	0.013 [1] ✔
T1	181.5 - 161.5 (404)	P4x.237	4.36	4.21	33.5	3.1741	0.91	99.98	0.009 [1] ✔
T1	181.5 - 161.5 (405)	P4x.237	4.36	4.21	33.5	3.1741	0.94	99.98	0.009 [1] ✔
T1	181.5 - 161.5 (410)	P4x.237	4.36	4.21	33.5	3.1741	1.71	99.98	0.017 [1] ✔
T1	181.5 - 161.5 (411)	P4x.237	4.36	4.21	33.5	3.1741	1.34	99.98	0.013 [1] ✔
T3	141.5 - 121.5 (416)	P4x.237	4.36	4.21	33.5	3.1741	3.00	99.98	0.030 [1] ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T3	141.5 - 121.5 (417)	P4x.237	4.36	4.21	33.5	3.1741	3.11	99.98	0.031 [1] ✔
T3	141.5 - 121.5 (422)	P4x.237	4.36	4.21	33.5	3.1741	3.15	99.98	0.032 [1] ✔
T3	141.5 - 121.5 (423)	P4x.237	4.36	4.21	33.5	3.1741	3.09	99.98	0.031 [1] ✔
T3	141.5 - 121.5 (428)	P4x.237	4.36	4.21	33.5	3.1741	2.96	99.98	0.030 [1] ✔
T3	141.5 - 121.5 (429)	P4x.237	4.36	4.21	33.5	3.1741	3.00	99.98	0.030 [1] ✔

[1] P_u / ϕP_n controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	181.5 - 161.5	Leg	P2.5x.203	3	17.95	76.68	23.4	Pass
T2	161.5 - 141.5	Leg	P2.5x.203	58	-17.79	59.23	30.0	Pass
T3	141.5 - 121.5	Leg	P2.5x.203	93	-26.89	71.89	37.4	Pass
T4	121.5 - 101.5	Leg	P2.5x.203	149	-34.59	71.89	48.1	Pass
T5	101.5 - 81.5	Leg	P2.5x.203	202	-35.68	71.89	49.6	Pass
T6	81.5 - 61.5	Leg	P2.5x.203	257	-36.13	59.23	61.0	Pass
T7	61.5 - 41.5	Leg	P2.5x.203	291	-38.65	59.23	65.3	Pass
T8	41.5 - 21.5	Leg	P2.5x.203	324	-40.15	59.23	67.8	Pass
T9	21.5 - 6.5	Leg	P2.5x.203	357	-40.40	59.89	67.4	Pass
T10	6.5 - 1.5	Leg	P2.5x.203	384	-43.05	72.64	59.3	Pass
T1	181.5 - 161.5	Diagonal	L1 3/4x1 3/4x3/16	23	3.14	16.44	19.1 50.7 (b)	Pass
T2	161.5 - 141.5	Diagonal	ROHN TS1.5x16 ga	69	-3.42	5.44	62.9 70.0 (b)	Pass
T3	141.5 - 121.5	Diagonal	L2x2x3/16	115	3.42	19.50	17.5 55.2 (b)	Pass
T4	121.5 - 101.5	Diagonal	L2 1/2x2 1/2x1/2	199	-4.52	53.21	8.5 32.7 (b)	Pass
T5	101.5 - 81.5	Diagonal	ROHN TS1.5x16 ga	213	-2.30	5.44	42.3 46.8 (b)	Pass
T6	81.5 - 61.5	Diagonal	L2 1/2x2 1/2x1/2	268	-5.19	53.21	9.8 37.8 (b)	Pass
T7	61.5 - 41.5	Diagonal	L2 1/2x2 1/2x1/2	320	-3.83	53.21	7.2 27.7 (b)	Pass
T8	41.5 - 21.5	Diagonal	ROHN TS1.5x16 ga	353	-2.03	5.44	37.2 42.8 (b)	Pass
T9	21.5 - 6.5	Diagonal	L2 1/2x2 1/2x1/2	366	-1.80	53.38	3.4 13.0 (b)	Pass
T4	121.5 - 101.5	Horizontal	L2 1/2x2 1/2x1/2	196	1.17	68.55	1.7 8.5 (b)	Pass
T5	101.5 - 81.5	Horizontal	L2 1/2x2 1/2x1/2	216	0.68	68.55	1.0 4.9 (b)	Pass
T10	6.5 - 1.5	Horizontal	C12x20.7	391	-0.79	192.35	1.4	Pass
T1	181.5 - 161.5	Top Girt	L1 3/4x1 3/4x3/16	4	-0.14	13.58	1.1 1.6 (b)	Pass
T2	161.5 - 141.5	Top Girt	ROHN TS1.5x16 ga	61	-2.02	6.35	31.9 52.4 (b)	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T3	141.5 - 121.5	Top Girt	L2x2x3/16	94	0.69	19.50	3.6 11.2 (b)	Pass
T4	121.5 - 101.5	Top Girt	L2 1/2x2 1/2x1/2	153	2.05	61.17	3.3 14.8 (b)	Pass
T5	101.5 - 81.5	Top Girt	ROHN TS1.5x16 ga	207	-0.62	6.35	9.7 16.1 (b)	Pass
T6	81.5 - 61.5	Top Girt	L2 1/2x2 1/2x1/2	260	1.08	61.17	1.8 7.8 (b)	Pass
T7	61.5 - 41.5	Top Girt	ROHN TS1.5x16 ga	292	-1.73	6.35	27.3 52.6 (b)	Pass
T8	41.5 - 21.5	Top Girt	ROHN TS1.5x16 ga	326	-0.78	6.35	12.3 24.0 (b)	Pass
T9	21.5 - 6.5	Top Girt	L2 1/2x2 1/2x1/2	359	-0.70	57.47	1.2 5.1 (b)	Pass
T10	6.5 - 1.5	Top Girt	C12x20.7	387	6.23	197.32	3.2	Pass
T1	181.5 - 161.5	Bottom Girt	L1 3/4x1 3/4x3/16	8	-0.74	13.00	5.7	Pass
T2	161.5 - 141.5	Bottom Girt	ROHN TS1.5x16 ga	66	-1.42	6.23	22.7	Pass
T3	141.5 - 121.5	Bottom Girt	L2x2x3/16	98	0.86	23.17	3.7	Pass
T4	121.5 - 101.5	Bottom Girt	L2 1/2x2 1/2x1/2	156	-0.61	56.01	1.1	Pass
T5	101.5 - 81.5	Bottom Girt	ROHN TS1.5x16 ga	209	-0.72	6.23	11.5	Pass
T6	81.5 - 61.5	Bottom Girt	L2 1/2x2 1/2x1/2	262	4.22	72.90	5.8	Pass
T7	61.5 - 41.5	Bottom Girt	ROHN TS1.5x16 ga	296	-0.90	6.23	14.5	Pass
T8	41.5 - 21.5	Bottom Girt	ROHN TS1.5x16 ga	329	-0.70	6.23	11.2	Pass
T9	21.5 - 6.5	Bottom Girt	L2 1/2x2 1/2x1/2	361	3.19	72.90	4.4	Pass
T10	6.5 - 1.5	Bottom Girt	C12x20.7	388	-2.39	197.29	8.3	Pass
T1	181.5 - 161.5	Guy A@169.154	9/16	407	10.97	21.00	52.2	Pass
T3	141.5 - 121.5	Guy A@129.154	9/16	425	10.65	21.00	50.7	Pass
T6	81.5 - 61.5	Guy A@62.1146	3/4	435	14.57	34.98	41.6	Pass
T1	181.5 - 161.5	Guy B@169.154	9/16	401	9.43	21.00	44.9	Pass
T3	141.5 - 121.5	Guy B@129.154	9/16	418	10.37	21.00	49.4	Pass
T6	81.5 - 61.5	Guy B@62.1146	3/4	434	14.68	34.98	42.0	Pass
T1	181.5 - 161.5	Guy C@169.154	9/16	394	9.69	21.00	46.1	Pass
T3	141.5 - 121.5	Guy C@129.154	9/16	412	10.39	21.00	49.5	Pass
T6	81.5 - 61.5	Guy C@62.1146	3/4	430	14.50	34.98	41.5	Pass
T6	81.5 - 61.5	Top Guy Pull-Off@62.1146	4 1/2x3/8	431	3.17	54.67	5.8	Pass
T1	181.5 - 161.5	Torque Arm Top@169.154	P4x.237	403	11.84	99.98	11.8	Pass
T3	141.5 - 121.5	Torque Arm Top@129.154	P4x.237	414	11.28	99.98	11.3	Pass
T1	181.5 - 161.5	Torque Arm Bottom@169.154	P4x.237	399	-16.24	94.40	17.2	Pass
T3	141.5 - 121.5	Torque Arm Bottom@129.154	P4x.237	416	-14.85	94.40	15.7	Pass

Summary		
Leg (T8)	67.8	Pass
Diagonal (T2)	70.0	Pass
Horizontal (T4)	8.5	Pass
Top Girt (T7)	52.6	Pass
Bottom Girt (T2)	22.7	Pass
Guy A (T1)	52.2	Pass
Guy B (T3)	49.4	Pass
Guy C (T3)	49.5	Pass
Top Guy Pull-Off (T6)	5.8	Pass
Torque Arm	11.8	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
						Top (T1) Torque Arm	17.2	Pass
						Bottom (T1) Bolt Checks	70.0	Pass
						RATING =	**70.0**	**Pass**

Element Map

Section No.	Section Elevation ft	Component Type	Element List
T1	181.50-161.50	Leg	1-3
		Diagonal	10-57
		Top Girt	4-6
		Bottom Girt	7-9
		Guy A	406-407
		Guy B	400-401
		Guy C	394-395
		Torque Arm Top	396-397,402-403,408-409
		Torque Arm Bottom	398-399,404-405,410-411
T2	161.50-141.50	Leg	58-60
		Diagonal	67-90
		Top Girt	61-63
		Bottom Girt	64-66
T3	141.50-121.50	Leg	91-93
		Diagonal	100-147
		Top Girt	94-96
		Bottom Girt	97-99
		Guy A	424-425
		Guy B	418-419
		Guy C	412-413
		Torque Arm Top	414-415,420-421,426-427
		Torque Arm Bottom	416-417,422-423,428-429
T4	121.50-101.50	Leg	148-150
		Diagonal	157-159,163-165,169-171,175-177,181-183,187-189,193-195,199-201
		Horizontal	160-162,166-168,172-174,178-180,184-186,190-192,196-198
		Top Girt	151-153
		Bottom Girt	154-156
T5	101.50-81.50	Leg	202-204
		Diagonal	211-213,217-219,223-225,229-231,235-237,241-243,247-249,253-255
		Horizontal	214-216,220-222,226-228,232-234,238-240,244-246,250-252
		Top Girt	205-207
		Bottom Girt	208-210
T6	81.50-61.50	Leg	256-258
		Diagonal	265-288
		Top Girt	259-261
		Bottom Girt	262-264
		Guy A	435
		Guy B	434
		Guy C	430
		Top Guy Pull-Off	431-433
T7	61.50-41.50	Leg	289-291
		Diagonal	298-321
		Top Girt	292-294
		Bottom Girt	295-297

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Branford, CT 06405
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FAX: (203) 488-8587

Section No.	*Section Elevation ft*	*Component Type*	*Element List*
T8	41.50-21.50	Leg	322-324
		Diagonal	331-354
		Top Girt	325-327
		Bottom Girt	328-330
T9	21.50-6.50	Leg	355-357
		Diagonal	364-381
		Top Girt	358-360
		Bottom Girt	361-363
T10	6.50-1.50	Leg	382-384
		Horizontal	391-393
		Top Girt	385-387
		Bottom Girt	388-390
			Total number of elements: 435

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Job :	AT&T ~ CT5206: 180-ft Guyed Lattice Tower	Project No.	22003	Sheet	1	of	2
Address:	125 New Road Madison, CT	Computed by	TJL	Date		2/23/22	
Description:	Guy Anchor Evaluation	Checked by	CFC	Date			

CHECK UPLIFT RESISTANCE

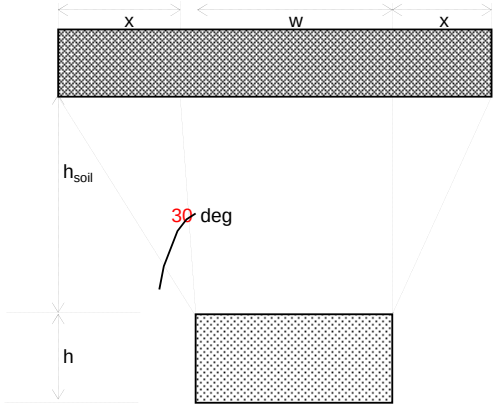
ANCHOR (A) AT 184.0 ft RADIUS

RESULTS FROM COMPUTER ANALYSIS:

Uplift =	26	kips
Sliding =	33	kips
Wdepth =	50	ft

CONCRETE PARAMETERS:

γ_{conc} =	150	pcf
$\gamma_{conc.sub}$ =	87.6	pcf
w =	4.5	ft
h =	3	ft
d =	9.5	ft
Vol. =	128.25	ft^3
Vol.sub =	0.00	ft^3
Wc =	*19.24*	kips
Ø =	*0.90*	
	17.31	



Foundation Section

SOIL PARAMETERS:

γ_{soil} =	110	pcf
$\gamma_{soil.sub}$ =	47.6	pcf
h_{soil} =	5.8	ft
x =	*3.35*	ft

Soil Weight (Wr):

B1 =	42.75
B2 =	42.75
B3 =	181.37

W.soil =	66.39	kips
W.soil.sub =	0.00	kips
Total =	*66.39*	kips
Ø =	*0.75*	
	49.79	

SF AGAINST SLIDING

2.58 **>** *1* ***OK***

GUY ANCHORS AGAINST UPLIFT ARE ADEQUATE

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Job :	AT&T ~ CT5206: 180-ft Guyed Lattice Tower	Project No.	22003	Sheet	1	of	2
Address:	125 New Road Madison, CT	Computed by	TJL	Date		2/23/22	
Description:	Guy Anchor Evaluation	Checked by	CFC	Date			

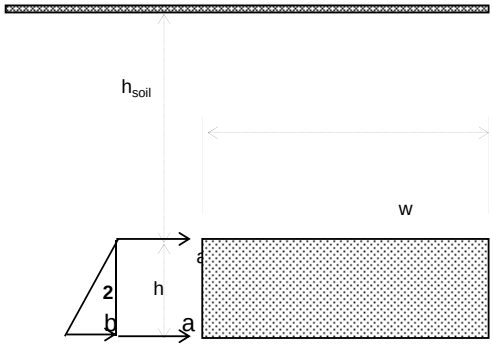
CHECK SLIDING RESISTANCE

SOIL PARAMETERS

$\gamma soil$ =	110	pcf
$\gamma soil$ =	47.6	pcf
h_{soil} =	5.8	ft
h =	3	ft
ϕ =	30	degrees

ANCHOR PARAMETERS

w =	4.5	ft
h =	3.0	ft
d =	9.5	ft



Foundation Elevation View

K_p = 3.00

HORIZONTAL FORCES

		1.91	ksf
		2.90	ksf
RESIST TO SLIDING =		68.66	k
SOIL & CONCRETE WEIGHT =	Wr + Wc =	67.10	k
UPLIFT REACTIONS =		-26	k
SUM =		41.10	k
COEF. OF FRICTION, (0.45) =		18.50	k
RESIST TO SLIDING =		68.66	k
SUM =		87.15	k

SF AGAINST SLIDING

SF = 2.6 > 1 OK

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Job :	AT&T ~ CT5206: 180-ft Guyed Lattice Tower	Project No.	22003	Sheet	1	of	2
Address:	125 New Road Madison, CT	Computed by	TJL	Date		2/23/22	
Description:	Guy Anchor Evaluation	Checked by	CFC	Date			

CHECK UPLIFT RESISTANCE

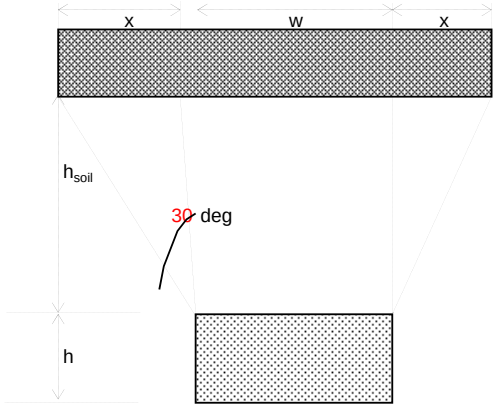
ANCHOR (A) AT 150.0 ft RADIUS

RESULTS FROM COMPUTER ANALYSIS:

Uplift =	5	kips
Sliding =	13	kips
Wdepth =	50	ft

CONCRETE PARAMETERS:

γ_{conc} =	150	pcf
$\gamma_{conc.sub}$ =	87.6	pcf
w =	4.5	ft
h =	2.5	ft
d =	6.5	ft
Vol. =	73.13	ft^3
Vol.sub =	0.00	ft^3
Wc =	*10.97*	kips
Ø =	*0.90*	
	9.87	



Foundation Section

SOIL PARAMETERS:

γ_{soil} =	110	pcf
$\gamma_{soil.sub}$ =	47.6	pcf
h_{soil} =	5	ft
x =	*2.89*	ft

Soil Weight (Wr):

B1 =	29.25
B2 =	29.25
B3 =	126.09

W.soil =	39.61	kips
W.soil.sub =	0.00	kips
Total =	*39.61*	kips
Ø =	*0.75*	
	29.71	

SF AGAINST SLIDING

7.92 **>** *1* ***OK***

GUY ANCHORS AGAINST UPLIFT ARE ADEQUATE

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63-2 North Branford Road P: (203) 488-0580
Branford, CT 06405 F: (203) 488-8587

Job :	AT&T ~ CT5206: 180-ft Guyed Lattice Tower	Project No.	22003	Sheet	1	of	2
Address:	125 New Road Madison, CT	Computed by	TJL	Date		2/23/22	
Description:	Guy Anchor Evaluation	Checked by	CFC	Date			

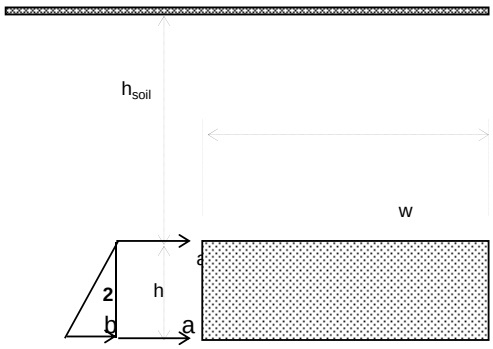
CHECK SLIDING RESISTANCE

SOIL PARAMETERS

$\gamma soil$ =	110	pcf
$\gamma soil$ =	47.6	pcf
h_{soil} =	5	ft
h =	2.5	ft
ϕ =	30	degrees

ANCHOR PARAMETERS

w =	4.5	ft
h =	2.5	ft
d =	6.5	ft



Foundation Elevation View

κ_p = 3.00

HORIZONTAL FORCES

		1.65	ksf
		2.48	ksf
RESIST TO SLIDING =		33.52	k
SOIL & CONCRETE WEIGHT =	Wr + Wc =	39.58	k
UPLIFT REACTIONS =		-5	k
SUM =		34.58	k
COEF. OF FRICTION, (0.45) =		15.56	k
RESIST TO SLIDING =		33.52	k
SUM =		49.08	k

SF AGAINST SLIDING

SF = 3.8 > 1 OK

GUY ANCHORS AGAINST SLIDING ARE ADEQUATE

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Subject: Base Foundation Analysis

Location: 180-ft Guyed Lattice Tower
Madison, CT

Rev. 0: 2/23/22

Prepared by: T.J.L. Checked by: C.F.C.
Job No. 22003.00

Guyed Tower Base Foundation:

Input Data:

Tower Data

Shear Force =	$Shear := 1 \cdot kip$	(User Input from tnxTower)	
Axial Force =	$Axial := 119 \cdot kip$	(User Input from tnxTower)	
Tower Height =	$H_t := 180 \cdot ft$	(User Input)	

Footing Data:

Overall Depth of Footing =	$D_f := 7.7 \cdot ft$	(User Input)	
Length of Pier =	$L_p := 5.7 \cdot ft$	(User Input)	
Extension of Pier Above Grade =	$L_{pag} := 1.5 \cdot ft$	(User Input)	
Diameter of Pier =	$D_p := 2.0 \cdot ft$	(User Input)	
Width of Pad =	$W_{pad} := 4.7 \cdot ft$	(User Input)	
Length of Pad =	$L_{pad} := 5.3 \cdot ft$	(User Input)	
Thickness of Pad =	$t_{pad} := 2.0 \cdot ft$	(User Input)	

Material Properties:

Concrete Compressive Strength =	$f_c := 3000 \cdot psi$	(User Input)	
Steel Reinforcment Yield Strength =	$f_y := 60000 \cdot psi$	(User Input)	
Internal Friction Angle of Soil =	$\Phi_s := 30 \cdot deg$	(User Input)	
Ultimate Soil Bearing Capacity =	$q_s := 16000 \cdot psf$	(User Input)	Weathered Bedrock
Unit Weight of Soil =	$\gamma_{soil} := 120 \cdot pcf$	(User Input)	
Unit Weight of Concrete =	$\gamma_{conc} := 150 \cdot pcf$	(User Input)	
Foundation Bouyancy =	$Bouyancy := 0$	(User Input)	(Yes=1 / No=0)
Depth to Neglect =	$n := 0 \cdot ft$	(User Input)	
Cohesion of Clay Type Soil =	$c := 0 \cdot ksf$	(User Input)	(Use 0 for Sandy Soil)
Seismic Zone Factor =	$Z := 2$	(User Input)	
Coefficient of Friction Between Concrete =	$\mu := 0.45$	(User Input)	

Calculated Factors:

Coefficient of Lateral Soil Pressure = $K_p := \frac{1 + \sin(\Phi_s)}{1 - \sin(\Phi_s)} = 3$

Stability of Footing:

Adjusted Concrete Unit Weight = $\gamma_c := if\left(Bouyancy = 1, \gamma_{conc} - 62.4pcf, \gamma_{conc}\right) = 150 \cdot pcf$

Adjusted Soil Unit Weight = $\gamma_s := if\left(Bouyancy = 1, \gamma_{soil} - 62.4pcf, \gamma_{soil}\right) = 120 \cdot pcf$

Passive Pressure = $P_{top} := 0$

$P_{bot} := K_p \cdot \gamma_s \cdot D_f + c \cdot 2 \cdot \sqrt{K_p} = 2.772 \cdot ksf$

$P_{ave} := \frac{P_{top} + P_{bot}}{2} = 1.386 \cdot ksf$

$A_p := D_p \cdot L_p = 11.4$

Soil Shear Resistance = $Sl_1 := P_{ave} \cdot A_p = 15.8 \cdot kip$

Weight of Concrete = $WT_c := \left(D_p^2 \cdot L_p + W_{pad} \cdot L_{pad} \cdot t_{pad}\right) \cdot \gamma_c = 10.89 \cdot kip$

Total Weight = $WT_{tot} := WT_c + Axial = 129.89 \cdot kip$

Soil/Concrete Friction Resistance = $Sl_2 := \mu \cdot WT_{tot} = 58.45 \cdot kips$

Total Sliding Resistance = $Sl_{tot} := Sl_1 + Sl_2 = 74.25 \cdot kips$

Sliding Resistance Ratio = $Sliding\_Resistance_{ratio} := \frac{0.75 Sl_{tot}}{Shear} = 55.69$

$Sliding\_Resistance\_Check := if\left[\left(\frac{Shear}{0.75 Sl_{tot}} < 1.0\right), "Okay", "No\ Good"\right]$

Sliding_Resistance_Check = "Okay"

Bearing Pressure Caused by Footing:

Maximum Pressure in Mat = $P_{max} := \frac{WT_{tot}}{W_{pad} \cdot L_{pad}} = 5.21 \cdot ksf$

$Max\_Pressure\_Check := if\left(P_{max} < 0.6 q_s, "Okay", "No\ Good"\right)$

Max_Pressure_Check = "Okay"

Section 1 - RFDS GENERAL INFORMATION

RFDS NAME:	CTL05206	DATE:	7/3/2018	RF DESIGN ENG:	Md Mateen	RF PERF ENG:	
ISSUE:	Bronze Standard	Approved? (Y/N):	Yes	RF DESIGN PHONE:	8602586382	RF PERF PHONE:	
REVISION:	Final	RF MANAGER:	John Benedetto	RF DESIGN EMAIL:	MM093Q@ATT.COM	RF PERF EMAIL:	
INITIATIVE PROJECT	LTE 2C 1900 A3-A4-E, LTE 3C AWS J, LTE 4C 850 5G, LTE 700 B/C 4T4R Retrofit. *Decomm UMTS – site will be built after UMTS Sunset.					ADDITIONAL WORKFLOW NOTIFICATIONS:	
						RFDS VERSION:	2.00
						UMTS FREQUENCY:	
						LTE FREQUENCY:	700,850,1900,AWS
						5G FREQUENCY:	850
						IPLAN JOB # 1:	NER-RCTB-18-05545
						IPLAN JOB # 2:	NER-RCTB-18-05633
						IPLAN JOB # 3:	NER-RCTB-18-05784
						IPLAN JOB # 4:	NER-RCTB-18-06149
						IPLAN JOB # 5:	
						IPLAN JOB # 6:	
						IPLAN JOB # 7:	
						IPLAN JOB # 8:	
						IPLAN JOB # 9:	
						IPLAN JOB #10:	
						IPLAN JOB # 11:	
						IPLAN JOB # 12:	
						IPLAN JOB # 13:	
						IPLAN JOB # 14:	
						IPLAN JOB # 15:	
						IPLAN JOB # 16:	

RFDS PROGRAM TYPE:	2019 LTE Next Carrier		
RFDS TECHNOLOGY:	LTE		
STATE/STATUS:	Final/Approved		
RFDS ID:	2457781		
Created By:	mm093q	Updated By:	mm093q
Created:	7/3/2018	Updated:	1/25/2022
Estimated SQIN:	9.753	Expiration:	
RER Initiative:		Calculation ID:	20211029065535835
PRD || SUB GRP #1	LTE Next Carrier || LTE 2C		
PRD || SUB GRP #2	LTE Software Carrier || LTE 3C		
PRD || SUB GRP #3	LTE Next Carrier || LTE 4C		
PRD || SUB GRP #4	Antenna Modifications || 4TX4RX Software Retrofit		
PRD || SUB GRP #5			
PRD || SUB GRP #6			
PRD || SUB GRP #7			
PRD || SUB GRP #8			
PRD || SUB GRP #9			
PRD || SUB GRP #10			
PRD || SUB GRP #11			
PRD || SUB GRP #12			
PRD || SUB GRP #13			
PRD || SUB GRP #14			
PRD || SUB GRP #15			
PRD || SUB GRP #16			

Section 2 - LOCATION INFORMATION

USID:	25893	FA LOCATION CODE:	10071098	LOCATION NAME:	MADISON EAST	ORACLE PRJT # 1:	20514OJDBM
REGION:	NORTHEAST	MARKET CLUSTER:	NEW ENGLAND	MARKET:	CONNECTICUT	ORACLE PRJT # 2:	20514OJDAZ
ADDRESS:	135 NEW ROAD	CITY:	MADISON	STATE:	CT	ORACLE PRJT # 3:	20514OJD95
ZIP CODE:	06443	COUNTY:	NEW HAVEN	LONG (DEC. DEG.):	-72.5783989	ORACLE PRJT # 4:	20514OJD7V
LATITUDE (D-M-S):	41d 17m35.13084s	LONGITUDE (D-M-S):	-72d -34m-42.23604s	LAT (DEC. DEG.):	41.2930919	ORACLE PRJT # 5:	
DIRECTIONS, ACCESS AND EQUIPMENT LOCATION:	CT5206 MADISONEAST I95N TO EXIT 62 AT TOP OF RAMP MAKE LEFT AND CROSS OVER HIGHWAY AT NEXT INTERSECTION MAKE LEFT ONTO NEW ROAD AFTER MAKING TURN LOCK FOR ARAMARK SIGN AT 135 NEW ROAD ON YOUR RIGHT AND ENTER HERE AFTER PASSING ARAMARK SIGN TAKE DRIVEWAY ON YOUR RIGHT AND HEAD STRAIGHT TO EVERSOURCE GATE PROCEED THROUGH GATE AND DRIVE TOWARD REAR OF COMPLEX WHERE TOWER IS LOCATED DIAL 002 FOR GARAGE AT GATE FOR ACCESSDEMARC LOCATED IN HOFFMAN BOX LTE RADIOS ON TOWERMETER: # 89196454POWER CABINET COMBO0043						ORACLE PRJT # 6:	
						ORACLE PRJT # 7:	
						ORACLE PRJT # 8:	
						ORACLE PRJT # 9:	
						ORACLE PRJT # 10:	
						ORACLE PRJT # 11:	
						ORACLE PRJT # 12:	
						ORACLE PRJT # 13:	
						ORACLE PRJT # 14:	
						ORACLE PRJT # 15:	
						ORACLE PRJT # 16:	
						BORDER CELL WITH CONTOUR COORD:	
						AM STUDY REQ'D (Y/N):	No
						FREQ COORD:	
						RF DISTRICT:	TBD
						RF ZONE:	TBD
						PARENT NAME(UMTS):	MDTWCTNIRNC002

PACE JOB #1:	MRCTB033530		
PACE JOB #2:	MRCTB033595		
PACE JOB #3:	MRCTB033653		
PACE JOB #4:	MRCTB033805		
PACE JOB #5:			
PACE JOB #6:			
PACE JOB #7:			
PACE JOB #8:			
PACE JOB #9:			
PACE JOB #10:			
PACE JOB #11:			
PACE JOB #12:			
PACE JOB #13:			
PACE JOB #14:			
PACE JOB #15:			
PACE JOB #16:			
SEARCH RING NAME:			
SEARCH RING ID:			
BTA:		MSA / RSA:	
LAC(UMTS):	05996		
RNC(UMTS):	MIDDLETOWN RNC02		
MME POOL ID(LTE):	FF01		

Section 3 - LICENSE COVERAGE/FILING INFORMATION

CGSA - NO FILING TRIGGERED (Yes/No):	No	CGSA LOSS:		PCS REDUCED - UPS ZIP:		CGSA CALL SIGNS:	KNKA241,z_KNLB312,z_KNLB312,z_KNLB312,KNKA241,z_KNLB312,z_KNLB312,z_KNLB312,KNKA241,z_KNLB312,z_KNLB312,z_KNLB312
CGSA - MINOR FILING NEEDED (Yes/No):	No	CGSA EXT AGMT NEEDED:		PCS POPS REDUCED:			
CGSA - MAJOR FILING NEEDED (Yes/No):	Yes	CGSA SCORECARD UPDATED:					

Section 4 - TOWER/REGULATORY INFORMATION

STRUCTURE AT&T OWNED?:	No	GROUND ELEVATION (ft):		STRUCTURE TYPE:	GUYED	MARKET LOCATION 700 MHz Band:	
ADDITIONAL REGULATORY?:	No	HEIGHT OVERALL (ft):	0.00	FCC ASR NUMBER:		MARKET LOCATION 850 MHz Band:	
SUB-LEASE RIGHTS?:	No	STRUCTURE HEIGHT (ft):	181.00			MARKET LOCATION 1900 MHz Band:	
LIGHTING TYPE:	NOT REQUIRED					MARKET LOCATION AWS Band:	
						MARKET LOCATION WCS Band:	
						MARKET LOCATION Future Band:	

Section 5 - E-911 INFORMATION - existing

		PSAP NAME:	PSAP ID:	E911 PHASE:	MPC SVC PROVIDER:	LMU REQUIRED:	ESRN:	DATE LIVE PH1:	DATE LIVE PH2:
SECTOR A	E-911				INTRADO_MAMI		0		
SECTOR B					INTRADO_MAMI		0		
SECTOR C					INTRADO_MAMI		0		
SECTOR D									
SECTOR E									
SECTOR F									
OMNI									

Section 5 - E-911 INFORMATION - final

		PSAP NAME:	PSAP ID:	E911 PHASE:	MPC SVC PROVIDER:	LMU REQUIRED:	ESRN:	DATE LIVE PH1:	DATE LIVE PH2:
SECTOR A	E-911				INTRADO_MAMI		0		
SECTOR B					INTRADO_MAMI		0		
SECTOR C					INTRADO_MAMI		0		
SECTOR D									
SECTOR E									
SECTOR F									
OMNI									

Section 6/7 - BBU INFORMATION - existing

	BBU 1	BBU 2	BBU 3
BBU ID:	330155	197241	350928
TECHNOLOGY:	UMTS	UMTS	LTE
BBU NAME:	CTUS206	CTVS206	CTL05206
BBU USID:	25893	25893	25893
CELL ID / BCF:	CTVS206	CTVS206	CTL05206
BTA/TID:	318W	318U	318L
4-9 DIGIT SITE ID:	5206	5206	5206
COW OR TOY?:	No	No	No
CELL SITE TYPE:	SECTORIZED	SECTORIZED	SECTORIZED
SITE TYPE:	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL
BTS LOCATION ID:	GROUND	GROUND	INTERNAL
BASE STATION TYPE:	OVERLAY	OVERLAY	BASE
EQUIPMENT NAME:	MADISON EAST	MADISON EAST	MADISON EAST
DISASTER PRIORITY:	3	0	3
EQUIPMENT VENDOR:	ERICSSON	ERICSSON	ERICSSON
EQUIPMENT TYPE (Model):			6601 INDOOR MU
BASEBAND CONFIGURATION :			
MARKET STATE CODE:			CT
NODE B NUMBER:	0	0	5206
SIDEHAUL SWITCH VENDOR:			
SIDEHAUL SWITCH MODEL:			
SIDEHAUL SWITCH NAME:			
CSS - CTS COMMON ID:	CTUS206	CTVS206	CTL05206
CSS - SECONDARY FUNCTION ID:			

Section 6/7 - BBU INFORMATION - final

	BBU 1	BBU 2	BBU 3
BBU ID:	197241	350928	828252
TECHNOLOGY:	UMTS	LTE	5G
BBU NAME:	CTVS206	CTL05206	CTCN005206
BBU USID:	25893	25893	25893
CELL ID / BCF:	CTVS206	CTL05206	CTCN005206
BTA/TID:	318U	318L	318L
4-9 DIGIT SITE ID:	5206	5206	14005206
COW OR TOY?:	No	No	No
CELL SITE TYPE:	SECTORIZED	SECTORIZED	SECTORIZED
SITE TYPE:	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL
BTS LOCATION ID:	GROUND	INTERNAL	INTERNAL
BASE STATION TYPE:	OVERLAY	BASE	BASE
EQUIPMENT NAME:	MADISON EAST	MADISON EAST	MADISON EAST
DISASTER PRIORITY:	0	3	3
EQUIPMENT VENDOR:	ERICSSON	ERICSSON	ERICSSON
EQUIPMENT TYPE (Model):		6601 RADIONODE 5216	BASEBAND 6630
BASEBAND CONFIGURATION :		1x6601 / 1x5216 / 1xXMU03	xxxxx / 1x6630 / xxxxx
MARKET STATE CODE:		CT	CTC
NODE B NUMBER:	0	5206	5206
SIDEHAUL SWITCH VENDOR:			
SIDEHAUL SWITCH MODEL:			
SIDEHAUL SWITCH NAME:			
CSS - CTS COMMON ID:	CTVS206	CTL05206	CTCN005206
CSS - SECONDARY FUNCTION ID:			

Section 7b - Radio INFORMATION - existing

Section 7b - Radio INFORMATION - final

Section 8 - RBS/SECTOR ASSOCIATION - existing

	BBU 1	BBU 2	BBU 3
CTS Common ID	CTUS206	CTVS206	CTL05206
Soft Sector IDs	CTUS2067	CTVS2061	CTL05206_2A_2
	CTUS2068	CTVS2062	CTL05206_2B_2
	CTUS2069	CTVS2063	CTL05206_2C_2
			CTL05206_7A_1
			CTL05206_7B_1
			CTL05206_7C_1
			CTL05206_8A_1
			CTL05206_8B_1
			CTL05206_8C_1
			CTL05206_9A_1
			CTL05206_9A_2
			CTL05206_9B_1
			CTL05206_9B_2
			CTL05206_9C_1
			CTL05206_9C_2

Section 8 - RBS/SECTOR ASSOCIATION - final

	BBU 1	BBU 2	BBU 3
CTS Common ID	CTV5206	CTL05206	CTCN005206
Soft Sector IDs		CTL05206_2A_2	CTCN005206_N005A_1
		CTL05206_2B_2	CTCN005206_N005B_1
		CTL05206_2C_2	CTCN005206_N005C_1
		CTL05206_7A_1	
		CTL05206_7B_1	
		CTL05206_7C_1	
		CTL05206_9A_1	
		CTL05206_9A_2	
		CTL05206_9B_1	
		CTL05206_9B_2	
		CTL05206_9C_1	
		CTL05206_9C_2	

Section 9 - SOFT SECTOR ID - existing

	UMTS 1ST 850	UMTS 1ST 1900	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST AWS	LTE 2ND 1900	5G 1ST 850
USEID (excluding Hard Sector)	25893.850.3G.1	25893.1900.3G.2						
SECTOR A SOFT SECTOR ID	CTV52061	CTU52067	CTL05206_7A_1	CTL05206_8A_1	CTL05206_9A_1	CTL05206_2A_2	CTL05206_9A_2	
SECTOR B	CTV52062	CTU52068	CTL05206_7B_1	CTL05206_8B_1	CTL05206_9B_1	CTL05206_2B_2	CTL05206_9B_2	
SECTOR C	CTV52063	CTU52069	CTL05206_7C_1	CTL05206_8C_1	CTL05206_9C_1	CTL05206_2C_2	CTL05206_9C_2	
SECTOR D								
SECTOR E								
SECTOR F								
OMNI								

Section 9 - SOFT SECTOR ID - final

	UMTS 1ST 850	UMTS 1ST 1900	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST AWS	LTE 2ND 1900	5G 1ST 850
USEID (excluding Hard Sector)								
SECTOR A SOFT SECTOR ID			CTL05206_7A_1		CTL05206_9A_1	CTL05206_2A_2	CTL05206_9A_2	CTCN005206_N005A_1
SECTOR B			CTL05206_7B_1		CTL05206_9B_1	CTL05206_2B_2	CTL05206_9B_2	CTCN005206_N005B_1
SECTOR C			CTL05206_7C_1		CTL05206_9C_1	CTL05206_2C_2	CTL05206_9C_2	CTCN005206_N005C_1
SECTOR D								
SECTOR E								
SECTOR F								
OMNI								

Section 9 - Cell Number - existing

	UMTS 1ST 850	UMTS 1ST 1900	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST AWS	LTE 2ND 1900	5G 1ST 850
USEID (excluding Hard Sector)	25893.850.3G.1	25893.1900.3G.2						
SECTOR A CELL NUMBER			15	1	8	192	178	
SECTOR B			16	2	9	193	179	
SECTOR C			17	3	10	194	180	
SECTOR D								
SECTOR E								
SECTOR F								
OMNI								

Section 9 - Cell Number - final

	UMTS 1ST 850	UMTS 1ST 1900	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST AWS	LTE 2ND 1900	5G 1ST 850
USEID (excluding Hard Sector)								
SECTOR A CELL NUMBER			15		8	192	178	25
SECTOR B			16		9	193	179	49
SECTOR C			17		10	194	180	73
SECTOR D								
SECTOR E								
SECTOR F								
OMNI								

Section 10 - CID/SAC - existing

	UMTS 1ST 850	UMTS 1ST 1900	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST AWS	LTE 2ND 1900	5G 1ST 850
SECTOR A CID/SAC	52061	52067						
SECTOR B	52062	52068						
SECTOR C	52063	52069						
SECTOR D								
SECTOR E								
SECTOR F								
OMNI								

Section 10 - CID/SAC - final

	UMTS 1ST 850	UMTS 1ST 1900	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST AWS	LTE 2ND 1900	5G 1ST 850
SECTOR A CID/SAC								
SECTOR B								
SECTOR C								
SECTOR D								
SECTOR E								
SECTOR F								
OMNI								

Section 11 - CURRENT RADIO COUNTS existing

Section 12 - CURRENT T1 COUNTS existing

Section 13 - NEW/PROPOSED RADIO COUNTS

Section 14 - NEW/PROPOSED T1 COUNTS

Section 15A - CURRENT TOWER CONFIGURATION - SECTOR A (OR OMNI)

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1		ANTENNA POSITION 2		ANTENNA POSITION 3		ANTENNA POSITION 4		ANTENNA POSITION 5		ANTENNA POSITION 6		ANTENNA POSITION 7	
ANTENNA MAKE - MODEL	7770						AM-X-CD-14-65-00T-RET							
ANTENNA VENDOR	Powerwave						KMW							
ANTENNA SIZE (H x W x D)	55X11X5						48X11.8X5.9							
ANTENNA WEIGHT	35						30.8							
AZIMUTH	0						0							
MAGNETIC DECLINATION														
RADIATION CENTER (feet)	78						78							
ANTENNA TIP HEIGHT														
MECHANICAL DOWNTILT	0						0							
FEEDER AMOUNT	2													
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)														
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)														
Antenna RET Motor (QTY/MODEL)	2	Powerwave 7020						Built in						
SURGE ARRESTOR (QTY/MODEL)							1	DC/Fiber Squid						
DIPLEXER (QTY/MODEL)	2	Powerwave LGP 21901												
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)	1	Powerwave 7070						LTE RRH						
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)	2	Powerwave LGP 21401												
CURRENT INJECTORS FOR TMA (QTY/MODEL)	2	Polyphaser 1000860												
PDU FOR TMAS (QTY/MODEL)	1	LGP 12104												
FILTER (QTY/MODEL)														
SQUID (QTY/MODEL)														
FIBER TRUNK (QTY/MODEL)														
DC TRUNK (QTY/MODEL)														
REPEATER (QTY/MODEL)														
RRH - 700 band (QTY/MODEL)							1	RRUS-11 B12						
RRH - 850 band (QTY/MODEL)														
RRH - 1900 band (QTY/MODEL)														
RRH - AWS band (QTY/MODEL)														
RRH - WCS band (QTY/MODEL)														
Additional RRH #1 - any band (QTY/MODEL)														
Additional RRH #2 - any band (QTY/MODEL)														
RRH_7B_1 (QTY/MODEL)														
RRH_7B_2 (QTY/MODEL)														
RRH_7B_3 (QTY/MODEL)														
Additional Component 1 (QTY/MODEL)														
Additional Component 2 (QTY/MODEL)														
Additional Component 3 (QTY/MODEL)														
Local Market Note 1														
Local Market Note 2														
Local Market Note 3														

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 1	PORT 1		25893.A.850.3G.1	CTV52061	CTV52061		UMTS 850	7770.00.850.00	13.5		0	None	RFS 7/8 (850)	100.025605	YES								
ANTENNA POSITION 4	PORT 1		25893.A.850.25G.1	CTL05206_7A_1	CTL05206_7A_1		LTE 700	00T-RET_725MHz_0	14.1		2	TOP	FIBER	0									

Section 15B - CURRENT TOWER CONFIGURATION - SECTOR B

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1		ANTENNA POSITION 2		ANTENNA POSITION 3		ANTENNA POSITION 4		ANTENNA POSITION 5		ANTENNA POSITION 6		ANTENNA POSITION 7	
ANTENNA MAKE - MODEL	7770						AM-X-CD-14-65-00T-RET							
ANTENNA VENDOR	Powerwave						KMW							
ANTENNA SIZE (H x W x D)	55X11X5						48X11.8X5.9							
ANTENNA WEIGHT	35						30.8							
AZIMUTH	120						120							
MAGNETIC DECLINATION														
RADIATION CENTER (feet)	78						78							
ANTENNA TIP HEIGHT														
MECHANICAL DOWNTILT	0						0							
FEEDER AMOUNT	2													
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)														
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)														
Antenna RET Motor (QTY/MODEL)	2	Powerwave 7020						Built in						
SURGE ARRESTOR (QTY/MODEL)														
DIPLEXER (QTY/MODEL)	2	Powerwave LGP 21901												
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)								LTE RRH						
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)	2	Powerwave LGP 21401												
CURRENT INJECTORS FOR TMA (QTY/MODEL)	2	Polyphaser 1000860												
PDU FOR TMAS (QTY/MODEL)														
FILTER (QTY/MODEL)														
SQUID (QTY/MODEL)														
FIBER TRUNK (QTY/MODEL)														
DC TRUNK (QTY/MODEL)														
REPEATER (QTY/MODEL)														
RRH - 700 band (QTY/MODEL)							1	RRUS-11 B12						
RRH - 850 band (QTY/MODEL)														
RRH - 1900 band (QTY/MODEL)														
RRH - AWS band (QTY/MODEL)														
RRH - WCS band (QTY/MODEL)														
Additional RRH #1 - any band (QTY/MODEL)														
Additional RRH #2 - any band (QTY/MODEL)														
RRH_7B_1 (QTY/MODEL)														
RRH_7B_2 (QTY/MODEL)														
RRH_7B_3 (QTY/MODEL)														
Additional Component 1 (QTY/MODEL)														
Additional Component 2 (QTY/MODEL)														
Additional Component 3 (QTY/MODEL)														
Local Market Note 1														
Local Market Note 2														
Local Market Note 3														

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 1	PORT 1		25893.B.850.3G.1	CTV52062	CTV52062		UMTS 850	7770.00.850.00	13.5		0	None	RFS 7/8 (850)	100.025605	YES								
ANTENNA POSITION 4	PORT 1		25893.B.850.25G.1	CTL05206_7B_1	CTL05206_7B_1		LTE 700	00T-RET_725MHz_0	14.1		2	TOP	FIBER	0									

Section 15C - CURRENT TOWER CONFIGURATION - SECTOR C

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1		ANTENNA POSITION 2		ANTENNA POSITION 3		ANTENNA POSITION 4		ANTENNA POSITION 5		ANTENNA POSITION 6		ANTENNA POSITION 7	
ANTENNA MAKE - MODEL	7770						AM-X-CD-14-65-00T-RET							
ANTENNA VENDOR	Powerwave						KMW							
ANTENNA SIZE (H x W x D)	55X11X5						48X11.8X5.9							
ANTENNA WEIGHT	35						30.8							
AZIMUTH	240						240							
MAGNETIC DECLINATION														
RADIATION CENTER (feet)	78						78							
ANTENNA TIP HEIGHT														
MECHANICAL DOWNTILT	0						0							
FEEDER AMOUNT	2													
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)														
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)														
Antenna RET Motor (QTY/MODEL)	2	Powerwave 7020						Built in						
SURGE ARRESTOR (QTY/MODEL)														
DIPLEXER (QTY/MODEL)	2	Powerwave LGP 21901												
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)								LTE RRH						
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)	2	Powerwave LGP 21401												
CURRENT INJECTORS FOR TMA (QTY/MODEL)	2	Polyphaser 1000860												
PDU FOR TMAS (QTY/MODEL)														
FILTER (QTY/MODEL)														
SQUID (QTY/MODEL)														
FIBER TRUNK (QTY/MODEL)														
DC TRUNK (QTY/MODEL)														
REPEATER (QTY/MODEL)														
RRH - 700 band (QTY/MODEL)							1	RRUS-11 B12						
RRH - 850 band (QTY/MODEL)														
RRH - 1900 band (QTY/MODEL)														
RRH - AWS band (QTY/MODEL)														
RRH - WCS band (QTY/MODEL)														
Additional RRH #1 - any band (QTY/MODEL)														
Additional RRH #2 - any band (QTY/MODEL)														
RRH_7B_1 (QTY/MODEL)														
RRH_7B_2 (QTY/MODEL)														
RRH_7B_3 (QTY/MODEL)														
Additional Component 1 (QTY/MODEL)														
Additional Component 2 (QTY/MODEL)														
Additional Component 3 (QTY/MODEL)														
Local Market Note 1														
Local Market Note 2														
Local Market Note 3														

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 1	PORT 1		25893.C.850.3G.1	CTV52063	CTV52063		UMTS 850	7770.00.850.00	13.5		0	None	RFS 7/8 (850)	100.025605	YES								
ANTENNA POSITION 4	PORT 1		25893.C.850.25G.1	CTL05206_7C_1	CTL05206_7C_1		LTE 700	00T-RET_725MHz_0	14.1		2	TOP	FIBER	0									

Section 16A - PLANNED/PROPOSED TOWER CONFIGURATION - SECTOR A (OR OMNI)

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
Existing Antenna?							
ANTENNA MAKE - MODEL		SBNHH-1D65A		DMP65R-BU4DA			
ANTENNA VENDOR		Andrew		CCI			
ANTENNA SIZE (H x W x D)		55X11.9X7.1		48X20.7X7.7			
ANTENNA WEIGHT		33.5		67.9			
AZIMUTH		0		0			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		78		78			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT		0		0			
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)		Built in		Built in			
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)		RRH CONTROLLED		RRH CONTROLLED			
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)				1 4449 B5/B12			
RRH - 850 band (QTY/MODEL)				with another band			
RRH - 1900 band (QTY/MODEL)		1 8843 B2/B66A					
RRH - AWS band (QTY/MODEL)				1 with another band			
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
RRH_7B_1 (QTY/MODEL)							
RRH_7B_2 (QTY/MODEL)							
RRH_7B_3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)		1 Y-Cable		1 Y-Cable			
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	// Replace Existing LTE Antenna with a wider Octo port Antenna, // Replace LTE 700 BC radio shared with LTE 850.						
Local Market Note 2							
Local Market Note 3	1x6601 / 1x5216 / 1x0MU03 || 1x6630 + IDLe						

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RX/AIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 2	PORT 3		25893.A.1900.4G.1	CTL05206_9A_1	CTL05206_9A_1		LTE 1900	1D65A_1930MHz_05DT	17.1	0	5	TOP	FIBER	0						4842.058			
	PORT 4		25893.A.1900.4G.4	CTL05206_9A_2	CTL05206_9A_2		LTE 1900	1D65A_1930MHz_05DT	17.1	0	5	TOP	FIBER	0						4842.058			
ANTENNA POSITION 4	PORT 2		25893.A.850.5G.1	CTCN005206_N005A_1	CTCN005206_N005A_1		5G 850	BU4DA_849MHz_02DT	14.4	0	2	TOP	FIBER	0						1000			
	PORT 4		25893.A.AWS.4G.4	CTL05206_2A_2	CTL05206_2A_2		LTE AWS	BU4DA_2170MHz_05DT	17	0	5	TOP	FIBER	0						5070.2572			
	PORT 5		25893.A.700.4G.1	CTL05206_7A_1	CTL05206_7A_1		LTE 700	BU4DA_716MHz_02DT	13.3	0	2	TOP	FIBER	0						1475.7065			

Section 16B - PLANNED/PROPOSED TOWER CONFIGURATION - SECTOR B

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
Existing Antenna?							
ANTENNA MAKE - MODEL		SBNHH-1D65A		DMP65R-BU4DA			
ANTENNA VENDOR		Andrew		CCI			
ANTENNA SIZE (H x W x D)		55X11.9X7.1		48X20.7X7.7			
ANTENNA WEIGHT		33.5		67.9			
AZIMUTH		120		120			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		78		78			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT		0		0			
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)		Built in		Built in			
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)		RRH CONTROLLED		RRH CONTROLLED			
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)				1 4449 B5/B12			
RRH - 850 band (QTY/MODEL)				with another band			
RRH - 1900 band (QTY/MODEL)		1 8843 B2/B66A					
RRH - AWS band (QTY/MODEL)				1 with another band			
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
RRH_7B_1 (QTY/MODEL)							
RRH_7B_2 (QTY/MODEL)							
RRH_7B_3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)		1 Y-Cable		1 Y-Cable			
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	// Replace Existing LTE Antenna with a wider Octo port Antenna, // Replace LTE 700 BC radio shared with LTE 850.						
Local Market Note 2							
Local Market Note 3	1x6601 / 1x5216 / 1x0MU03 || 1x6630 + IDLe						

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RX/AIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 2	PORT 3		25893.B.1900.4G.1	CTL05206_9B_1	CTL05206_9B_1		LTE 1900	1D65A_1930MHz_06DT	17.2	120	6	TOP	FIBER	0						4842.058			
	PORT 4		25893.B.1900.4G.4	CTL05206_9B_2	CTL05206_9B_2		LTE 1900	1D65A_1930MHz_06DT	17.2	120	6	TOP	FIBER	0						4842.058			
ANTENNA POSITION 4	PORT 2		25893.B.850.5G.1	CTCN005206_N005B_1	CTCN005206_N005B_1		5G 850	BU4DA_849MHz_02DT	14.4	120	2	TOP	FIBER	0						1000			
	PORT 4		25893.B.AWS.4G.4	CTL05206_2B_2	CTL05206_2B_2		LTE AWS	BU4DA_2170MHz_06DT	17	120	6	TOP	FIBER	0						5070.2572			
	PORT 5		25893.B.700.4G.1	CTL05206_7B_1	CTL05206_7B_1		LTE 700	BU4DA_716MHz_02DT	13.3	120	2	TOP	FIBER	0						1475.7065			

Section 16C - PLANNED/PROPOSED TOWER CONFIGURATION - SECTOR C

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
Existing Antenna?							
ANTENNA MAKE - MODEL		SBNHH-1D65A		DMP65R-BU4DA			
ANTENNA VENDOR		Andrew		CCI			
ANTENNA SIZE (H x W x D)		55X11.9X7.1		48X20.7X7.7			
ANTENNA WEIGHT		33.5		67.9			
AZIMUTH		240		240			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		78		78			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT		0		0			
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)		Built in		Built in			
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)		RRH CONTROLLED		RRH CONTROLLED			
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)				1 4449 B5/B12			
RRH - 850 band (QTY/MODEL)				with another band			
RRH - 1900 band (QTY/MODEL)		1 8843 B2/B66A					
RRH - AWS band (QTY/MODEL)				1 with another band			
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
RRH_7B_1 (QTY/MODEL)							
RRH_7B_2 (QTY/MODEL)							
RRH_7B_3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)		1 Y-Cable		1 Y-Cable			
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	// Replace Existing LTE Antenna with a wider Octo port Antenna, // Replace LTE 700 BC radio shared with LTE 850.						
Local Market Note 2							
Local Market Note 3	1x6601 / 1x5216 / 1x0MU03 || 1x6630 + IDLe						

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RX/AIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 2	PORT 3		25893.C.1900.4G.1	CTL05206_9C_1	CTL05206_9C_1		LTE 1900	1D65A_1930MHz_06DT	17.2	240	6	TOP	FIBER	0						4842.058			
	PORT 4		25893.C.1900.4G.4	CTL05206_9C_2	CTL05206_9C_2		LTE 1900	1D65A_1930MHz_06DT	17.2	240	6	TOP	FIBER	0						4842.058			
ANTENNA POSITION 4	PORT 2		25893.C.850.5G.1	CTCN005206_N005C_1	CTCN005206_N005C_1		5G 850	BU4DA_849MHz_02DT	14.4	240	2	TOP	FIBER	0						1000			
	PORT 4		25893.C.AWS.4G.4	CTL05206_2C_2	CTL05206_2C_2		LTE AWS	BU4DA_2170MHz_06DT	17	240	6	TOP	FIBER	0						5070.2572			
	PORT 5		25893.C.700.4G.1	CTL05206_7C_1	CTL05206_7C_1		LTE 700	BU4DA_716MHz_02DT	13.3	240	2	TOP	FIBER	0						1475.7065			

Section 16.5A - SCOPING TOWER CONFIGURATION - SECTOR A (OR OMNI)

Section 17A - FINAL TOWER CONFIGURATION - SECTOR A (OR OMNI)

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL		SBNHH-1D65A		DMP65R-BU4DA			
ANTENNA VENDOR		Andrew		CCI			
ANTENNA SIZE (H x W x D)		55X11.9X7.1		48X20.7X7.7			
ANTENNA WEIGHT		33.5		67.9			
AZIMUTH		0		0			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		78		78			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT		0		0			
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)		Built in		Built in			
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)		RRH CONTROLLED		RRH CONTROLLED			
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)				1 DC6-48-60-18-8F			
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)				1 4449 B5/B12			
RRH - 850 band (QTY/MODEL)				with another band			
RRH - 1900 band (QTY/MODEL)		1 8843 B2/B66A					
RRH - AWS band (QTY/MODEL)				1 with another band			
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
RRH_7B_1 (QTY/MODEL)							
RRH_7B_2 (QTY/MODEL)							
RRH_7B_3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)		1 Y-Cable		1 Y-Cable			
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	// Replace Existing LTE Antenna with a wider Octo port Antenna, // Replace LTE 700 BC radio shared with LTE 850.						
Local Market Note 2							
Local Market Note 3	1x6601 / 1x5216 / 1x9MU03 || 1x6630 + IDLe						

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RX/AIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 2	PORT 3	25893.A.1900.4G.1	25893.A.1900.4G.1	CTL05206_9A_1	CTL05206_9A_1		LTE 1900	1D65A_1930MHz_05DT	17.1	0	5	TOP	FIBER	0						4842.058		4	
	PORT 4	25893.A.1900.4G.4	25893.A.1900.4G.4	CTL05206_9A_2	CTL05206_9A_2		LTE 1900	1D65A_1930MHz_05DT	17.1	0	5	TOP	FIBER	0						4842.058		4	
ANTENNA POSITION 4	PORT 2	25893.A.850.5G.1	25893.A.850.5G.1	CTCN005206_N005A_1	CTCN005206_N005A_1		5G 850	BU4DA_849MHz_02DT	14.4	0	2	TOP	FIBER							1000		7	
	PORT 4	25893.A.AWS.4G.4	25893.A.AWS.4G.4	CTL05206_2A_2	CTL05206_2A_2		LTE AWS	BU4DA_2170MHz_05DT	17	0	5	TOP	FIBER	0						5070.2572		8	
	PORT 5	25893.A.700.4G.1	25893.A.700.4G.1	CTL05206_7A_1	CTL05206_7A_1		LTE 700	BU4DA_716MHz_02DT	13.3	0	2	TOP	FIBER							1475.7065		7	

Section 17B - FINAL TOWER CONFIGURATION - SECTOR B

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL		SBNHH-1D65A		DMP65R-BU4DA			
ANTENNA VENDOR		Andrew		CCI			
ANTENNA SIZE (H x W x D)		55X11.9X7.1		48X20.7X7.7			
ANTENNA WEIGHT		33.5		67.9			
AZIMUTH		120		120			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		78		78			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT		0		0			
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)		Built in		Built in			
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)		RRH CONTROLLED		RRH CONTROLLED			
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)				1 4449 B5/B12			
RRH - 850 band (QTY/MODEL)				with another band			
RRH - 1900 band (QTY/MODEL)		1 8843 B2/B66A					
RRH - AWS band (QTY/MODEL)				1 with another band			
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
RRH_7B_1 (QTY/MODEL)							
RRH_7B_2 (QTY/MODEL)							
RRH_7B_3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)		1 Y-Cable		1 Y-Cable			
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	// Replace Existing LTE Antenna with a wider Octo port Antenna, // Replace LTE 700 BC radio shared with LTE 850.						
Local Market Note 2							
Local Market Note 3	1x6601 / 1x5216 / 1x4MU03 || 1x6630 + IDLe						

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 2	PORT 3	25893.B.1900.4G.1	25893.B.1900.4G.1	CTL05206_9B_1	CTL05206_9B_1		LTE 1900	1D65A_1930MHz_06DT	17.2	120	6	TOP	FIBER	0						4842.058		12	
	PORT 4	25893.B.1900.4G.4	25893.B.1900.4G.4	CTL05206_9B_2	CTL05206_9B_2		LTE 1900	1D65A_1930MHz_06DT	17.2	120	6	TOP	FIBER	0						4842.058		12	
ANTENNA POSITION 4	PORT 2	25893.B.850.5G.2	25893.B.850.5G.1	CTCN005206_N005B_1	CTCN005206_N005B_1		5G 850	BU4DA_849MHz_02DT	14.4	120	2	TOP	FIBER							1000		15	
	PORT 4	25893.B.AWS.4G.4	25893.B.AWS.4G.4	CTL05206_2B_2	CTL05206_2B_2		LTE AWS	BU4DA_2170MHz_06DT	17	120	6	TOP	FIBER	0						5070.2572		16	
	PORT 5	25893.B.700.4G.1	25893.B.700.4G.1	CTL05206_7B_1	CTL05206_7B_1		LTE 700	BU4DA_716MHz_02DT	13.3	120	2	TOP	FIBER							1475.7065		15	

Section 17C - FINAL TOWER CONFIGURATION - SECTOR C

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL		SBNHH-1D65A		DMP65R-BU4DA			
ANTENNA VENDOR		Andrew		CCI			
ANTENNA SIZE (H x W x D)		55X11.9X7.1		48X20.7X7.7			
ANTENNA WEIGHT		33.5		67.9			
AZIMUTH		240		240			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		78		78			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT		0		0			
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)		Built in		Built in			
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)		RRH CONTROLLED		RRH CONTROLLED			
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)				1 4449 B5/B12			
RRH - 850 band (QTY/MODEL)				with another band			
RRH - 1900 band (QTY/MODEL)		1 8843 B2/B66A					
RRH - AWS band (QTY/MODEL)				1 with another band			
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
RRH_7B_1 (QTY/MODEL)							
RRH_7B_2 (QTY/MODEL)							
RRH_7B_3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)		1 Y-Cable		1 Y-Cable			
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	// Replace Existing LTE Antenna with a wider Octo port Antenna, // Replace LTE 700 BC radio shared with LTE 850.						
Local Market Note 2							
Local Market Note 3	1x6601 / 1x5216 / 1x4MJ03 || 1x6630 + IDLe						

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 2	PORT 3	25893.C.1900.4G.1	25893.C.1900.4G.1	CTL05206_9C_1	CTL05206_9C_1		LTE 1900	1D65A_1930MHz_06DT	17.2	240	6	TOP	FIBER	0						4842.058		20	
	PORT 4	25893.C.1900.4G.4	25893.C.1900.4G.4	CTL05206_9C_2	CTL05206_9C_2		LTE 1900	1D65A_1930MHz_06DT	17.2	240	6	TOP	FIBER	0						4842.058		20	
ANTENNA POSITION 4	PORT 2	25893.C.850.5G.3	25893.C.850.5G.1	CTCN005206_N005C_1	CTCN005206_N005C_1		5G 850	BU4DA_849MHz_02DT	14.4	240	2	TOP	FIBER							1000		23	
	PORT 4	25893.C.AWS.4G.4	25893.C.AWS.4G.4	CTL05206_2C_2	CTL05206_2C_2		LTE AWS	BU4DA_2170MHz_06DT	17	240	6	TOP	FIBER	0						5070.2572		24	
	PORT 5	25893.C.700.4G.1	25893.C.700.4G.1	CTL05206_7C_1	CTL05206_7C_1		LTE 700	BU4DA_716MHz_02DT	13.3	240	2	TOP	FIBER							1475.7065		23	

July 7, 2022 (Rev.1)
April 20, 2022

SAI Communications
12 Industrial Way
Salem NH, 03079

RE:		
	Site Number:	CT5206 (LTE 2C-4C)
	FA Number:	10071098
	PACE Number:	MRCTB033805
	PT Number:	2051A0JD7V
	Site Name:	MADISON EAST
	Site Address:	135 New Road Madison, CT 06443

To Whom It May Concern:

Hudson Design Group LLC (HDG) has been authorized by SAI Communications to perform a mount analysis on the existing AT&T antenna/RRH mounts to determine their capability of supporting the following additional loading:

- (1) DC6-48-60-18-8F Surge Arrestor (31.4"x10.2"Ø – Wt. = 29 lbs. /each)
- **(3) SBNHH-1D65A Antennas (55.6"x11.9"x7.1" - Wt. = 34 lbs. /each)**
- **(3) DMP65R-BU4DA Antennas (48.0"x20.7"x7.7" – Wt. = 68 lbs. /each)**
- **(3) 4449 B5/B12 RRH's (17.9"x13.2"x9.4" – Wt. = 73 lbs. /each)**
- **(3) 8843 B2/B66A RRH's (14.9"x13.2"x10.9" – Wt. = 72 lbs. /each)**

**Proposed equipment shown in bold*

No original structural design documents or fabrication drawings were available for the existing mounts. HDG's subconsultant, ProVertic LLC, conducted a survey climb and mapping of the existing AT&T antenna mounts on March 27, 2019. HDG conducted a ground audit of the existing AT&T antenna mounts on November 10, 2021.

Mount Analysis Methods:

- This analysis was conducted in accordance with EIA/TIA-222-H, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, the International Building Code 2015 with 2018 Connecticut State Building Code, and AT&T Mount Technical Directive – R16.
- HDG considers this mount to be asymmetrical and has applied wind loads in 30 degree increments all around the mount. Per TIA-222-H and Appendix N of the Connecticut State Building Code, the max basic wind speed for this site is equal to 140 mph with a max basic wind speed with ice of 50 mph and a max ice thickness of 1.0 in. An escalated ice thickness of 1.25 in was used for this analysis.
- HDG considers this site to be exposure category B; tower is located in an urban/suburban or wooded area with numerous closely spaced obstructions.
- HDG considers this site to be topographic category 1; tower is located on flat terrain or the bottom of a hill or ridge.
- HDG considers this site to have a spectral response acceleration parameter at short periods, S_S, of 0.171 and a spectral response acceleration parameter at a period of 1 second, S_1, of 0.060.
- The mount has been analyzed with load combinations consisting of 500 lbs live load using a service wind speed of 30 mph wind on the worst case antenna. Analysis performed on each antenna pipe to determine worst case location; worst case location was antenna position 4.
- The mount has been analyzed with load combinations consisting of a 250 lbs live load in a worst case location on the mount.
- The existing mount is secured to the existing guyed with threaded rods and steel plates tightened around the tower leg. HDG considers the threaded rods as the governing connection members.

Based on our evaluation, we have determined that the existing mounts **ARE CAPABLE** of supporting the proposed installation.

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
Existing Mount Rating	14	LC87	67%	**PASS**

Reference Documents:

- Mount mapping report prepared by ProVertic LLC dated March 27, 2019.

This determination was based on the following limitations and assumptions:

1. HDG is not responsible for any modifications completed prior to and hereafter which HDG was not directly involved.
2. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.
3. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer's requirements.
4. The existing mount has been adequately secured to the tower structure per the mount manufacturer's specifications.
5. All components pertaining to AT&T's mounts must be tightened and re-plumbed prior to the installation of new appurtenances.
6. HDG performed a localized analysis on the mount itself and not on the supporting tower structure.

Please feel free to contact our office should you have any questions.

Respectfully Submitted,
Hudson Design Group LLC

Michael Cabral
Vice President

STATE OF CONNECTICUT
DANIEL HAMM
24178
LICENSED
PROFESSIONAL ENGINEER

Daniel P. Hamm, PE
Principal

FIELD PHOTOS:

FIELD PHOTOS (CONT.):







HUDSON
Design Group LLC

Wind & Ice
Calculations

Date: 7/6/2022
Project Name: MADISON EAST
Project No.: CT5206
Designed By: CL **Checked By:** MSC

HUDSON Design Group LLC

2.6.5.2 Velocity Pressure Coeff:

$K_z = 2.01\ (z/z_g)^{2/\alpha}$

z=	78	(ft)
z_g=	1200	(ft)
α=	7.0	

K_z= 0.921

Kzmin ≤ Kz ≤ 2.01

Table 2-4

Exposure	Z_g	α	K_{zmin}	K_c
B	1200 ft	7.0	0.70	0.9
C	900 ft	9.5	0.85	1.0
D	700 ft	11.5	1.03	1.1

2.6.6.2 Topographic Factor:

Table 2-5

Topo. Category	K_t	f
2	0.43	1.25
3	0.53	2.0
4	0.72	1.5

$K_{zt} = [1+(K_c\ K_t/K_h)]^2$

$K_h = e^{(f*z/H)}$

K_{zt}= 1

K_h=	1	
K_c=	0.9	(from Table 2-4)
K_t=	0	(from Table 2-5)
f=	0	(from Table 2-5)
z=	78	
z_s=	57	(Mean elevation of base of structure above sea level)
H=	0	(Ht. of the crest above surrounding terrain)
K_{zt}=	1.00	(from 2.6.6.2.1)
K_e=	1.00	(from 2.6.8)

(If Category 1 then K_{zt} =1.0)

Category= **1**

2.6.10 Design Ice Thickness

Max Ice Thickness =	t_i = 1.00	in
Importance Factor =	I= 1.15	(from Table 2-3)
	K_{iz} = 1.09	(from Sec. 2.6.10)

$t_{iz} = t_i * I * K_{iz} * (K_{zt})^{0.35}$

t_{iz} = 1.25 in

Date: 7/6/2022
Project Name: MADISON EAST
Project No.: CT5206
Designed By: CL Checked By: MSC

HUDSON Design Group LLC

2.6.9 Gust Effect Factor

2.6.9.1 Self Supporting Lattice Structures

G_h = 1.0 Latticed Structures > 600 ft

G_h = 0.85 Latticed Structures 450 ft or less

G_h = 0.85 + 0.15 [h/150 - 3.0] h= ht. of structure

h=	180	G_h=	0.85

2.6.9.2 Guyed Masts G_h= 0.85

2.6.9.3 Pole Structures G_h= 1.1

2.6.9 Appurtenances G_h= 1.0

2.6.9.4 Structures Supported on Other Structures

(Cantilivered tubular or latticed spines, pole, structures on buildings (ht. : width ratio > 5)

G_h=	1.35	**Gh=**	**1.00**

2.6.11.2 Design Wind Force on Appurtenances

F= $q_z * G_h * (EPA)_A$

q_z= $0.00256 * K_z * K_{zt} * K_s * K_e * K_d * V_{max}^2$

		K_z=	0.921	(from 2.6.5.2)
		K_{zt}=	1.0	(from 2.6.6.2.1)
		K_s=	1.0	(from 2.6.7)
q_z=	**39.18**	K_e=	1.00	(from 2.6.8)
$q_{z\,(ice)}$=	**5.00**	K_d=	0.85	(from Table 2-2)
$q_{z\,(30)}$=	**1.80**	V_{max}=	140	mph (Ultimate Wind Speed)
		$V_{max\,(ice)}$=	50	mph
		V_{30}=	30	mph

Table 2-2

Structure Type	Wind Direction Probability Factor, Kd
Latticed structures with triangular, square or rectangular cross sections	0.85
Tubular pole structures, latticed structures with other cross sections, appurtenances	0.95
Tubular pole structures supporting antennas enclosed within a cylindrical shroud	1.00

Date: 7/6/2022
Project Name: MADISON EAST
Project No.: CT5206
Designed By: CL Checked By: MSC

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Determine Ca:

Table 2-9

Force Coefficients (Ca) for Appurtenances				
Member Type		**Aspect Ratio ≤ 2.5**	**Aspect Ratio = 7**	**Aspect Ratio ≥ 25**
		Ca	**Ca**	**Ca**
Flat		1.2	1.4	2.0
Square/Rectangular HSS		1.2 - 2.8(r_s) ≥ 0.85	1.4 - 4.0(r_s) ≥ 0.90	2.0 - 6.0(r_s) ≥ 1.25
Round	**C < 39** (Subcritical)	0.7	0.8	1.2
	39 ≤ C ≤ 78 (Transitional)	$4.14/(C^{0.485})$	$3.66/(C^{0.415})$	$46.8/(C^{1.0})$
	C > 78 (Supercritical)	0.5	0.6	0.6

Aspect Ratio is the overall length/width ratio in the plane normal to the wind direction.
(Aspect ratio is independent of the spacing between support points of a linear appurtenance,

Note: Linear interpolation may be used for aspect ratios other than those shown.

Ice Thickness = **1.25** **in** | **Angle =** **0 (deg)** | **Equivalent Angle =** **180 (deg)**

Appurtenances	Height	Width	Depth	Flat Area	Aspect Ratio	Ca	Force (lbs)	Force (lbs) (w/ Ice)	Force (lbs) (30 mph)
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	4.67	1.30	**233**	**38**	**11**
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.32	1.20	**324**	**49**	**15**
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.36	1.20	**77**	**13**	**4**
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.20	**64**	**11**	**3**
DC6-48-60-18-8F Surge Arrestor	31.4	10.2	10.2	2.22	3.08	0.70	**61**	**10**	**3**
1" Round Bar	1.0	12.0		0.08	0.08	1.20	**4**		
1" Pipe	1.3	12.0		0.11	0.11	1.20	**5**		
1-1/2" Pipe	1.9	12.0		0.16	0.16	1.20	**7**		
2" Pipe	2.3	12.0		0.20	0.20	1.20	**9**		

Date: 7/6/2022
Project Name: MADISON EAST
Project No.: CT5206
Designed By: CL Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	30	(deg)	Ice Thickness =	1.25	in.	Equivalent Angle =	210	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio	Aspect Ratio	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	233	153	213
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	324	137	278
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	77	55	72
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	64	53	61

WIND LOADS WITH ICE:

SBNHH-1D65A Antenna	58.1	14.4	9.6	5.81	3.88	4.03	6.05	1.27	1.36	37	26	34
DMP65R-BU4DA Antenna	50.5	23.2	10.2	8.14	3.58	2.18	4.95	1.20	1.31	49	23	42
4449 B5/B12 RRH	20.4	15.7	11.9	2.23	1.69	1.30	1.71	1.20	1.20	13	10	13
8843 B2/B66A RRH	17.4	15.7	13.4	1.90	1.62	1.11	1.30	1.20	1.20	11	10	11

WIND LOADS AT 30 MPH:

SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	11	7	10
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	15	6	13
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	4	3	3
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	3	2	3

Date: 7/6/2022
Project Name: MADISON EAST
Project No.: CT5206
Designed By: CL Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle = 60 (deg) | Ice Thickness = 1.25 in. | Equivalent Angle = 240 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	233	153	173
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	324	137	184
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	77	55	60
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	64	53	56

WIND LOADS WITH ICE:

SBNHH-1D65A Antenna	58.1	14.4	9.6	5.81	3.88	4.03	6.05	1.27	1.36	37	26	29
DMP65R-BU4DA Antenna	50.5	23.2	10.2	8.14	3.58	2.18	4.95	1.20	1.31	49	23	30
4449 B5/B12 RRH	20.4	15.7	11.9	2.23	1.69	1.30	1.71	1.20	1.20	13	10	11
8843 B2/B66A RRH	17.4	15.7	13.4	1.90	1.62	1.11	1.30	1.20	1.20	11	10	10

WIND LOADS AT 30 MPH:

SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	11	7	8
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	15	6	8
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	4	3	3
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	3	2	3

Date: 7/6/2022
Project Name: MADISON EAST
Project No.: CT5206
Designed By: CL Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle = 90 (deg) | Ice Thickness = 1.25 in. | Equivalent Angle = 270 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	233	153	153
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	324	137	137
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	77	55	55
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	64	53	53

WIND LOADS WITH ICE:

SBNHH-1D65A Antenna	58.1	14.4	9.6	5.81	3.88	4.03	6.05	1.27	1.36	37	26	26
DMP65R-BU4DA Antenna	50.5	23.2	10.2	8.14	3.58	2.18	4.95	1.20	1.31	49	23	23
4449 B5/B12 RRH	20.4	15.7	11.9	2.23	1.69	1.30	1.71	1.20	1.20	13	10	10
8843 B2/B66A RRH	17.4	15.7	13.4	1.90	1.62	1.11	1.30	1.20	1.20	11	10	10

WIND LOADS AT 30 MPH:

SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	11	7	7
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	15	6	6
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	4	3	3
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	3	2	2

Date: 7/6/2022
Project Name: MADISON EAST
Project No.: CT5206
Designed By: CL Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	120	(deg)	Ice Thickness =	1.25	in.	Equivalent Angle =	300	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	233	153	173
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	324	137	184
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	77	55	60
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	64	53	56

WIND LOADS WITH ICE:

SBNHH-1D65A Antenna	58.1	14.4	9.6	5.81	3.88	4.03	6.05	1.27	1.36	37	26	29
DMP65R-BU4DA Antenna	50.5	23.2	10.2	8.14	3.58	2.18	4.95	1.20	1.31	49	23	30
4449 B5/B12 RRH	20.4	15.7	11.9	2.23	1.69	1.30	1.71	1.20	1.20	13	10	11
8843 B2/B66A RRH	17.4	15.7	13.4	1.90	1.62	1.11	1.30	1.20	1.20	11	10	10

WIND LOADS AT 30 MPH:

SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	11	7	8
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	15	6	8
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	4	3	3
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	3	2	3

Date: 7/6/2022
Project Name: MADISON EAST
Project No.: CT5206
Designed By: CL Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	150	(deg)	Ice Thickness =	1.25	in.	Equivalent Angle =	330	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	233	153	213
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	324	137	278
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	77	55	72
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	64	53	61

WIND LOADS WITH ICE:

SBNHH-1D65A Antenna	58.1	14.4	9.6	5.81	3.88	4.03	6.05	1.27	1.36	37	26	34
DMP65R-BU4DA Antenna	50.5	23.2	10.2	8.14	3.58	2.18	4.95	1.20	1.31	49	23	42
4449 B5/B12 RRH	20.4	15.7	11.9	2.23	1.69	1.30	1.71	1.20	1.20	13	10	13
8843 B2/B66A RRH	17.4	15.7	13.4	1.90	1.62	1.11	1.30	1.20	1.20	11	10	11

WIND LOADS AT 30 MPH:

SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	11	7	10
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	15	6	13
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	4	3	3
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	3	2	3

Date: 7/6/2022
Project Name: MADISON EAST
Project No.: CT5206
Designed By: CL **Checked By:** MSC

HUDSON Design Group LLC

ICE WEIGHT CALCULATIONS

Thickness of ice: 1.25 in.
Density of ice: 56 pcf

SBNHH-1D65A Antenna

Weight of ice based on total radial SF area:

Height (in):	55.6	
Width (in):	11.9	
Depth (in):	7.1	
Total weight of ice on object:		107 lbs
Weight of object:	34.0 lbs	
Combined weight of ice and object:		141 lbs

DMP65R-BU4DA Antenna

Weight of ice based on total radial SF area:

Height (in):	48.0	
Width (in):	20.7	
Depth (in):	7.7	
Total weight of ice on object:		143 lbs
Weight of object:	68.0 lbs	
Combined weight of ice and object:		211 lbs

4449 B5/B12 RRH

Weight of ice based on total radial SF area:

Height (in):	17.9	
Width (in):	13.2	
Depth (in):	9.4	
Total weight of ice on object:		40 lbs
Weight of object:	73.0 lbs	
Combined weight of ice and object:		113 lbs

8843 B2/B66A RRH

Weight of ice based on total radial SF area:

Height (in):	14.9	
Width (in):	13.2	
Depth (in):	10.9	
Total weight of ice on object:		35 lbs
Weight of object:	72.0 lbs	
Combined weight of ice and object:		107 lbs

DC6-48-60-18-8F Surge Arrestor

Weight of ice based on total radial SF area:

Depth (in):	31.4	
Diameter(in):	10.2	
Total weight of ice on object:		46 lbs
Weight of object:	29 lbs	
Combined weight of ice and object:		75 lbs

1" Round Bar

Per foot weight of ice:

diameter (in):	1	
Per foot weight of ice on object:		3 plf

1" Pipe

Per foot weight of ice:

diameter (in):	1.32	
Per foot weight of ice on object:		4 plf

1-1/2" Pipe

Per foot weight of ice:

diameter (in):	1.9	
Per foot weight of ice on object:		5 plf

2" Pipe

Per foot weight of ice:

diameter (in):	2.38	
Per foot weight of ice on object:		6 plf

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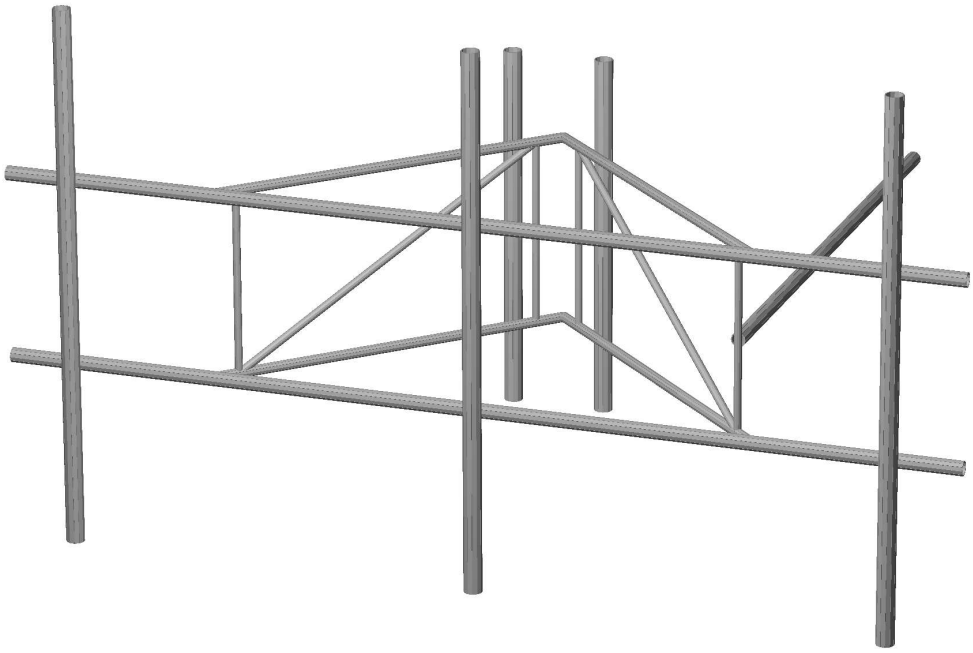
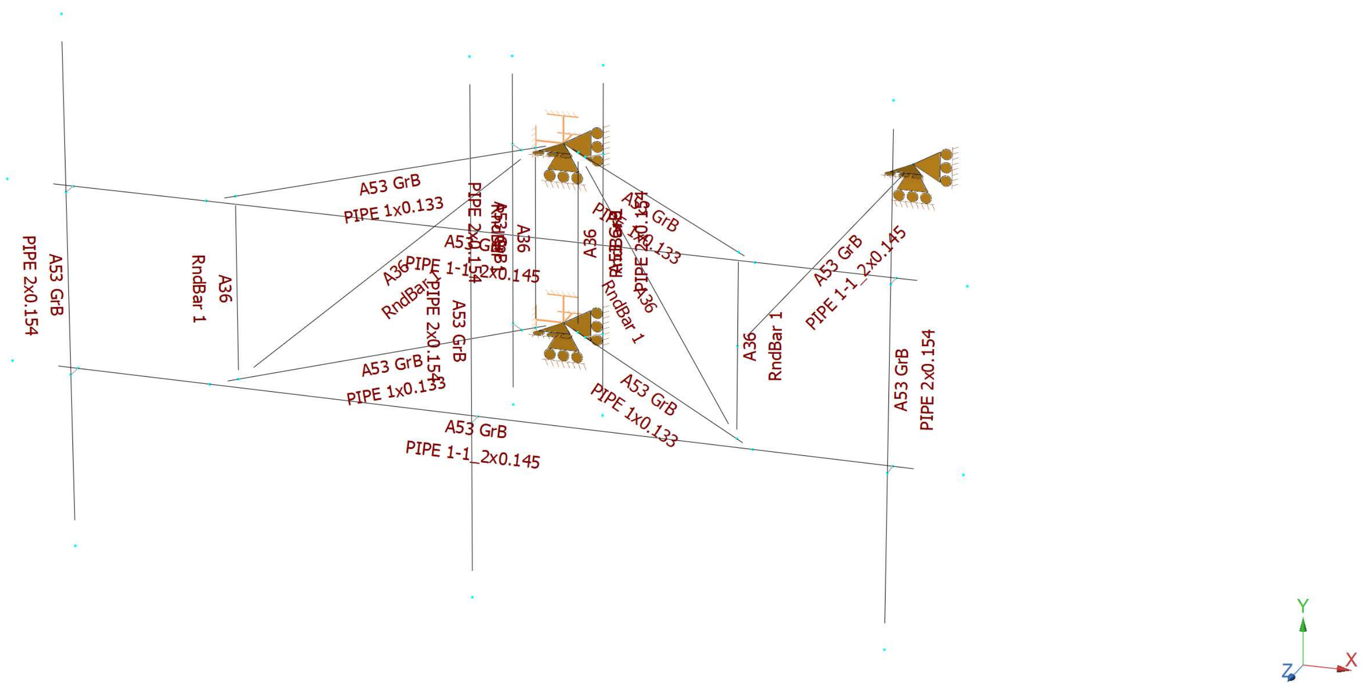
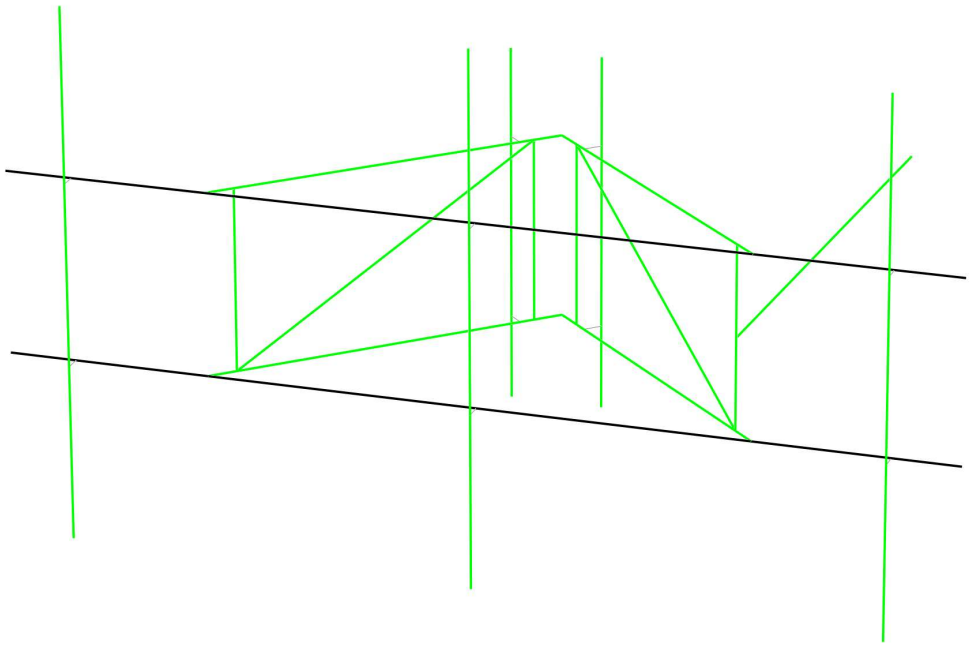
Mount Calculations
(Existing Conditions)


Y
X
Z

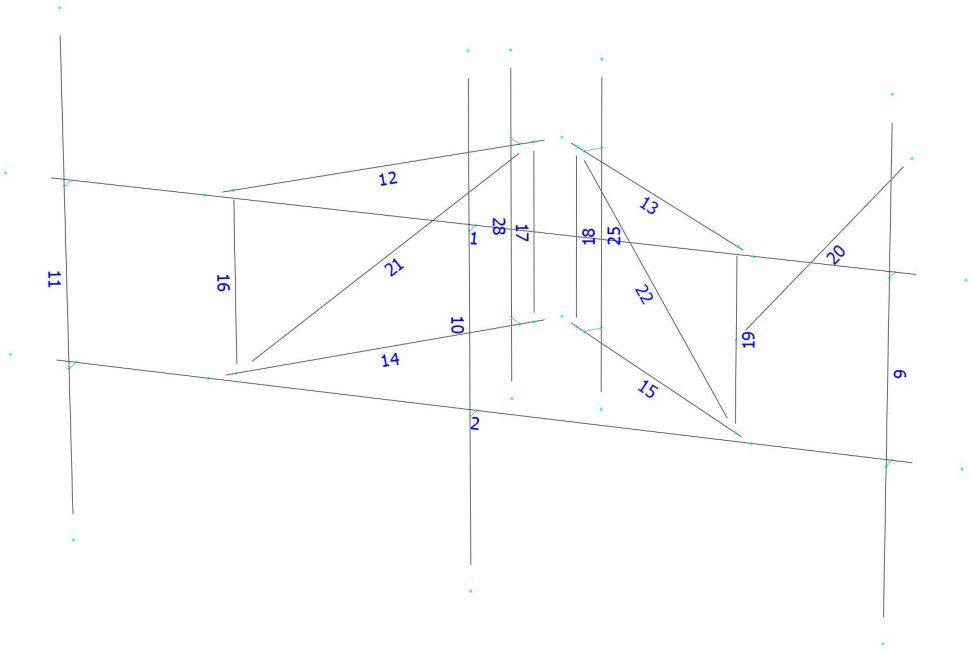
Current Date: 7/7/2022 3:01 PM
Units system: English



Design status
- Not designed
- Error on design
- Design O.K.
- With warnings



Current Date: 7/7/2022 3:01 PM
Units system: English



RAM® Elements
CONNECT Edition

Current Date: 7/7/2022 3:01 PM
Units system: English

Load data

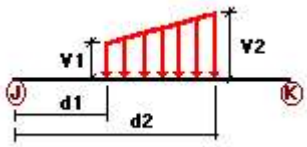
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

Condition	Description	Comb.	Category
D	Dead Load	No	DL
Wo	Wind Load (NO ICE)	No	WIND
W30	WL 30deg	No	WIND
W60	WL 60deg	No	WIND
W90	WL 90deg	No	WIND
W120	WL 120deg	No	WIND
W150	WL 150deg	No	WIND
Di	Ice Load	No	LL
WI0	WL ICE 0deg	No	WIND
WI30	WL ICE 30deg	No	WIND
WI60	WL ICE 60deg	No	WIND
WI90	WL ICE 90deg	No	WIND
WI120	WL ICE 120deg	No	WIND
WI150	WL ICE 150deg	No	WIND
WL0	WL 30 mph 0deg	No	WIND
WL30	WL 30 mph 30deg	No	WIND
WL60	WL 30 mph 60deg	No	WIND
WL90	WL 30 mph 90deg	No	WIND
WL120	WL 30 mph 120deg	No	WIND
WL150	WL 30 mph 150deg	No	WIND
LL1	250 lb Live Load Center of Mount	No	LL
LL2	250 lb Live Load Right End of Mount	No	LL
LL3	250 lb Live Load Left End of Mount	No	LL
LLa1	500 lb Live Load Antenna 1	No	LL
LLa2	500 lb Live Load Antenna 2	No	LL
LLa3	500 lb Live Load Antenna 3	No	LL
LLa4	500 lb Live Load Antenna 4	No	LL

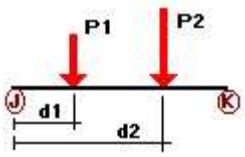
Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
Wo	1	z	-0.007	-0.007	0.00	No	100.00	Yes
	2	z	-0.007	-0.007	0.00	No	100.00	Yes
	12	z	-0.005	-0.005	0.00	No	100.00	Yes
	13	z	-0.005	-0.005	0.00	No	100.00	Yes
	14	z	-0.005	-0.005	0.00	No	100.00	Yes
	15	z	-0.005	-0.005	0.00	No	100.00	Yes
	16	z	-0.004	-0.004	0.00	No	100.00	Yes
	17	z	-0.004	-0.004	0.00	No	100.00	Yes
	18	z	-0.004	-0.004	0.00	No	100.00	Yes
	19	z	-0.004	-0.004	0.00	No	100.00	Yes
	21	z	-0.004	-0.004	0.00	No	100.00	Yes
	22	z	-0.004	-0.004	0.00	No	100.00	Yes
	25	z	-0.009	-0.009	0.00	No	100.00	Yes
	28	z	-0.009	-0.009	0.00	No	100.00	Yes
W30	1	z	-0.007	-0.007	0.00	No	100.00	Yes
	2	z	-0.007	-0.007	0.00	No	100.00	Yes
	12	z	-0.005	-0.005	0.00	No	100.00	Yes
	13	z	-0.005	-0.005	0.00	No	100.00	Yes
	14	z	-0.005	-0.005	0.00	No	100.00	Yes
	15	z	-0.005	-0.005	0.00	No	100.00	Yes
	16	z	-0.004	-0.004	0.00	No	100.00	Yes
	17	z	-0.004	-0.004	0.00	No	100.00	Yes
	18	z	-0.004	-0.004	0.00	No	100.00	Yes
	19	z	-0.004	-0.004	0.00	No	100.00	Yes
	21	z	-0.004	-0.004	0.00	No	100.00	Yes
	22	z	-0.004	-0.004	0.00	No	100.00	Yes
	25	z	-0.009	-0.009	0.00	No	100.00	Yes
	28	z	-0.009	-0.009	0.00	No	100.00	Yes
W60	9	x	-0.009	-0.009	0.00	No	100.00	Yes
	10	x	-0.009	-0.009	0.00	No	100.00	Yes
	11	x	-0.009	-0.009	0.00	No	100.00	Yes
	12	x	-0.005	-0.005	0.00	No	100.00	Yes
	13	x	-0.005	-0.005	0.00	No	100.00	Yes
	14	x	-0.005	-0.005	0.00	No	100.00	Yes
	15	x	-0.005	-0.005	0.00	No	100.00	Yes
	16	x	-0.004	-0.004	0.00	No	100.00	Yes
	17	x	-0.004	-0.004	0.00	No	100.00	Yes
	18	x	-0.004	-0.004	0.00	No	100.00	Yes
	19	x	-0.004	-0.004	0.00	No	100.00	Yes
	20	x	-0.007	-0.007	0.00	No	100.00	Yes
	21	x	-0.004	-0.004	0.00	No	100.00	Yes
	22	x	-0.004	-0.004	0.00	No	100.00	Yes
	25	x	-0.009	-0.009	0.00	No	100.00	Yes
	28	x	-0.009	-0.009	0.00	No	100.00	Yes
W90	9	x	-0.009	-0.009	0.00	No	100.00	Yes
	10	x	-0.009	-0.009	0.00	No	100.00	Yes
	11	x	-0.009	-0.009	0.00	No	100.00	Yes
	12	x	-0.005	-0.005	0.00	No	100.00	Yes
	13	x	-0.005	-0.005	0.00	No	100.00	Yes
	14	x	-0.005	-0.005	0.00	No	100.00	Yes
	15	x	-0.005	-0.005	0.00	No	100.00	Yes
	16	x	-0.004	-0.004	0.00	No	100.00	Yes
	17	x	-0.004	-0.004	0.00	No	100.00	Yes
	18	x	-0.004	-0.004	0.00	No	100.00	Yes
	19	x	-0.004	-0.004	0.00	No	100.00	Yes
	20	x	-0.007	-0.007	0.00	No	100.00	Yes
	21	x	-0.004	-0.004	0.00	No	100.00	Yes
	22	x	-0.004	-0.004	0.00	No	100.00	Yes
	25	x	-0.009	-0.009	0.00	No	100.00	Yes
	28	x	-0.009	-0.009	0.00	No	100.00	Yes

W120	9	x	-0.009	-0.009	0.00	No	100.00	Yes
	10	x	-0.009	-0.009	0.00	No	100.00	Yes
	11	x	-0.009	-0.009	0.00	No	100.00	Yes
	12	x	-0.005	-0.005	0.00	No	100.00	Yes
	13	x	-0.005	-0.005	0.00	No	100.00	Yes
	14	x	-0.005	-0.005	0.00	No	100.00	Yes
	15	x	-0.005	-0.005	0.00	No	100.00	Yes
	16	x	-0.004	-0.004	0.00	No	100.00	Yes
	17	x	-0.004	-0.004	0.00	No	100.00	Yes
	18	x	-0.004	-0.004	0.00	No	100.00	Yes
	19	x	-0.004	-0.004	0.00	No	100.00	Yes
	20	x	-0.007	-0.007	0.00	No	100.00	Yes
	21	x	-0.004	-0.004	0.00	No	100.00	Yes
	22	x	-0.004	-0.004	0.00	No	100.00	Yes
	25	x	-0.009	-0.009	0.00	No	100.00	Yes
	28	x	-0.009	-0.009	0.00	No	100.00	Yes
W150	1	z	0.007	0.007	0.00	No	100.00	Yes
	2	z	0.007	0.007	0.00	No	100.00	Yes
	9	z	0.009	0.009	0.00	No	100.00	Yes
	10	z	0.009	0.009	0.00	No	100.00	Yes
	11	z	0.009	0.009	0.00	No	100.00	Yes
	12	z	0.005	0.005	0.00	No	100.00	Yes
	13	z	0.005	0.005	0.00	No	100.00	Yes
	14	z	0.005	0.005	0.00	No	100.00	Yes
	15	z	0.005	0.005	0.00	No	100.00	Yes
	16	z	0.004	0.004	0.00	No	100.00	Yes
	17	z	0.004	0.004	0.00	No	100.00	Yes
	18	z	0.004	0.004	0.00	No	100.00	Yes
	19	z	0.004	0.004	0.00	No	100.00	Yes
	21	z	0.004	0.004	0.00	No	100.00	Yes
	22	z	0.004	0.004	0.00	No	100.00	Yes
	25	z	0.009	0.009	0.00	No	100.00	Yes
	28	z	0.009	0.009	0.00	No	100.00	Yes
Di	1	y	-0.005	-0.005	0.00	No	100.00	Yes
	2	y	-0.005	-0.005	0.00	No	100.00	Yes
	9	y	-0.006	-0.006	0.00	No	100.00	Yes
	10	y	-0.006	-0.006	0.00	No	100.00	Yes
	11	y	-0.006	-0.006	0.00	No	100.00	Yes
	12	y	-0.004	-0.004	0.00	No	100.00	Yes
	13	y	-0.004	-0.004	0.00	No	100.00	Yes
	14	y	-0.004	-0.004	0.00	No	100.00	Yes
	15	y	-0.004	-0.004	0.00	No	100.00	Yes
	16	y	-0.003	-0.003	0.00	No	100.00	Yes
	17	y	-0.003	-0.003	0.00	No	100.00	Yes
	18	y	-0.003	-0.003	0.00	No	100.00	Yes
	19	y	-0.003	-0.003	0.00	No	100.00	Yes
	20	y	-0.005	-0.005	0.00	No	100.00	Yes
	21	y	-0.003	-0.003	0.00	No	100.00	Yes
	22	y	-0.003	-0.003	0.00	No	100.00	Yes
	25	y	-0.006	-0.006	0.00	No	100.00	Yes
	28	y	-0.006	-0.006	0.00	No	100.00	Yes

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
D	9	y	-0.027	1.00	No
		y	-0.027	5.00	No
	10	y	-0.033	0.50	No
		y	-0.033	2.50	No
		y	-0.041	3.50	No
		y	-0.041	5.50	No
	11	y	-0.034	1.00	No
		y	-0.034	5.00	No
	25	y	-0.029	1.50	No
		y	-0.06	3.00	No
	28	y	-0.073	1.50	No
		y	-0.072	3.00	No
Wo	9	z	-0.162	1.00	No
		z	-0.162	5.00	No
	10	z	-0.082	0.50	No
		z	-0.082	2.50	No
		z	-0.08	3.50	No
		z	-0.08	5.50	No
	11	z	-0.162	1.00	No
		z	-0.162	5.00	No
	25	z	-0.061	1.50	No
		z	-0.079	3.00	No
	28	z	-0.077	1.50	No
		z	-0.064	3.00	No
W30	9	3	-0.139	1.00	No
		3	-0.139	5.00	No
	10	3	-0.071	0.50	No
		3	-0.071	2.50	No
		3	-0.073	3.50	No
		3	-0.073	5.50	No
	11	3	-0.139	1.00	No
		3	-0.139	5.00	No
	25	3	-0.061	1.50	No
		3	-0.072	3.00	No
	28	3	-0.072	1.50	No
		3	-0.061	3.00	No
W60	9	3	-0.092	1.00	No
		3	-0.092	5.00	No
	10	3	-0.05	0.50	No
		3	-0.05	2.50	No
		3	-0.06	3.50	No
		3	-0.06	5.50	No
	11	3	-0.092	1.00	No
		3	-0.092	5.00	No
	25	3	-0.061	1.50	No
		3	-0.057	3.00	No
	28	3	-0.06	1.50	No
		3	-0.056	3.00	No
W90	9	x	-0.069	1.00	No
		x	-0.069	5.00	No
	10	x	-0.04	0.50	No
		x	-0.04	2.50	No
		x	-0.054	3.50	No
		x	-0.054	5.50	No

	11	x	-0.069	1.00	No
		x	-0.069	5.00	No
	25	x	-0.061	1.50	No
		x	-0.049	3.00	No
	28	x	-0.055	1.50	No
		x	-0.053	3.00	No
W120	9	2	-0.092	1.00	No
		2	-0.092	5.00	No
	10	2	-0.05	0.50	No
		2	-0.05	2.50	No
		2	-0.06	3.50	No
		2	-0.06	5.50	No
	11	2	-0.092	1.00	No
		2	-0.092	5.00	No
	25	2	-0.061	1.50	No
		2	-0.057	3.00	No
	28	2	-0.06	1.50	No
		2	-0.056	3.00	No
W150	9	2	-0.139	1.00	No
		2	-0.139	5.00	No
	10	2	-0.071	0.50	No
		2	-0.071	2.50	No
		2	-0.073	3.50	No
		2	-0.073	5.50	No
	11	2	-0.139	1.00	No
		2	-0.139	5.00	No
	25	2	-0.061	1.50	No
		2	-0.072	3.00	No
	28	2	-0.072	1.50	No
		2	-0.061	3.00	No
Di	9	y	-0.072	1.00	No
		y	-0.072	5.00	No
	10	y	-0.038	0.50	No
		y	-0.038	2.50	No
		y	-0.04	3.50	No
		y	-0.04	5.50	No
	11	y	-0.072	1.00	No
		y	-0.072	5.00	No
	25	y	-0.046	1.50	No
		y	-0.039	3.00	No
	28	y	-0.04	1.50	No
		y	-0.035	3.00	No
WI0	9	z	-0.025	1.00	No
		z	-0.025	5.00	No
	10	z	-0.013	0.50	No
		z	-0.013	2.50	No
		z	-0.013	3.50	No
		z	-0.013	5.50	No
	11	z	-0.025	1.00	No
		z	-0.025	5.00	No
	25	z	-0.01	1.50	No
		z	-0.014	3.00	No
	28	z	-0.013	1.50	No
		z	-0.011	3.00	No
WI30	9	3	-0.021	1.00	No
		3	-0.021	5.00	No
	10	3	-0.012	0.50	No
		3	-0.012	2.50	No
		3	-0.012	3.50	No
		3	-0.012	5.50	No

	11	3	-0.021	1.00	No
		3	-0.021	5.00	No
	25	3	-0.01	1.50	No
		3	-0.013	3.00	No
	28	3	-0.013	1.50	No
		3	-0.011	3.00	No
WI60	9	3	-0.015	1.00	No
		3	-0.015	5.00	No
	10	3	-0.009	0.50	No
		3	-0.009	2.50	No
		3	-0.01	3.50	No
		3	-0.01	5.50	No
	11	3	-0.015	1.00	No
		3	-0.015	5.00	No
	25	3	-0.01	1.50	No
		3	-0.01	3.00	No
	28	3	-0.011	1.50	No
		3	-0.01	3.00	No
WI90	9	x	-0.012	1.00	No
		x	-0.012	5.00	No
	10	x	-0.007	0.50	No
		x	-0.007	2.50	No
		x	-0.009	3.50	No
		x	-0.009	5.50	No
	11	x	-0.012	1.00	No
		x	-0.012	5.00	No
	25	x	-0.01	1.50	No
		x	-0.009	3.00	No
	28	x	-0.01	1.50	No
		x	-0.01	3.00	No
WI120	9	2	-0.015	1.00	No
		2	-0.015	5.00	No
	10	2	-0.009	0.50	No
		2	-0.009	2.50	No
		2	-0.01	3.50	No
		2	-0.01	5.50	No
	11	2	-0.015	1.00	No
		2	-0.015	5.00	No
	25	2	-0.01	1.50	No
		2	-0.01	3.00	No
	28	2	-0.011	1.50	No
		2	-0.01	3.00	No
WI150	9	2	-0.021	1.00	No
		2	-0.021	5.00	No
	10	2	-0.012	0.50	No
		2	-0.012	2.50	No
		2	-0.012	3.50	No
		2	-0.012	5.50	No
	11	2	-0.021	1.00	No
		2	-0.021	5.00	No
	25	2	-0.01	1.50	No
		2	-0.013	3.00	No
	28	2	-0.013	1.50	No
		2	-0.011	3.00	No
WL0	9	z	-0.008	1.00	No
		z	-0.008	5.00	No
	10	z	-0.004	0.50	No
		z	-0.004	2.50	No
		z	-0.004	3.50	No
		z	-0.004	5.50	No

	11	z	-0.008	1.00	No
		z	-0.008	5.00	No
	25	z	-0.003	1.50	No
		z	-0.004	3.00	No
	28	z	-0.004	1.50	No
		z	-0.003	3.00	No
WL30	9	3	-0.007	1.00	No
		3	-0.007	5.00	No
	10	3	-0.004	0.50	No
		3	-0.004	2.50	No
		3	-0.004	3.50	No
		3	-0.004	5.50	No
	11	3	-0.007	1.00	No
		3	-0.007	5.00	No
	25	3	-0.003	1.50	No
		3	-0.003	3.00	No
	28	3	-0.003	1.50	No
		3	-0.003	3.00	No
WL60	9	3	-0.004	1.00	No
		3	-0.004	5.00	No
	10	3	-0.003	0.50	No
		3	-0.003	2.50	No
		3	-0.003	3.50	No
		3	-0.003	5.50	No
	11	3	-0.004	1.00	No
		3	-0.004	5.00	No
	25	3	-0.003	1.50	No
		3	-0.003	3.00	No
	28	3	-0.003	1.50	No
		3	-0.003	3.00	No
WL90	9	x	-0.003	1.00	No
		x	-0.003	5.00	No
	10	x	-0.002	0.50	No
		x	-0.002	2.50	No
		x	-0.003	3.50	No
		x	-0.003	5.50	No
	11	x	-0.003	1.00	No
		x	-0.003	5.00	No
	25	x	-0.003	1.50	No
		x	-0.002	3.00	No
	28	x	-0.003	1.50	No
		x	-0.002	3.00	No
WL120	9	2	-0.004	1.00	No
		2	-0.004	5.00	No
	10	2	-0.003	0.50	No
		2	-0.003	2.50	No
		2	-0.003	3.50	No
		2	-0.003	5.50	No
	11	2	-0.004	1.00	No
		2	-0.004	5.00	No
	25	2	-0.003	1.50	No
		2	-0.003	3.00	No
	28	2	-0.003	1.50	No
		2	-0.003	3.00	No
WL150	9	2	-0.007	1.00	No
		2	-0.007	5.00	No
	10	2	-0.004	0.50	No
		2	-0.004	2.50	No
		2	-0.004	3.50	No
		2	-0.004	5.50	No

	11	2	-0.007	1.00	No
		2	-0.007	5.00	No
	25	2	-0.003	1.50	No
		2	-0.003	3.00	No
	28	2	-0.003	1.50	No
		2	-0.003	3.00	No
LL1	2	y	-0.25	50.00	Yes
LL2	2	y	-0.25	100.00	Yes
LL3	2	y	-0.25	0.00	Yes
LLa2	9	y	-0.50	50.00	Yes
LLa3	10	y	-0.50	50.00	Yes
LLa4	11	y	-0.50	50.00	Yes

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
D	Dead Load	No	0.00	-1.00	0.00
Wo	Wind Load (NO ICE)	No	0.00	0.00	0.00
W30	WL 30deg	No	0.00	0.00	0.00
W60	WL 60deg	No	0.00	0.00	0.00
W90	WL 90deg	No	0.00	0.00	0.00
W120	WL 120deg	No	0.00	0.00	0.00
W150	WL 150deg	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00
WI0	WL ICE 0deg	No	0.00	0.00	0.00
WI30	WL ICE 30deg	No	0.00	0.00	0.00
WI60	WL ICE 60deg	No	0.00	0.00	0.00
WI90	WL ICE 90deg	No	0.00	0.00	0.00
WI120	WL ICE 120deg	No	0.00	0.00	0.00
WI150	WL ICE 150deg	No	0.00	0.00	0.00
WL0	WL 30 mph 0deg	No	0.00	0.00	0.00
WL30	WL 30 mph 30deg	No	0.00	0.00	0.00
WL60	WL 30 mph 60deg	No	0.00	0.00	0.00
WL90	WL 30 mph 90deg	No	0.00	0.00	0.00
WL120	WL 30 mph 120deg	No	0.00	0.00	0.00
WL150	WL 30 mph 150deg	No	0.00	0.00	0.00
LL1	250 lb Live Load Center of Mount	No	0.00	0.00	0.00
LL2	250 lb Live Load Right End of Mount	No	0.00	0.00	0.00
LL3	250 lb Live Load Left End of Mount	No	0.00	0.00	0.00
LLa1	500 lb Live Load Antenna 1	No	0.00	0.00	0.00
LLa2	500 lb Live Load Antenna 2	No	0.00	0.00	0.00
LLa3	500 lb Live Load Antenna 3	No	0.00	0.00	0.00
LLa4	500 lb Live Load Antenna 4	No	0.00	0.00	0.00

Earthquake (Dynamic analysis only)

Condition	a/g	Ang. [Deg]	Damp. [%]
D	0.00	0.00	0.00
Wo	0.00	0.00	0.00
W30	0.00	0.00	0.00
W60	0.00	0.00	0.00
W90	0.00	0.00	0.00
W120	0.00	0.00	0.00
W150	0.00	0.00	0.00
Di	0.00	0.00	0.00
WI0	0.00	0.00	0.00
WI30	0.00	0.00	0.00
WI60	0.00	0.00	0.00
WI90	0.00	0.00	0.00
WI120	0.00	0.00	0.00
WI150	0.00	0.00	0.00
WL0	0.00	0.00	0.00
WL30	0.00	0.00	0.00
WL60	0.00	0.00	0.00
WL90	0.00	0.00	0.00
WL120	0.00	0.00	0.00
WL150	0.00	0.00	0.00
LL1	0.00	0.00	0.00
LL2	0.00	0.00	0.00
LL3	0.00	0.00	0.00
LLa1	0.00	0.00	0.00
LLa2	0.00	0.00	0.00
LLa3	0.00	0.00	0.00
LLa4	0.00	0.00	0.00

RAM® Elements
CONNECT Edition

Current Date: 7/7/2022 3:01 PM
Units system: English

Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

LC1=1.2D+Wo
LC2=1.2D+W30
LC3=1.2D+W60
LC4=1.2D+W90
LC5=1.2D+W120
LC6=1.2D+W150
LC7=1.2D-Wo
LC8=1.2D-W30
LC9=1.2D-W60
LC10=1.2D-W90
LC11=1.2D-W120
LC12=1.2D-W150
LC13=0.9D+Wo
LC14=0.9D+W30
LC15=0.9D+W60
LC16=0.9D+W90
LC17=0.9D+W120
LC18=0.9D+W150
LC19=0.9D-Wo
LC20=0.9D-W30
LC21=0.9D-W60
LC22=0.9D-W90
LC23=0.9D-W120
LC24=0.9D-W150
LC25=1.2D+Di+WI0
LC26=1.2D+Di+WI30
LC27=1.2D+Di+WI60
LC28=1.2D+Di+WI90
LC29=1.2D+Di+WI120
LC30=1.2D+Di+WI150
LC31=1.2D+Di-WI0
LC32=1.2D+Di-WI30
LC33=1.2D+Di-WI60
LC34=1.2D+Di-WI90
LC35=1.2D+Di-WI120
LC36=1.2D+Di-WI150
LC37=1.2D+1.6LL1
LC38=1.2D+1.6LL2
LC39=1.2D+1.6LL3
LC40=1.2D+WL0+1.6LLa1
LC41=1.2D+WL30+1.6LLa1
LC42=1.2D+WL60+1.6LLa1
LC43=1.2D+WL90+1.6LLa1
LC44=1.2D+WL120+1.6LLa1
LC45=1.2D+WL150+1.6LLa1
LC46=1.2D-WL0+1.6LLa1
LC47=1.2D-WL30+1.6LLa1
LC48=1.2D-WL60+1.6LLa1
LC49=1.2D-WL90+1.6LLa1
LC50=1.2D-WL120+1.6LLa1
LC51=1.2D-WL150+1.6LLa1
LC52=1.2D+WL0+1.6LLa2
LC53=1.2D+WL30+1.6LLa2
LC54=1.2D+WL60+1.6LLa2

LC55=1.2D+WL90+1.6LLa2
LC56=1.2D+WL120+1.6LLa2
LC57=1.2D+WL150+1.6LLa2
LC58=1.2D-WL0+1.6LLa2
LC59=1.2D-WL30+1.6LLa2
LC60=1.2D-WL60+1.6LLa2
LC61=1.2D-WL90+1.6LLa2
LC62=1.2D-WL120+1.6LLa2
LC63=1.2D-WL150+1.6LLa2
LC64=1.2D+WL0+1.6LLa3
LC65=1.2D+WL30+1.6LLa3
LC66=1.2D+WL60+1.6LLa3
LC67=1.2D+WL90+1.6LLa3
LC68=1.2D+WL120+1.6LLa3
LC69=1.2D+WL150+1.6LLa3
LC70=1.2D-WL0+1.6LLa3
LC71=1.2D-WL30+1.6LLa3
LC72=1.2D-WL60+1.6LLa3
LC73=1.2D-WL90+1.6LLa3
LC74=1.2D-WL120+1.6LLa3
LC75=1.2D-WL150+1.6LLa3
LC76=1.2D+WL0+1.6LLa4
LC77=1.2D+WL30+1.6LLa4
LC78=1.2D+WL60+1.6LLa4
LC79=1.2D+WL90+1.6LLa4
LC80=1.2D+WL120+1.6LLa4
LC81=1.2D+WL150+1.6LLa4
LC82=1.2D-WL0+1.6LLa4
LC83=1.2D-WL30+1.6LLa4
LC84=1.2D-WL60+1.6LLa4
LC85=1.2D-WL90+1.6LLa4
LC86=1.2D-WL120+1.6LLa4
LC87=1.2D-WL150+1.6LLa4

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	PIPE 1-1_2x0.145	**1**	LC71 at 50.00%	**0.51**	**With warnings**	
		2	LC65 at 50.00%	0.49	With warnings	
		20	LC11 at 0.00%	0.08	OK	
	PIPE 1x0.133	**12**	LC81 at 100.00%	0.50	OK	
		13	LC59 at 0.00%	0.46	OK	
		14	LC87 at 100.00%	**0.67**	**OK**	
		15	LC53 at 0.00%	0.65	OK	
	PIPE 2x0.154	**9**	LC57 at 66.67%	0.30	OK	
		10	LC7 at 33.33%	0.10	OK	
		11	LC83 at 66.67%	**0.30**	**OK**	
		25	LC28 at 75.00%	0.03	OK	
		28	LC32 at 75.00%	0.04	OK	
	RndBar 1	**16**	LC83 at 100.00%	0.35	OK	
		17	LC76 at 0.00%	0.10	OK	
		18	LC53 at 0.00%	0.09	OK	
		19	LC4 at 50.00%	**0.56**	**OK**	
		21	LC82 at 0.00%	0.15	OK	
		22	LC12 at 100.00%	0.16	OK	

RAM® Elements
CONNECT Edition

Current Date: 7/7/2022 3:01 PM
Units system: English

Geometry data

GLOSSARY

Cb22, Cb33	: Moment gradient coefficients
Cm22, Cm33	: Coefficients applied to bending term in interaction formula
d0	: Tapered member section depth at J end of member
DJX	: Rigid end offset distance measured from J node in axis X
DJY	: Rigid end offset distance measured from J node in axis Y
DJZ	: Rigid end offset distance measured from J node in axis Z
DKX	: Rigid end offset distance measured from K node in axis X
DKY	: Rigid end offset distance measured from K node in axis Y
DKZ	: Rigid end offset distance measured from K node in axis Z
dL	: Tapered member section depth at K end of member
Ig factor	: Inertia reduction factor (Effective Inertia/Gross Inertia) for reinforced concrete members
K22	: Effective length factor about axis 2
K33	: Effective length factor about axis 3
L22	: Member length for calculation of axial capacity
L33	: Member length for calculation of axial capacity
LB pos	: Lateral unbraced length of the compression flange in the positive side of local axis 2
LB neg	: Lateral unbraced length of the compression flange in the negative side of local axis 2
RX	: Rotation about X
RY	: Rotation about Y
RZ	: Rotation about Z
TO	: 1 = Tension only member 0 = Normal member
TX	: Translation in X
TY	: Translation in Y
TZ	: Translation in Z

Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
1	0.00	2.06	0.00	0
2	-5.25	2.06	0.00	0
3	5.25	2.06	0.00	0
4	0.00	0.00	0.00	0
5	-5.25	0.00	0.00	0
6	5.25	0.00	0.00	0
7	4.50	2.06	0.00	0
8	4.50	0.00	0.00	0
9	-4.50	2.06	0.00	0
10	-4.50	0.00	0.00	0
11	0.00	2.06	0.20	0
12	0.00	0.00	0.20	0
13	4.50	2.06	0.20	0
14	4.50	0.00	0.20	0
15	-4.50	2.06	0.20	0
16	-4.50	0.00	0.20	0
17	0.00	4.03	0.20	0
18	4.50	4.03	0.20	0
19	-4.50	4.03	0.20	0
20	-4.50	-1.97	0.20	0
21	0.00	-1.97	0.20	0
22	4.50	-1.97	0.20	0
23	3.00	2.06	0.00	0

24	3.00	0.00	0.00	0
25	-3.00	2.06	0.00	0
26	-3.00	0.00	0.00	0
27	0.00	2.06	-2.90	0
28	0.00	0.00	-2.90	0
29	-0.2411	2.06	-2.667	0
30	-2.7589	2.06	-0.233	0
31	-0.2411	0.00	-2.667	0
32	-2.7589	0.00	-0.233	0
33	0.2411	2.06	-2.667	0
34	0.2411	0.00	-2.667	0
35	2.7589	2.06	-0.233	0
36	2.7589	0.00	-0.233	0
37	2.7589	1.03	-0.233	0
39	3.00	1.03	-6.233	0
40	-0.361	2.06	-2.5511	0
41	-0.361	0.00	-2.5511	0
42	-0.511	2.06	-2.7011	0
43	-0.511	0.00	-2.7011	0
44	-0.511	3.06	-2.7011	0
45	-0.511	-0.94	-2.7011	0
46	0.361	2.06	-2.5511	0
47	0.511	2.06	-2.7011	0
48	0.361	0.00	-2.5511	0
49	0.511	0.00	-2.7011	0
50	0.511	3.06	-2.7011	0
51	0.511	-0.94	-2.7011	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
27	1	1	1	1	1	1
28	1	1	1	1	1	1
39	1	1	1	0	0	0

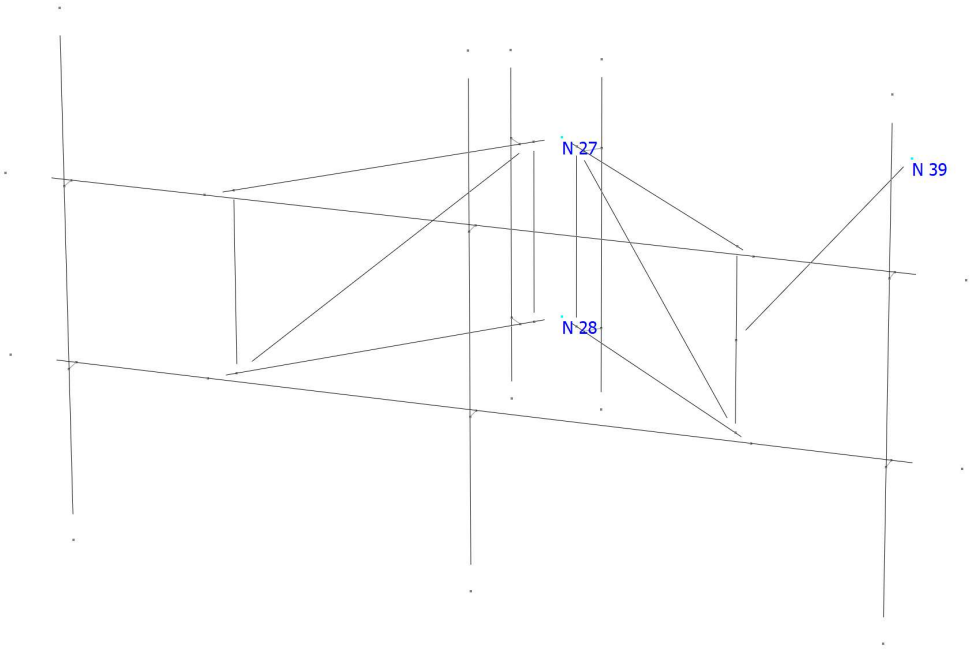
Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	lg factor
1	2	3		PIPE 1-1_2x0.145	A53 GrB	0.00	0.00	0.00
2	5	6		PIPE 1-1_2x0.145	A53 GrB	0.00	0.00	0.00
9	18	22		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
10	17	21		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
11	19	20		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
12	25	27		PIPE 1x0.133	A53 GrB	0.00	0.00	0.00
13	27	23		PIPE 1x0.133	A53 GrB	0.00	0.00	0.00
14	26	28		PIPE 1x0.133	A53 GrB	0.00	0.00	0.00
15	28	24		PIPE 1x0.133	A53 GrB	0.00	0.00	0.00
16	32	30		RndBar 1	A36	0.00	0.00	0.00
17	31	29		RndBar 1	A36	0.00	0.00	0.00
18	34	33		RndBar 1	A36	0.00	0.00	0.00

19	36	35	RndBar 1	A36	0.00	0.00	0.00
20	37	39	PIPE 1-1_2x0.145	A53 GrB	0.00	0.00	0.00
21	32	29	RndBar 1	A36	0.00	0.00	0.00
22	33	36	RndBar 1	A36	0.00	0.00	0.00
25	50	51	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
28	44	45	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
9	315.00	0	0.00	0.00	0.00
10	315.00	0	0.00	0.00	0.00
11	315.00	0	0.00	0.00	0.00
25	315.00	0	0.00	0.00	0.00
28	315.00	0	0.00	0.00	0.00


N 27
N 39
N 28

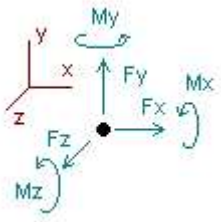

Y
X
Z

RAM® Elements
CONNECT Edition

Current Date: 7/7/2022 3:02 PM
Units system: English

Analysis result

Reactions



Direction of positive forces and moments

	Forces [Kip]			Moments [Kip*ft]		
Node	**FX**	**FY**	**FZ**	**MX**	**MY**	**MZ**
Condition **LC1=1.2D+Wo**						
27	0.02997	0.43850	0.04407	-0.07961	-0.00074	-0.00812
28	-0.03308	0.44452	1.55362	-0.07178	-0.00880	-0.00796
39	0.00311	0.00794	-0.00670	0.00000	0.00000	0.00000
SUM	0.00000	0.89096	1.59099	-0.15138	-0.00954	-0.01607
Condition **LC2=1.2D+W30**						
27	0.39474	0.44809	0.11903	-0.08194	0.06540	-0.00508
28	0.36829	0.43429	1.61530	-0.07079	0.06372	-0.00672
39	0.02185	0.00858	-0.61146	0.00000	0.00000	0.00000
SUM	0.78489	0.89096	1.12287	-0.15273	0.12911	-0.01180
Condition **LC3=1.2D+W60**						
27	0.47776	0.45722	-0.13594	-0.08098	0.08869	-0.00314
28	0.45322	0.42488	1.37159	-0.07062	0.08490	-0.00598
39	0.04273	0.00886	-0.65440	0.00000	0.00000	0.00000
SUM	0.97371	0.89096	0.58124	-0.15161	0.17358	-0.00911
Condition **LC4=1.2D+W90**						
27	0.51641	0.47065	-0.37850	-0.08073	0.10006	-0.00225
28	0.51480	0.41121	1.07857	-0.06997	0.09737	-0.00533
39	0.04326	0.00910	-0.70007	0.00000	0.00000	0.00000
SUM	1.07447	0.89096	0.00000	-0.15070	0.19743	-0.00758
Condition **LC5=1.2D+W120**						
27	0.47918	0.48399	-0.66986	-0.08015	0.09490	-0.00300
28	0.45416	0.39805	0.73581	-0.06923	0.09058	-0.00602
39	0.04037	0.00891	-0.64720	0.00000	0.00000	0.00000
SUM	0.97371	0.89096	-0.58124	-0.14938	0.18547	-0.00902

Condition **LC6=1.2D+W150**						
27	0.39724	0.49220	-1.05044	-0.07934	0.07102	-0.00493
28	0.36977	0.39008	0.36517	-0.06858	0.07376	-0.00646
39	0.01788	0.00867	-0.59961	0.00000	0.00000	0.00000
SUM	0.78489	0.89096	-1.28487	-0.14793	0.14478	-0.01139
Condition **LC7=1.2D-Wo**						
27	0.03394	0.49675	-1.50117	-0.07733	0.00702	-0.00779
28	-0.03073	0.38610	-0.09861	-0.06849	0.00759	-0.00746
39	-0.00321	0.00810	0.00880	0.00000	0.00000	0.00000
SUM	0.00000	0.89096	-1.59099	-0.14582	0.01461	-0.01525
Condition **LC8=1.2D-W30**						
27	-0.33130	0.48752	-1.57393	-0.07504	-0.06075	-0.01076
28	-0.43253	0.39588	-0.15798	-0.06946	-0.06673	-0.00874
39	-0.02105	0.00755	0.60904	0.00000	0.00000	0.00000
SUM	-0.78489	0.89096	-1.12287	-0.14450	-0.12749	-0.01950
Condition **LC9=1.2D-W60**						
27	-0.41439	0.47837	-1.31935	-0.07600	-0.08356	-0.01271
28	-0.51757	0.40531	0.08516	-0.06962	-0.08744	-0.00948
39	-0.04175	0.00728	0.65295	0.00000	0.00000	0.00000
SUM	-0.97371	0.89096	-0.58124	-0.14562	-0.17099	-0.02219
Condition **LC10=1.2D-W90**						
27	-0.45306	0.46493	-1.07730	-0.07626	-0.09466	-0.01362
28	-0.57920	0.41899	0.37753	-0.07028	-0.09955	-0.01012
39	-0.04221	0.00703	0.69977	0.00000	0.00000	0.00000
SUM	-1.07447	0.89096	0.00000	-0.14653	-0.19421	-0.02374
Condition **LC11=1.2D-W120**						
27	-0.41571	0.45146	-0.78673	-0.07682	-0.08900	-0.01290
28	-0.51845	0.43230	0.71932	-0.07101	-0.09211	-0.00941
39	-0.03955	0.00719	0.64865	0.00000	0.00000	0.00000
SUM	-0.97371	0.89096	0.58124	-0.14784	-0.18111	-0.02232
Condition **LC12=1.2D-W150**						
27	-0.33360	0.44310	-0.40720	-0.07761	-0.06446	-0.01099
28	-0.43391	0.44047	1.08890	-0.07167	-0.07459	-0.00896
39	-0.01738	0.00739	0.60318	0.00000	0.00000	0.00000
SUM	-0.78489	0.89096	1.28487	-0.14928	-0.13905	-0.01995
Condition **LC13=0.9D+Wo**						
27	0.02199	0.32147	0.22623	-0.05997	-0.00152	-0.00613
28	-0.02512	0.34081	1.37168	-0.05424	-0.00866	-0.00603
39	0.00313	0.00593	-0.00693	0.00000	0.00000	0.00000
SUM	0.00000	0.66822	1.59099	-0.11421	-0.01018	-0.01215

Condition **LC14=0.9D+W30**

27	0.38650	0.33102	0.30119	-0.06232	0.06441	-0.00311
28	0.37653	0.33065	1.43338	-0.05325	0.06401	-0.00478
39	0.02186	0.00655	-0.61170	0.00000	0.00000	0.00000
SUM	0.78489	0.66822	1.12287	-0.11556	0.12842	-0.00790

Condition **LC15=0.9D+W60**

27	0.46950	0.34015	0.04619	-0.06136	0.08770	-0.00118
28	0.46147	0.32124	1.18970	-0.05309	0.08518	-0.00404
39	0.04275	0.00683	-0.65465	0.00000	0.00000	0.00000
SUM	0.97371	0.66822	0.58124	-0.11445	0.17289	-0.00522

Condition **LC16=0.9D+W90**

27	0.50813	0.35357	-0.19638	-0.06111	0.09906	-0.00029
28	0.52307	0.30757	0.89671	-0.05244	0.09767	-0.00339
39	0.04327	0.00707	-0.70032	0.00000	0.00000	0.00000
SUM	1.07447	0.66822	0.00000	-0.11355	0.19673	-0.00369

Condition **LC17=0.9D+W120**

27	0.47090	0.36692	-0.48776	-0.06054	0.09391	-0.00104
28	0.46242	0.29441	0.55397	-0.05171	0.09087	-0.00409
39	0.04039	0.00688	-0.64745	0.00000	0.00000	0.00000
SUM	0.97371	0.66822	-0.58124	-0.11225	0.18478	-0.00513

Condition **LC18=0.9D+W150**

27	0.38897	0.37514	-0.86839	-0.05974	0.07003	-0.00297
28	0.37802	0.28644	0.18338	-0.05106	0.07406	-0.00453
39	0.01789	0.00665	-0.59987	0.00000	0.00000	0.00000
SUM	0.78489	0.66822	-1.28487	-0.11080	0.14408	-0.00750

Condition **LC19=0.9D-Wo**

27	0.02592	0.37973	-1.31915	-0.05773	0.00622	-0.00580
28	-0.02272	0.28239	-0.28039	-0.05097	0.00775	-0.00554
39	-0.00320	0.00610	0.00855	0.00000	0.00000	0.00000
SUM	0.00000	0.66822	-1.59099	-0.10870	0.01397	-0.01134

Condition **LC20=0.9D-W30**

27	-0.33905	0.37054	-1.39191	-0.05542	-0.06136	-0.00875
28	-0.42480	0.29210	-0.33977	-0.05194	-0.06672	-0.00683
39	-0.02103	0.00557	0.60881	0.00000	0.00000	0.00000
SUM	-0.78489	0.66822	-1.12287	-0.10737	-0.12808	-0.01557

Condition **LC21=0.9D-W60**

27	-0.42212	0.36139	-1.13731	-0.05638	-0.08416	-0.01070
28	-0.50986	0.30153	-0.09666	-0.05210	-0.08742	-0.00756
39	-0.04173	0.00530	0.65273	0.00000	0.00000	0.00000
SUM	-0.97371	0.66822	-0.58124	-0.10848	-0.17159	-0.01826

Condition **LC22=0.9D-W90**

27	-0.46076	0.34795	-0.89524	-0.05663	-0.09525	-0.01160
28	-0.57151	0.31521	0.19569	-0.05275	-0.09955	-0.00820
39	-0.04219	0.00505	0.69955	0.00000	0.00000	0.00000
SUM	-1.07447	0.66822	0.00000	-0.10938	-0.19480	-0.01980

Condition **LC23=0.9D-W120**

27	-0.42343	0.33448	-0.60465	-0.05719	-0.08960	-0.01088
28	-0.51076	0.32853	0.53745	-0.05348	-0.09211	-0.00750
39	-0.03953	0.00521	0.64844	0.00000	0.00000	0.00000
SUM	-0.97371	0.66822	0.58124	-0.11067	-0.18171	-0.01838

Condition **LC24=0.9D-W150**

27	-0.34132	0.32611	-0.22508	-0.05797	-0.06506	-0.00898
28	-0.42621	0.33670	0.90698	-0.05414	-0.07459	-0.00704
39	-0.01736	0.00541	0.60297	0.00000	0.00000	0.00000
SUM	-0.78489	0.66822	1.28487	-0.11211	-0.13965	-0.01602

Condition **LC25=1.2D+Di+WI0**

27	0.00905	0.90436	-1.47826	-0.15057	0.00358	-0.00513
28	-0.00945	0.79222	1.67763	-0.13284	-0.00029	-0.00524
39	0.00040	0.02117	0.00063	0.00000	0.00000	0.00000
SUM	0.00000	1.71775	0.20000	-0.28341	0.00328	-0.01037

Condition **LC26=1.2D+Di+WI30**

27	0.06790	0.90586	-1.46583	-0.15093	0.01462	-0.00465
28	0.05541	0.79061	1.68603	-0.13267	0.01177	-0.00506
39	0.00326	0.02128	-0.09363	0.00000	0.00000	0.00000
SUM	0.12657	1.71775	0.12657	-0.28359	0.02639	-0.00971

Condition **LC27=1.2D+Di+WI60**

27	0.05407	0.90598	-1.49241	-0.15089	0.01233	-0.00470
28	0.04188	0.79051	1.65957	-0.13265	0.00984	-0.00502
39	0.00234	0.02127	-0.06888	0.00000	0.00000	0.00000
SUM	0.09829	1.71775	0.09829	-0.28354	0.02217	-0.00971

Condition **LC28=1.2D+Di+WI90**

27	0.06174	0.90835	-1.53258	-0.15084	0.01420	-0.00453
28	0.05473	0.78809	1.61189	-0.13253	0.01211	-0.00488
39	0.00253	0.02132	-0.07931	0.00000	0.00000	0.00000
SUM	0.11900	1.71775	0.00000	-0.28337	0.02631	-0.00941

Condition **LC29=1.2D+Di+WI120**

27	0.05428	0.91068	-1.58357	-0.15071	0.01279	-0.00469
28	0.04200	0.78580	1.55320	-0.13241	0.01034	-0.00500
39	0.00200	0.02128	-0.06792	0.00000	0.00000	0.00000
SUM	0.09829	1.71775	-0.09829	-0.28313	0.02313	-0.00969

Condition **LC30=1.2D+Di+WI150**

27	0.06828	0.91106	-1.58569	-0.15083	0.01517	-0.00462
28	0.05560	0.78541	1.55114	-0.13234	0.01325	-0.00499
39	0.00269	0.02129	-0.09203	0.00000	0.00000	0.00000
SUM	0.12657	1.71775	-0.12657	-0.28317	0.02842	-0.00962

Condition **LC31=1.2D+Di-WI0**

27	0.00978	0.91170	-1.66809	-0.15056	0.00517	-0.00507
28	-0.00908	0.78486	1.46459	-0.13230	0.00297	-0.00515
39	-0.00070	0.02119	0.00350	0.00000	0.00000	0.00000
SUM	0.00000	1.71775	-0.20000	-0.28286	0.00814	-0.01021

Condition **LC32=1.2D+Di-WI30**

27	-0.04908	0.91021	-1.68048	-0.15021	-0.00590	-0.00555
28	-0.07395	0.78646	1.45624	-0.13247	-0.00913	-0.00533
39	-0.00354	0.02108	0.09767	0.00000	0.00000	0.00000
SUM	-0.12657	1.71775	-0.12657	-0.28268	-0.01503	-0.01088

Condition **LC33=1.2D+Di-WI60**

27	-0.03525	0.91009	-1.65391	-0.15025	-0.00360	-0.00550
28	-0.06042	0.78657	1.48268	-0.13249	-0.00719	-0.00537
39	-0.00262	0.02109	0.07295	0.00000	0.00000	0.00000
SUM	-0.09829	1.71775	-0.09829	-0.28273	-0.01079	-0.01087

Condition **LC34=1.2D+Di-WI90**

27	-0.04292	0.90772	-1.61375	-0.15030	-0.00546	-0.00567
28	-0.07326	0.78899	1.53035	-0.13260	-0.00945	-0.00551
39	-0.00282	0.02104	0.08340	0.00000	0.00000	0.00000
SUM	-0.11900	1.71775	0.00000	-0.28290	-0.01491	-0.01118

Condition **LC35=1.2D+Di-WI120**

27	-0.03546	0.90539	-1.56278	-0.15042	-0.00404	-0.00551
28	-0.06054	0.79128	1.58902	-0.13272	-0.00766	-0.00539
39	-0.00229	0.02108	0.07204	0.00000	0.00000	0.00000
SUM	-0.09829	1.71775	0.09829	-0.28314	-0.01170	-0.01090

Condition **LC36=1.2D+Di-WI150**

27	-0.04946	0.90501	-1.56065	-0.15030	-0.00642	-0.00558
28	-0.07414	0.79167	1.59107	-0.13279	-0.01058	-0.00540
39	-0.00297	0.02107	0.09615	0.00000	0.00000	0.00000
SUM	-0.12657	1.71775	0.12657	-0.28310	-0.01700	-0.01097

Condition **LC37=1.2D+1.6LL1**

27	0.03274	0.68397	-1.25857	-0.11657	0.00445	-0.00805
28	-0.03257	0.59843	1.25678	-0.10208	0.00035	-0.00781
39	-0.00018	0.00855	0.00179	0.00000	0.00000	0.00000
SUM	0.00000	1.29096	0.00000	-0.21865	0.00480	-0.01586

Condition **LC38=1.2D+1.6LL2**

27	-0.92689	0.69578	-1.27410	-0.11055	-0.00389	0.05024
28	0.92697	0.58141	1.27110	-0.09575	0.01432	0.04065
39	-0.00008	0.01376	0.00300	0.00000	0.00000	0.00000
SUM	0.00000	1.29096	0.00000	-0.20630	0.01043	0.09089

Condition **LC39=1.2D+1.6LL3**

27	0.99170	0.70290	-1.25487	-0.11120	0.01434	-0.06618
28	-0.99156	0.58525	1.25347	-0.09620	-0.01219	-0.05618
39	-0.00014	0.00280	0.00140	0.00000	0.00000	0.00000
SUM	0.00000	1.29096	0.00000	-0.20741	0.00216	-0.12236

Condition **LC40=1.2D+WL0+1.6LLa1**

27	0.03185	0.46656	-0.69861	-0.07846	0.00290	-0.00796
28	-0.03196	0.41637	0.76014	-0.07021	-0.00113	-0.00773
39	0.00011	0.00802	0.00046	0.00000	0.00000	0.00000
SUM	0.00000	0.89096	0.06200	-0.14867	0.00177	-0.01569

Condition **LC41=1.2D+WL30+1.6LLa1**

27	0.05046	0.46711	-0.69353	-0.07858	0.00622	-0.00781
28	-0.01193	0.41580	0.76405	-0.07016	0.00268	-0.00766
39	0.00106	0.00805	-0.03093	0.00000	0.00000	0.00000
SUM	0.03960	0.89096	0.03960	-0.14875	0.00891	-0.01547

Condition **LC42=1.2D+WL60+1.6LLa1**

27	0.04498	0.46705	-0.70501	-0.07858	0.00543	-0.00786
28	-0.01731	0.41586	0.75255	-0.07015	0.00192	-0.00767
39	0.00062	0.00804	-0.01926	0.00000	0.00000	0.00000
SUM	0.02828	0.89096	0.02828	-0.14873	0.00735	-0.01552

Condition **LC43=1.2D+WL90+1.6LLa1**

27	0.04604	0.46773	-0.71723	-0.07855	0.00588	-0.00777
28	-0.01470	0.41515	0.73865	-0.07012	0.00225	-0.00759
39	0.00066	0.00807	-0.02142	0.00000	0.00000	0.00000
SUM	0.03200	0.89096	0.00000	-0.14867	0.00814	-0.01536

Condition **LC44=1.2D+WL120+1.6LLa1**

27	0.04501	0.46843	-0.73160	-0.07851	0.00556	-0.00785
28	-0.01729	0.41449	0.72243	-0.07009	0.00203	-0.00767
39	0.00056	0.00804	-0.01912	0.00000	0.00000	0.00000
SUM	0.02828	0.89096	-0.02828	-0.14860	0.00759	-0.01552

Condition **LC45=1.2D+WL150+1.6LLa1**

27	0.05058	0.46846	-0.73160	-0.07859	0.00668	-0.00780
28	-0.01185	0.41444	0.72242	-0.07007	0.00307	-0.00766
39	0.00087	0.00805	-0.03042	0.00000	0.00000	0.00000
SUM	0.03960	0.89096	-0.03960	-0.14865	0.00976	-0.01546

Condition **LC46=1.2D-WL0+1.6LLa1**

27	0.03208	0.46876	-0.75814	-0.07850	0.00343	-0.00794
28	-0.03183	0.41417	0.69472	-0.07005	-0.00003	-0.00769
39	-0.00026	0.00803	0.00142	0.00000	0.00000	0.00000
SUM	0.00000	0.89096	-0.06200	-0.14854	0.00340	-0.01563

Condition **LC47=1.2D-WL30+1.6LLa1**

27	0.01347	0.46822	-0.76322	-0.07838	0.00010	-0.00809
28	-0.05186	0.41474	0.69082	-0.07009	-0.00385	-0.00776
39	-0.00120	0.00800	0.03280	0.00000	0.00000	0.00000
SUM	-0.03960	0.89096	-0.03960	-0.14847	-0.00374	-0.01585

Condition **LC48=1.2D-WL60+1.6LLa1**

27	0.01895	0.46827	-0.75174	-0.07838	0.00090	-0.00804
28	-0.04648	0.41468	0.70231	-0.07010	-0.00308	-0.00775
39	-0.00076	0.00801	0.02114	0.00000	0.00000	0.00000
SUM	-0.02828	0.89096	-0.02828	-0.14848	-0.00218	-0.01580

Condition **LC49=1.2D-WL90+1.6LLa1**

27	0.01789	0.46759	-0.73952	-0.07841	0.00045	-0.00813
28	-0.04909	0.41538	0.71621	-0.07014	-0.00341	-0.00782
39	-0.00081	0.00798	0.02330	0.00000	0.00000	0.00000
SUM	-0.03200	0.89096	0.00000	-0.14854	-0.00296	-0.01596

Condition **LC50=1.2D-WL120+1.6LLa1**

27	0.01893	0.46690	-0.72514	-0.07845	0.00077	-0.00805
28	-0.04650	0.41605	0.73243	-0.07017	-0.00319	-0.00775
39	-0.00071	0.00801	0.02100	0.00000	0.00000	0.00000
SUM	-0.02828	0.89096	0.02828	-0.14861	-0.00242	-0.01580

Condition **LC51=1.2D-WL150+1.6LLa1**

27	0.01336	0.46687	-0.72515	-0.07837	-0.00035	-0.00810
28	-0.05194	0.41610	0.73244	-0.07019	-0.00423	-0.00776
39	-0.00101	0.00799	0.03231	0.00000	0.00000	0.00000
SUM	-0.03960	0.89096	0.03960	-0.14856	-0.00459	-0.01586

Condition **LC52=1.2D+WL0+1.6LLa2**

27	-1.61981	0.92131	-1.85813	-0.14286	-0.00495	0.08831
28	1.61969	0.75493	1.91742	-0.12189	0.01447	0.07291
39	0.00012	0.01471	0.00272	0.00000	0.00000	0.00000
SUM	0.00000	1.69096	0.06200	-0.26475	0.00952	0.16122

Condition **LC53=1.2D+WL30+1.6LLa2**

27	-1.60111	0.92190	-1.85322	-0.14298	-0.00154	0.08847
28	1.63964	0.75430	1.92147	-0.12185	0.01824	0.07297
39	0.00107	0.01476	-0.02865	0.00000	0.00000	0.00000
SUM	0.03960	1.69096	0.03960	-0.26483	0.01671	0.16144

Condition **LC54=1.2D+WL60+1.6LLa2**

27	-1.60663	0.92183	-1.86463	-0.14298	-0.00236	0.08843
28	1.63429	0.75438	1.90990	-0.12184	0.01749	0.07296
39	0.00062	0.01474	-0.01699	0.00000	0.00000	0.00000
SUM	0.02828	1.69096	0.02828	-0.26481	0.01513	0.16139

Condition **LC55=1.2D+WL90+1.6LLa2**

27	-1.60556	0.92252	-1.87684	-0.14295	-0.00190	0.08852
28	1.63689	0.75367	1.89599	-0.12181	0.01783	0.07303
39	0.00067	0.01477	-0.01915	0.00000	0.00000	0.00000
SUM	0.03200	1.69096	0.00000	-0.26475	0.01593	0.16155

Condition **LC56=1.2D+WL120+1.6LLa2**

27	-1.60660	0.92321	-1.89119	-0.14291	-0.00224	0.08843
28	1.63432	0.75301	1.87974	-0.12178	0.01762	0.07296
39	0.00057	0.01474	-0.01684	0.00000	0.00000	0.00000
SUM	0.02828	1.69096	-0.02828	-0.26468	0.01539	0.16140

Condition **LC57=1.2D+WL150+1.6LLa2**

27	-1.60101	0.92326	-1.89124	-0.14298	-0.00108	0.08849
28	1.63973	0.75294	1.87978	-0.12176	0.01865	0.07297
39	0.00087	0.01476	-0.02814	0.00000	0.00000	0.00000
SUM	0.03960	1.69096	-0.03960	-0.26474	0.01757	0.16146

Condition **LC58=1.2D-WL0+1.6LLa2**

27	-1.61960	0.92352	-1.91759	-0.14289	-0.00441	0.08834
28	1.61985	0.75272	1.85189	-0.12173	0.01558	0.07294
39	-0.00026	0.01471	0.00370	0.00000	0.00000	0.00000
SUM	0.00000	1.69096	-0.06200	-0.26463	0.01117	0.16129

Condition **LC59=1.2D-WL30+1.6LLa2**

27	-1.63830	0.92293	-1.92250	-0.14278	-0.00783	0.08818
28	1.59990	0.75336	1.84785	-0.12177	0.01181	0.07289
39	-0.00120	0.01466	0.03506	0.00000	0.00000	0.00000
SUM	-0.03960	1.69096	-0.03960	-0.26455	0.00397	0.16107

Condition **LC60=1.2D-WL60+1.6LLa2**

27	-1.63278	0.92300	-1.91109	-0.14278	-0.00701	0.08823
28	1.60525	0.75327	1.85941	-0.12179	0.01256	0.07289
39	-0.00076	0.01468	0.02340	0.00000	0.00000	0.00000
SUM	-0.02828	1.69096	-0.02828	-0.26457	0.00555	0.16112

Condition **LC61=1.2D-WL90+1.6LLa2**

27	-1.63385	0.92232	-1.89888	-0.14281	-0.00746	0.08814
28	1.60266	0.75398	1.87332	-0.12182	0.01222	0.07282
39	-0.00081	0.01465	0.02556	0.00000	0.00000	0.00000
SUM	-0.03200	1.69096	0.00000	-0.26463	0.00476	0.16096

Condition **LC62=1.2D-WL120+1.6LLa2**

27	-1.63280	0.92163	-1.88453	-0.14285	-0.00713	0.08822
28	1.60523	0.75465	1.88957	-0.12185	0.01243	0.07289
39	-0.00071	0.01468	0.02325	0.00000	0.00000	0.00000
SUM	-0.02828	1.69096	0.02828	-0.26470	0.00530	0.16111

Condition **LC63=1.2D-WL150+1.6LLa2**

27	-1.63840	0.92158	-1.88448	-0.14278	-0.00829	0.08817
28	1.59981	0.75471	1.88953	-0.12187	0.01141	0.07289
39	-0.00101	0.01466	0.03455	0.00000	0.00000	0.00000
SUM	-0.03960	1.69096	0.03960	-0.26465	0.00312	0.16105

Condition **LC64=1.2D+WL0+1.6LLa3**

27	0.03326	0.90012	-1.83619	-0.15529	0.00488	-0.00815
28	-0.03322	0.78185	1.89645	-0.13426	0.00023	-0.00790
39	-0.00004	0.00899	0.00174	0.00000	0.00000	0.00000
SUM	0.00000	1.69096	0.06200	-0.28954	0.00510	-0.01605

Condition **LC65=1.2D+WL30+1.6LLa3**

27	0.05193	0.90068	-1.83111	-0.15540	0.00827	-0.00799
28	-0.01325	0.78126	1.90035	-0.13421	0.00399	-0.00784
39	0.00091	0.00902	-0.02964	0.00000	0.00000	0.00000
SUM	0.03960	1.69096	0.03960	-0.28962	0.01226	-0.01583

Condition **LC66=1.2D+WL60+1.6LLa3**

27	0.04642	0.90062	-1.84258	-0.15540	0.00745	-0.00804
28	-0.01860	0.78133	1.88884	-0.13420	0.00325	-0.00785
39	0.00047	0.00901	-0.01797	0.00000	0.00000	0.00000
SUM	0.02828	1.69096	0.02828	-0.28960	0.01070	-0.01588

Condition **LC67=1.2D+WL90+1.6LLa3**

27	0.04748	0.90130	-1.85479	-0.15537	0.00791	-0.00795
28	-0.01600	0.78062	1.87493	-0.13417	0.00357	-0.00777
39	0.00051	0.00904	-0.02014	0.00000	0.00000	0.00000
SUM	0.03200	1.69096	0.00000	-0.28954	0.01148	-0.01572

Condition **LC68=1.2D+WL120+1.6LLa3**

27	0.04645	0.90199	-1.86916	-0.15533	0.00758	-0.00803
28	-0.01858	0.77995	1.85871	-0.13414	0.00335	-0.00785
39	0.00041	0.00901	-0.01783	0.00000	0.00000	0.00000
SUM	0.02828	1.69096	-0.02828	-0.28947	0.01094	-0.01588

Condition **LC69=1.2D+WL150+1.6LLa3**

27	0.05206	0.90203	-1.86915	-0.15540	0.00873	-0.00798
28	-0.01317	0.77990	1.85868	-0.13412	0.00438	-0.00784
39	0.00072	0.00903	-0.02913	0.00000	0.00000	0.00000
SUM	0.03960	1.69096	-0.03960	-0.28952	0.01311	-0.01582

Condition **LC70=1.2D-WL0+1.6LLa3**

27	0.03351	0.90232	-1.89568	-0.15531	0.00542	-0.00813
28	-0.03310	0.77964	1.83097	-0.13410	0.00132	-0.00787
39	-0.00041	0.00900	0.00271	0.00000	0.00000	0.00000
SUM	0.00000	1.69096	-0.06200	-0.28941	0.00674	-0.01600

Condition **LC71=1.2D-WL30+1.6LLa3**

27	0.01484	0.90176	-1.90076	-0.15520	0.00202	-0.00828
28	-0.05308	0.78024	1.82709	-0.13415	-0.00244	-0.00794
39	-0.00136	0.00896	0.03408	0.00000	0.00000	0.00000
SUM	-0.03960	1.69096	-0.03960	-0.28934	-0.00042	-0.01622

Condition **LC72=1.2D-WL60+1.6LLa3**

27	0.02035	0.90182	-1.88929	-0.15520	0.00284	-0.00824
28	-0.04773	0.78017	1.83859	-0.13416	-0.00170	-0.00793
39	-0.00091	0.00897	0.02242	0.00000	0.00000	0.00000
SUM	-0.02828	1.69096	-0.02828	-0.28936	0.00114	-0.01617

Condition **LC73=1.2D-WL90+1.6LLa3**

27	0.01929	0.90114	-1.87708	-0.15523	0.00238	-0.00833
28	-0.05033	0.78088	1.85250	-0.13419	-0.00202	-0.00800
39	-0.00096	0.00894	0.02458	0.00000	0.00000	0.00000
SUM	-0.03200	1.69096	0.00000	-0.28942	0.00036	-0.01633

Condition **LC74=1.2D-WL120+1.6LLa3**

27	0.02032	0.90044	-1.86271	-0.15527	0.00271	-0.00824
28	-0.04775	0.78154	1.86872	-0.13422	-0.00181	-0.00793
39	-0.00086	0.00897	0.02228	0.00000	0.00000	0.00000
SUM	-0.02828	1.69096	0.02828	-0.28949	0.00091	-0.01617

Condition **LC75=1.2D-WL150+1.6LLa3**

27	0.01472	0.90040	-1.86272	-0.15520	0.00156	-0.00830
28	-0.05315	0.78160	1.86874	-0.13424	-0.00283	-0.00793
39	-0.00116	0.00896	0.03358	0.00000	0.00000	0.00000
SUM	-0.03960	1.69096	0.03960	-0.28944	-0.00126	-0.01623

Condition **LC76=1.2D+WL0+1.6LLa4**

27	1.68600	0.92897	-1.83744	-0.14355	0.01492	-0.10456
28	-1.68605	0.75892	1.89883	-0.12237	-0.01379	-0.08869
39	0.00005	0.00307	0.00061	0.00000	0.00000	0.00000
SUM	0.00000	1.69096	0.06200	-0.26592	0.00113	-0.19325

Condition **LC77=1.2D+WL30+1.6LLa4**

27	1.70469	0.92950	-1.83218	-0.14368	0.01829	-0.10440
28	-1.66610	0.75836	1.90257	-0.12232	-0.01004	-0.08862
39	0.00100	0.00310	-0.03079	0.00000	0.00000	0.00000
SUM	0.03960	1.69096	0.03960	-0.26599	0.00825	-0.19302

Condition **LC78=1.2D+WL60+1.6LLa4**

27	1.69920	0.92945	-1.84370	-0.14367	0.01748	-0.10445
28	-1.67147	0.75842	1.89110	-0.12231	-0.01077	-0.08863
39	0.00056	0.00309	-0.01911	0.00000	0.00000	0.00000
SUM	0.02828	1.69096	0.02828	-0.26598	0.00670	-0.19308

Condition **LC79=1.2D+WL90+1.6LLa4**

27	1.70027	0.93013	-1.85589	-0.14364	0.01794	-0.10436
28	-1.66888	0.75771	1.87717	-0.12227	-0.01046	-0.08856
39	0.00060	0.00311	-0.02129	0.00000	0.00000	0.00000
SUM	0.03200	1.69096	0.00000	-0.26592	0.00748	-0.19292

Condition **LC80=1.2D+WL120+1.6LLa4**

27	1.69924	0.93083	-1.87025	-0.14360	0.01762	-0.10445
28	-1.67146	0.75704	1.86095	-0.12224	-0.01069	-0.08863
39	0.00050	0.00309	-0.01898	0.00000	0.00000	0.00000
SUM	0.02828	1.69096	-0.02828	-0.26585	0.00693	-0.19308

Condition **LC81=1.2D+WL150+1.6LLa4**

27	1.70484	0.93086	-1.87017	-0.14368	0.01875	-0.10439
28	-1.66605	0.75700	1.86086	-0.12222	-0.00967	-0.08862
39	0.00081	0.00310	-0.03029	0.00000	0.00000	0.00000
SUM	0.03960	1.69096	-0.03960	-0.26590	0.00908	-0.19302

Condition **LC82=1.2D-WL0+1.6LLa4**

27	1.68629	0.93117	-1.89684	-0.14358	0.01547	-0.10454
28	-1.68597	0.75671	1.83328	-0.12221	-0.01272	-0.08866
39	-0.00032	0.00308	0.00156	0.00000	0.00000	0.00000
SUM	0.00000	1.69096	-0.06200	-0.26579	0.00275	-0.19320

Condition **LC83=1.2D-WL30+1.6LLa4**

27	1.66759	0.93064	-1.90209	-0.14346	0.01210	-0.10470
28	-1.70592	0.75727	1.82954	-0.12226	-0.01648	-0.08873
39	-0.00126	0.00305	0.03295	0.00000	0.00000	0.00000
SUM	-0.03960	1.69096	-0.03960	-0.26572	-0.00438	-0.19342

Condition **LC84=1.2D-WL60+1.6LLa4**

27	1.67308	0.93069	-1.89057	-0.14347	0.01291	-0.10465
28	-1.70055	0.75721	1.84101	-0.12227	-0.01574	-0.08872
39	-0.00082	0.00306	0.02128	0.00000	0.00000	0.00000
SUM	-0.02828	1.69096	-0.02828	-0.26574	-0.00283	-0.19337

Condition **LC85=1.2D-WL90+1.6LLa4**

27	1.67201	0.93001	-1.87839	-0.14349	0.01245	-0.10474
28	-1.70314	0.75792	1.85493	-0.12230	-0.01605	-0.08879
39	-0.00087	0.00303	0.02345	0.00000	0.00000	0.00000
SUM	-0.03200	1.69096	0.00000	-0.26580	-0.00360	-0.19353

Condition **LC86=1.2D-WL120+1.6LLa4**

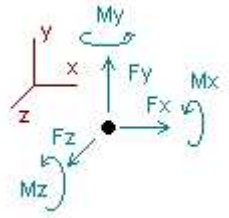
27	1.67305	0.92931	-1.86402	-0.14354	0.01277	-0.10465
28	-1.70056	0.75859	1.87116	-0.12233	-0.01582	-0.08872
39	-0.00077	0.00306	0.02115	0.00000	0.00000	0.00000
SUM	-0.02828	1.69096	0.02828	-0.26587	-0.00305	-0.19337

Condition **LC87=1.2D-WL150+1.6LLa4**

27	1.66745	0.92928	-1.86410	-0.14346	0.01163	-0.10471
28	-1.70597	0.75863	1.87125	-0.12236	-0.01684	-0.08872
39	-0.00107	0.00305	0.03246	0.00000	0.00000	0.00000
SUM	-0.03960	1.69096	0.03960	-0.26582	-0.00521	-0.19343

Envelope for nodal reactions

Note.- **Ic** is the controlling load condition



Direction of positive forces and moments

Envelope of nodal reactions for :

LC1=1.2D+Wo
LC2=1.2D+W30
LC3=1.2D+W60
LC4=1.2D+W90
LC5=1.2D+W120
LC6=1.2D+W150
LC7=1.2D-Wo
LC8=1.2D-W30
LC9=1.2D-W60
LC10=1.2D-W90
LC11=1.2D-W120
LC12=1.2D-W150
LC13=0.9D+Wo
LC14=0.9D+W30
LC15=0.9D+W60
LC16=0.9D+W90
LC17=0.9D+W120
LC18=0.9D+W150
LC19=0.9D-Wo
LC20=0.9D-W30
LC21=0.9D-W60
LC22=0.9D-W90
LC23=0.9D-W120
LC24=0.9D-W150
LC25=1.2D+Di+WI0
LC26=1.2D+Di+WI30
LC27=1.2D+Di+WI60
LC28=1.2D+Di+WI90
LC29=1.2D+Di+WI120

LC30=1.2D+Di+WI150
LC31=1.2D+Di-WI0
LC32=1.2D+Di-WI30
LC33=1.2D+Di-WI60
LC34=1.2D+Di-WI90
LC35=1.2D+Di-WI120
LC36=1.2D+Di-WI150
LC37=1.2D+1.6LL1
LC38=1.2D+1.6LL2
LC39=1.2D+1.6LL3
LC40=1.2D+WL0+1.6LLa1
LC41=1.2D+WL30+1.6LLa1
LC42=1.2D+WL60+1.6LLa1
LC43=1.2D+WL90+1.6LLa1
LC44=1.2D+WL120+1.6LLa1
LC45=1.2D+WL150+1.6LLa1
LC46=1.2D-WL0+1.6LLa1
LC47=1.2D-WL30+1.6LLa1
LC48=1.2D-WL60+1.6LLa1
LC49=1.2D-WL90+1.6LLa1
LC50=1.2D-WL120+1.6LLa1
LC51=1.2D-WL150+1.6LLa1
LC52=1.2D+WL0+1.6LLa2
LC53=1.2D+WL30+1.6LLa2
LC54=1.2D+WL60+1.6LLa2
LC55=1.2D+WL90+1.6LLa2
LC56=1.2D+WL120+1.6LLa2
LC57=1.2D+WL150+1.6LLa2
LC58=1.2D-WL0+1.6LLa2
LC59=1.2D-WL30+1.6LLa2
LC60=1.2D-WL60+1.6LLa2
LC61=1.2D-WL90+1.6LLa2
LC62=1.2D-WL120+1.6LLa2
LC63=1.2D-WL150+1.6LLa2
LC64=1.2D+WL0+1.6LLa3
LC65=1.2D+WL30+1.6LLa3
LC66=1.2D+WL60+1.6LLa3
LC67=1.2D+WL90+1.6LLa3
LC68=1.2D+WL120+1.6LLa3
LC69=1.2D+WL150+1.6LLa3
LC70=1.2D-WL0+1.6LLa3
LC71=1.2D-WL30+1.6LLa3
LC72=1.2D-WL60+1.6LLa3
LC73=1.2D-WL90+1.6LLa3
LC74=1.2D-WL120+1.6LLa3
LC75=1.2D-WL150+1.6LLa3
LC76=1.2D+WL0+1.6LLa4
LC77=1.2D+WL30+1.6LLa4
LC78=1.2D+WL60+1.6LLa4
LC79=1.2D+WL90+1.6LLa4
LC80=1.2D+WL120+1.6LLa4
LC81=1.2D+WL150+1.6LLa4
LC82=1.2D-WL0+1.6LLa4
LC83=1.2D-WL30+1.6LLa4
LC84=1.2D-WL60+1.6LLa4
LC85=1.2D-WL90+1.6LLa4
LC86=1.2D-WL120+1.6LLa4
LC87=1.2D-WL150+1.6LLa4

Node		Forces						Moments					
		Fx [Kip]	**lc**	**Fy** [Kip]	**lc**	**Fz** [Kip]	**lc**	**Mx** [Kip*ft]	**lc**	**My** [Kip*ft]	**lc**	**Mz** [Kip*ft]	**lc**
27	Max	1.705	LC81	0.931	LC82	0.301	LC14	-0.05542	LC20	0.10006	LC4	0.08852	LC55
	Min	-1.638	LC63	0.321	LC13	-1.922	LC59	-0.15540	LC65	-0.09525	LC22	-0.10474	LC85
28	Max	1.640	LC57	0.792	LC25	1.921	LC53	-0.05097	LC19	0.09767	LC16	0.07303	LC55
	Min	-1.706	LC87	0.282	LC19	-0.340	LC20	-0.13426	LC64	-0.09955	LC22	-0.08879	LC85
39	Max	0.043	LC16	0.021	LC28	0.700	LC10	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.042	LC10	0.003	LC39	-0.700	LC16	0.00000	LC1	0.00000	LC1	0.00000	LC1

HUDSON
Design Group LLC

Connection Check

Date: 7/7/2022
Project Name: MADISON EAST
Project No.: CT5206
Designed By: CL **Checked By:** MSC

HUDSON Design Group LLC

CHECK CONNECTION CAPACITY (Worst Case) - SINGLE BOLT CONNECTION

Reference: AISC Steel Construction Manual 14th Edition (ASD)

Bolt Type = A325 1" Threaded Rod

Allowable Tensile Load =

F_{Tall} = 35343 lbs.

Allowable Shear Load =

F_{Vall}= 21206 lbs.

TENSILE FORCES

Reaction **F =** 931 lbs. (See Bentley Output)

SHEAR FORCES

Reactions in X direction: 1705 lbs. (See Bentley Output)
Reactions in Z direction: 1922 lbs. (See Bentley Output)

Resultant: 2569 lbs.

No. of Supports = 1
No. of Bolts / Support = 1

Tension Design Load /Bolts =

f_t= 931.00 lbs. < 35342.9174 lbs. **Therefore, OK !**

Shear Design Load / Bolts=

f_v= 2569.26 lbs. < 21205.7504 lbs. **Therefore, OK !**

CHECK COMBINED TENSION AND SHEAR

f_t / F_T	+	f_v / F_V	≤	1.0			
0.026	+	0.121	=	0.148	<	1.0	**Therefore, OK !**

Date: 7/7/2022
Project Name: MADISON EAST
Project No.: CT5206
Designed By: CL **Checked By:** MSC

HUDSON Design Group LLC

CHECK CONNECTION CAPACITY (Worst Case) - CLAMP KIT CONNECTION

Reference: AISC Steel Construction Manual 14th Edition (ASD)

Bolt Type = A36 3/4" Threaded Rod

Allowable Tensile Load =

F_{Tall} = 9609 lbs.

Allowable Shear Load =

F_{Vall} = 5765 lbs.

TENSILE FORCES

Reaction **F =** 1922 lbs. (See Bentley Output)

SHEAR FORCES

Reactions in X direction: 1705 lbs. (See Bentley Output)
Reactions in Y direction: 931 lbs. (See Bentley Output)

Resultant: 1943 lbs.

No. of Supports = 1
No. of Bolts / Support = 2

Tension Design Load /Bolts =

f_t= 961.00 lbs. < 9609 lbs. **Therefore, OK !**

Shear Design Load / Bolts=

f_v= 971.31 lbs. < 5765 lbs. **Therefore, OK !**

CHECK COMBINED TENSION AND SHEAR

f_t / F_T	+	f_v / F_V	≤	1.0			
0.100	+	0.168	=	0.268	<	1.0	**Therefore, OK !**

135 NEW RD

Location	135 NEW RD	**MBLU**	60/ 8/ / /
Unique ID#	00379700	**Owner**	CONNECTICUT LIGHT AND POWER CO
Assessment	$5,273,820	**Appraisal**	$8,461,700
PID	3932	**Building Count**	3
Dev. Map	1754 &1773		

Current Value

Appraisal					
Valuation Year	**Building**	**Extra Features**	**Outbuildings**	**Land**	**Total**
2022	$5,970,400	$37,500	$1,054,700	$1,399,100	$8,461,700

Assessment					
Valuation Year	**Building**	**Extra Features**	**Outbuildings**	**Land**	**Total**
2022	$4,179,320	$26,300	$738,300	$329,900	$5,273,820

Owner of Record

Owner	CONNECTICUT LIGHT AND POWER CO	**Sale Price**	$0
Co-Owner		**Book & Page**	0139/0397
Care Of		**Sale Date**	08/24/1971

Ownership History

Ownership History			
Owner	**Sale Price**	**Book & Page**	**Sale Date**
CONNECTICUT LIGHT AND POWER CO	$0	0139/0397	08/24/1971

Building Information

Building 1 : Section 1

Year Built: 1978
Living Area: 29,609

Building Attributes	
Field	**Description**

Style:	Office Bldg
Model	Commercial
Grade	Good -
Stories:	2
Occupancy	2.00
Exterior Wall 1	Stone/Masonry
Exterior Wall 2	Concr/Cinder
Roof Structure	Flat
Roof Cover	T+G/Rubber
Interior Wall 1	Minim/Masonry
Interior Wall 2	Drywall
Interior Floor 1	Concr-Finished
Interior Floor 2	Carpet
Heating Fuel	Electric
Heating Type	Forced Air-Duc
AC Type	Central
Struct Class	
Bldg Use	Office Building
Total Rooms	
Total Bedrms	00
Total Baths	0
Fireplace	
Xtra Fireplaces	
1st Floor Use:	3400
Heat/AC	Heat A/C Split
Frame Type	Masonry
Baths/Plumbing	Average
Ceiling/Wall	Ceil and Wall
Rooms/Prtns	Average
Wall Height	14.00
% Comn Wall	0.00

Building Photo

(https://images.vgsi.com/photos/MadisonCTPhotos//\01\01\80\17.jpg)

Building Sub-Areas (sq ft)			
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	21,599	21,599
SPA	Service Production Area	16,020	8,010
CAN	Canopy	21,868	0
FCP	Carport	2,551	0
FLL	Finished Lower Level	19,048	0
		81,086	29,609

Building 2 : Section 1

Year Built: 1978
Living Area: 7,042

Building Attributes : Bldg 2 of 3	
Field	**Description**
Style:	Service Shop
Model	Commercial
Grade	Average
Stories:	1

Occupancy	1.00
Exterior Wall 1	Brick/Masonry
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	T+G/Rubber
Interior Wall 1	Minim/Masonry
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	
Heating Fuel	Electric
Heating Type	Electr Basebrd
AC Type	None
Struct Class	
Bldg Use	Office Building
Total Rooms	
Total Bedrms	00
Total Baths	0
Fireplace	
Xtra Fireplaces	
1st Floor Use:	340I
Heat/AC	None
Frame Type	Masonry
Baths/Plumbing	None
Ceiling/Wall	None
Rooms/Prtns	LIght
Wall Height	24.00
% Comn Wall	0.00

Building Photo

(https://images.vgsi.com/photos/MadisonCTPhotos//\01\01\34\91.jpg)

Building Sub-Areas (sq ft)			
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	7,042	7,042
SLB	Slab	7,042	0
		14,084	7,042

Building 3 : Section 1

Year Built: 2021
Living Area: 2,728

Building Attributes : Bldg 3 of 3	
Field	**Description**
Style:	Warehouse
Model	Commercial
Grade	Good
Stories:	1
Occupancy	
Exterior Wall 1	Pre-finsh Metl
Exterior Wall 2	
Roof Structure	Steel Frm/Trus

Building Photo

(https://images.vgsi.com/photos/MadisonCTPhotos///0027/135%20A_2705

Roof Cover	Metal/Tin
Interior Wall 1	Minim/Masonry
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	
Heating Fuel	None
Heating Type	None
AC Type	None
Struct Class	
Bldg Use	Industrial Whse
Total Rooms	
Total Bedrms	
Total Baths	
Fireplace	
Xtra Fireplaces	
1st Floor Use:	
Heat/AC	None
Frame Type	Steel
Baths/Plumbing	None
Ceiling/Wall	None
Rooms/Prtns	LIght
Wall Height	21.00
% Comn Wall	

Building Sub-Areas (sq ft)			
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	2,728	2,728
SLB	Slab	2,728	0
		5,456	2,728

Extra Features

Extra Features				
Code	**Description**	**Size**	**Value**	**Bldg #**
LDL1	Load Levelers	1.00 UNITS	$2,500	1
MEZ1	Mezzanine Unf	3960.00 S.F.	$27,600	1
MEZ1	Mezzanine Unf	1600.00 S.F.	$7,400	2

Land

Land Use

Use Code 3400
Description Office Building
Zone RU-2

Land Line Valuation

Size (Acres) 37.98

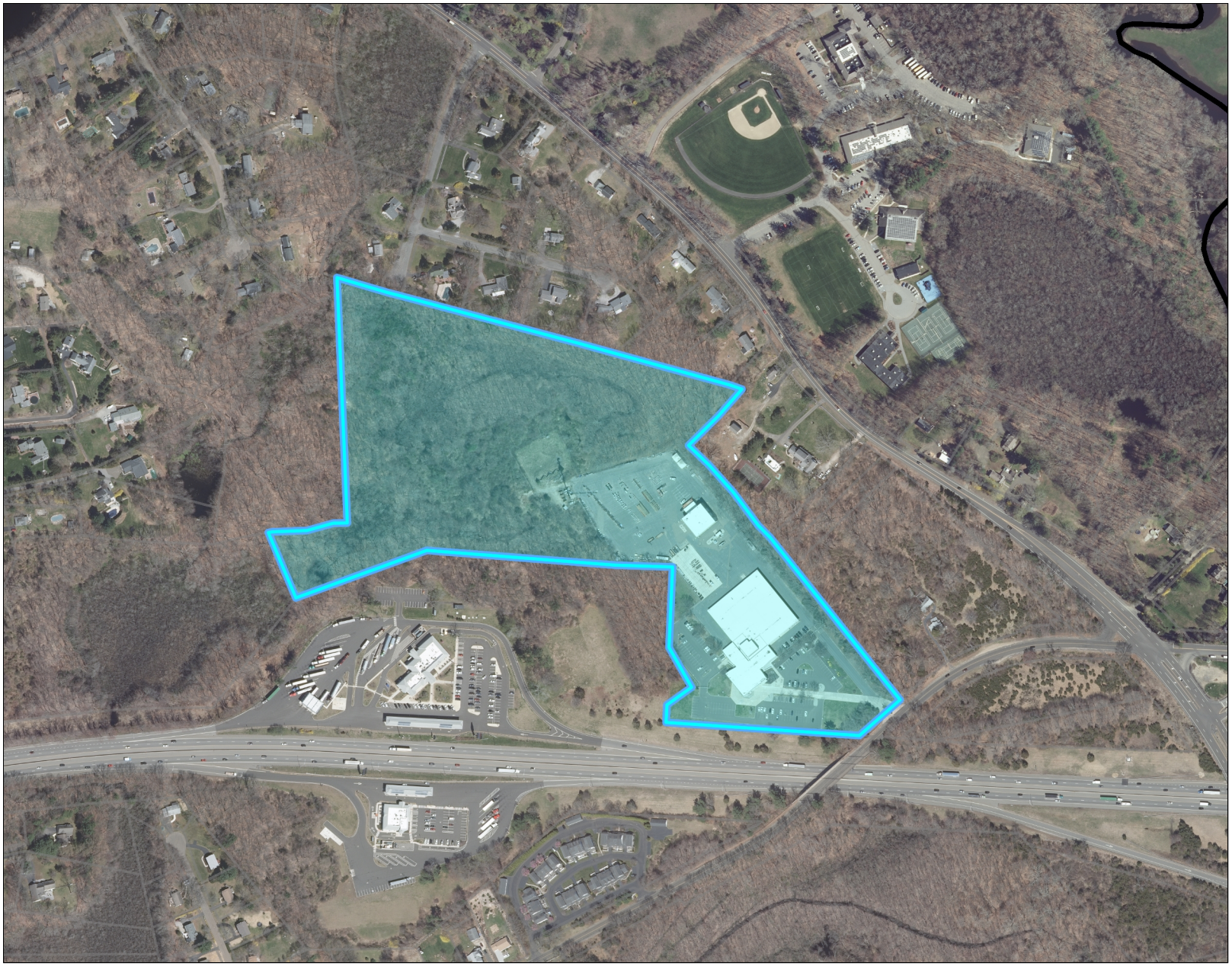
lbllndfront

Outbuildings

Outbuildings

Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
PAV1	Paving Asphalt			400000.00 S.F.	$280,000	1
LT12	Lights(4)			26.00 UNITS	$52,000	1
LT10	Lights (2)			3.00 UNITS	$3,000	1
LT9	Lights			18.00 UNITS	$12,600	1
FN3	Fence 6'			6000.00 L.F.	$36,000	1
SHD1	Shed			96.00 S.F.	$600	1
SHD1	Shed			120.00 S.F.	$800	1
SHD6	Pump Sta.			192.00 S.F.	$14,400	1
SHD1	Shed			96.00 S.F.	$600	1
SHD1	Shed			80.00 S.F.	$300	1
CEL	Cell Tower			4.00 UNITS	$654,400	1

South Central Regional COG



Legend

Location

Notes

956 0 478 956

Feet

1: 5,736

N

Hollis Redding

From: Pettola, Maria <pettolam@madisonct.org>
Sent: Wednesday, September 7, 2022 2:10 PM
To: Hollis Redding
Cc: Mannix, Erin
Subject: RE: Zoning approval 135 New Road

I looked for this information for someone else recently and could not find the original approval.

Maria Pettola, CZET
Planning & Zoning Department
Town of Madison
8 Campus Drive
Madison, CT 06443
(203) 245-5631
Telecommunication device for the deaf: 203.245.5638

From: Hollis Redding <HRedding@saigrp.com>
Sent: Wednesday, September 7, 2022 1:59 PM
To: Pettola, Maria <pettolam@madisonct.org>
Subject: Zoning approval 135 New Road

Hello Maria-

I'm looking to track down the CT Light & Power zoning approval for the tower located at 135 New Road. Do you know if CL&P would have gone through zoning since they are a utility? The first time I see anything on the CT Siting Council web page is 2015, so that would be the earliest the tower would have been approved. I'm not sure how to go about getting a copy of the approval. Hopefully, you can steer me in the right direction. Thank you for your time. I appreciate it. Hollis

Hollis M. Redding
Site Acquisition Specialist
860-834-6964
hredding@saigrp.com

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@po.state.ct.us
Web Site: www.state.ct.us/csc/index.htm

October 8, 2002

Christopher B. Fisher, Esq.
Cuddy & Feder & Worby LLP
90 Maple Avenue
White Plains, NY 10601-5196

RE: **EM-AT&T-076-020927** - AT&T Wireless notice of intent to modify an existing telecommunications facility located at 135 New Road, Madison, Connecticut.

Dear Attorney Fisher:

At a public meeting held on October 7, 2002, the Connecticut Siting Council (Council) acknowledged your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies with the condition that the tower be reinforced according to the recommendations of H.E. Bergeron Engineers and that a professional engineer certify the successful completion of these reinforcements to the Council.

The proposed modifications are to be implemented as specified here and in your notice received in our office on September 27, 2002. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

Thank you for your attention and cooperation.

Very truly yours,

Mortimer A. Gelston
Chairman

MAG/laf

c: Honorable Thomas S. Scarpati, First Selectman, Town of Madison
Marilyn M. Ozols, Planning & Zoning Administrator, Town of Madison
Salvatore Giuliano, Manager of Real Estate and Planning, The Connecticut Light & Power Co.
Julie Donaldson Kohler, Esq., Hurwitz & Sagarin LLC
Stephen J. Humes, Esq., LeBoeuf, Lamb, Greene & MacRae

I:\siting\em\cing\at&t\dc100702.doc

Steven Florio
Telecom Engineering
Construction Manager

107 Selden St
Berlin, CT 06037
Office: (860) 728-5611
Steven Florio@Eversource.com

Mr. Tim Burks
Agent for AT&T
SAI Communications
12 Industrial Way
Salem, New Hampshire, 03079

October 13,2022

RE: Letter of Authorization

Project: AT&T Wireless Site Ref.# CTL05206
135 New Road
Madison, CT. 06443
Owner: Eversource Energy

Dear Mr. Burks,

Eversource Energy, owner of the tower facility located at the address identified above, do hereby authorize AT&T Wireless, and/ or it's agent to use this authorization letter for the sole purpose of filing and consummating any land-use or building permit application(s) as may be required by the applicable permitting authorities for the Licensee's telecommunication's installation.

Sincerely,

Steven Florio

Steven J. Florio
Eversource Energy

AT&T Project: LTE 2C, 3C, 4C. 2022 Upgrade
CD's, Dated 09/09/2022.
Centek Engineering SA Project # 22003.00, Dated 02/23/2022.

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SALEM NH 03079-2837

Expected Delivery Date: 02/09/23
Ref#: CT5206
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PEGGY LYONS 1ST SELECTWOMAN ERIN
TOWN OF MADISON
8 CAMPUS DR
MADISON CT 06443-2562

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SAI GROUP
12 INDUSTRIAL WAY
SALEM NH 03079-2837

Expected Delivery Date: 02/09/23

0000

C006

MELANIE BACHMAN EXECUTIVE DIRECTOR
CT SITING COUNCIL
10 FRANKLIN SQ
NEW BRITAIN CT 06051-2655

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8 February 2023 ⓘ

by **9:00pm** ⓘ

USPS is now in possession of your item as of 9:02 am on February 7, 2023 in MERIDEN, CT 06450.

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February 6, 2023

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WEDNESDAY

8 February 2023 ⓘ

by

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Feedback

Get More Out of USPS Tracking:

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February 7, 2023, 9:02 am

Pre-Shipment Info Sent to USPS, USPS Awaiting Item

February 6, 2023