December 6, 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 CT2044
Off 17 Daybreak Lane, Shelton, CT 06484 (the "Property")
Latitude: 41-16-21.072 N Longitude: 73-07-5.995 W

Dear Ms. Bachman:

AT&T currently maintains (9) antennas at the 98-foot level on the existing 97'6"+- wood laminate utility structure #1340 ("Structure") located off 17 Daybreak Lane, Shelton, CT. The Structure is owned by Connecticut Light & Power ("Eversource") and the property is owned by the Estate of Joanne Sherwood. Eversource plans on replacing the existing Structure with a 120' monopole Structure #19450 . AT&T intends to modify its facility by removing all (9) antennas & equipment from the existing Structure and placing (3) AIR6419 B77G, (3) AIR6449 B77D, (3) TPA65R-BU6DA-K and (3) OPA65R-BU6DA antennas at the 123' level of the replacement Structure. The height of AT&Ts existing antennas is 98'and proposed antennas is 123'on the replacement Structure.

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 original Facility received Connecticut Siting Council ("CSC") approval under Petition 412 on May 24, 1999. The CSC approved Eversource's Structure replacement under Petition 1582 on October 13, 2023. The approvals contained no conditions that could be violated by this modification. Therefore, AT&Ts modification complies with the above-mentioned approvals.

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 R.C.S.A §16-50j-73, a copy of this letter is being sent to the Honorable Mark A. Lauretti, Mayor, Town of Shelton, Mr. Alexander Rossetti, Administrator, Planning & Zoning, Town of Shelton, the Estate of Joanne Sherwood, the property owner and Eversource, the Structure 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 modification will not result in an increase in the height of the existing structure.

2. The proposed modification 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 replacement structure and foundation can support the proposed loading.

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

Please contact me at 860-834-6964 if you should have any questions regarding this matter. Thank you for your time & consideration.

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: The Honorable Mark A. Lauretti, Mayor, Town of Shelton
Mr. Alexander Rossetti, Administrator, Planning & Zoning, Town of Shelton
The Estate of Joanne Sherwood, the property owner
Eversource, Structure owner

C Squared Systems, LLC
65 Dartmouth Drive
Auburn, NH 03032
(603) 644-2800
support@csquaredsystems.com

Calculated Radio Frequency Emissions Report

CT2044

17 Daybreak Lane, Shelton, CT 06484

November 29, 2023

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1. Introduction

The purpose of this report is to investigate compliance with applicable FCC regulations for the proposed modification of AT&T antenna arrays to be mounted at 120' AGL on a utility pole located at 17 Daybreak Lane in Shelton, CT. The coordinates of the tower are 41° 16' 21.07" N, 73° 7' 5.99" W.

AT&T is proposing the following:

1) Install twelve (12) multi-band antennas (four (4) sector) to support its commercial LTE network and the FirstNet National Public Safety Broadband Network ("NPSBN").

This report considers the planned antenna configuration for AT&T[1] to derive the resulting % MPE of its proposed installation.

2. FCC Guidelines for Evaluating RF Radiation Exposure Limits

In 1985, the FCC established rules to regulate radio frequency (RF) exposure from FCC licensed antenna facilities. In 1996, the FCC updated these rules, which were further amended in August 1997 by OET Bulletin 65 Edition 97-01. These new rules include Maximum Permissible Exposure (MPE) limits for transmitters operating between 300 kHz and 100 GHz. The FCC MPE limits are based upon those recommended by the National Council on Radiation Protection and Measurements (NCRP), developed by the Institute of Electrical and Electronics Engineers, Inc., (IEEE) and adopted by the American National Standards Institute (ANSI).

The FCC general population/uncontrolled limits set the maximum exposure to which most people may be subjected. 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 cannot exercise control over their exposure.

Public exposure to radio frequencies is regulated and enforced in units of milliwatts per square centimeter (mW/cm^2). The general population exposure limits for the various frequency ranges are defined in the attached "FCC Limits for Maximum Permissible Exposure (MPE)" in Attachment C of this report.

Higher exposure limits are permitted under the occupational/controlled exposure category, but only for persons who are exposed as a consequence of their employment and who have been made fully aware of the potential for exposure, and they must be able to exercise control over their exposure. General population/uncontrolled limits are five times more stringent than the levels that are acceptable for occupational, or radio frequency trained individuals. Attachment C contains excerpts from OET Bulletin 65 and defines the Maximum Exposure Limit.

Finally, it should be noted that the MPE limits adopted by the FCC for both general population/uncontrolled exposure and for occupational/controlled exposure incorporate a substantial margin of safety and have been established to be well below levels generally accepted as having the potential to cause adverse health effects.

[1] As referenced to AT&T's Radio Frequency Design Sheet, dated 09/29/2023

3. RF Exposure Prediction Methods

The emission field calculation results displayed in the following figures were generated using the following formula as outlined in FCC bulletin OET 65:

$$\text{Power Density} = \left(\frac{GRF^2 \times 1.64 \times \text{ERP}}{4\pi \times R^2}\right) \text{X Off Beam Loss}$$

Where:

EIRP = Effective Isotropic Radiated Power

R = Radial Distance = $\sqrt{\left(H^2 + V^2\right)}$

H = Horizontal Distance from antenna in meters

V = Vertical Distance from radiation center of antenna in meters

Off Beam Loss is determined by the selected antenna patterns

GRF = Ground Reflection Factor of 1.6

These calculations assume that the antennas are operating at 100 percent capacity, that all antenna channels are transmitting simultaneously, and that the radio transmitters are operating at full power. Obstructions (trees, buildings, etc.) that would normally attenuate the signal are not taken into account. The calculations assume even terrain in the area of study and do not take into account actual terrain elevations which could attenuate the signal. As a result, the predicted signal levels reported below are much higher than the actual signal levels will be from the final installations.

4. Antenna Inventory

Table 1 below outlines AT&T's proposed antenna configuration for the site. The associated data sheets and antenna patterns for these specific antenna models are included in Attachments C.

Operator	Sector / Call Sign	TX Freq (MHz)	Power at Antenna (Watts)	Ant Gain (dBi)	Power EIRP (Watts)	Antenna Model	Beam Width	Mech. Tilt	Length (ft)	Antenna Centerline Height (ft)
	Beta / 30°	700	160	14.5	4509	TPA65R-BU6D	73	0	5.93	120
		2100	240	18.4	16604		66			
		2300	100	18.0	3847		60			
		700	160	14.3	4306	OPA65R-BU6D	73	0	5.93	120
		850	160	15.2	5298		64			
		1900	160	18.1	6299		68			
		3500	54	25.65	19833	AIR 6419	11	0	2.53	120
		3700	87	25.65	31954	AIR 6449	11	0	2.53	120
	Beta / 150°	700	160	14.5	4509	TPA65R-BU6D	73	0	5.93	120
		2100	240	18.4	16604		63			
		2300	100	18.0	3847		66			
		700	160	14.3	4306	OPA65R-BU6D	73	0	5.93	120
		850	160	15.2	5298		66			
		1900	160	18.1	6299		60			
		3500	54	25.65	19833	AIR 6419	73	0	2.53	120
		3700	87	25.65	31954	AIR 6449	64	0	2.53	120
	Gamma / 270°	700	160	14.5	4509	TPA65R-BU6D	73	0	5.93	120
		2100	240	18.4	16604		66			
		2300	100	18.0	3847		60			
		700	160	14.3	4306	OPA65R-BU6D	73	0	5.93	120
		850	160	15.2	5298		64			
		1900	160	18.1	6299		68			
		3500	54	25.65	19833	AIR 6419	11	0	2.53	120
		3700	87	25.65	31954	AIR 6449	11	0	2.53	120

Table 1: Proposed Antenna Inventory[2][3]

[2] AT&T's Radio Frequency Design Sheet, dated 09/29/2023

[3] Transmit power assumes 0 dB of cable loss.

5. Calculation Results

The calculated power density results are shown in Figure 1 below. For completeness, the calculations for this analysis range from 0 feet horizontal distance (directly below the antennas) to a value of 3,000 feet horizontal distance from the site. In addition to the other worst-case scenario considerations that were previously mentioned, the power density calculations to each horizontal distance point away from the antennas was completed using a local maximum off beam antenna gain (within ± 5 degrees of the true mathematical angle) to incorporate a realistic worst-case scenario.

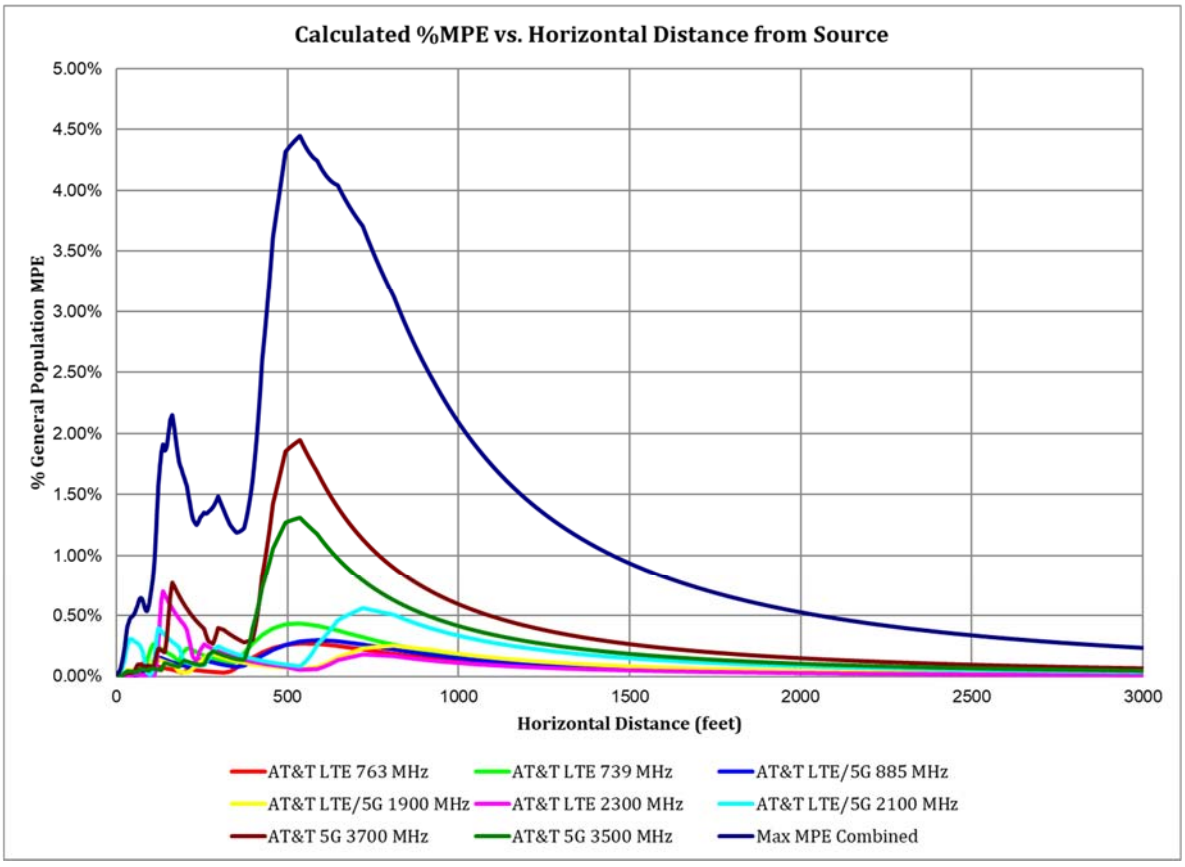


Figure 1: Graph of General Population % MPE vs. Distance

The highest percent of MPE (4.45% of the General Population limit) is calculated to occur at a horizontal distance of 536 feet from antennas. Please note that the percent of MPE calculations close to the site take into account off beam loss, which is determined from the vertical pattern of the antennas used. Therefore, RF power density levels may increase as the distance from the site increases. At distances of approximately 1500 feet and beyond, one would now be in the main beam of the antenna pattern and off beam loss is no longer considered. Beyond this point, RF levels become calculated solely on distance from the site and the percent of MPE decreases significantly as distance from the site increases.

Table 2 below lists percent of MPE values as well as the associated parameters that were included in the calculations. The highest percent of MPE value was calculated to occur at a horizontal distance of 536 feet from the site (reference Figure 1).

As stated in Section 3, all calculations assume that the antennas are operating at 100 percent capacity, that all antenna channels are transmitting simultaneously, and that the radio transmitters are operating at full power. Obstructions (trees, buildings etc.) that would normally attenuate the signal are not taken into account. In addition, a six-foot height offset was considered in this analysis to account for average human height. As a result, the predicted signal levels are significantly higher than the actual signal levels will be from the final configuration. The results presented in Figure 1 and Table 2 assume level ground elevation from the base of the tower out to the horizontal distances calculated.

Carrier	Number of Transmitters	Power out of Base Station Per Transmitter (Watts)	Antenna Height (Feet)	Distance to the Base of Antennas (Feet)	Power Density (mW/cm^2)	Limit (mW/cm^2)	% MPE
AT&T 5G 3500 MHz	1	54.0	120.0	536	0.013100	1.000	1.31%
AT&T 5G 3700 MHz	1	86.75	120.0	536	0.019457	1.000	1.95%
AT&T LTE 2300 MHz	1	100.0	120.0	536	0.000547	1.000	0.05%
AT&T LTE 739 MHz	1	160.0	120.0	536	0.002143	0.493	0.43%
AT&T LTE 763 MHz	1	120.0	120.0	536	0.001377	0.509	0.27%
AT&T LTE/5G 1900 MHz	1	160.0	120.0	536	0.000610	1.000	0.06%
AT&T LTE/5G 2100 MHz	1	240.0	120.0	536	0.000837	1.000	0.08%
AT&T LTE/5G 885 MHz	1	160.0	120.0	536	0.001693	0.590	0.29%
						Total	**4.45%**

Table 2: Maximum Percent of General Population Exposure Values

6. Conclusion

The above analysis verifies that RF exposure levels from the site with AT&T's proposed antenna configuration will be well below the maximum permissible levels as outlined by the FCC in the OET Bulletin 65 Ed. 97-01. Using the conservative calculation methods and parameters detailed above, the maximum cumulative percent of MPE in consideration of all transmitters is calculated to be **4.45% of the FCC limit (General Population/Uncontrolled)**. This maximum cumulative percent of MPE value is calculated to occur 536 feet away from the site.

7. Statement of Certification

I certify to the best of my knowledge that the statements in this report are true and accurate. The calculations follow guidelines set forth in ANSI/IEEE Std. C95.3, ANSI/IEEE Std. C95.1 and FCC OET Bulletin 65 Edition 97-01.

Report Prepared By: Ram Acharya
RF Engineer
C Squared Systems, LLC

November 27, 2023
Date

Reviewed/Approved By: Martin J. Lavin
Senior RF Engineer
C Squared Systems, LLC

November 29, 2023
Date

Attachment A: References

OET Bulletin 65 - Edition 97-01 - August 1997 Federal Communications Commission Office of Engineering & Technology

IEEE C95.1-2005, IEEE Standard Safety Levels With Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz IEEE-SA Standards Board

IEEE C95.3-2002 (R2008), IEEE Recommended Practice for Measurements and Computations of Radio Frequency Electromagnetic Fields With Respect to Human Exposure to Such Fields, 100 kHz-300 GHz IEEE-SA Standards Board

Attachment B: FCC Limits for Maximum Permissible Exposure (MPE)

(A) Limits for Occupational/Controlled Exposure[4]

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ 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	6

(B) Limits for General Population/Uncontrolled Exposure[5]

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ 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

Table 3: FCC Limits for Maximum Permissible Exposure

[4] 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 occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

[5] 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 cannot exercise control over their exposure.

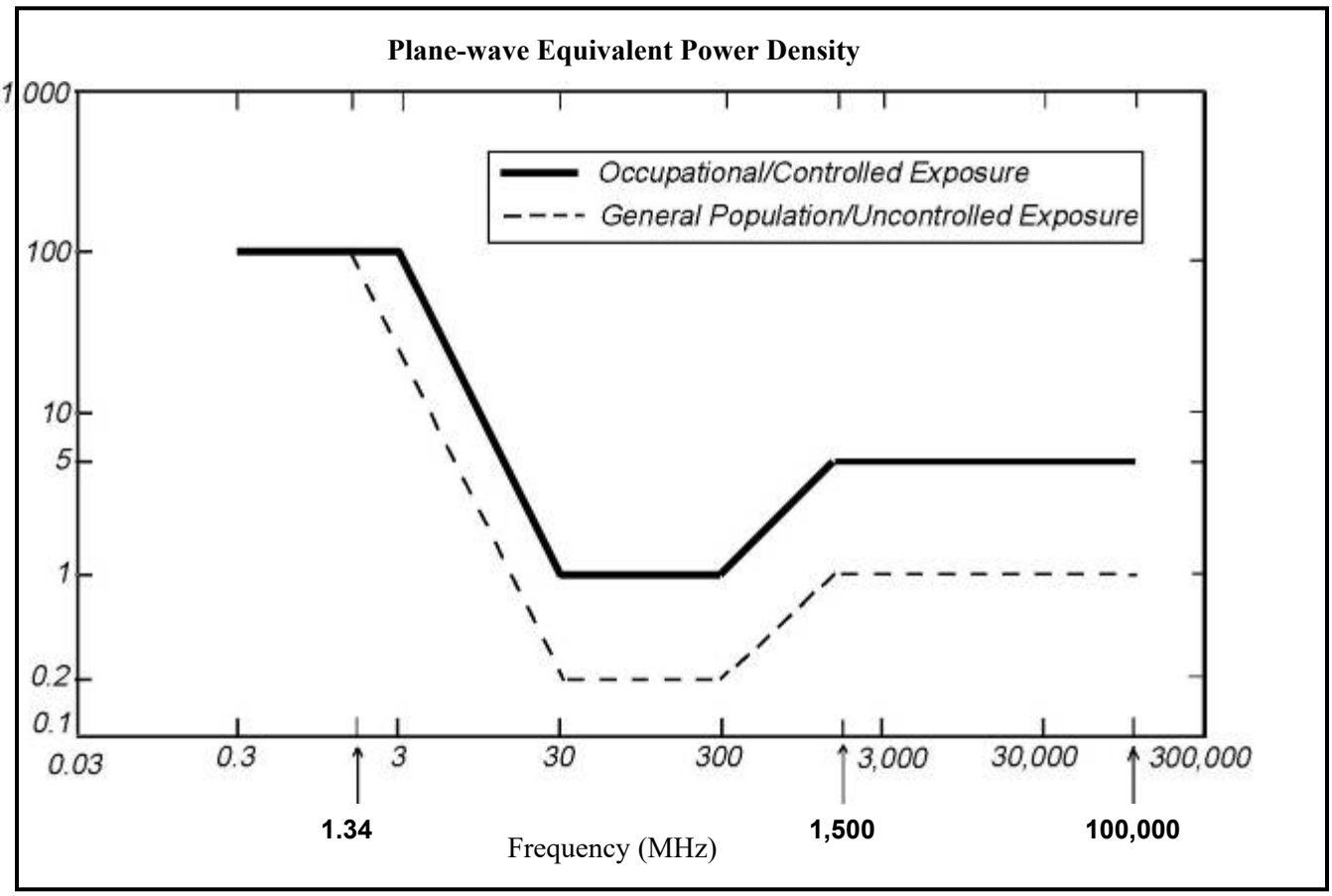
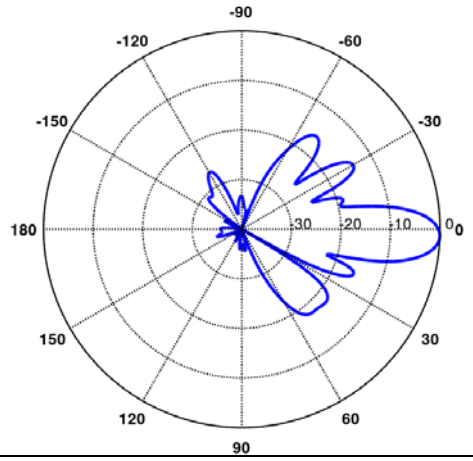
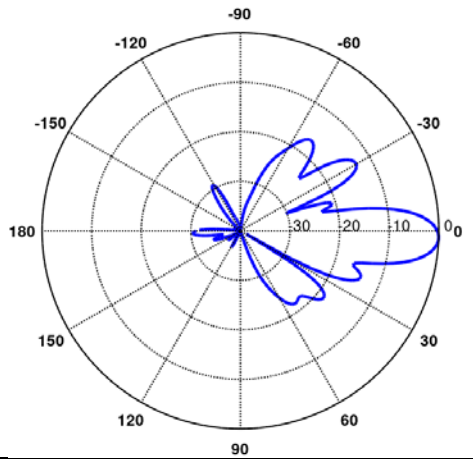
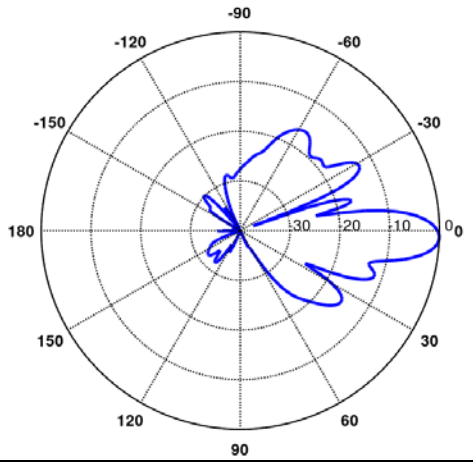
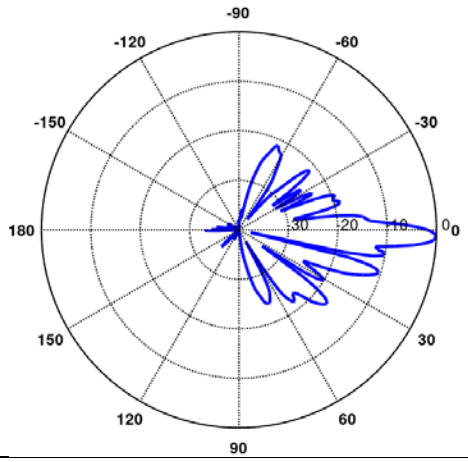
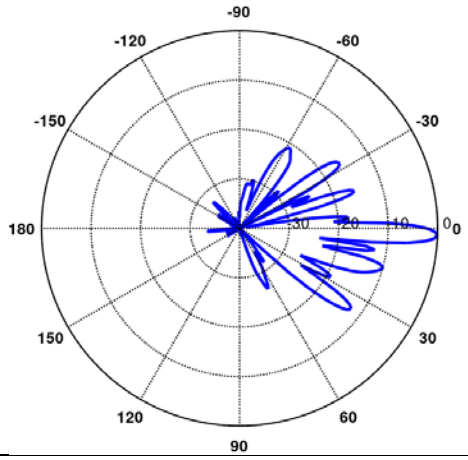
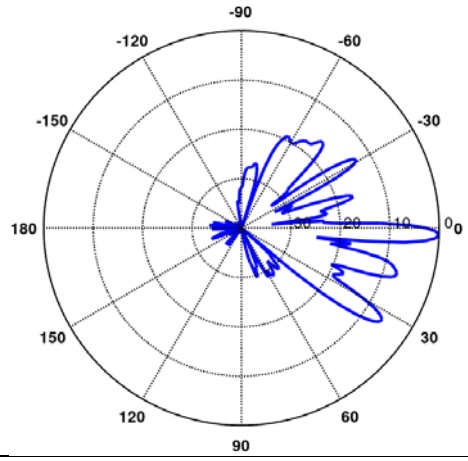


Figure 2: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

Attachment C: AT&T Mobility Antenna Model Data Sheets and Electrical Patterns

700 MHz Manufacturer: CCI Model #: TPA65R-BU6D Frequency Band: 698-806 MHz Gain: 14.5 dBi Vertical Beamwidth: 12.8° Horizontal Beamwidth: 73° Polarization: Dual Linear 45° Dimensions (L x W x D): 72.1” x 20.7” x 7.7”	
700 MHz Manufacturer: CCI Model #: OPA65R-BU6D Frequency Band: 698-806 MHz Gain: 14.3 dBi Vertical Beamwidth: 12.9° Horizontal Beamwidth: 73° Polarization: Dual Linear 45° Dimensions (L x W x D): 71.2” x 20.7” x 7.7”	
850 MHz Manufacturer: CCI Model #: OPA65R-BU6D Frequency Band: 824-894 MHz Gain: 15.5 dBi Vertical Beamwidth: 11.1° Horizontal Beamwidth: 44° Polarization: Dual Linear 45° Dimensions (L x W x D): 71.2” x 20.7” x 7.7”	

1900 MHz Manufacturer: CCI Model #: OPA65R-BU6D Frequency Band: 1850-1990 MHz Gain: 18.1 dBi Vertical Beamwidth: 5.1° Horizontal Beamwidth: 68° Polarization: Dual Linear 45° Dimensions (L x W x D): 72.1” x 20.7” x 7.7”	
2100 MHz Manufacturer: CCI Model #: TPA65R-BU6D Frequency Band: 1920-2180 MHz Gain: 17.3 dBi Vertical Beamwidth: 4.8° Horizontal Beamwidth: 66° Polarization: Dual Linear 45° Dimensions (L x W x D): 72.1” x 20.7” x 7.7”	
2300 MHz Manufacturer: CCI Model #: TPA65R-BU6D Frequency Band: 2300-2400 MHz Gain: 18.0 dBi Vertical Beamwidth: 4.0° Horizontal Beamwidth: 60° Polarization: Dual Linear 45° Dimensions (L x W x D): 72.1” x 20.7” x 7.7”	

CTL02044 - SHELTON NU PWR MT
EVERSOURCE STRUCT. NO. 19540
17 DAYBREAK LANE
SHELTON, CT 06484

RFDS GENERAL INFORMATION

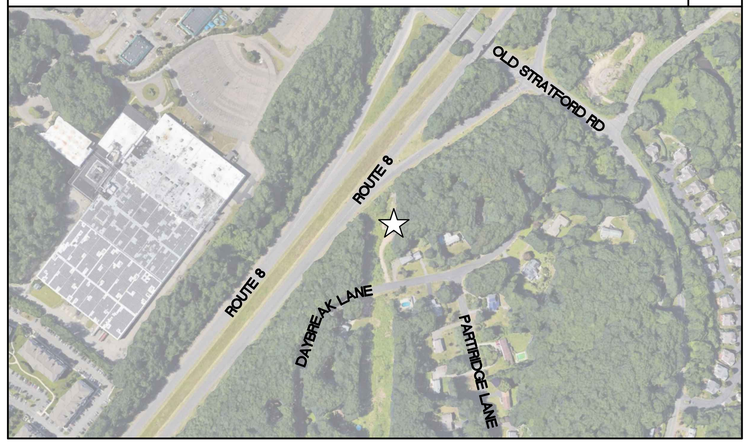
CELL SITE RF MODIFICATIONS:	CELL SITE RF MODIFICATIONS BBU RECONGIF. WITH NEW IDs 5G NR UPGRADE 5G NR SOFTWARE RADIO 5G NR ACTIVATION 5G NR RADIO 5G NR 1SR CBAND
PACE ID:	PACE JOB #1 – MRCTB056087 PACE JOB #2 – MRCTB055674 PACE JOB #3 – MRCTB054839 PACE JOB #4 – MRCTB053591 PACE JOB #5 – MRCTB056282
FA LOCATION CODE:	10035243

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2021 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2022 CONNECTICUT SUPPLEMENT, INCLUDING THE TIA/EIA–222 REVISION "H" "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES." 2022 CONNECTICUT FIRE SAFETY CODE, NATIONAL ELECTRICAL CODE AND LOCAL CODES.
2. SHOULD ANY FIELD CONDITIONS PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL NOT PROCEED WITH ANY AFFECTED WORK.
3. CONTRACTOR SHALL REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUBCONTRACTORS AND ALL RELATED PARTIES. THE SUBCONTRACTORS SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT AFFECTS THEIR WORK.
4. BEFORE BEGINNING THE WORK, THE CONTRACTOR IS RESPONSIBLE FOR MAKING SUCH INVESTIGATIONS CONCERNING PHYSICAL CONDITIONS (SURFACE AND SUBSURFACE) AT OR CONTIGUOUS TO THE SITE, WHICH MAY AFFECT PERFORMANCE AND COST OF THE WORK.
5. ALL DIMENSIONS, ELEVATIONS, AND OTHER REFERENCES TO EXISTING STRUCTURES, SURFACE, AND SUBSURFACE CONDITIONS ARE APPROXIMATE. NO GUARANTEE IS MADE FOR THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. THE CONTRACTOR SHALL VERIFY AND COORDINATE ALL DIMENSIONS, ELEVATIONS AND ANGLES WITH EXISTING CONDITIONS AND WITH ARCHITECTURAL AND SITE DRAWINGS BEFORE PROCEEDING WITH ANY WORK.
6. AS THE WORK PROGRESSES, THE CONTRACTOR SHALL NOTIFY THE OWNER OF ANY CONDITIONS WHICH ARE IN CONFLICT OR OTHERWISE NOT CONSISTENT WITH THE CONSTRUCTION DOCUMENTS, AND SHALL NOT PROCEED WITH SUCH WORK UNTIL THE CONFLICT IS SATISFACTORILY RESOLVED.
7. CONTRACTOR SHALL PROVIDE A COMPLETE BUILD–OUT WITH ALL FINISHES, STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS AND PROVIDE ALL ITEMS AS SHOWN OR INDICATED ON THE DRAWINGS OR IN THE WRITTEN SPECIFICATIONS.
8. CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR AND EQUIPMENT TO COMPLETE THE WORK AND FURNISH A COMPLETED JOB ALL IN ACCORDANCE WITH LOCAL AND STATE GOVERNING AUTHORITIES AND OTHER AUTHORITIES HAVING LAWFUL JURISDICTION OVER THE WORK.
9. CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND ALL INSPECTIONS REQUIRED AND SHALL ALSO PAY FEES REQUIRED FOR THE GENERAL CONSTRUCTION, PLUMBING, ELECTRICAL, AND HVAC. PERMITS SHALL BE PAID FOR BY THE RESPECTIVE SUBCONTRACTORS.
10. CONTRACTOR SHALL MAINTAIN A CURRENT SET OF DRAWINGS AND SPECIFICATIONS ON SITE AT ALL TIMES AND INSURE DISTRIBUTION OF NEW DRAWINGS TO SUBCONTRACTORS AND OTHER RELEVANT PARTIES AS SOON AS THEY ARE MADE AVAILABLE. ALL OLD DRAWINGS SHALL BE MARKED VOID AND REMOVED FROM THE CONTRACT AREA. THE CONTRACTOR SHALL FURNISH AN 'AS–BUILT' SET OF DRAWINGS TO OWNER UPON COMPLETION OF PROJECT.
11. LOCATION OF EQUIPMENT AND WORK SUPPLIED BY OTHERS THAT IS DIAGRAMMATICALLY INDICATED ON THE DRAWINGS, SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL DETERMINE LOCATIONS AND DIMENSIONS SUBJECT TO STRUCTURAL CONDITIONS AND WORK OF THE SUBCONTRACTORS.
12. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY.
13. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUB–CONTRACTORS FOR ANY CONDITION PER THE MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
14. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
15. ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
16. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUBCONTRACTORS FOR ANY CONDITION PER MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
17. ANY AND ALL ERRORS, DISCREPANCIES, AND 'MISSED' ITEMS ARE TO BE BROUGHT TO THE ATTENTION OF THE AT&T CONSTRUCTION MANAGER DURING THE BIDDING PROCESS BY THE CONTRACTOR. ALL THESE ITEMS ARE TO BE INCLUDED IN THE BID. NO 'EXTRA' WILL BE ALLOWED FOR MISSED ITEMS.
18. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON–SITE SAFETY FROM THE TIME THE JOB IS AWARDED UNTIL ALL WORK IS COMPLETE AND ACCEPTED BY THE OWNER.
19. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE CONSTRUCTION MANAGER FOR REVIEW.
20. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES AND EXISTING CONDITIONS AT THE SITE, PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA.
21. COORDINATION, LAYOUT, FURNISHING AND INSTALLATION OF CONDUITS AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND CONFIRMED WITH THE PROJECT MANAGER AND OWNER PRIOR TO THE COMMENCEMENT OF ANY WORK
22. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
23. THE CONTRACTOR SHALL CONTACT 'CALL BEFORE YOU DIG' AT LEAST 48 HOURS PRIOR TO ANY EXCAVATIONS AT 1–800–922–4455. ALL UTILITIES SHALL BE IDENTIFIED AND CLEARLY MARKED. CONTRACTOR SHALL MAINTAIN AND PROTECT MARKED UTILITIES THROUGHOUT PROJECT COMPLETION.
24. CONTRACTOR SHALL COMPLY WITH THE OWNER'S ENVIRONMENTAL ENGINEER ON ALL METHODS AND PROVISIONS FOR ALL EXCAVATION ACTIVITIES INCLUDING SOIL DISPOSAL. ALL BACKFILL MATERIALS TO BE PROVIDED BY THE CONTRACTOR.
25. THE COUNTY/CITY/TOWN MAY MAKE PERIODIC FIELD INSPECTIONS TO ENSURE COMPLIANCE WITH THE DESIGN PLANS, SPECIFICATIONS, AND CONTRACT DOCUMENTS.
26. THE COUNTY/CITY/TOWN MUST BE NOTIFIED (2) WORKING DAYS PRIOR TO CONCEALMENT/BURIAL OF ANY SYSTEM OR MATERIAL THAT WILL PREVENT THE DIRECT INSPECTION OF MATERIALS, METHODS OR WORKMANSHIP. EXAMPLES OF THESE PROCESSES ARE BACKFILLING A GROUND RING OR TOWER FOUNDATION, POURING TOWER FOUNDATIONS, BURYING GROUND RODS, PLATES OR GRIDS, ETC. THE CONTRACTOR MAY PROCEED WITH THE SCHEDULED PROCESS (2) WORKING DAYS AFTER PROVIDING NOTICE UNLESS NOTIFIED OTHERWISE BY THE COUNTY/CITY/TOWN.
27. PRIOR TO THE SUBMISSION OF BIDS, THE CONTRACTOR SHALL VISIT THE 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 ENGINEER ON RECORD, PRIOR TO THE COMMENCEMENT OF ANY WORK.

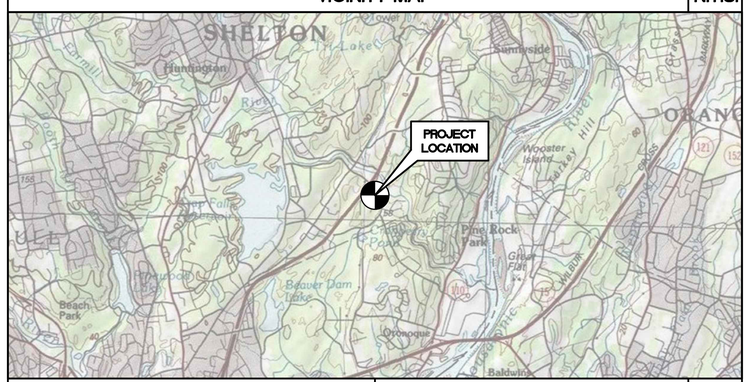
SITE LOCATION MAP

N.T.S.



VICINITY MAP

N.T.S.



SITE COORDINATES AND GROUND ELEVATION REFERENCED FROM GOOGLE EARTH

SITE COORDINATES: LATITUDE: 41°–16'–21.072" N
LONGITUDE: 73°–07'–05.994" W
GROUND ELEVATION: ±176' AMSL

NORTH

PROJECT SUMMARY

THE PROPOSED SCOPE OF WORK CONSISTS OF A MODIFICATION TO THE EXISTING UNMANNED TELECOMMUNICATIONS FACILITY INCLUDING THE FOLLOWING:

1. REMOVE (9) EXISTING AT&T ANTENNAS
2. REMOVE (18) EXISTING AT&T DIPLEXERS
3. REMOVE (12) EXISTING AT&T TMA
4. REMOVE (6) EXISTING AT&T RRUs
5. REMOVE (18) EXISTING AT&T COMPONENTS
6. REMOVE (6) EXISTING AT&T DIPLEXERS
7. REMOVE (6) EXISTING AT&T TMAs
8. RETAIN (9) EXISTING AT&T RRUs
9. RETAIN (24) EXISTING AT&T COMPONENTS
10. RETAIN (24) EXISTING AT&T SURGE ARRESTORS
11. RETAIN (3) EXISTING AT&T FILTERS
12. INSTALL (1) ANTENNA MOUNT PLATFORM. (SITEPRO P/N: RMQLP–4120–H10)
13. INSTALL (1) PROPOSED SQUID (DC6–48–60–18) AT TOWER
14. INSTALL (1) PROPOSED ERICSSON AIR6419 B77G ANTENNA PER SECTOR, TOTAL OF (3)
15. INSTALL (1) PROPOSED ERICSSON AIR6449 B77D ANTENNA PER SECTOR, TOTAL OF (3)
16. INSTALL (1) PROPOSED CCI TPA65R–BU6DA–K ANTENNA PER SECTOR, TOTAL OF (3)
17. INSTALL (1) PROPOSED CCI OPA65R–BU6DA ANTENNA PER SECTOR, TOTAL OF (3)
18. INSTALL (4) PROPOSED TSXDC–4310FM SURGE ARRESTORS PER SECTOR AT GRADE, TOTAL OF (12)
19. INSTALL (2) PROPOSED TBC0038F1V94–1 DIPLEXERS PER SECTOR AT GRADE, TOTAL OF (6)
20. INSTALL (2) PROPOSED TMA2116F00V1–1 TMAs PER SECTOR AT TOWER, TOTAL OF (6)
21. INSTALL (2) PROPOSED TMA2117F00V1–1 TMAs PER SECTOR AT TOWER, TOTAL OF (6)
22. INSTALL (1) PROPOSED 4415 B25 RADIO PER SECTOR AT GRADE, TOTAL OF (3)
23. INSTALL PROPOSED 6651 WITH XCEDE CABLE
24. INSTALL (1) 18 PAIR FIBER CABLE, (2) 6AWG DC CABLES, AND (24) 1–5/8 COAX CABLES
25. NEW COAX CABLE HATCHPORT TO BE ADDED TO ACCOMMODATE NEW COAX. OLD HATCHPORT TO BE BLANKED OFF ONCE OLD COAX IS REMOVED

PROJECT INFORMATION

SITE NAME:	CTL02044 – SHELTON NU PWR MT
SITE ADDRESS:	EVERSOURCE STRUCT. NO. 19540 17 DAYBREAK LANE SHELTON, CT 06484
PROPERTY OWNER:	EVERSOURCE 107 SELDEN STREET BERLIN, CT 06037
LESSEE/TENANT:	AT&T MOBILITY 500 ENTERPRISE DRIVE, SUITE 3A ROCKY HILL, CT 06067
CONTACT PERSON:	TARAH NOLAN SAI COMMUNICATIONS (603) 212–5049
ENGINEER:	CENTEK ENGINEERING, INC. 63–2 NORTH BRANFORD ROAD, BRANFORD, CT 06405 (203) 488–0580
SITE COORDINATES:	LATITUDE: 41°–16'–21.834" N LONGITUDE: 73°–07'–06.137" W GROUND ELEVATION: ±176' AMSL SITE COORDINATES AND GROUND ELEVATION REFERENCED FROM GOOGLE EARTH

SHEET INDEX

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REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
2	12/06/23	ASC	TJR	CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS
1	11/29/23	ASC	TJR	CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS
0	11/15/23	ASC	TJR	CONSTRUCTION DRAWINGS – ISSUED FOR CONSTRUCTION

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AT&T MOBILITY

CTL02044 – SHELTON NU PWR MT
EVERSOURCE STRUCTURE #19540
17 DAYBREAK LANE
SHELTON, CT 06484

DATE: 09/04/23
SCALE: AS NOTED
JOB NO. 23016.02

TITLE SHEET

T–1

Sheet No. 1 of 14

NOTES AND SPECIFICATIONS:

DESIGN BASIS:

GOVERNING CODE: 2021 INTERNATIONAL BUILDING (IBC) AS MODIFIED BY THE 2022 CONNECTICUT STATE BUILDING CODE.

1. DESIGN CRITERIA:

- RISK CATEGORY II (BASED ON IBC TABLE 1604.5)
- NOMINAL DESIGN SPEED: 97 MPH (Vasd)
  (EXPOSURE B/ IMPORTANCE FACTOR 1.0 BASED ON ASCE 7-16).

SITE NOTES

1. THE CONTRACTOR SHALL CALL UTILITIES PRIOR TO THE START OF CONSTRUCTION.
2. ACTIVE EXISTING UTILITIES, WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY, PRIOR TO PROCEEDING, SHOULD ANY UNCOVERED EXISTING UTILITY PRECLUDE COMPLETION OF THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
3. THE AREAS OF THE COMPOUND DISTURBED BY THE WORK SHALL BE RETURNED TO THEIR ORIGINAL CONDITION.
4. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
5. IF ANY FIELD CONDITIONS EXIST WHICH PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL PROCEED WITH AFFECTED WORK AFTER CONFLICT IS SATISFACTORILY RESOLVED.

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2021 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2022 CONNECTICUT SUPPLEMENT, INCLUDING THE TIA/EIA-222 REVISION "H" "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES." 2022 CONNECTICUT FIRE SAFETY CODE, NATIONAL ELECTRICAL CODE AND LOCAL CODES.
2. SHOULD ANY FIELD CONDITIONS PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL NOT PROCEED WITH ANY AFFECTED WORK.
3. CONTRACTOR SHALL REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUBCONTRACTORS AND ALL RELATED PARTIES. THE SUBCONTRACTORS SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT AFFECTS THEIR WORK.
4. BEFORE BEGINNING THE WORK, THE CONTRACTOR IS RESPONSIBLE FOR MAKING SUCH INVESTIGATIONS CONCERNING PHYSICAL CONDITIONS (SURFACE AND SUBSURFACE) AT OR CONTIGUOUS TO THE SITE, WHICH MAY AFFECT PERFORMANCE AND COST OF THE WORK.
5. ALL DIMENSIONS, ELEVATIONS, AND OTHER REFERENCES TO EXISTING STRUCTURES, SURFACE, AND SUBSURFACE CONDITIONS ARE APPROXIMATE. NO GUARANTEE IS MADE FOR THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. THE CONTRACTOR SHALL VERIFY AND COORDINATE ALL DIMENSIONS, ELEVATIONS AND ANGLES WITH EXISTING CONDITIONS AND WITH ARCHITECTURAL AND SITE DRAWINGS BEFORE PROCEEDING WITH ANY WORK.
6. AS THE WORK PROGRESSES, THE CONTRACTOR SHALL NOTIFY THE OWNER OF ANY CONDITIONS WHICH ARE IN CONFLICT OR OTHERWISE NOT CONSISTENT WITH THE CONSTRUCTION DOCUMENTS, AND SHALL NOT PROCEED WITH SUCH WORK UNTIL THE CONFLICT IS SATISFACTORILY RESOLVED.
7. CONTRACTOR SHALL PROVIDE A COMPLETE BUILD-OUT WITH ALL FINISHES, STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS AND PROVIDE ALL ITEMS AS SHOWN OR INDICATED ON THE DRAWINGS OR IN THE WRITTEN SPECIFICATIONS.
8. CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR AND EQUIPMENT TO COMPLETE THE WORK AND FURNISH A COMPLETED JOB ALL IN ACCORDANCE WITH LOCAL AND STATE GOVERNING AUTHORITIES AND OTHER AUTHORITIES HAVING LAWFUL JURISDICTION OVER THE WORK.
9. CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND ALL INSPECTIONS REQUIRED AND SHALL ALSO PAY FEES REQUIRED FOR THE GENERAL CONSTRUCTION, PLUMBING, ELECTRICAL, AND HVAC. PERMITS SHALL BE PAID FOR BY THE RESPECTIVE SUBCONTRACTORS.
10. CONTRACTOR SHALL MAINTAIN A CURRENT SET OF DRAWINGS AND SPECIFICATIONS ON SITE AT ALL TIMES AND INSURE DISTRIBUTION OF NEW DRAWINGS TO SUBCONTRACTORS AND OTHER RELEVANT PARTIES AS SOON AS THEY ARE MADE AVAILABLE. ALL OLD DRAWINGS SHALL BE MARKED VOID AND REMOVED FROM THE CONTRACT AREA. THE CONTRACTOR SHALL FURNISH AN 'AS-BUILT' SET OF DRAWINGS TO OWNER UPON COMPLETION OF PROJECT.
11. LOCATION OF EQUIPMENT AND WORK SUPPLIED BY OTHERS THAT IS DIAGRAMMATICALLY INDICATED ON THE DRAWINGS, SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL DETERMINE LOCATIONS AND DIMENSIONS SUBJECT TO STRUCTURAL CONDITIONS AND WORK OF THE SUBCONTRACTORS.
12. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY.
13. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUB-CONTRACTORS FOR ANY CONDITION PER THE MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
14. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
15. ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
16. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUBCONTRACTORS FOR ANY CONDITION PER MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
17. ANY AND ALL ERRORS, DISCREPANCIES, AND 'MISSED' ITEMS ARE TO BE BROUGHT TO THE ATTENTION OF THE AT&T CONSTRUCTION MANAGER DURING THE BIDDING PROCESS BY THE CONTRACTOR. ALL THESE ITEMS ARE TO BE INCLUDED IN THE BID. NO 'EXTRA' WILL BE ALLOWED FOR MISSED ITEMS.
18. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON-SITE SAFETY FROM THE TIME THE JOB IS AWARDED UNTIL ALL WORK IS COMPLETE AND ACCEPTED BY THE OWNER.
19. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE CONSTRUCTION MANAGER FOR REVIEW.
20. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES AND EXISTING CONDITIONS AT THE SITE, PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA.
21. COORDINATION, LAYOUT, FURNISHING AND INSTALLATION OF CONDUITS AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND CONFIRMED WITH THE PROJECT MANAGER AND OWNER PRIOR TO THE COMMENCEMENT OF ANY WORK
22. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
23. THE CONTRACTOR SHALL CONTACT 'CALL BEFORE YOU DIG' AT LEAST 48 HOURS PRIOR TO ANY EXCAVATIONS AT 1-800-922-4455. ALL UTILITIES SHALL BE IDENTIFIED AND CLEARLY MARKED. CONTRACTOR SHALL MAINTAIN AND PROTECT MARKED UTILITIES THROUGHOUT PROJECT COMPLETION.
24. CONTRACTOR SHALL COMPLY WITH THE OWNER'S ENVIRONMENTAL ENGINEER ON ALL METHODS AND PROVISIONS FOR ALL EXCAVATION ACTIVITIES INCLUDING SOIL DISPOSAL. ALL BACKFILL MATERIALS TO BE PROVIDED BY THE CONTRACTOR.
25. THE COUNTY/CITY/TOWN MAY MAKE PERIODIC FIELD INSPECTIONS TO ENSURE COMPLIANCE WITH THE DESIGN PLANS, SPECIFICATIONS, AND CONTRACT DOCUMENTS.
26. THE COUNTY/CITY/TOWN MUST BE NOTIFIED (2) WORKING DAYS PRIOR TO CONCEALMENT/BURIAL OF ANY SYSTEM OR MATERIAL THAT WILL PREVENT THE DIRECT INSPECTION OF MATERIALS, METHODS OR WORKMANSHIP. EXAMPLES OF THESE PROCESSES ARE BACKFILLING A GROUND RING OR TOWER FOUNDATION, POURING TOWER FOUNDATIONS, BURYING GROUND RODS, PLATES OR GRIDS, ETC. THE CONTRACTOR MAY PROCEED WITH THE SCHEDULED PROCESS (2) WORKING DAYS AFTER PROVIDING NOTICE UNLESS NOTIFIED OTHERWISE BY THE COUNTY/CITY/TOWN.
27. PRIOR TO THE SUBMISSION OF BIDS, THE CONTRACTOR SHALL VISIT THE 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 ENGINEER ON RECORD, PRIOR TO THE COMMENCEMENT OF ANY WORK.

ANTENNA/APPURTENANCE SCHEDULE

SECTOR	EXISTING/PROPOSED	ANTENNA (AT TOWER)	SIZE (INCHES) (L x W x D)	ANTENNA ℄ HEIGHT	AZIMUTH	(E/P) RRU (AT GRADE)	(E/P) TMA (AT TOWER) DIPLEXER (AT GRADE)	(QTY) PROPOSED HYBRID/COAX (AT TOWER)
A1	PROPOSED	(EMPTY)	–	–	–			(24) 1-5/8 COAX CABLES (2) 6 AWG DC CABLES (1) 18 PAIR FIBER CABLE
A2	PROPOSED	CCI (TPA65R-BU6DA-K)	71.2 x 20.7 x 7.7	120'	30°	(E) 4478 B14 (1), (E) RRUS32 B66A (1), (E) RRUS32 B30 (1)	(P) TMA2116F00V1-1 (2), (P) TBC0038F1V94-1 (2)	
A3	PROPOSED	ERICSSON (AIR6419 B77G)/(AIR6449 B77D)	30.4 x 15.9 x 8.1	120'	30°			
A4	PROPOSED	CCI (OPA65R-BU6DA)	71.2 x 20.7 x 7.7	120'	30°	(E) 4449 B5/B12 (1), (P) 4415 B25 (1)	(E) TMA2117F00V1-1 (2), (E) DBC2055F1V1-2 (2)	
B1	PROPOSED	(EMPTY)	–	–	–			
B2	PROPOSED	CCI (TPA65R-BU6DA-K)	71.2 x 20.7 x 7.7	120'	150°	(E) 4478 B14 (1), (E) RRUS32 B66A (1), (E) RRUS32 B30 (1)	(P) TMA2116F00V1-1 (2), (P) TBC0038F1V94-1 (2)	
B3	PROPOSED	ERICSSON (AIR6419 B77G)/(AIR6449 B77D)	30.4 x 15.9 x 8.1	120'	150°			
B4	PROPOSED	CCI (OPA65R-BU6DA)	71.2 x 20.7 x 7.7	120'	150°	(E) 4449 B5/B12 (1), (P) 4415 B25 (1)	(E) TMA2117F00V1-1 (2), (E) DBC2055F1V1-2 (2)	
C1	PROPOSED	(EMPTY)	–	–	–			
C2	PROPOSED	CCI (TPA65R-BU6DA-K)	71.2 x 20.7 x 7.7	120'	270°	(E) 4478 B14 (1), (E) RRUS32 B66A (1), (E) RRUS32 B30 (1)	(P) TMA2116F00V1-1 (2), (P) TBC0038F1V94-1 (2)	
C3	PROPOSED	ERICSSON (AIR6419 B77G)/(AIR6449 B77D)	30.4 x 15.9 x 8.1	120'	270°			
C4	PROPOSED	CCI (OPA65R-BU6DA)	71.2 x 20.7 x 7.7	120'	270°	(E) 4449 B5/B12 (1), (P) 4415 B25 (1)	(E) TMA2117F00V1-1 (2), (E) DBC2055F1V1-2 (2)	

NOTE:
ALL HYBRID/COAX LENGTHS TO BE MEASURED AND VERIFIED IN FIELD BEFORE ORDERING

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
2	12/06/23	ASC	TJR	CONSTRUCTION DRAWINGS - REVISED PER CLIENT COMMENTS
1	11/29/23	ASC	TJR	CONSTRUCTION DRAWINGS - REVISED PER CLIENT COMMENTS
0	11/15/23	ASC	TJR	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION

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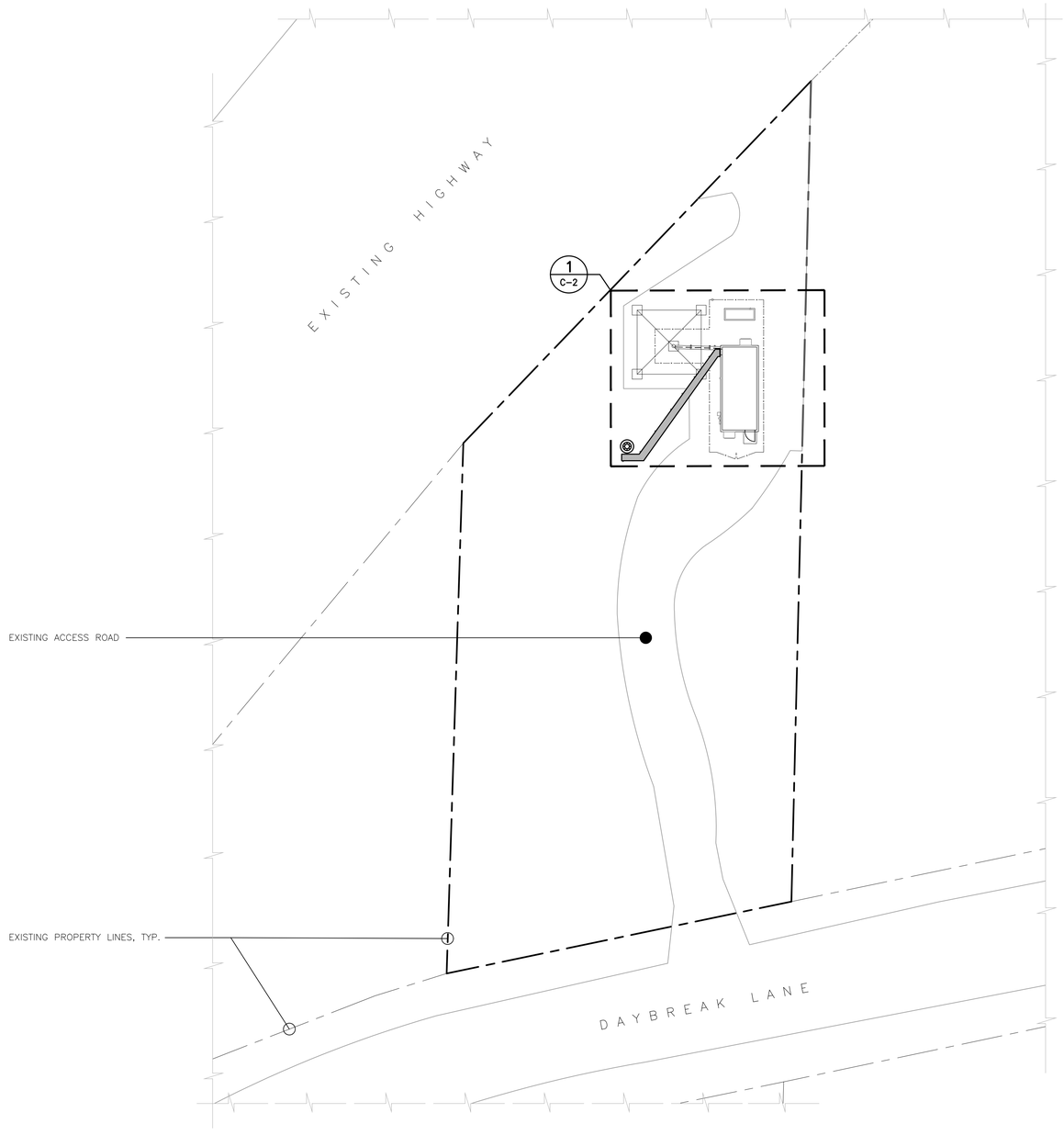
GENERAL NOTES, SPECIFICATIONS AND ANT. SCHEDULE

N-1

Sheet No. 2 of 14



1 / C-1 **SITE PLAN - PROPOSED** SCALE: 1" = 20'-0"

TRUE NORTH

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
2	12/06/23	ASC	TJR	CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS
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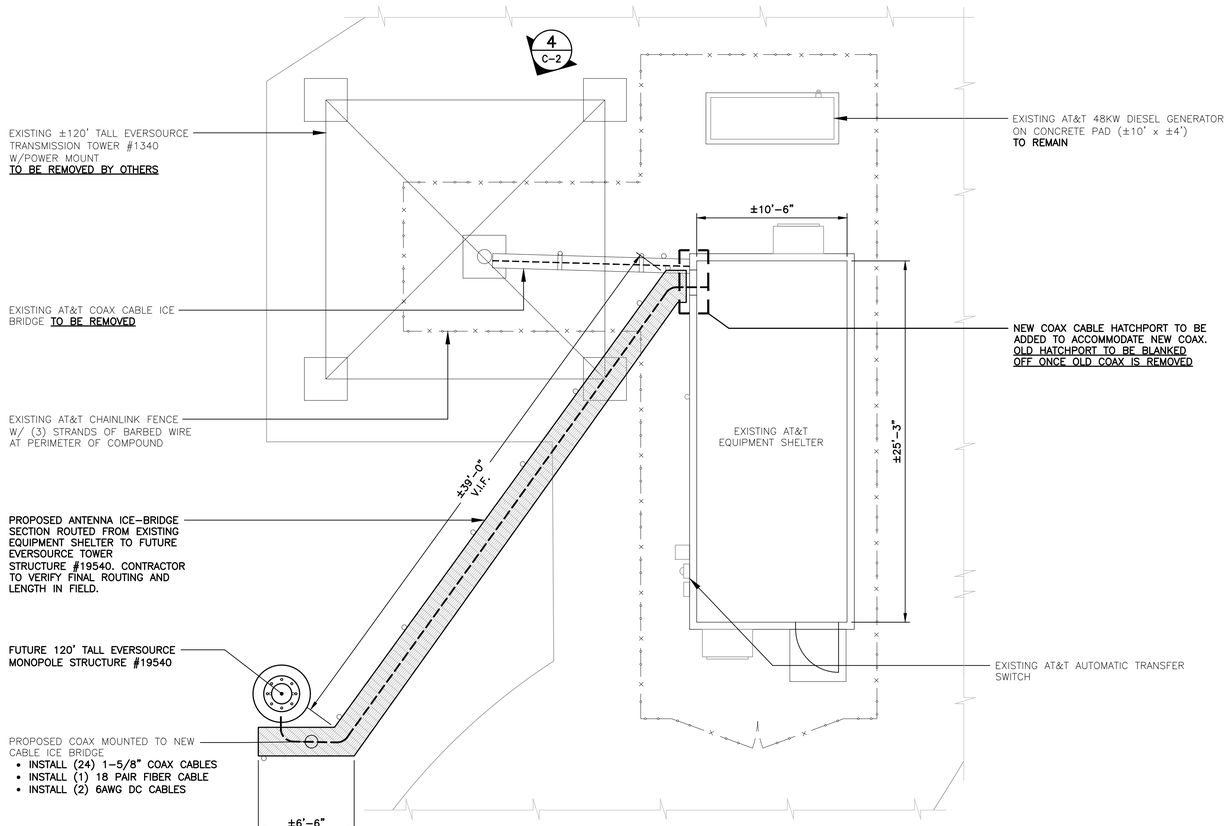
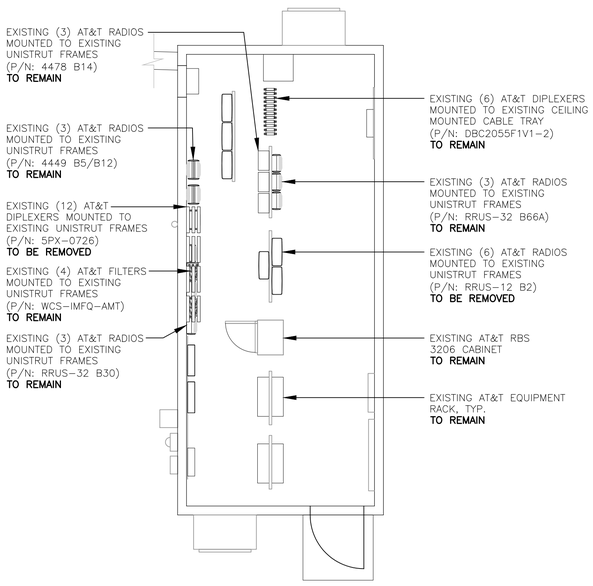
SITE PLAN

C-1

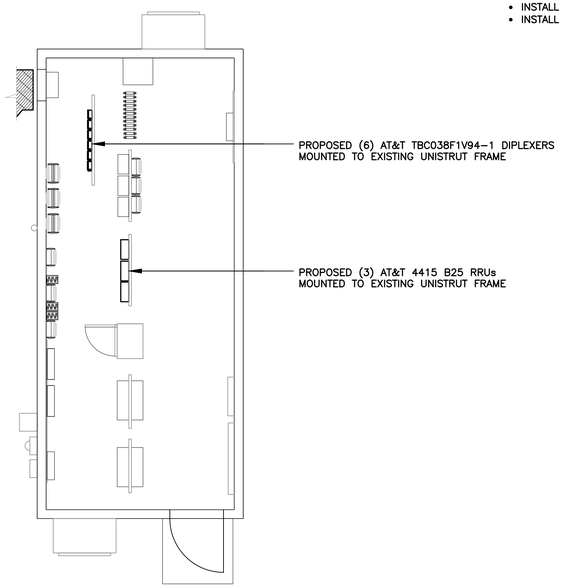
Sheet No. 3 of 14



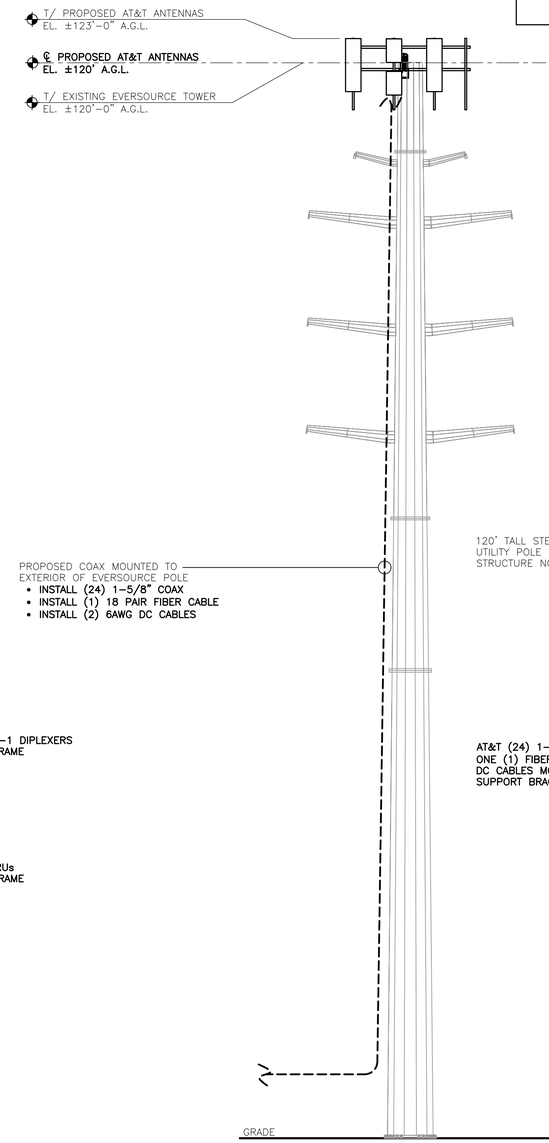
1 C-2 **COMPOUND PLAN - PROPOSED** TRUE NORTH
SCALE: 1" = 5'-0"



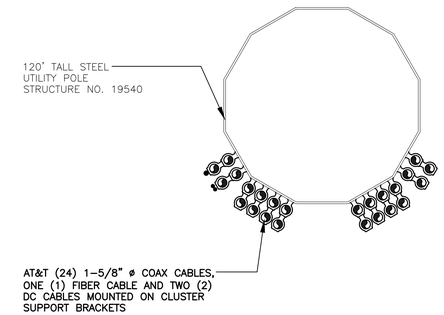
2 C-2 **EQUIPMENT PLAN - EXISTING** TRUE NORTH
SCALE: 1/4" = 1'-0"



3 C-2 **EQUIPMENT PLAN - PROPOSED** TRUE NORTH
SCALE: 1/4" = 1'-0"



4 C-2 **PROPOSED TOWER ELEVATION**
SCALE: 1" = 8'-0"



5 C-2 **COAX CABLE PLAN**
SCALE: NOT TO SCALE

STRUCTURAL COMPLIANCE

ANTENNA MOUNTS

A STRUCTURAL ANALYSIS OF THE ANTENNA MOUNTS WAS PERFORMED FOR THE PROPOSED EQUIPMENT INSTALLATION AND THEY WERE FOUND TO BE STRUCTURALLY SUFFICIENT TO ACCOMMODATE THE PROPOSED LOADING..

REFER TO THE ANTENNA MOUNT ANALYSIS REPORT PREPARED BY "TEP OPCO. LLC" (PROJECT # 350575) DATED 04/20/23 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

TOWER AND TOWER FOUNDATION

A STRUCTURAL ANALYSIS OF THE TOWER AND TOWER FOUNDATION WAS PERFORMED FOR THE PROPOSED EQUIPMENT INSTALLATION AND THEY WERE FOUND TO BE STRUCTURALLY SUFFICIENT TO ACCOMMODATE THE PROPOSED LOADING.

REFER TO THE STRUCTURAL ANALYSIS REPORT PREPARED BY "CENTEK ENGINEERING" (PROJECT # 23016.02) DATED 08/09/23 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

NOTE: NO EQUIPMENT SHALL BE INSTALLED ON THE HOSTING STRUCTURE WITHOUT A PASSING STRUCTURAL ANALYSIS REPORT AND CONTRACTOR PRIOR CONFIRMATION THAT ANY AND ALL REQUISITE MODIFICATIONS HAVE BEEN COMPLETED.

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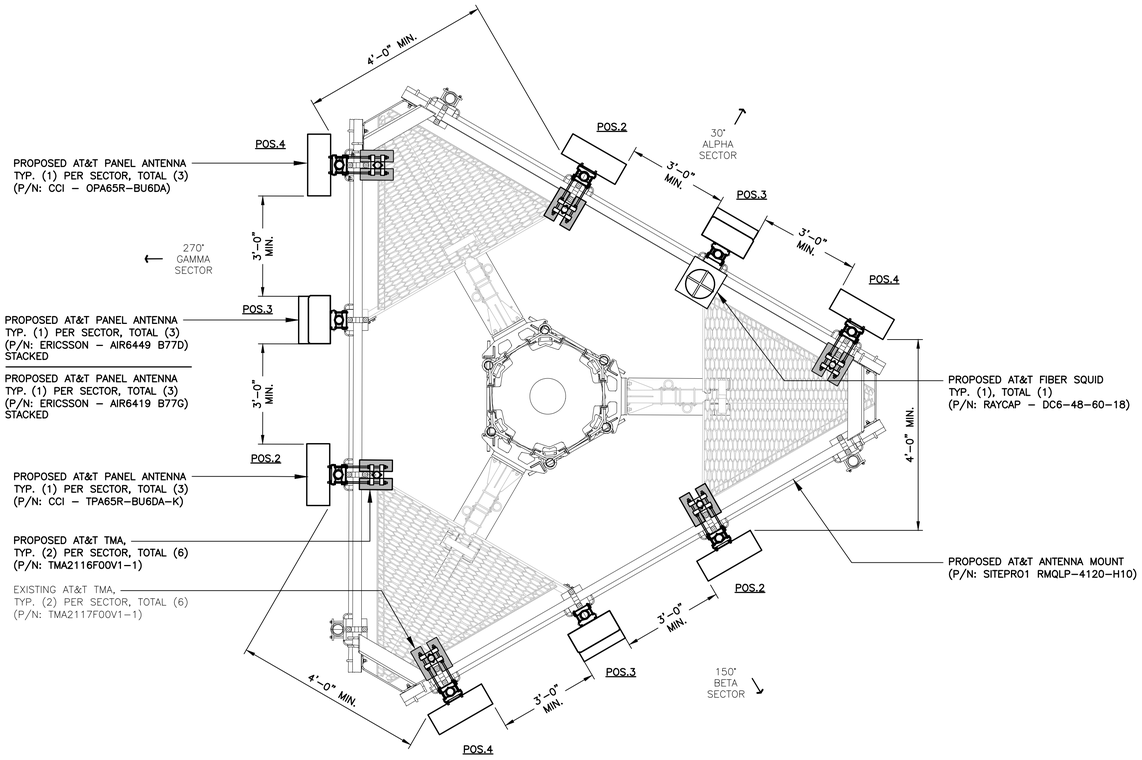
JOB NO.	23016.02

COMPOUND PLAN, EQUIPMENT PLANS AND ELEVATION

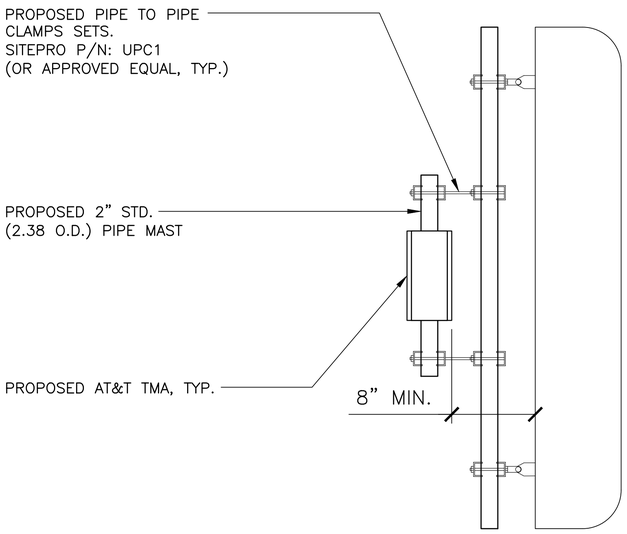
C-2

Sheet No. 4 of 14

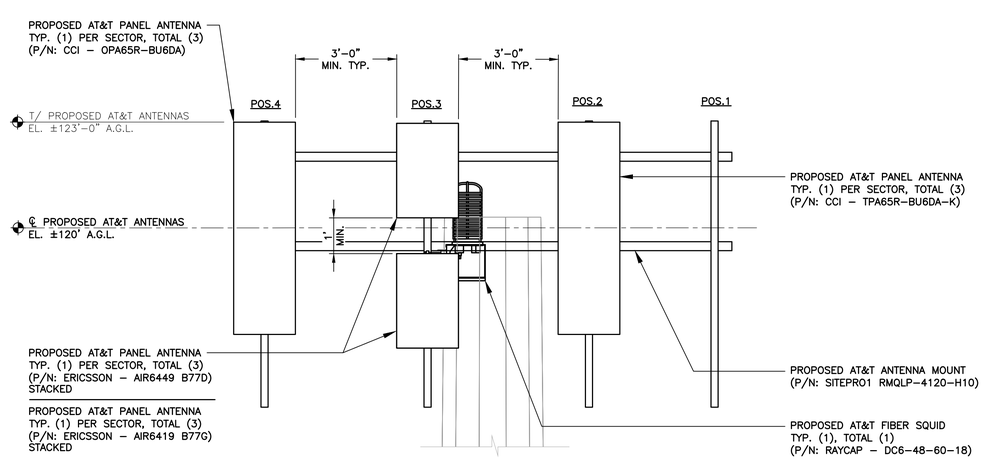


1 / C-3 **ANTENNA CONFIGURATION PLAN**
SCALE: 1/2" = 1' - 0"

TRUE NORTH



3 / C-3 **TYPICAL TMA MOUNTING DETAIL**
SCALE: NOT TO SCALE



2 / C-3 **TYPICAL ANTENNA CONFIGURATION ELEVATION**
SCALE: 1/2" = 1' - 0"

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
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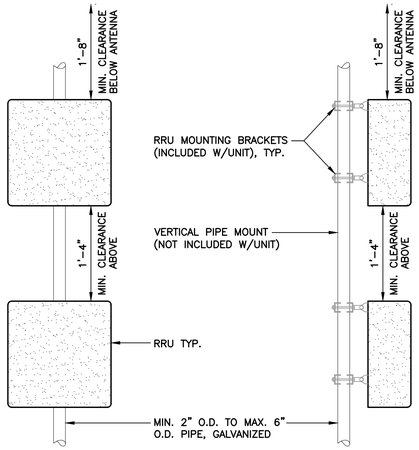
ANTENNA PLAN AND ELEVATIONS

C-3

Sheet No. 5 of 14

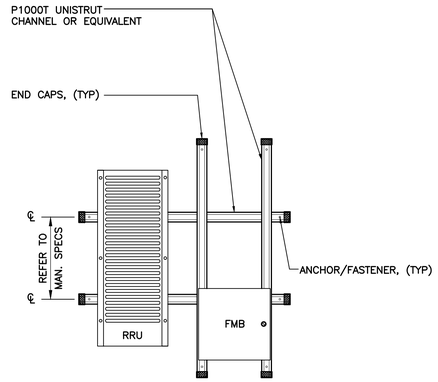


FRONT ELEVATION SIDE ELEVATION

NOTES: (PIPE MOUNTING)

1. AT&T SHALL SUPPLY RRU, AND RRU POLE–MOUNTING BRACKET. CONTRACTOR SHALL SUPPLY POLE/PIPE AND INSTALL ALL MOUNTING HARDWARE INCLUDING ERICSSON RRU POLE–MOUNTING BRACKET.
2. NO PAINTING OF THE RRU OR SOLAR SHIELD IS ALLOWED.

1 TYPICAL RRU MOUNTING DETAILS
C–4 SCALE: NOT TO SCALE



FRONT ELEVATION

NOTES: (UNISTRUT MOUNTING)

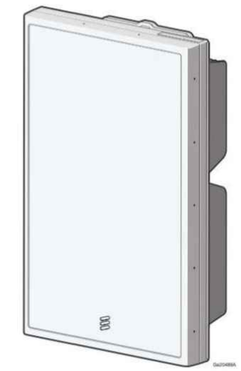
1. INSTALL A MINIMUM OF (2) ANCHORS PER UNISTRUT (± 16"o/c MIN).
2. MOUNT RRU TO UNISTRUT WITH 3/8"ø UNISTRUT BOLTING HARDWARE AND SPRING NUTS. TYPICAL FOUR PER BRACKET.
3. NO PAINTING OF THE RRU OR SOLAR SHIELD IS ALLOWED.

TPA65R-BU6DA-K

OPA65R-BU6DA

SECTOR ANTENNAS		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: CCI MODEL: TPA65R–BU6D	71.2"H x 20.7"W x 7.7"D	±68.3 LBS.
MAKE: CCI MODEL: OPA65R–BU6D	71.2"H x 20.7"W x 7.7"D	±63.3 LBS.
NOTES: 1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.		

2 PROPOSED ANTENNA DETAIL
C–4 SCALE: NOT TO SCALE



AIR6449 B77D / AIR6419 B77G

SECTOR ANTENNAS		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: ERICSSON MODEL: AIR6419 B77G	31.1"H x 16.1"W x 7.3"D	±55.4 LBS.
MAKE: ERICSSON MODEL: AIR6449 B77D	30.6"H x 15.9"W x 10.6"D	±95.5 LBS.
NOTES: 1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.		

3 PROPOSED ANTENNA DETAIL
C–4 SCALE: NOT TO SCALE

TBC0038F1V94-2

DIPLEXER		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: KAELUS MODEL: TBC0038F1V94–1	7.48"H x 6.3"W x 5.0"D	±13.2 LBS
NOTES: 1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.		

4 PROPOSED TRIPLEXER DETAIL
C–4 SCALE: NOT TO SCALE

TMA2116F00V1-1

TMA		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: KAELUS MODEL: TMA2116F00V1–1	11.8"H x 8.5"W x 4.8"D	±24.0 LBS
MAKE: KAELUS MODEL: TMA2117F00V1–1	11.8"H x 8.5"W x 4.8"D	±24.0 LBS
NOTES: 1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.		

5 PROPOSED TMA DETAIL
C–4 SCALE: NOT TO SCALE

RRU 4415 B25

RRU (REMOTE RADIO UNIT)		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: ERICSSON MODEL: 4415 B25	14.96"H x 13.2"W x 5.4"D	±44 LBS.
NOTES: 1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.		

6 PROPOSED RRU DETAILS
C–4 SCALE: NOT TO SCALE

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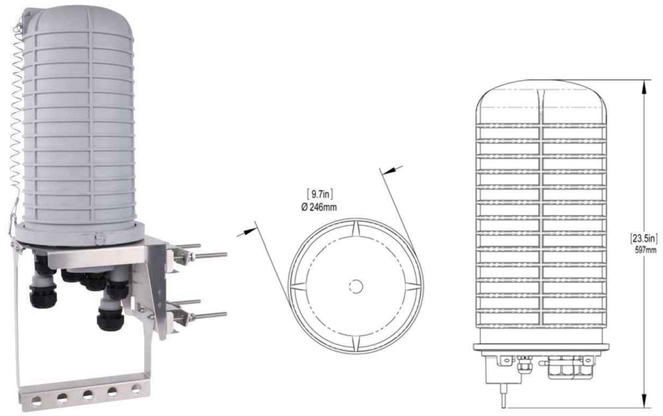
TYPICAL EQUIPMENT DETAILS

C-4

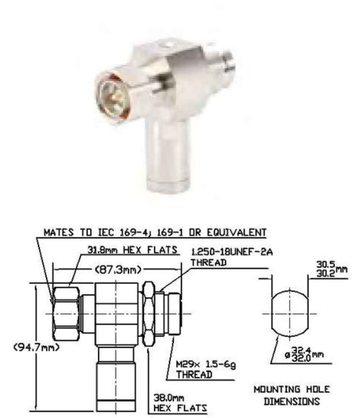
Sheet No. 6 of 14



DC6-48-60-18-8F

DC/FIBER SQUID		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: RAYCAP MODEL: DC6-48-60-18-8F	23.5"H x 9.7"D	±20 LBS
NOTES: 1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.		

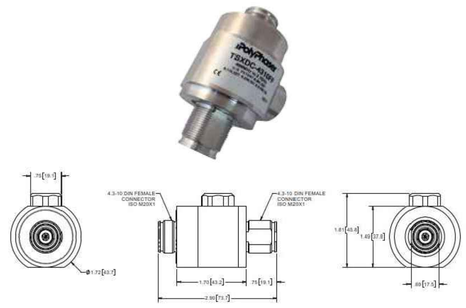
1 C-5 **PROPOSED SQUID DETAIL**
SCALE: NOT TO SCALE



APTDC-BDFDM-DB

SURGE ARRESTOR	
EQUIPMENT	DIMENSIONS
MAKE: COMMSCOPE MODEL: APTDC-BDFDM-DB	3.46"H x 3.46"L x 1.65"D
NOTES: 1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.	

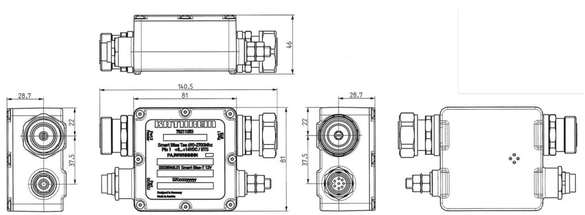
2 C-5 **PROPOSED SURGE ARRESTOR**
SCALE: NOT TO SCALE



TSXDC-4310FM

SURGE ARRESTOR	
EQUIPMENT	DIMENSIONS
MAKE: POLYPHASER MODEL: TSXDC-4310FM	2.9"H x 1.81"W x 1.72"D
NOTES: 1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.	

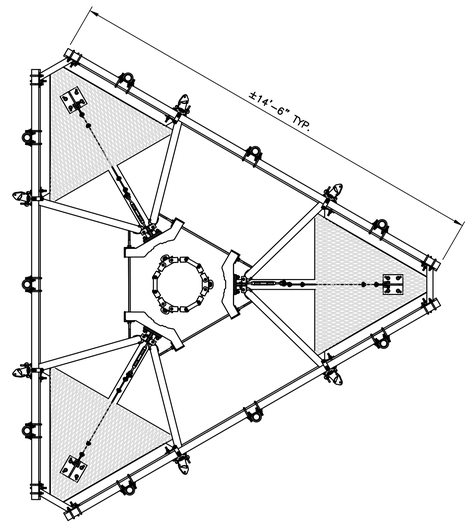
3 C-5 **PROPOSED SURGE ARRESTOR**
SCALE: NOT TO SCALE



K-SBT-782-11055

SMART BIAS-T	
EQUIPMENT	DIMENSIONS
MAKE: KATHREIN MODEL: K-SBT-782-11055	3.2"H x 3.2"W x 1.81"D
NOTES: 1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.	

4 C-5 **PROPOSED SMART BIAS-T**
SCALE: NOT TO SCALE



SITEPRO1:
RMQLP-4120-H10

5 C-5 **PLATFORM ANTENNA MOUNT DETAIL**
SCALE: NOT SCALE

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TYPICAL EQUIPMENT DETAILS

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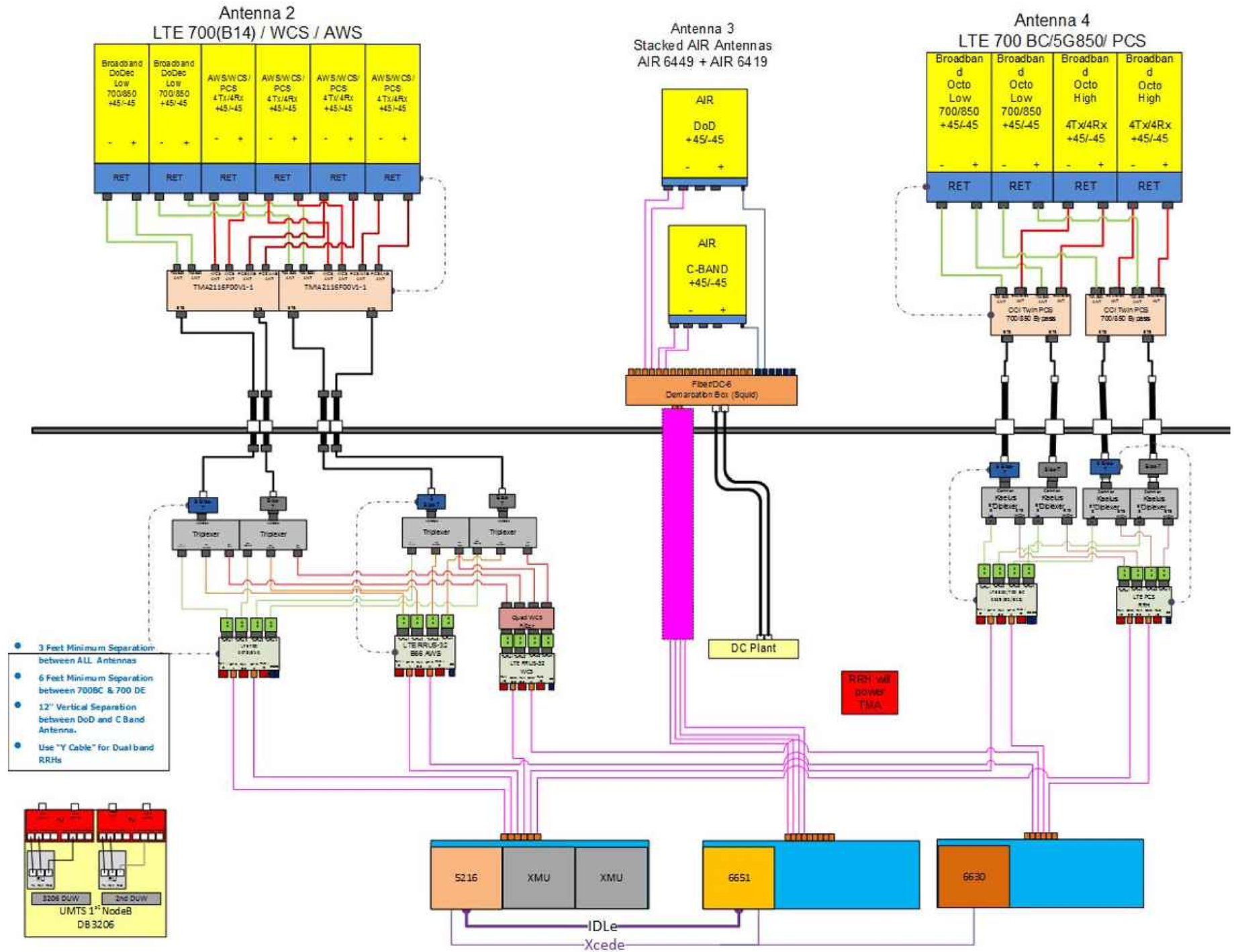
Sheet No. 7 of 14



ALPHA/BETA/GAMMA SECTOR

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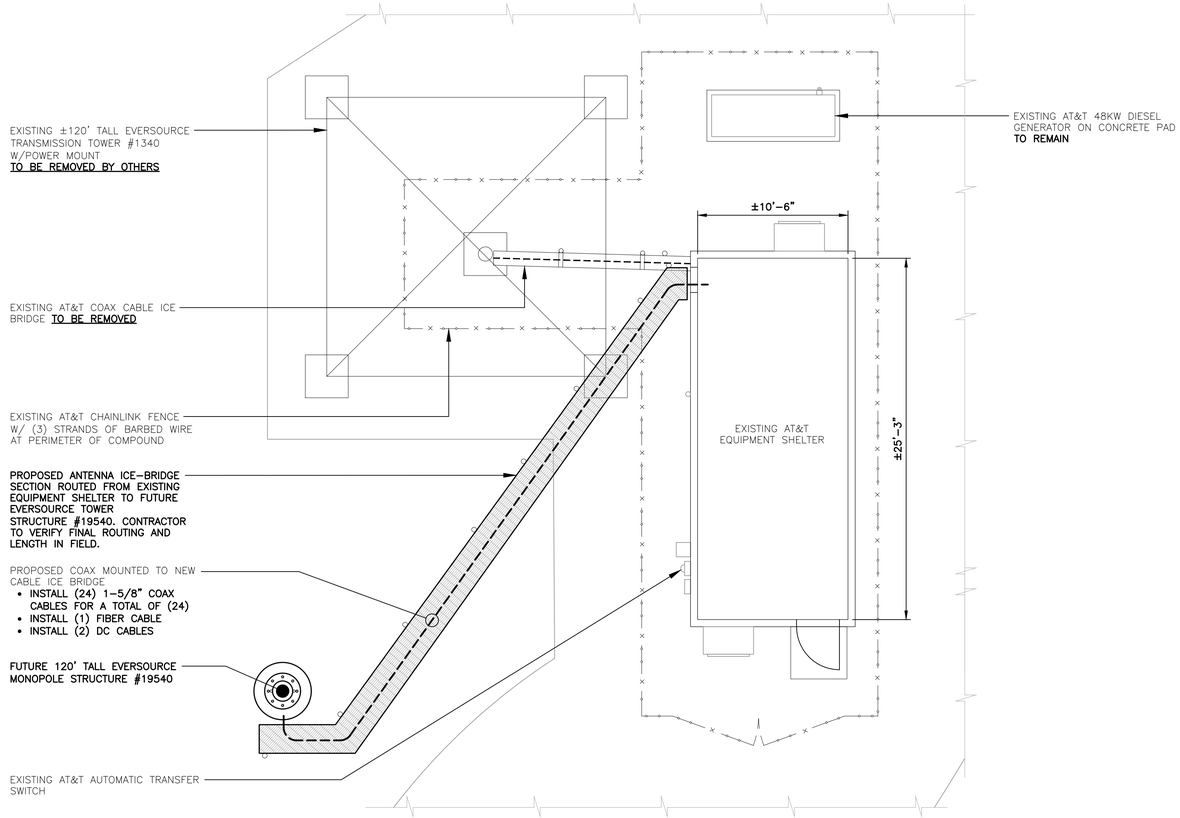
RF PLUMBING DIAGRAM

C-6



1 / E-1 **ELECTRICAL COMPOUND PLAN**

SCALE: 1/4" = 1'

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
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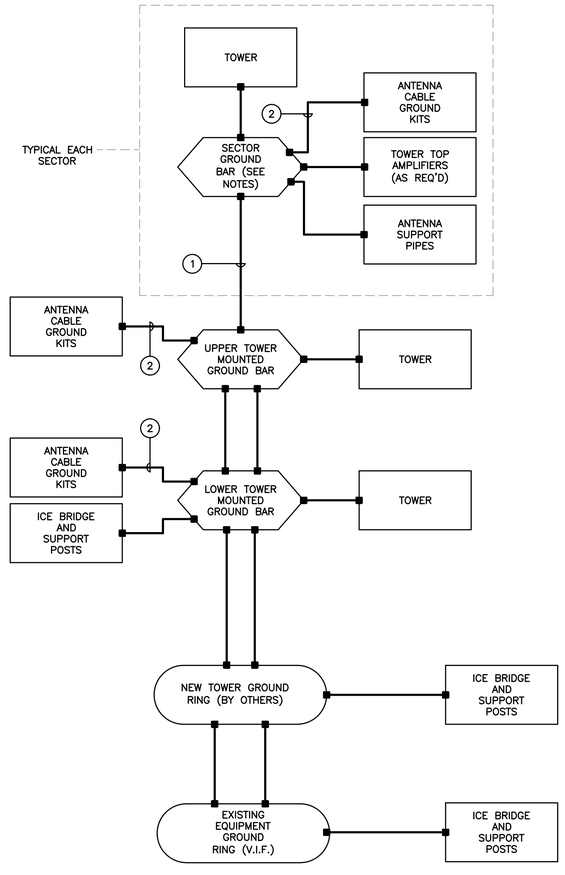
ELECTRICAL COMPOUND PLAN

E-1

Sheet No. 9 of 14



1 / E-2 **ELECTRICAL SCHEMATIC DIAGRAM**

SCALE: NOT TO SCALE

GROUNDING SCHEMATIC NOTES

(1) #2/0 GREEN INSULATED

(2) #6 AWG

GENERAL NOTES:

1. ALL SURGE SUPPRESSION EQUIPMENT SHALL BE BONDED TO GROUND PER MANUFACTURER'S SPECIFICATIONS
2. UNLESS OTHERWISE NOTED OR REQUIRED BY CODE, GROUND CONDUCTORS SHOWN SHALL BE #2 AWG (SOLID TINNED BCW – EXTERIOR; STRANDED GREEN INSULATED – INTERIOR).
3. BOND CABLE TRAY AND ICE BRIDGE SECTIONS TOGETHER WITH #6 AWG STRANDED GREEN INSULATED JUMPERS.
4. ALL SECTOR GROUND BARS SHALL BE BONDED TOGETHER WITH #2 AWG SOLID TINNED BCW.
5. BOND ALL EQUIPMENT CABINETS AND BATTERY CABINETS TO GROUND PER MANUFACTURER'S SPECIFICATIONS.
6. ALL BONDS TO TOWER SHALL BE MADE IN STRICT ACCORDANCE WITH SPECIFICATIONS OF TOWER MANUFACTURER OR STRUCTURAL ENGINEER.
7. REFER TO GROUNDING PLAN FOR LOCATION OF GROUNDING DEVICES.
8. REFER TO ALL ELECTRICAL AND GROUNDING DETAILS.
9. COORDINATE ALL TOWER MOUNTED EQUIPMENT WITH OWNER.
10. ALL TOWER MOUNTED AMPLIFIERS AND ASSOCIATED EQUIPMENT SHALL BE BONDED TO THE SECTOR GROUND BAR PER MANUFACTURER'S SPECIFICATIONS.
11. ALL GROUNDING SHALL BE IN ACCORDANCE WITH NEC AND OWNER'S REQUIREMENTS.
12. COORDINATE WITH EVERSOURCE TRANSMISSION DEPARTMENT REPRESENTATIVE TO DETERMINE ADDITIONAL GROUNDING REQUIREMENTS. PROVIDE ALL REQUIRED ELEMENTS TO MEET EVERSOURCE APPROVAL.
13. COORDINATE WITH TOWER OWNER BEFORE INSTALLING ANY GROUNDING ELEMENTS ON TOWER OR BONDING TO EXISTING TOWER GROUND RING.

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ELECTRICAL SCHEMATIC DIAGRAM

E-2

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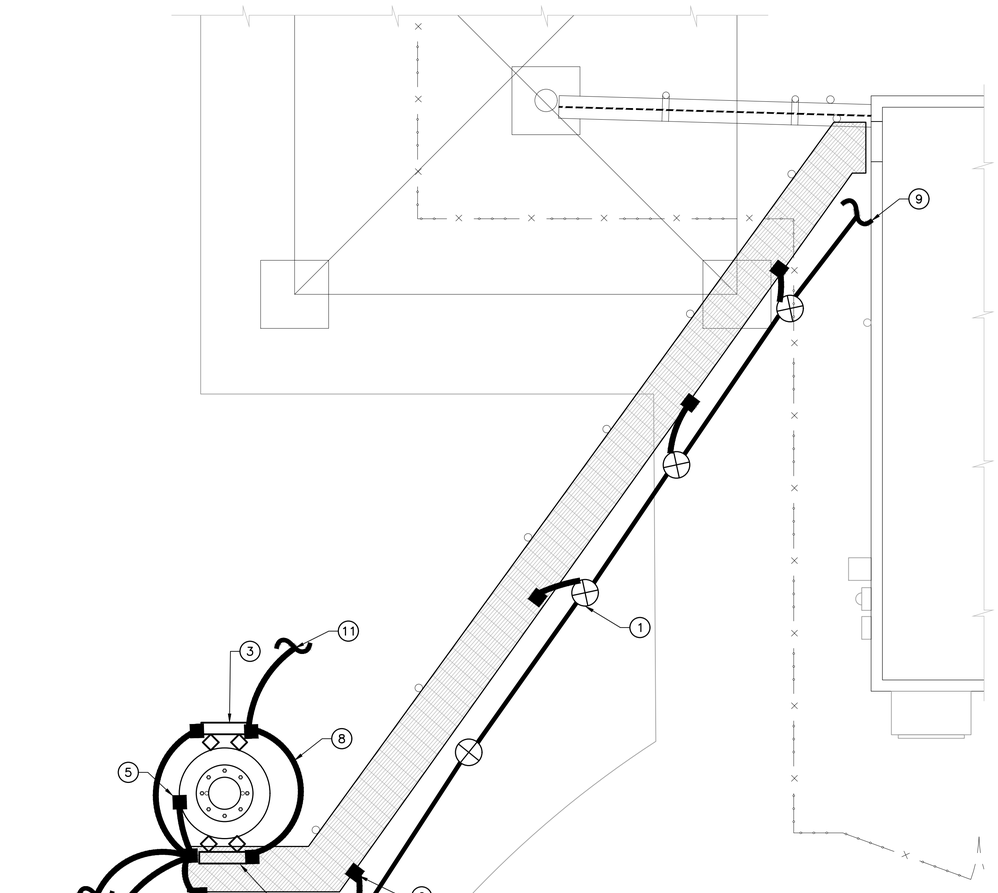
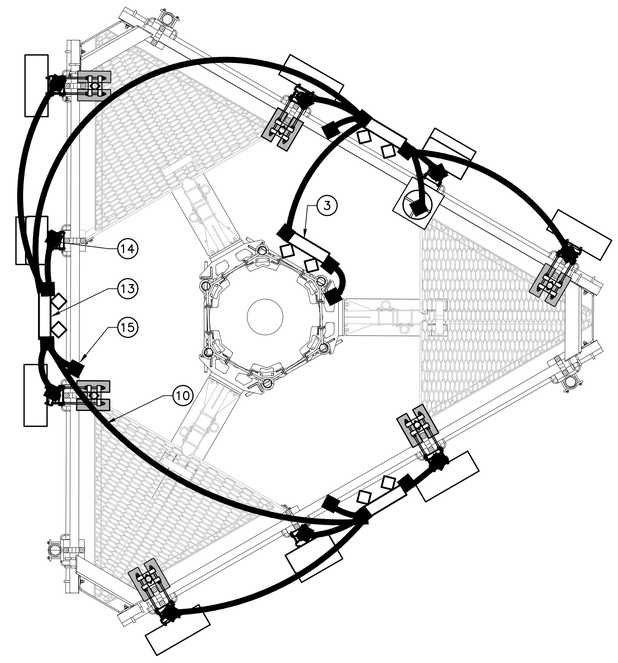
GROUNDING PLAN NOTES

1. GROUNDING ROD TYP.
2. LOWER TOWER MOUNTED GROUND BAR PER DETAILS.
3. UPPER TOWER MOUNTED GROUND BAR.
4. BOND GROUND BAR TO ICE-BRIDGE TYP.
5. BOND LOWER TOWER MOUNTED GROUND BAR TO TOWER STEEL
6. ICE BRIDGE POST AND COVER. BOND EACH SECTION AND SUPPORT TO GROUND RING.
7. BOND TO EXISTING TOWER GROUND RING. VERIFY LOCATION OF EXISTING GROUND RING IN FIELD.
8. BOND UPPER TOWER MOUNTED GROUND BAR TO LOWER TOWER MOUNTED GROUND BAR (2) GROUND LEADS.
9. BOND TO EXISTING COMPOUND GROUND RING. VERIFY LOCATION OF EXISTING GROUND RING IN FIELD.
10. ALL SECTOR GROUND BARS SHALL BE BONDED TOGETHER WITH #2 AWG SOLID TINNED BCW.
11. BOND UPPER TOWER MOUNTED GROUND BAR TO SECTOR GROUND BAR TYP.
12. BOND LOWER TOWER MOUNTED GROUND BAR TO EXISTING TOWER GROUND RING TYP 2 PLACES. VERIFY LOCATION OF EXISTING GROUND RING IN FIELD.
13. SECTOR GROUND BAR TYP.
14. BOND ANTENNA MOUNTING PIPES TO SECTOR GROUND BAR. (TYPICAL)
15. BOND SECTOR GROUND BAR TO TOWER STEEL.



1 E-3 **ELECTRICAL GROUNDING PLAN**
SCALE: NOT TO SCALE



2 E-3 **ELECTRICAL GROUNDING PLAN - ANTENNA**
SCALE: NOT TO SCALE

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ELECTRICAL GROUNDING PLANS

E-3

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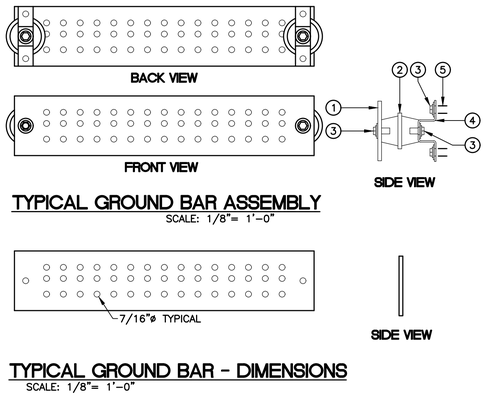
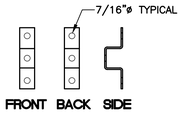


TYPICAL GROUND BAR ASSEMBLY
SCALE: 1/8"= 1'-0"

TYPICAL GROUND BAR - DIMENSIONS
SCALE: 1/8"= 1'-0"

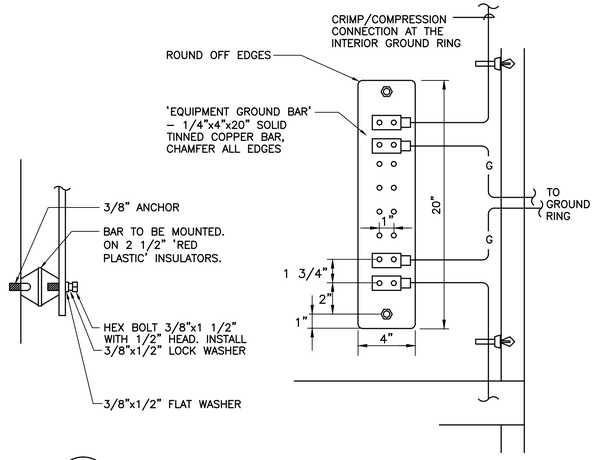
NOTES

1. HIGH CONDUCTIVITY TINNED COPPER BAR 1'-8"Lx4"Wx1/4"D.
2. RED COLORED STANDOFF INSULATOR PLASTIC #1872-1A.
3. STAINLESS STEEL TRUSS SPANNER MACHINE SCREWS, SPLIT LOCKWASHER AND FLAT WASHER.
4. 1"Wx1/8"T STAINLESS STEEL TYPE 304 BRACKET.
5. STAINLESS STEEL TYPE 304 HARDWARE - 3/8"ø EXPANSION BOLT FOR CONCRETE.

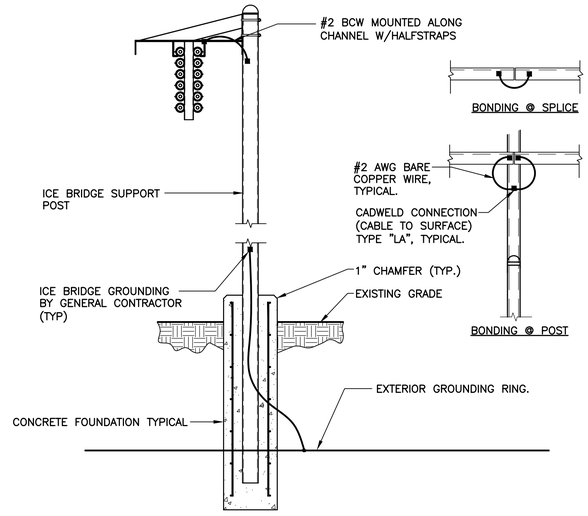


BRACKET FOR GROUND BAR-DIMENSIONS
SCALE: 1/8"= 1'-0"

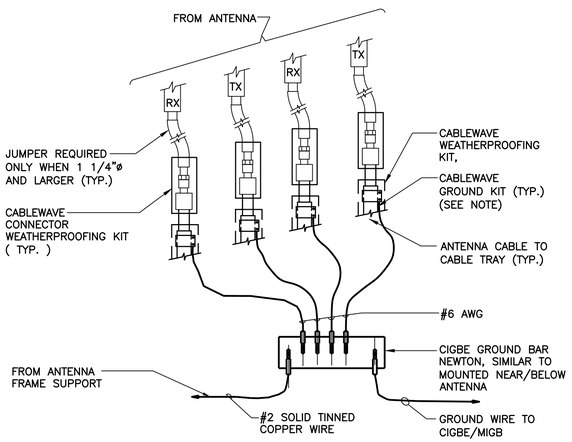
1 E-4 MASTER/EQUIPMENT GROUND BAR DETAILS
SCALE: NOT TO SCALE



2 E-4 EQUIPMENT GROUND BAR DETAIL
SCALE: NOT TO SCALE



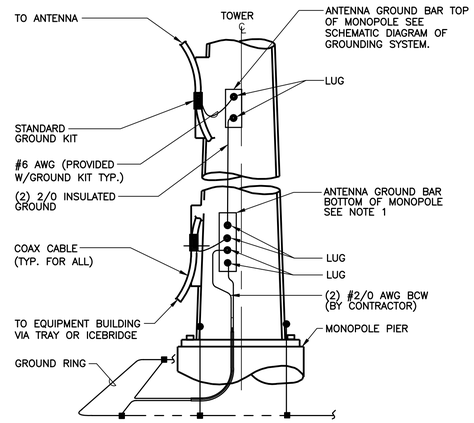
3 E-4 ICE BRIDGE BONDING DETAIL
SCALE: NOT TO SCALE



NOTES:

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

4 E-4 CONNECTION OF GROUND WIRES TO GROUND BAR
SCALE: NOT TO SCALE



NOTES:

1. NUMBER OF GROUND BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, LOCATION AND CONNECTION ORIENTATION. PROVIDE AS REQUIRED.
2. A SEPARATE GROUND BAR TO BE USED FOR GPS ANTENNA IF REQUIRED.

5 E-4 ANTENNA CABLE GROUNDING
SCALE: NOT TO SCALE

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
2	12/06/23	ASC	TJR	CONSTRUCTION DRAWINGS - REVISED PER CLIENT COMMENTS
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TYPICAL GROUNDING DETAILS

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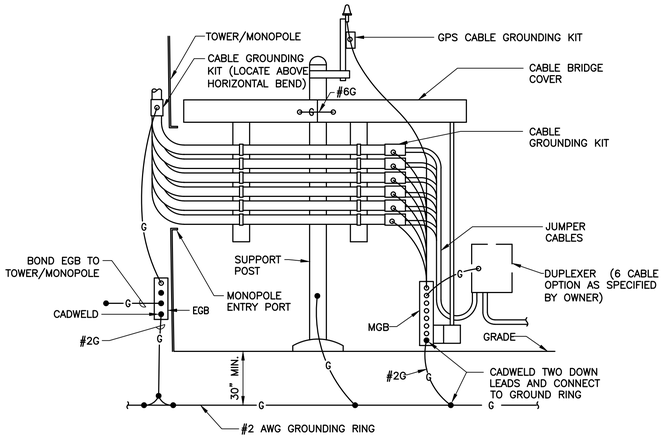
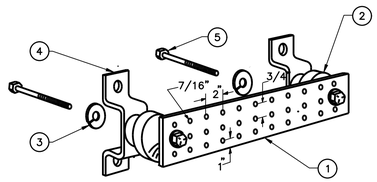


1 E-5 **CABLE BRIDGE GROUNDING DIAGRAM**

SCALE: NOT TO SCALE

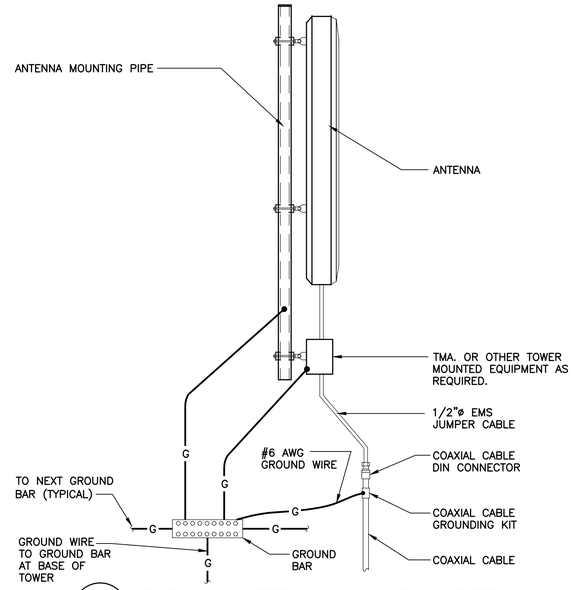


NOTES

1. TINNED COPPER GROUND BAR, 1/4" x 4" x 20", NEWTON INSTRUMENT CO. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.
2. INSULATORS, NEWTON INSTRUMENT CAT. NO. 3061-4.
3. 5/8" LOCK WASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8.
4. WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT NO. A-6056.
5. 5/8-11 x 1" STAINLESS STEEL TRUSS SPANNER MACHINE SCREWS.

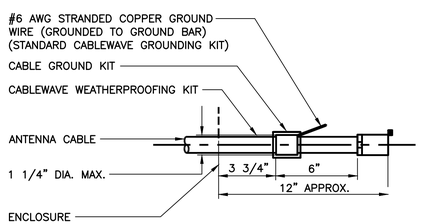
2 E-5 **GROUND BAR DETAIL**

SCALE: NOT TO SCALE



3 E-5 **TYPICAL ANTENNA GROUNDING DETAIL**

SCALE: NOT TO SCALE

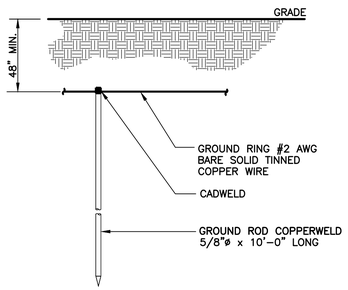


NOTES:

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

4 E-5 **ANTENNA CABLE GROUNDING DETAIL**

SCALE: NOT TO SCALE



NOTES:

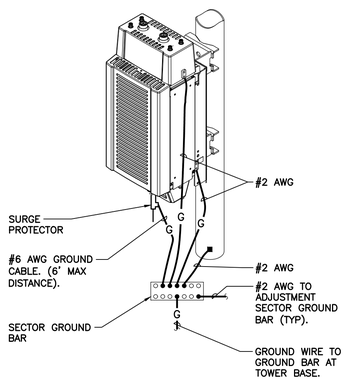
1. USE GROUND PLATE DETAIL IF 10 FT. GROUND ROD DEPTH CANNOT BE ACHIEVED DUE TO LEDGE CONDITION OR IF EXISTING TOWER FOUNDATION IS ENCOUNTERED.

5 E-5 **GROUND ROD DETAIL**

SCALE: NOT TO SCALE

EACH RRH CABINET SHALL BE GROUNDED IN THE FOLLOWING MANNER:

1. AT TOP OF THE CABINET
2. AT RIGHT SIDE OF THE CABINET.



6 E-5 **RRH POLE MOUNT GROUNDING**

SCALE: NOT TO SCALE

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
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TYPICAL GROUNDING DETAILS

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ELECTRICAL SPECIFICATIONS

SECTION 16010

1.02. GENERAL REQUIREMENTS

A. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE MADE IN STRICT ACCORDANCE WITH ALL LOCAL, STATE AND NATIONAL CODES AND REGULATIONS WHICH MAY APPLY AND NOTHING IN THE DRAWINGS OR SPECIFICATIONS SHALL BE INTERPRETED AS AN INFRINGEMENT OF SUCH CODES OR REGULATIONS.

B. THE ELECTRICAL CONTRACTOR IS TO BE RESPONSIBLE FOR THE COMPLETE INSTALLATION AND COORDINATION OF THE ENTIRE ELECTRICAL SERVICE. ALL ACTIVITIES TO BE COORDINATED THROUGH OWNERS REPRESENTATIVE, DESIGN ENGINEER AND OTHER AUTHORITIES HAVING JURISDICTION OF TRADES.

C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND PAY ALL FEES THAT MAY BE REQUIRED FOR THE ELECTRICAL WORK AND FOR THE SCHEDULING OF ALL INSPECTIONS THAT MAY BE REQUIRED BY THE LOCAL AUTHORITY.

D. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH THE BUILDING OWNER FOR NEW AND/OR DEMOLITION WORK INVOLVED.

E. NO MATERIAL OTHER THAN THAT CONTAINED IN THE "LATEST LIST OF ELECTRICAL FITTINGS" APPROVED BY THE UNDERWRITERS' LABORATORIES, SHALL BE USED IN ANY PART OF THE WORK. ALL MATERIAL FOR WHICH LABEL SERVICE HAS BEEN ESTABLISHED SHALL BEAR THE U.L. LABEL.

F. THE CONTRACTOR SHALL GUARANTEE ALL NEW WORK FOR A PERIOD OF ONE YEAR FROM THE ACCEPTANCE DATE BY THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING WARRANTIES FROM ALL EQUIPMENT MANUFACTURERS FOR SUBMISSION TO THE OWNER.

G. DRAWINGS INDICATE GENERAL ARRANGEMENT OF WORK INCLUDED IN CONTRACT. CONTRACTOR SHALL, WITHOUT EXTRA CHARGE, MAKE MODIFICATIONS TO THE LAYOUT OF THE WORK TO PREVENT CONFLICT WITH WORK OF OTHER TRADES AND FOR THE PROPER INSTALLATION OF WORK. CHECK ALL DRAWINGS AND VISIT JOB SITE TO VERIFY SPACE AND TYPE OF EXISTING CONDITIONS IN WHICH WORK WILL BE DONE, PRIOR TO SUBMITTAL OF BID.

H. THE ELECTRICAL CONTRACTOR SHALL SUPPLY THREE (3) COMPLETE SETS OF APPROVED DRAWINGS, ENGINEERING DATA SHEETS, MAINTENANCE AND OPERATING INSTRUCTION MANUALS FOR ALL SYSTEMS AND THEIR RESPECTIVE EQUIPMENT. THESE MANUALS SHALL BE INSERTED IN VINYL COVERED 3-RING BINDERS AND TURNED OVER TO OWNER'S REPRESENTATIVE ONE (1) WEEK PRIOR TO FINAL PUNCH LIST.

I. ALL WORK SHALL BE INSTALLED IN A NEAT AND WORKMAN LIKE MANNER AND WILL BE SUBJECT TO THE APPROVAL OF THE OWNER'S REPRESENTATIVE.

J. ALL EQUIPMENT AND MATERIALS TO BE INSTALLED SHALL BE NEW, UNLESS OTHERWISE NOTED.

K. BEFORE FINAL PAYMENT, THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF PRINTS (AS-BUILTS), LEGIBLY MARKED IN RED PENCIL TO SHOW ALL CHANGES FROM THE ORIGINAL PLANS.

L. PROVIDE TEMPORARY POWER AND LIGHTING IN WORK AREAS AS REQUIRED.

M. SHOP DRAWINGS:

1. CONTRACTOR SHALL SUBMIT SIX (6) COPIES OF SHOP DRAWINGS ON ALL EQUIPMENT AND MATERIALS PROPOSED FOR USE ON THIS PROJECT, GIVING ALL DETAILS, WHICH INCLUDE DIMENSIONS, CAPACITIES, ETC.

2. CONTRACTOR SHALL SUBMIT SIX (6) COPIES OF ALL TEST REPORTS CALLED FOR IN THE SPECIFICATIONS AND DRAWINGS.

N. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE IN ACCORDANCE WITH OWNER'S SPECIFICATIONS, AND REQUIREMENTS OF ALL LOCAL AUTHORITIES HAVING JURISDICTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH APPROPRIATE INDIVIDUALS TO OBTAIN ALL SUCH SPECIFICATIONS AND REQUIREMENTS. NOTHING CONTAINED IN, OR OMITTED FROM, THESE DOCUMENTS SHALL RELIEVE CONTRACTOR FROM THIS OBLIGATION.

SECTION 16111

1.01. CONDUITS

A. MINIMUM CONDUIT SIZE FOR BRANCH CIRCUITS, LOW VOLTAGE CONTROL AND ALARM CIRCUITS SHALL BE 3/4". CONDUITS SHALL BE PROPERLY FASTENED AS REQUIRED BY THE N.E.C.

B. THE INTERIOR OF RACEWAYS/ENCLOSURES INSTALLED UNDERGROUND SHALL BE CONSIDERED TO BE WET LOCATION, INSULATED CONDUCTORS SHALL BE LISTED FOR USE IN WET LOCATIONS. PROVIDE WEATHERPROOF CONSTRUCTION IN WET LOCATIONS.

C. CONDUIT INSTALLED UNDERGROUND SHALL BE INSTALLED TO MEET MINIMUM COVER REQUIREMENTS OF TABLE 300.5.

D. PROVIDE RIGID GALVANIZED STEEL CONDUIT (RMC) FOR THE FIRST 10 FOOT SECTION WHEN LEAVING A BUILDING OR SECTIONS PASSING THROUGH FLOOR SLABS

E. ONLY LISTED PVC CONDUIT AND FITTINGS ARE PERMITTED FOR THE INSTALLATION OF ELECTRICAL CONDUCTORS, SUITABLE FOR UNDERGROUND APPLICATIONS.

CONDUIT SCHEDULE SECTION 16111

CONDUIT TYPE	NEC REFERENCE	APPLICATION	MIN. BURIAL DEPTH (PER NEC TABLE 300.5) [2,3]
EMT	ARTICLE 358	INTERIOR CIRCUITING, EQUIPMENT ROOMS, SHELTERS	N/A
RMC, RIGID GALV. STEEL	ARTICLE 344, 300.5, 300.50	ALL INTERIOR/ EXTERIOR CIRCUITING, ALL UNDERGROUND INSTALLATIONS.	6 INCHES
PVC, SCHEDULE 40	ARTICLE 352, 300.5, 300.50	INTERIOR/ EXTERIOR CIRCUITING AND GROUNDING SYSTEMS, UNDERGROUND INSTALLATIONS, WHERE NOT SUBJECT TO PHYSICAL DAMAGE. [1]	18 INCHES
PVC, SCHEDULE 80	ARTICLE 352, 300.5, 300.50	INTERIOR/ EXTERIOR CIRCUITING AND GROUNDING SYSTEMS, UNDERGROUND INSTALLATIONS, WHERE SUBJECT TO PHYSICAL DAMAGE. [1]	18 INCHES
LIQUID TIGHT FLEX. METAL	ARTICLE 350	SHORT LENGTHS (MAX. 3FT.) WIRING TO VIBRATING EQUIPMENT IN WET LOCATIONS.	N/A
FLEX. METAL	ARTICLE 348	SHORT LENGTHS (MAX. 3FT.) WIRING TO VIBRATING EQUIPMENT IN WET LOCATIONS.	N/A

[1] PHYSICAL DAMAGE IS SUBJECT TO THE AUTHORITY HAVING JURISDICTION.

[2] UNDERGROUND CONDUIT INSTALLED UNDER ROADS, HIGHWAYS, DRIVEWAYS, PARKING LOTS SHALL HAVE MINIMUM DEPTH OF 24".

[3] WHERE SOLID ROCK PREVENTS COMPLIANCE WITH MINIMUM COVER DEPTHS, WIRING SHALL BE INSTALLED IN PERMITTED RACEWAY FOR DIRECT BURIAL. THE RACEWAY SHALL BE COVERED BY A MINIMUM OF 2" OF CONCRETE EXTENDING DOWN TO ROCK.

SECTION 16123

1.01. CONDUCTORS

A. ALL CONDUCTORS SHALL BE TYPE THWN (INT. APPLICATION) AND XHHW (EXT. APPLICATION), 75 DEGREE C, 600 VOLT INSULATION, SOFT ANNEALED STRANDED COPPER. #10 AWG AND SMALLER SHALL BE SPLICED USING ACCEPTABLE SOLDERLESS PRESSURE CONNECTORS. #8 AWG AND LARGER SHALL BE SPLICED USING COMPRESSION SPLIT-BOLT TYPE CONNECTORS. #12 AWG SHALL BE THE MINIMUM SIZE CONDUCTOR FOR LINE VOLTAGE BRANCH CIRCUITS. REFER TO PANEL SCHEDULE FOR BRANCH CIRCUIT CONDUCTOR SIZE(S). CONDUCTORS SHALL BE COLOR CODED FOR CONSISTENT PHASE IDENTIFICATION:

	120/208/240V	277/480V
LINE	COLOR	COLOR
A	BLACK	BROWN
B	RED	ORANGE
C	BLUE	YELLOW
N	CONTINUOUS WHITE	GREY
G	CONTINUOUS GREEN	GREEN WITH YELLOW STRIPE

B. MINIMUM BENDING RADIUS FOR CONDUCTORS SHALL BE 12 TIMES THE LARGEST DIAMETER OF BRANCH CIRCUIT CONDUCTOR.

SECTION 16130

1.01. BOXES

A. FURNISH AND INSTALL OUTLET BOXES FOR ALL DEVICES, SWITCHES, RECEPTACLES, ETC.. BOXES TO BE ZINC COATED STEEL.

B. FURNISH AND INSTALL PULL BOXES IN MAIN FEEDERS RUNS WHERE REQUIRED. PULL BOXES SHALL BE GALVANIZED STEEL WITH SCREW REMOVABLE COVERS, SIZE AND QUANTITY AS REQUIRED. PROVIDE WEATHERPROOF CONSTRUCTION IN WET LOCATIONS.

SECTION 16140

1.01. WIRING DEVICES

A. THE FOLLOWING LIST IS PROVIDED TO CONVEY THE QUALITY AND RATING OF WIRING DEVICES WHICH ARE TO BE INSTALLED. A COMPLETE LIST OF ALL DEVICES MUST BE SUBMITTED BEFORE INSTALLATION FOR APPROVAL.

1. 15 MINUTE TIMER SWITCH – INTERMATIC #FF15M (INTERIOR LIGHTS)

2. DUPLEX RECEPTACLE – P&S #2095 (GFCI) SPECIFICATION GRADE

3. SINGLE POLE SWITCH – P&S #CSB20AC2 (20A-120V HARD USE) SPECIFICATION GRADE

4. DUPLEX RECEPTACLE – P&S #5362 (20A-120V HARD USE) SPECIFICATION GRADE

B. PLATES – ALL PLATES USED SHALL BE CORROSION RESISTANT TYPE 304 STAINLESS STEEL. PLATES SHALL BE FROM SAME MANUFACTURER AS SWITCHES AND RECEPTACLES. PROVIDE WEATHERPROOF HOUSING FOR DEVICES LOCATED IN WET LOCATIONS.

C. OTHER MANUFACTURERS OF THE SWITCHES, RECEPTACLES AND PLATES MAY BE SUBMITTED FOR APPROVAL BY THE ENGINEER.

SECTION 16170

1.01. DISCONNECT SWITCHES

A. FUSIBLE AND NON-FUSIBLE, 600V, HEAVY DUTY DISCONNECT SWITCHES SHALL BE AS MANUFACTURED BY SQUARE "D". PROVIDE FUSES AS CALLED FOR ON THE CONTRACT DRAWINGS. AMPERE RATING SHALL BE CONSISTENT WITH LOAD BEING SERVED. DISCONNECT SWITCH COVER SHALL BE MECHANICALLY INTERLOCKED TO PREVENT COVER FROM OPENING WHEN THE SWITCH IS IN THE "ON" POSITION. EXTERIOR APPLICATIONS SHALL BE NEMA 3R CONSTRUCTION WITH PADLOCK FEATURE.

SECTION 16190

1.01. SEISMIC RESTRAINT

A. ALL DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH ZONE 2 SEISMIC REQUIREMENTS.

SECTION 16195

1.01. LABELING AND IDENTIFICATION NOMENCLATURE FOR ELECTRICAL EQUIPMENT

A. CONTRACTOR SHALL FURNISH AND INSTALL NON-METALLIC ENGRAVED BACK-LIT NAMEPLATES ON ALL PANELS AND MAJOR ITEMS OF ELECTRICAL EQUIPMENT.

B. LETTERS TO BE WHITE ON BLACK BACKGROUND WITH LETTERS 1-1/2 INCH HIGH WITH 1/4 INCH MARGIN.

C. IDENTIFICATION NOMENCLATURE SHALL BE IN ACCORDANCE WITH OWNER'S STANDARDS.

SECTION 16450

1.01. GROUNDING

A. ALL NON-CURRENT CARRYING PARTS OF THE ELECTRICAL AND TELEPHONE CONDUIT SYSTEMS SHALL BE MECHANICALLY AND ELECTRICALLY CONNECTED TO PROVIDE AN INDEPENDENT RETURN PATH TO THE EQUIPMENT GROUNDING SOURCES.

B. GROUNDING SYSTEM WILL BE IN ACCORDANCE WITH THE LATEST ACCEPTABLE EDITION OF THE NATIONAL ELECTRICAL CODE AND REQUIREMENTS PER LOCAL INSPECTOR HAVING JURISDICTION.

C. GROUNDING OF PANELBOARDS:

1. PANELBOARD SHALL BE GROUNDED BY TERMINATING THE PANELBOARD FEEDER'S EQUIPMENT GROUND CONDUCTOR TO THE EQUIPMENT GROUND BAR KIT(S) LUGGED TO THE CABINET. ENSURE THAT THE SURFACE BETWEEN THE KIT AND CABINET ARE BARE METAL TO BARE METAL. PRIME AND PAINT OVER TO PREVENT CORROSION.

2. CONDUIT(S) TERMINATING INTO THE PANELBOARD SHALL HAVE GROUNDING TYPE BUSHINGS. THE BUSHINGS SHALL BE BONDED TOGETHER WITH BARE #10 AWG COPPER CONDUCTOR WHICH IN TURN IS TERMINATED INTO THE PANELBOARD'S EQUIPMENT GROUND BAR KIT(S).

D. EQUIPMENT GROUNDING CONDUCTOR:

1. EACH EQUIPMENT GROUND CONDUCTOR SHALL BE SIZED IN ACCORDANCE WITH THE N.E.C. ARTICLE 250-122.

2. THE MINIMUM SIZE OF EQUIPMENT GROUND CONDUCTOR SHALL BE #12 AWG COPPER.

3. EACH FEEDER OR BRANCH CIRCUIT SHALL HAVE EQUIPMENT GROUND CONDUCTOR(S) INSTALLED IN THE SAME RACEWAY(S).

E. CELLULAR GROUNDING SYSTEM:

CONTRACTOR SHALL PROVIDE A CELLULAR GROUNDING SYSTEM WITH THE MAXIMUM AC RESISTANCE TO GROUND OF 10 OHM BETWEEN ANY POINT ON THE GROUNDING SYSTEM AS MEASURED BY 3-POINT GROUNDING TEST. (REFER TO SECTION 16960).

PROVIDE THE CELLULAR GROUNDING SYSTEM AS SPECIFIED ON DRAWINGS, INCLUDING, BUT NOT LIMITED TO:

1. GROUND BARS

2. EXTERIOR GROUNDING (WHERE REQUIRED DUE TO MEASURED AC RESISTANCE GREATER THAN SPECIFIED).

3. ANTENNA GROUND CONNECTIONS AND PLATES.

F. CONTRACTOR, AFTER COMPLETION OF THE COMPLETE GROUNDING SYSTEM BUT PRIOR TO CONCEALMENT/BURIAL OF SAME, SHALL NOTIFY OWNER'S PROJECT ENGINEER WHO WILL HAVE A DESIGN ENGINEER VISIT SITE AND MAKE A VISUAL INSPECTION OF THE GROUNDING GRID AND CONNECTIONS OF THE SYSTEM.

G. ALL EQUIPMENT SHALL BE BONDED TO GROUND AS REQUIRED BY N.E.C., MFG. SPECIFICATIONS, AND OWNER'S SPECIFICATIONS.

SECTION 16470

1.01. DISTRIBUTION EQUIPMENT

A. REFER TO CONTRACT DRAWINGS FOR DETAILS AND SCHEDULES.

SECTION 16477

1.01. FUSES

A. FUSES SHALL BE NONRENEWABLE TYPE AS MANUFACTURED BY "BUSSMAN" OR APPROVED EQUAL. FUSES RATED TO 1/10 AMPERE UP TO 600 AMPERES SHALL BE EQUIVALENT TO BUSSMAN TYPE LPN-RK (250V) UL CLASS RK1, LOW PEAK, DUAL ELEMENT, TIME-DELAY FUSES. FUSES SHALL HAVE SEPARATE SHORT CIRCUIT AND OVERLOAD ELEMENTS AND HAVE AN INTERRUPTING RATING OF 200 KAIC. UPON COMPLETION OF WORK, PROVIDE ONE SPARE SET OF FUSES FOR EACH TYPE INSTALLED.

SECTION 16960

1.01. TESTS BY INDEPENDENT ELECTRICAL TESTING FIRM

A. CONTRACTOR SHALL RETAIN THE SERVICES OF A LOCAL INDEPENDENT ELECTRICAL TESTING FIRM (WITH MINIMUM 5 YEARS COMMERCIAL EXPERIENCE IN THE ELECTRICAL TESTING INDUSTRY) AS SPECIFIED BY OWNER TO PERFORM:

TEST 1: THERMAL OVERLOAD AND MAGNETIC TRIP TEST, AND CABLE INSULATION TEST FOR ALL CIRCUIT BREAKERS RATED 100 AMPS OR GREATER.

TEST 2: RESISTANCE TO GROUND TEST ON THE CELLULAR GROUNDING SYSTEM.

THE TESTING FIRM SHALL INCLUDE THE FOLLOWING INFORMATION WITH THE REPORT:

1. TESTING PROCEDURE INCLUDING THE MAKE AND MODEL OF TEST EQUIPMENT.

2. CERTIFICATION OF TESTING EQUIPMENT CALIBRATION WITHIN SIX (6) MONTHS OF DATE OF TESTING. INCLUDE CERTIFICATION LAB ADDRESS AND TELEPHONE NUMBER.

3. GRAPHICAL DESCRIPTION OF TESTING METHOD ACTUALLY IMPLEMENTED.

B. THESE TESTS SHALL BE PERFORMED IN THE PRESENCE AND TO THE SATISFACTION OF OWNER'S CONSTRUCTION REPRESENTATIVE. TESTING DATA SHALL BE INITIALED AND DATED BY THE CONSTRUCTION REPRESENTATIVE AND INCLUDED WITH THE WRITTEN REPORT/ANALYSIS.

C. THE CONTRACTOR SHALL FORWARD SIX (6) COPIES OF THE INDEPENDENT ELECTRICAL TESTING FIRM'S REPORT/ANALYSIS TO ENGINEER A MINIMUM OF TEN (10) WORKING DAYS PRIOR TO THE JOB TURNOVER.

D. CONTRACTOR TO PROVIDE A MINIMUM OF ONE (1) WEEK NOTICE TO OWNER AND ENGINEER FOR ALL TESTS REQUIRING WITNESSING.

SECTION 16961

1.01. TESTS BY CONTRACTOR

A. ALL TESTS AS REQUIRED UPON COMPLETION OF WORK, SHALL BE MADE BY THIS CONTRACTOR. THESE SHALL BE CONTINUITY AND INSULATION TESTS; TEST TO DETERMINE THE QUALITY OF MATERIALS, ETC. AND SHALL BE MADE IN ACCORDANCE WITH N.E.C. RECOMMENDATIONS. ALL FEEDERS AND BRANCH CIRCUIT WIRING (EXCEPT CLASS 2 SIGNAL CIRCUITS) MUST BE TESTED FREE FROM SHORT CIRCUIT AND GROUND FAULT CONDITIONS AT 500V IN A REASONABLY DRY AMBIENT OF APPROXIMATELY 70 DEGREES F.

B. CONTRACTOR SHALL PERFORM LOAD PHASE BALANCING TESTS. CIRCUITS SHALL BE CONNECTED TO THE PANELBOARDS SO THAT THE NEW LOAD IS DISTRIBUTED AS EQUALLY AS POSSIBLE BETWEEN EACH LOAD AND NEUTRAL. 10% SHALL BE CONSIDERED AS A REASONABLE AND ACCEPTABLE ALLOWANCE. BRANCH CIRCUITS SHALL BE BALANCED ON THEIR OWN PANELBOARDS; FEEDER LOADS SHALL, IN TURN, BE BALANCED ON THE SERVICE EQUIPMENT. REASONABLE LOAD TEST SHALL BE ARRANGED TO VERIFY LOAD BALANCE IF REQUESTED BY THE ENGINEER.

C. ALL TESTS, UPON REQUEST, SHALL BE REPEATED IN THE PRESENCE OF OWNER'S REPRESENTATIVE. ALL TESTS SHALL BE DOCUMENTED AND TURNED OVER TO OWNER. OWNER SHALL HAVE THE AUTHORITY TO STOP ANY OF THE WORK NOT BEING PROPERLY INSTALLED. ALL SUCH DETECTED WORK SHALL BE REPAIRED OR REPLACED AT NO ADDITIONAL EXPENSE TO THE OWNER AND THE TESTS SHALL BE REPEATED.

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	11/15/23	ASC	TJR	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION
1	11/29/23	ASC	TJR	CONSTRUCTION DRAWINGS - REVISED PER CLIENT COMMENTS
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ELECTRICAL SPECIFICATIONS

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Sheet No. 14 of 14

CENTEK engineering

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Structural Analysis of Utility Pole

AT&T Site Ref: CT2044

Eversource Structure No. 19540

120' Tall Electric Transmission Pole

17 Daybreak Lane
Shelton, CT

CENTEK Project No. 23016.02

~~Date: July 14, 2023~~

Rev 1: August 9, 2023

Max Stress Ratio = 82.3%

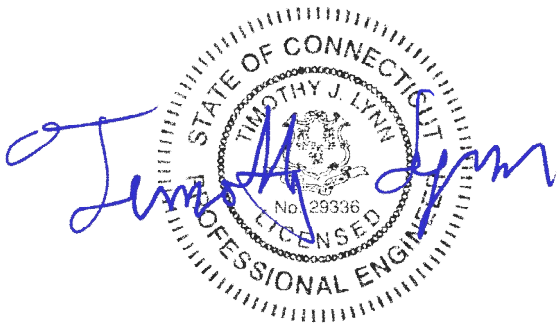

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Table of Contents

Introduction

The purpose of this report is to analyze the 120' utility pole located in Shelton, CT for the proposed antenna and equipment upgrade by AT&T.

The loads consist of the following:

- AT&T (Final Configuration):
  Antennas: Three (3) CCI TPA65R-BU6D panel antennas, three (3) Ericsson AIR6419 panel antennas, three (3) Ericsson AIR6449 panel antennas, three (3) CCI OPA65R-BU6D panel antennas, six (6) Kaelus TMA2116F00V1-1 TMAs, six (6) Kaelus TMA2117F00V1-1 TMAs and one (1) DC6-48-60-18 surge arrestor mounted on one (1) Platform (SitePro p/n RMQLP-4120-H10) to the utility pole with a RAD center elevation of 120-ft above grade.
  Cables: Twenty-four (24) 1-5/8" ∅ coax cables, one (1) fiber cable and two (2) DC cables mounted to the outside of the pole as indicated in Section 4 of this report.

Primary assumptions used in the analysis

- Design steel stresses are defined by AISC-LRFD 14th edition for design of the antenna Mast and antenna supporting elements.
- ASCE Manual No. 48-19, "Design of Steel Transmission Pole Structures", defines allowable steel stresses for evaluation of the utility pole.
- All utility pole members are adequately protected to prevent corrosion of steel members.
- All proposed antenna mounts are modeled as listed above.
- Pipe mast will be properly installed and maintained.
- No residual stresses exist due to incorrect pole erection.
- All bolts are appropriately tightened providing the necessary connection continuity.
- All welds conform to the requirements of AWS D1.1.
- Pipe mast and utility pole will be in plumb condition.
- Utility pole was properly installed and maintained and all members were properly designed, detailed, fabricated, and installed and have been properly maintained since erection.
- Any deviation from the analyzed loading will require a new analysis for verification of structural adequacy.

Analysis

Structural analysis of the utility pole was independently completed using the current version of PLSPole computer program licensed to CENTEK Engineering, Inc.

NESC prescribed loads for the proposed wireless equipment were calculated to analyze the utility tower. Section 5 of this report details these loads.

Design Basis

Our analysis was performed in accordance with ASCE 48-19, "Design of Steel Transmission Pole Structures", NESC C2-2023 and Eversource Design Criteria.

- UTILITY POLE ANALYSIS

  The purpose of this analysis is to determine the adequacy of the existing utility pole to support the proposed antenna loads. The loading and design requirements were analyzed in accordance with the Eversource Design Criteria Table, NESC C2-2023 ~ Construction Grade B, and ASCE Manual No. 48-19.

  Load cases considered:

  Load Case 1: NESC Heavy Wind
  Wind Pressure..... 4.0 psf
  Radial Ice Thickness..... 0.5"
  Vertical Overload Capacity Factor..... 1.50
  Wind Overload Capacity Factor..... 2.50
  Wire Tension Overload Capacity Factor..... 1.65

  Load Case 2: NESC Extreme Wind
  Wind Speed..... 110 mph (1)
  Radial Ice Thickness..... 0"

  Load Case 3: NESC Extreme Ice w/ Wind
  Wind Pressure..... 6.4 psf
  Radial Ice Thickness..... 0.75"
  Vertical Overload Capacity Factor..... 1.0
  Wind Overload Capacity Factor..... 1.0

  Note 1: NESC C2-2023, Section25, Rule 250C: Extreme Wind Loading, 1.25 x Gust Response Factor (wind speed: 3-second gust)

R e s u l t s

- UTILITY POLE

This analysis finds that the subject utility pole is adequate to support the proposed antenna mast and related appurtenances. The pole stresses meet the requirements set forth by the ASCE Manual No. 48-19, "Design of Steel Transmission Pole Structures", for the applied NESC Heavy and Hi-Wind load cases. The detailed analysis results are provided in Section 6 of this report. The analysis results are summarized as follows:

A maximum usage of **69.14%** occurs in the utility pole under the **NESC Extreme** loading condition.

POLE SECTION:

The utility pole was found to be within allowable limits.

Tower Section	Elevation	Stress Ratio (% of capacity)	Result
Section 4	0.00' -52.00' (AGL)	69.14%	**PASS**

BASE PLATE:

The base plate was found to be within allowable limits from the PLS output.

Tower Component	Design Limit	Stress Ratio (percentage of capacity)	Result
Base Plate	Bending	49.3%	**PASS**

FLANGE:

The flange bolts and flange plate were found to be within allowable limits.

Tower Component	Design Limit	Stress Ratio (% of capacity)	Result
Flange Bolts	Tension	64.7%	**PASS**
Flange Plate	Bending	54.4%	**PASS**

- FOUNDATION AND ANCHORS

The base of the tower is connected to the foundation by means of (24) 2.25"∅, ASTM A615-75 anchor bolts embedded into the concrete foundation structure. Review of the foundation consisted of a comparison of the base reactions obtained from the proposed tower analysis and the original foundation design.

BASE REACTIONS:

From PLS-Pole analysis of utility pole based on NESC/Eversource prescribed loads.

Load Case	Shear	Axial	Moment
NESC Heavy Wind	35.59 kips	115.42 kips	3163.43 ft-kips
NESC Extreme Wind	63.43 kips	66.34 kips	5531.30 ft-kips
NESC Extreme Ice w/ Wind	23.51 kips	102.40 kips	2103.76 ft-kips

Note 1 – 10% increase to be applied to tower base reactions for foundation verification per OTRM 051

ANCHOR BOLTS:

The anchor bolts were found to be within allowable limits.

Tower Component	Design Limit	Stress Ratio (% of capacity)	Result
Anchor Bolts	Tension	62.8%	**PASS**

FOUNDATION:

Force	Original Design Loading	Proposed Loading	Result
Moment	7,755 ft-kips	6,085 ft-kips	**PASS**
Shear	84.7 kips	69.7 kips	**PASS**

Note 1: Taken from Sabre design calculations.

Note 2: 10% increase applied to PLS base reactions used in foundation verification per OTRM 051.

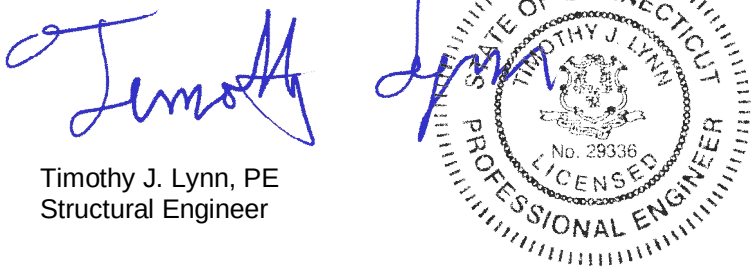
Conclusion

This analysis shows that the subject utility pole **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 are performed, results obtained, and recommendations made 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 ~ PLS-POLE

PLS-POLE provides all of the capabilities a structural engineer requires to design transmission, substation or communications structures. It does so using a simple easy to use graphical interface that rests upon our time tested finite element engine. Regardless of whether you want to model a simple wood pole or a guyed steel X-Frame; PLS-POLE can handle the job simply, reliably and efficiently.

Modeling Features:

- Structures are made of standard reusable components that are available in libraries. You can easily create your own libraries or get them from a manufacturer
- Structure models are built interactively using interactive menus and graphical commands
- Automatic generation of underlying finite element model of structure
- Steel poles can have circular, 4, 6, 8, 12, 16, or 18-sided, regular, elliptical or user input cross sections (flat-to-flat or tip-to-tip orientations)
- Steel and concrete poles can be selected from standard sizes available from manufacturers
- Automatic pole class selection
- Cross brace position optimizer
- Capability to specify pole ground line rotations
- Capability to model foundation displacements
- Can optionally model foundation stiffness
- Guys are easily handled (modeled as exact cable elements in nonlinear analysis)
- Powerful graphics module (members color-coded by stress usage)
- Graphical selection of joints and components allows graphical editing and checking
- Poles can be shown as lines, wire frames or can be rendered as 3-d polygon surfaces

Analysis Features:

- Automatic distribution of loads in 2-part suspension insulators (v-strings, horizontal vees, etc.)
- Design checks for ASCE, ANSI/TIA/EIA 222 (Revisions F and G) or other requirements
- Automatic calculation of dead and wind loads
- Automated loading on structure (wind, ice and drag coefficients) according to:
    - ASCE 74-1991
    - NESC 2002
    - NESC 2007
    - IEC 60826:2003
    - EN50341-1:2001 (CENELEC)
    - EN50341-3-9:2001 (UK NNA)
    - EN50341-3-17:2001 (Portugal NNA)
    - ESAA C(b)1-2003 (Australia)
    - TPNZ (New Zealand)
    - REE (Spain)
    - EIA/TIA 222-F
    - ANSI/TIA 222-G
    - CSA S37-01
- Automated microwave antenna loading as per EIA/TIA 222-F and ANSI/TIA 222-G
- Detects buckling by nonlinear analysis

Results Features:

- Detects buckling by nonlinear analysis
- Easy to interpret text, spreadsheet and graphics design summaries
- Automatic determination of allowable wind and weight spans
- Automatic determination of interaction diagrams between allowable wind and weight spans
- Automatic tracking of part numbers and costs

Criteria for Design of PCS Facilities On or Extending Above Metal Electric Transmission Towers & Analysis of Transmission Towers Supporting PCS Masts (1)

Introduction

This criteria is the result from an evaluation of the methods and loadings specified by the separate standards, which are used in designing telecommunications towers and electric transmission towers. That evaluation is detailed elsewhere, but in summary; the methods and loadings are significantly different. This criteria specifies the manner in which the appropriate standard is used to design PCS facilities including masts and brackets (hereafter referred to as "masts"), and to evaluate the electric transmission towers to support PCS masts. The intent is to achieve an equivalent level of safety and security under the extreme design conditions expected in Connecticut and Massachusetts.

ANSI Standard TIA-222-H covering the design of telecommunications structures specifies LRFD design approach. This approach applies the loads from extreme weather loading conditions, and designs the structure so that it does not exceed code defined percentage of failure strength.

ANSI Standard C2-2023 (National Electrical Safety Code) covering the design of electric transmission metal structures is based upon an ultimate strength/yield stress design approach. This approach applies a multiplier (overload capacity factor) to the loads possible from extreme weather loading conditions, and designs the structure so that it does not exceed its ultimate strength (yield stress).

Each standard defines the details of how loads are to be calculated differently. Most of the Eversource effort in "unifying" both codes was to establish what level of strength each approach would provide, and then increasing the appropriate elements of each to achieve a similar level of security under extreme weather loadings.

Two extreme weather conditions are considered. The first is an extreme wind condition (hurricane) based upon a 1700-year recurrence for TIA-22-H risk category III and a 100-year recurrence for NESC Grade B. The second is a winter condition combining wind and ice loadings.

The following sections describe the design criteria for any PCS mast extending above the top of an electric transmission tower, and the analysis criteria for evaluating the loads on the transmission tower from such a mast from the lower portions of such a mast, and loads on the pre-existing electric lower portions of such a mast, and loads on the pre-existing electric transmission tower and the conductors it supports.

Note 1: Prepared from documentation provide from Northeast Utilities.

P C S M a s t

The PCS facility (mast, external cable/trays, including the initial and any planned future support platforms, antennas, etc. extending the full height above the top level of the electric transmission structure) shall be designed in accordance with the provisions of TIA 222-H:

E L E C T R I C T R A N S M I S S I O N T O W E R

The electric transmission tower shall be analyzed using yield stress theory in accordance with the attached table titled “Eversource Design Criteria”. This specifies uniform loadings (different from the TIA loadings) on the each of the following components of the installed facility:

- PCS mast for its total height above ground level, including the initial and planned future support platforms, antennas, etc. above the top of an electric transmission structure.
- Conductors are related devices and hardware.
- Electric transmission structure. The loads from the PCS facility and from the electric conductors shall be applied to the structure at conductor and PCS mast attachment points, where those load transfer to the tower.

The uniform loadings and factors specified for the above components in the table are based upon the National Electrical Safety Code 2023 Edition Extreme Wind (Rule 250C) and Combined Ice and Wind (Rule 250B-Heavy) Loadings. These provide equivalent loadings compared to TIA and its loads and factors with the exceptions noted above. (Note that the NESC does not require the projected wind surfaces of structures and equipment to be increased by the ice covering.)

In the event that the electric transmission tower is not sufficient to support the additional loadings of the PCS mast, reinforcement will be necessary to upgrade the strength of the overstressed members.

Attachment A
Eversource Design Criteria

		Attachment A ES Design Criteria	Basic Wind Speed	Pressure	Height Factor	Gust Factor	Load or Stress Factor	Force Coef. - Shape Factor
			V (MPH)	Q (PSF)	Kz	Gh		
Ice Condition	TIA/EIA	Antenna Mount	TIA	TIA (0.75Wi)	TIA	TIA	TIA, Section 3.1.1.1 disallowed for connection design	TIA
	NESC Heavy	Tower/Pole Analysis with antennas extending above top of Tower/Pole (Yield Stress)	-----	4	1	1	2.5	1.6 Flat Surfaces 1.3 Round Surfaces
		Tower/Pole Analysis with antennas below top of Tower/Pole (on two faces)	-----	4	1	1	2.5	1.6 Flat Surfaces 1.3 Round Surfaces
		Conductors:	Conductor Loads Provided by ES					
High Wind Condition	TIA/EIA	Antenna Mount	85	TIA	TIA	TIA	TIA, Section 3.1.1.1 disallowed for connection design	TIA
	NESC Extreme Wind	Tower/Pole Analysis with antennas extending above top of Tower/Pole	For wind speed use OTRM 060 Map 1, Rule 250C: Extreme Wind Loading Apply a 1.25 x Gust Response Factor to all telecommunication equipment projected above top of tower/pole and apply a 1.0 x Gust Response Factor to the tower/pole structure					1.6 Flat Surfaces 1.3 Round Surfaces
		Tower/Pole Analysis with antennas below top of Tower/Pole	For wind speed use OTRM 060 Map 1, Rule 250C: Extreme Wind Loading Height above ground is based on overall height to top of tower/pole					1.6 Flat Surfaces 1.3 Round Surfaces
		Conductors:	Conductor Loads Provided by ES					
NESC Extreme Ice with Wind Condition*		Tower/Pole Analysis with antennas extending above top of Tower/Pole	For wind speed use OTRM 060 Map 1, Rule 250D: Extreme Ice with Wind Loading 4 PSF Wind Load 1.25 x Gust Response Factor Apply a 1.25 x Gust Response Factor to all telecommunication equipment projected above top of tower/pole and apply a 1.0 x Gust Response Factor to the tower/pole structure					1.6 Flat Surfaces 1.3 Round Surfaces
		Tower/Pole Analysis with antennas below top of Tower/Pole	For wind speed use OTRM 060 Map 1, Rule 250D: Extreme Ice with Wind Loading 4 PSF Wind Load Height above ground is based on overall height to top of tower/pole					1.6 Flat Surfaces 1.3 Round Surfaces
		Conductors:	Conductor Loads Provided by ES					
		*Only for structures installed after 2007						

determined from NESC applied loading conditions (not TIA Loads) on the structure and mount as specified below, and shall include the wireless communication mast and antenna loads per NESC criteria)

The strength reduction factor obtained from the field investigation shall be applied to the members or connections that are showing signs of deterioration from their original condition With the written approval of Eversource Transmission Line Engineering on a case by case the existing structures may be analyzed initially using the current NESC code, then it is permitted to use the original design code with the original conductor load should the existing tower fail the current NESC code.

The structure shall be analyzed using yield stress theory in accordance with Attachment A, "Eversource Design Criteria." This specifies uniform loadings (different from the TIA loadings) on each of the following components of the installed facility:

a) Wireless communication mast for its total height above ground level, including the initial and any planned future equipment (Support Platforms, Antennas, TMA's etc.) above the top of an electric transmission structure.

b) Conductors and related devices and hardware (wire loads will be provided by Eversource).

c) Electric Transmission Structure

i) The loads from the wireless communication equipment components based on NESC and Eversource Criteria in Attachment A, and from the electric conductors shall be applied to the structure at conductor and wireless communication mast attachment points, where those loads transfer to the tower. ii)

ii) Shape Factor Multiplier:

NESC Structure Shape	Cd
Polyround (for polygonal steel poles)	1.3
Flat	1.6
Open Lattice	3.2
Pole with Coaxial Cable	See Below Table

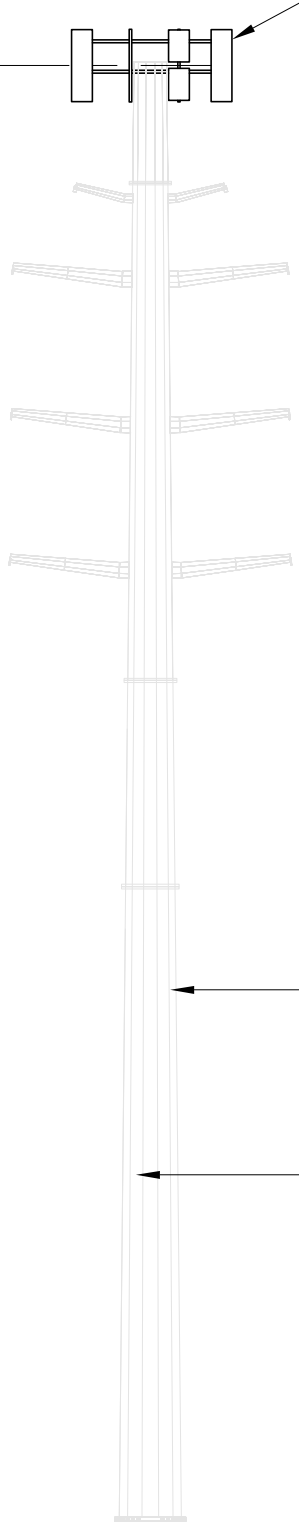
iii) When Coaxial Cables are mounted alongside the pole structure, the shape multiplier shall be:

Mount Type	Cable Cd	Pole Cd
Coaxial Cables on outside periphery (One layer)	1.45	1.45
Coaxial Cables mounted on stand offs	1.6	1.6

d) The uniform loadings and factors specified for the above components in Attachment A, "Eversource Design Criteria" are based upon the National Electric Safety Code 2007 Edition Extreme Wind (Rule 250C) and Combined Ice and Wind (Rule 250B-Heavy) Loadings. These provide equivalent loadings compared to the TIA and its loads and factors with the exceptions noted above.

℄ EL. AT&T ANTENNAS ±120'–0" AGL

AT&T (FINAL CONFIG.):
THREE (3) CCI TPA65R–BU6DA PANEL ANTENNAS, THREE (3) ERICSSON AIR6419 PANEL ANTENNAS, THREE (3) ERICSSON AIR6449 PANEL ANTENNAS, THREE (3) CCI OPA65R–BU6D PANEL ANTENNAS, SIX (6) TMA2116F00V1–1 TMAs, SIX (6) TMA2117F00V1–1 TMAs AND ONE (1) DC6 SURGE ARRESTOR MOUNTED ON SITEPRO RMQLP–4120–H10 PLATFORM.



120' TALL STEEL UTILITY POLE STRUCTURE NO. 19540

AT&T (24) 1–5/8" ø COAX CABLES, (1) FIBER CABLE AND (2) DC CABLES MOUNTED ON CLUSTER SUPPORT BRACKETS

1
SK–1

TOWER ELEVATION

SCALE: NOT TO SCALE

REVISIONS		
00	7/13/23	ISSUED FOR REVIEW
01	8/9/23	CONSTRUCTION

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CT2044
STRUCTURE 19540

17 DAYBREAK LANE
SHELTON, CT

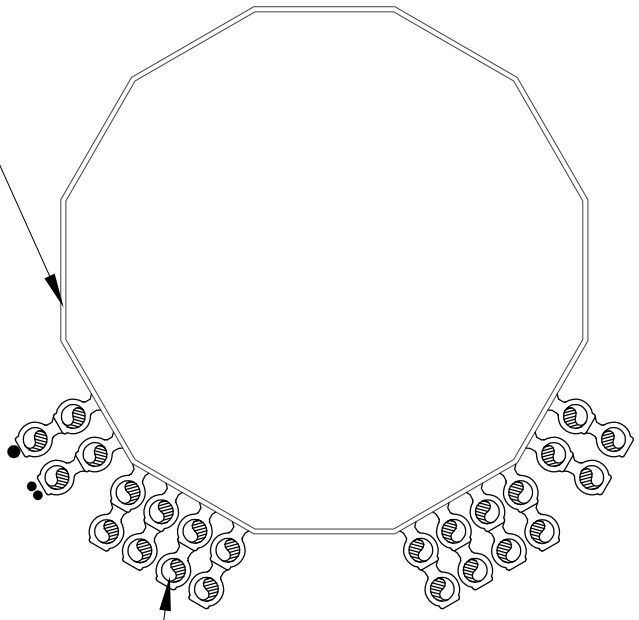
PROJECT NO:	23016.02
DRAWN BY:	TJL
CHECKED BY:	CFC
SCALE:	AS NOTED
DATE:	7/13/23

TOWER ELEVATION

SK-1

DWG. 1 OF 1

120' TALL STEEL
UTILITY POLE
STRUCTURE NO. 19540



AT&T (24) 1–5/8" ø
COAX CABLES, ONE (1)
FIBER CABLE AND TWO
(2) DC CABLES MOUNTED
ON CLUSTER SUPPORT
BRACKETS

1
SK–2

COAX CABLE PLAN

SCALE: NOT TO SCALE

REVISIONS		
00	7/13/23	ISSUED FOR REVIEW
01	8/9/23	CONSTRUCTION

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CT2044
STRUCTURE 19540

17 DAYBREAK LANE
SHELTON, CT

PROJECT NO:	23016.02
DRAWN BY:	TJL
CHECKED BY:	CFC
SCALE:	AS NOTED
DATE:	7/13/23

FEELINE
PLAN

SK-2

DWG. 2 OF 1

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

Subject: Loads - Structure #19540

Location: Shelton, CT

Rev. 1: 8/9/23

Prepared by: T.J.L Checked by: C.F.C.
Job No. 23016.02

Basic Components

Heavy Wind Pressure =	$p := 4.00 \cdot psf$	(User Input NESC 2023 Figure 250-1 & Table 250-1)
Basic Windspeed =	$V := 110$ mph	(User Input)
Radial Ice Thickness =	$Ir := 0.50 \cdot in$	(User Input NESC 2023 Figure 250-1 & Table 250-1)
Radial Ice Density =	$Id := 56.0 \cdot pcf$	(User Input)

Factors for Extreme Wind Calculation

Elevation of Top of Mast Above Grade =	$TME := 120$ ft	(User Input)
Multiplier Gust Response Factor =	$m := 1.25$	(User Input - Only for NESC Extreme wind case)
Velocity Pressure Coefficient =	$Kz := 2.01 \cdot \left(\frac{TME}{900}\right)^{\frac{2}{9.5}} = 1.315$	(NESC 2023 Table 250-2)
Turbulence Intensity Constant =	$C_{exp} := 0.2$	(NESC 2023 Table 250-3)
Integral Length Scale of Turbulence Constant =	$L_s := 220$	(NESC 2023 Table 250-3)
Effective Height =	$z_s := 0.67 \cdot TME = 80.4$	(NESC 2023 Table 250-3)
Turbulence Intensity =	$I_z := C_{exp} \cdot \left(\frac{33}{z_s}\right)^{\frac{1}{6}} = 0.172$	(NESC 2023 Table 250-3)
Response Term =	$B_t := \left[\frac{1}{\left[1 + \left(0.56 \cdot \frac{z_s}{L_s}\right)\right]}\right]^{0.5} = 0.911$	(NESC 2023 Table 250-3)
Gust Response Factor =	$Grf := \frac{\left[1 + \left(4.61 \cdot I_z \cdot B_t\right)\right]}{\left(1 + 6.1 \cdot I_z\right)} = 0.84$	(NESC 2023 Table 250-3)
Wind Pressure =	$qz := 0.00256 \cdot Kz \cdot V^2 \cdot Grf \cdot psf = 34.2 \cdot psf$	(NESC 2023 Section 250.C.1)

NESC Extreme Ice w/ Wind Components

Heavy Wind Pressure =	$p_{ex} := 6.4 \cdot psf$	(User Input NESC 2023 Figure 250-3 & Table 250-4)
Radial Ice Thickness =	$Ir_{ex} := 0.75 \cdot in$	(User Input NESC 2023 Figure 250-3)

Shape Factors

Shape Factor for Round Members =	$Cd_R := 1.3$	(User Input)
Shape Factor for Flat Members =	$Cd_F := 1.6$	(User Input)
Shape Factor for Coax Cables Attached to Outside of Pole =	$Cd_{coax} := 1.6$	(User Input)

Overload Factors

Overload Factors for Wind Loads:

NESC Heavy Loading =	**2.5**	(User Input)
NESC Extreme Loading =	**1.0**	(User Input)
NESC Extreme Ice with Wind Loading =	**1.0**	(User Input)

Overload Factors for Vertical Loads:

NESC Heavy Loading =	**1.5**	(User Input)
NESC Extreme Loading =	**1.0**	(User Input)
NESC Extreme Ice with Wind Loading =	**1.0**	(User Input)

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

Subject: Loads - Structure #19540

Location: Shelton, CT

Rev. 1: 8/9/23

Prepared by: T.J.L Checked by: C.F.C.
Job No. 23016.02

Development of Wind & Ice Load on Antennas

Antenna Data: (AT&T)

Antenna Model =	CCI TPA65-BU6D	
Antenna Shape =	Flat	(User Input)
Antenna Height =	$L_{ant} := 71.2 \cdot in$	(User Input)
Antenna Width =	$W_{ant} := 20.7 \cdot in$	(User Input)
Antenna Thickness =	$T_{ant} := 7.7 \cdot in$	(User Input)
Antenna Weight =	$WT_{ant} := 70 \cdot lb$	(User Input)
Number of Antennas =	$N_{ant} := 3$	(User Input)

Gravity Load (without ice)

Weight of All Antennas = $Wt_{ant1} := WT_{ant} \cdot N_{ant} = 210 lb$

Gravity Load (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 11349 \cdot in^3$

Volume of Ice on Each Antenna = $V_{ice} := (L_{ant} + 2 \cdot Ir)(W_{ant} + 2 \cdot Ir)(T_{ant} + 2 \cdot Ir) - V_{ant} = 2282 \cdot in^3$

Weight of Ice on Each Antenna = $W_{ICEant} := V_{ice} \cdot Id = 74 lb$

Weight of Ice on All Antennas = $Wt_{ice.ant1} := W_{ICEant} \cdot N_{ant} = 222 lb$

Gravity Load (Extreme ice only)

Volume of Extreme Ice on Each Antenna = $V_{ice.ex} := (L_{ant} + 2 \cdot Ir_{ex})(W_{ant} + 2 \cdot Ir_{ex})(T_{ant} + 2 \cdot Ir_{ex}) - V_{ant} = 3500 \cdot in^3$

Weight of Extreme Ice on Each Antenna = $W_{ICE.exant} := V_{ice.ex} \cdot Id = 113 lb$

Weight of Extreme Ice on All Antennas = $Wt_{ice.ex.ant1} := W_{ICE.exant} \cdot N_{ant} = 340 lb$

Wind Load (NESC Heavy)

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := (L_{ant} + 2 \cdot Ir) \cdot (W_{ant} + 2 \cdot Ir) = 10.9 ft^2$

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 32.6 ft^2$

Total Antenna Wind Force w/ Ice = $Fi_{ant1} := p \cdot Cd_F \cdot A_{ICEant} = 209 lb$

Wind Load (NESC Extreme)

Surface Area for One Antenna = $SA_{ant} := L_{ant} \cdot W_{ant} = 10.2 ft^2$

Antenna Projected Surface Area = $A_{ant} := SA_{ant} \cdot N_{ant} = 30.7 ft^2$

Total Antenna Wind Force = $F_{ant1} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 2102 lb$

Wind Load (NESC Extreme Ice w/ Wind)

Surface Area for One Antenna w/ Extreme Ice = $SA_{ICE.exant} := (L_{ant} + 2 \cdot Ir_{ex}) \cdot (W_{ant} + 2 \cdot Ir_{ex}) = 11.2 ft^2$

Antenna Projected Surface Area w/ Extreme Ice = $A_{ICE.exant} := SA_{ICE.exant} \cdot N_{ant} = 33.6 ft^2$

Total Antenna Wind Force w/ Extreme Ice = $Fi_{ex.ant1} := p_{ex} \cdot Cd_F \cdot A_{ICE.exant} \cdot m = 430 lb$

Development of Wind & Ice Load on Antennas

Antenna Data: (AT&T)

Antenna Model =	Ericsson AIR6419	
Antenna Shape =	Flat	(User Input)
Antenna Height =	$L_{ant} := 31.1 \cdot in$	(User Input)
Antenna Width =	$W_{ant} := 16.1 \cdot in$	(User Input)
Antenna Thickness =	$T_{ant} := 7.3 \cdot in$	(User Input)
Antenna Weight =	$WT_{ant} := 56 \cdot lb$	(User Input)
Number of Antennas =	$N_{ant} := 3$	(User Input)

Gravity Load (without ice)

Weight of All Antennas = $Wt_{ant2} := WT_{ant} \cdot N_{ant} = 168\,lb$

Gravity Load (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 3655 \cdot in^3$

Volume of Ice on Each Antenna = $V_{ice} := (L_{ant} + 2 \cdot Ir)(W_{ant} + 2 \cdot Ir)(T_{ant} + 2 \cdot Ir) - V_{ant} = 901 \cdot in^3$

Weight of Ice on Each Antenna = $W_{ICEant} := V_{ice} \cdot Id = 29\,lb$

Weight of Ice on All Antennas = $Wt_{ice.ant2} := W_{ICEant} \cdot N_{ant} = 88\,lb$

Gravity Load (Extreme ice only)

Volume of Extreme Ice on Each Antenna = $V_{ice.ex} := (L_{ant} + 2 \cdot Ir_{ex})(W_{ant} + 2 \cdot Ir_{ex})(T_{ant} + 2 \cdot Ir_{ex}) - V_{ant} = 1394 \cdot in^3$

Weight of Extreme Ice on Each Antenna = $W_{ICE.exant} := V_{ice.ex} \cdot Id = 45\,lb$

Weight of Extreme Ice on All Antennas = $Wt_{ice.ex.ant2} := W_{ICE.exant} \cdot N_{ant} = 136\,lb$

Wind Load (NESC Heavy)

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := (L_{ant} + 2 \cdot Ir) \cdot (W_{ant} + 2 \cdot Ir) = 3.8\,ft^2$

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 11.4\,ft^2$

Total Antenna Wind Force w/ Ice = $Fi_{ant2} := p \cdot Cd_F \cdot A_{ICEant} = 73\,lb$

Wind Load (NESC Extreme)

Surface Area for One Antenna = $SA_{ant} := L_{ant} \cdot W_{ant} = 3.5\,ft^2$

Antenna Projected Surface Area = $A_{ant} := SA_{ant} \cdot N_{ant} = 10.4\,ft^2$

Total Antenna Wind Force = $F_{ant2} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 714\,lb$

Wind Load (NESC Extreme Ice w/ Wind)

Surface Area for One Antenna w/ Extreme Ice = $SA_{ICE.exant} := (L_{ant} + 2 \cdot Ir_{ex}) \cdot (W_{ant} + 2 \cdot Ir_{ex}) = 4\,ft^2$

Antenna Projected Surface Area w/ Extreme Ice = $A_{ICE.exant} := SA_{ICE.exant} \cdot N_{ant} = 12\,ft^2$

Total Antenna Wind Force w/ Extreme Ice = $Fi_{ex.ant2} := p_{ex} \cdot Cd_F \cdot A_{ICE.exant} \cdot m = 153\,lb$

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Subject: Loads - Structure #19540

Location: Shelton, CT

Rev. 1: 8/9/23

Prepared by: T.J.L Checked by: C.F.C.
Job No. 23016.02

Development of Wind & Ice Load on Antennas

Antenna Data: (AT&T)

Antenna Model =	Ericsson AIR6449	
Antenna Shape =	Flat	(User Input)
Antenna Height =	$L_{ant} := 30.6 \cdot in$	(User Input)
Antenna Width =	$W_{ant} := 15.9 \cdot in$	(User Input)
Antenna Thickness =	$T_{ant} := 10.6 \cdot in$	(User Input)
Antenna Weight =	$WT_{ant} := 96 \cdot lb$	(User Input)
Number of Antennas =	$N_{ant} := 3$	(User Input)

Gravity Load (without ice)

Weight of All Antennas = $Wt_{ant3} := WT_{ant} \cdot N_{ant} = 288 lb$

Gravity Load (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 5157 \cdot in^3$

Volume of Ice on Each Antenna = $V_{ice} := (L_{ant} + 2 \cdot Ir)(W_{ant} + 2 \cdot Ir)(T_{ant} + 2 \cdot Ir) - V_{ant} = 1038 \cdot in^3$

Weight of Ice on Each Antenna = $W_{ICEant} := V_{ice} \cdot Id = 34 lb$

Weight of Ice on All Antennas = $Wt_{ice.ant3} := W_{ICEant} \cdot N_{ant} = 101 lb$

Gravity Load (Extreme ice only)

Volume of Extreme Ice on Each Antenna = $V_{ice.ex} := (L_{ant} + 2 \cdot Ir_{ex})(W_{ant} + 2 \cdot Ir_{ex})(T_{ant} + 2 \cdot Ir_{ex}) - V_{ant} = 1601 \cdot in^3$

Weight of Extreme Ice on Each Antenna = $W_{ICE.exant} := V_{ice.ex} \cdot Id = 52 lb$

Weight of Extreme Ice on All Antennas = $Wt_{ice.ex.ant3} := W_{ICE.exant} \cdot N_{ant} = 156 lb$

Wind Load (NESC Heavy)

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := (L_{ant} + 2 \cdot Ir) \cdot (W_{ant} + 2 \cdot Ir) = 3.7 ft^2$

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 11.1 ft^2$

Total Antenna Wind Force w/ Ice = $Fi_{ant3} := p \cdot Cd_F \cdot A_{ICEant} = 71 lb$

Wind Load (NESC Extreme)

Surface Area for One Antenna = $SA_{ant} := L_{ant} \cdot W_{ant} = 3.4 ft^2$

Antenna Projected Surface Area = $A_{ant} := SA_{ant} \cdot N_{ant} = 10.1 ft^2$

Total Antenna Wind Force = $F_{ant3} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 694 lb$

Wind Load (NESC Extreme Ice w/ Wind)

Surface Area for One Antenna w/ Extreme Ice = $SA_{ICE.exant} := (L_{ant} + 2 \cdot Ir_{ex}) \cdot (W_{ant} + 2 \cdot Ir_{ex}) = 3.9 ft^2$

Antenna Projected Surface Area w/ Extreme Ice = $A_{ICE.exant} := SA_{ICE.exant} \cdot N_{ant} = 11.6 ft^2$

Total Antenna Wind Force w/ Extreme Ice = $Fi_{ex.ant3} := p_{ex} \cdot Cd_F \cdot A_{ICE.exant} \cdot m = 149 lb$

Development of Wind & Ice Load on Antennas

Antenna Data: (AT&T)

Antenna Model =	CCI OPA65R-BU6D	
Antenna Shape =	Flat	(User Input)
Antenna Height =	$L_{ant} := 71.2 \cdot in$	(User Input)
Antenna Width =	$W_{ant} := 21 \cdot in$	(User Input)
Antenna Thickness =	$T_{ant} := 7.8 \cdot in$	(User Input)
Antenna Weight =	$WT_{ant} := 70 \cdot lb$	(User Input)
Number of Antennas =	$N_{ant} := 3$	(User Input)

Gravity Load (without ice)

Weight of All Antennas = $Wt_{ant4} := WT_{ant} \cdot N_{ant} = 210 lb$

Gravity Load (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 11663 \cdot in^3$

Volume of Ice on Each Antenna = $V_{ice} := (L_{ant} + 2 \cdot Ir)(W_{ant} + 2 \cdot Ir)(T_{ant} + 2 \cdot Ir) - V_{ant} = 2315 \cdot in^3$

Weight of Ice on Each Antenna = $W_{ICEant} := V_{ice} \cdot Id = 75 lb$

Weight of Ice on All Antennas = $Wt_{ice.ant4} := W_{ICEant} \cdot N_{ant} = 225 lb$

Gravity Load (Extreme ice only)

Volume of Extreme Ice on Each Antenna = $V_{ice.ex} := (L_{ant} + 2 \cdot Ir_{ex})(W_{ant} + 2 \cdot Ir_{ex})(T_{ant} + 2 \cdot Ir_{ex}) - V_{ant} = 3550 \cdot in^3$

Weight of Extreme Ice on Each Antenna = $W_{ICE.exant} := V_{ice.ex} \cdot Id = 115 lb$

Weight of Extreme Ice on All Antennas = $Wt_{ice.ex.ant4} := W_{ICE.exant} \cdot N_{ant} = 345 lb$

Wind Load (NESC Heavy)

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := (L_{ant} + 2 \cdot Ir) \cdot (W_{ant} + 2 \cdot Ir) = 11 ft^2$

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 33.1 ft^2$

Total Antenna Wind Force w/ Ice = $Fi_{ant4} := p \cdot Cd_F \cdot A_{ICEant} = 212 lb$

Wind Load (NESC Extreme)

Surface Area for One Antenna = $SA_{ant} := L_{ant} \cdot W_{ant} = 10.4 ft^2$

Antenna Projected Surface Area = $A_{ant} := SA_{ant} \cdot N_{ant} = 31.1 ft^2$

Total Antenna Wind Force = $F_{ant4} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 2133 lb$

Wind Load (NESC Extreme Ice w/ Wind)

Surface Area for One Antenna w/ Extreme Ice = $SA_{ICE.exant} := (L_{ant} + 2 \cdot Ir_{ex}) \cdot (W_{ant} + 2 \cdot Ir_{ex}) = 11.4 ft^2$

Antenna Projected Surface Area w/ Extreme Ice = $A_{ICE.exant} := SA_{ICE.exant} \cdot N_{ant} = 34.1 ft^2$

Total Antenna Wind Force w/ Extreme Ice = $Fi_{ex.ant4} := p_{ex} \cdot Cd_F \cdot A_{ICE.exant} \cdot m = 436 lb$

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Subject: Loads - Structure #19540

Location: Shelton, CT

Rev. 1: 8/9/23

Prepared by: T.J.L Checked by: C.F.C.
Job No. 23016.02

Development of Wind & Ice Load on Antennas

Antenna Data: (AT&T)

Antenna Model =	Kaelus TMA2117F00V1-1	
Antenna Shape =	Flat	(User Input)
Antenna Height =	$L_{ant} := 8.46 \cdot in$	(User Input)
Antenna Width =	$W_{ant} := 11.81 \cdot in$	(User Input)
Antenna Thickness =	$T_{ant} := 4.21 \cdot in$	(User Input)
Antenna Weight =	$WT_{ant} := 18 \cdot lb$	(User Input)
Number of Antennas =	$N_{ant} := 6$	(User Input)

Gravity Load (without ice)

Weight of All Antennas = $Wt_{ant5} := WT_{ant} \cdot N_{ant} = 108 lb$

Gravity Load (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 421 \cdot in^3$

Volume of Ice on Each Antenna = $V_{ice} := (L_{ant} + 2 \cdot Ir)(W_{ant} + 2 \cdot Ir)(T_{ant} + 2 \cdot Ir) - V_{ant} = 211 \cdot in^3$

Weight of Ice on Each Antenna = $W_{ICEant} := V_{ice} \cdot Id = 7 lb$

Weight of Ice on All Antennas = $Wt_{ice.ant5} := W_{ICEant} \cdot N_{ant} = 41 lb$

Gravity Load (Extreme ice only)

Volume of Extreme Ice on Each Antenna = $V_{ice.ex} := (L_{ant} + 2 \cdot Ir_{ex})(W_{ant} + 2 \cdot Ir_{ex})(T_{ant} + 2 \cdot Ir_{ex}) - V_{ant} = 336 \cdot in^3$

Weight of Extreme Ice on Each Antenna = $W_{ICE.exant} := V_{ice.ex} \cdot Id = 11 lb$

Weight of Extreme Ice on All Antennas = $Wt_{ice.ex.ant5} := W_{ICE.exant} \cdot N_{ant} = 65 lb$

Wind Load (NESC Heavy)

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := (L_{ant} + 2 \cdot Ir) \cdot (W_{ant} + 2 \cdot Ir) = 0.8 ft^2$

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 5 ft^2$

Total Antenna Wind Force w/ Ice = $Fi_{ant5} := p \cdot Cd_F \cdot A_{ICEant} = 32 lb$

Wind Load (NESC Extreme)

Surface Area for One Antenna = $SA_{ant} := L_{ant} \cdot W_{ant} = 0.7 ft^2$

Antenna Projected Surface Area = $A_{ant} := SA_{ant} \cdot N_{ant} = 4.2 ft^2$

Total Antenna Wind Force = $F_{ant5} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 285 lb$

Wind Load (NESC Extreme Ice w/ Wind)

Surface Area for One Antenna w/ Extreme Ice = $SA_{ICE.exant} := (L_{ant} + 2 \cdot Ir_{ex}) \cdot (W_{ant} + 2 \cdot Ir_{ex}) = 0.9 ft^2$

Antenna Projected Surface Area w/ Extreme Ice = $A_{ICE.exant} := SA_{ICE.exant} \cdot N_{ant} = 5.5 ft^2$

Total Antenna Wind Force w/ Extreme Ice = $Fi_{ex.ant5} := p_{ex} \cdot Cd_F \cdot A_{ICE.exant} \cdot m = 71 lb$

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Subject: Loads - Structure #19540

Location: Shelton, CT

Rev. 1: 8/9/23

Prepared by: T.J.L Checked by: C.F.C.
Job No. 23016.02

Development of Wind & Ice Load on Antennas

Antenna Data: (AT&T)

Antenna Model =	Kaelus TMA2116F00V1-1	
Antenna Shape =	Flat	(User Input)
Antenna Height =	$L_{ant} := 11.8 \cdot in$	(User Input)
Antenna Width =	$W_{ant} := 8.46 \cdot in$	(User Input)
Antenna Thickness =	$T_{ant} := 4.8 \cdot in$	(User Input)
Antenna Weight =	$WT_{ant} := 24 \cdot lb$	(User Input)
Number of Antennas =	$N_{ant} := 6$	(User Input)

Gravity Load (without ice)

Weight of All Antennas = $Wt_{ant6} := WT_{ant} \cdot N_{ant} = 144 lb$

Gravity Load (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 479 \cdot in^3$

Volume of Ice on Each Antenna = $V_{ice} := (L_{ant} + 2 \cdot Ir)(W_{ant} + 2 \cdot Ir)(T_{ant} + 2 \cdot Ir) - V_{ant} = 223 \cdot in^3$

Weight of Ice on Each Antenna = $W_{ICEant} := V_{ice} \cdot Id = 7 lb$

Weight of Ice on All Antennas = $Wt_{ice.ant6} := W_{ICEant} \cdot N_{ant} = 43 lb$

Gravity Load (Extreme ice only)

Volume of Extreme Ice on Each Antenna = $V_{ice.ex} := (L_{ant} + 2 \cdot Ir_{ex})(W_{ant} + 2 \cdot Ir_{ex})(T_{ant} + 2 \cdot Ir_{ex}) - V_{ant} = 355 \cdot in^3$

Weight of Extreme Ice on Each Antenna = $W_{ICE.exant} := V_{ice.ex} \cdot Id = 12 lb$

Weight of Extreme Ice on All Antennas = $Wt_{ice.ex.ant6} := W_{ICE.exant} \cdot N_{ant} = 69 lb$

Wind Load (NESC Heavy)

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := (L_{ant} + 2 \cdot Ir) \cdot (W_{ant} + 2 \cdot Ir) = 0.8 ft^2$

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 5 ft^2$

Total Antenna Wind Force w/ Ice = $Fi_{ant6} := p \cdot Cd_F \cdot A_{ICEant} = 32 lb$

Wind Load (NESC Extreme)

Surface Area for One Antenna = $SA_{ant} := L_{ant} \cdot W_{ant} = 0.7 ft^2$

Antenna Projected Surface Area = $A_{ant} := SA_{ant} \cdot N_{ant} = 4.2 ft^2$

Total Antenna Wind Force = $F_{ant6} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 285 lb$

Wind Load (NESC Extreme Ice w/ Wind)

Surface Area for One Antenna w/ Extreme Ice = $SA_{ICE.exant} := (L_{ant} + 2 \cdot Ir_{ex}) \cdot (W_{ant} + 2 \cdot Ir_{ex}) = 0.9 ft^2$

Antenna Projected Surface Area w/ Extreme Ice = $A_{ICE.exant} := SA_{ICE.exant} \cdot N_{ant} = 5.5 ft^2$

Total Antenna Wind Force w/ Extreme Ice = $Fi_{ex.ant6} := p_{ex} \cdot Cd_F \cdot A_{ICE.exant} \cdot m = 71 lb$

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Subject: Loads - Structure #19540

Location: Shelton, CT

Rev. 1: 8/9/23

Prepared by: T.J.L Checked by: C.F.C.
Job No. 23016.02

Development of Wind & Ice Load on Antennas

Antenna Data: (AT&T)

Antenna Model =	Raycap DC6-48-60-18-8C		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 31.4 \cdot in$	in	(User Input)
Antenna Width =	$W_{ant} := 18.28 \cdot in$	in	(User Input)
Antenna Thickness =	$T_{ant} := 10.24 \cdot in$	in	(User Input)
Antenna Weight =	$WT_{ant} := 26 \cdot lb$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)

Gravity Load (without ice)

Weight of All Antennas = $Wt_{ant7} := WT_{ant} \cdot N_{ant} = 26\,lb$

Gravity Load (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 5878 \cdot in^3$

Volume of Ice on Each Antenna = $V_{ice} := (L_{ant} + 2 \cdot Ir)(W_{ant} + 2 \cdot Ir)(T_{ant} + 2 \cdot Ir) - V_{ant} = 1144 \cdot in^3$

Weight of Ice on Each Antenna = $W_{ICEant} := V_{ice} \cdot Id = 37\,lb$

Weight of Ice on All Antennas = $Wt_{ice.ant7} := W_{ICEant} \cdot N_{ant} = 37\,lb$

Gravity Load (Extreme ice only)

Volume of Extreme Ice on Each Antenna = $V_{ice.ex} := (L_{ant} + 2 \cdot Ir_{ex})(W_{ant} + 2 \cdot Ir_{ex})(T_{ant} + 2 \cdot Ir_{ex}) - V_{ant} = 1762 \cdot in^3$

Weight of Extreme Ice on Each Antenna = $W_{ICE.exant} := V_{ice.ex} \cdot Id = 57\,lb$

Weight of Extreme Ice on All Antennas = $Wt_{ice.ex.ant7} := W_{ICE.exant} \cdot N_{ant} = 57\,lb$

Wind Load (NESC Heavy)

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := (L_{ant} + 2 \cdot Ir) \cdot (W_{ant} + 2 \cdot Ir) = 4.3\,ft^2$

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 4.3\,ft^2$

Total Antenna Wind Force w/ Ice = $Fi_{ant7} := p \cdot Cd_F \cdot A_{ICEant} = 28\,lb$

Wind Load (NESC Extreme)

Surface Area for One Antenna = $SA_{ant} := L_{ant} \cdot W_{ant} = 4\,ft^2$

Antenna Projected Surface Area = $A_{ant} := SA_{ant} \cdot N_{ant} = 4\,ft^2$

Total Antenna Wind Force = $F_{ant7} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 273\,lb$

Wind Load (NESC Extreme Ice w/ Wind)

Surface Area for One Antenna w/ Extreme Ice = $SA_{ICE.exant} := (L_{ant} + 2 \cdot Ir_{ex}) \cdot (W_{ant} + 2 \cdot Ir_{ex}) = 4.5\,ft^2$

Antenna Projected Surface Area w/ Extreme Ice = $A_{ICE.exant} := SA_{ICE.exant} \cdot N_{ant} = 4.5\,ft^2$

Total Antenna Wind Force w/ Extreme Ice = $Fi_{ex.ant7} := p_{ex} \cdot Cd_F \cdot A_{ICE.exant} \cdot m = 58\,lb$

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Location: Shelton, CT

Rev. 1: 8/9/23

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Job No. 23016.02

Development of Wind & Ice Load on Mounts

Mount Data: (AT&T)

Mount Type:	SitePro RMQLP-4120-H10	
Mount EPA (no ice) =	$EPA := 28.15 \cdot ft^2$	(User Input from SitePro Document)
Mount EPA (0.5" ice) =	$EPA_{ice} := 34.10 \cdot ft^2$	(User Input from SitePro Document)
Mount EPA (0.75" ice) =	$EPA_{ice.ex} := 37.10 \cdot ft^2$	(User Input from SitePro Document/Interpolation)
Weight (no ice) =	$W := 3265 \cdot lb$	(User Input from SitePro Document)
Weight (0.5" ice) =	$W_{ice} := 3657 \cdot lb$	(User Input from SitePro Document)
Weight (0.75" ice) =	$W_{ice.ex} := 3920 \cdot lb$	(User Input from SitePro Document/Interpolation)
Weight 0.5" ice on Antenna Pipes =	$Wap_{ice} := \left[\left[(3.375)^2 - (2.375)^2\right] \cdot 120 \cdot 12\right] \cdot in^3 \cdot \frac{\pi}{4} \cdot (Id) = 211 \cdot lb$	
Weight 0.75" ice on Antenna Pipes =	$Wap_{ice.ex} := \left[\left[(3.875)^2 - (2.375)^2\right] \cdot 120 \cdot 12\right] \cdot in^3 \cdot \frac{\pi}{4} \cdot (Id) = 344 \cdot lb$	
Total Pipe Length =	$TPL := 12 \cdot 10 \cdot ft = 120 ft$	
Total Antenna Length =	$TAL := 71.2 \cdot in \cdot 6 + 31.1 \cdot in \cdot 3 + 30.6 \cdot in \cdot 3 = 51.025 ft$	
Exposed Pipe Area =	$ExPA := (TPL - TAL) 2.375 \cdot in = 13.651 ft^2$	
Exposed Pipe Area (0.5" Ice) =	$ExPA_{ice} := (TPL - TAL) 3.375 \cdot in = 19.399 ft^2$	
Exposed Pipe Area (0.75' Ice) =	$ExPA_{ice.ex} := (TPL - TAL) 3.875 \cdot in = 22.273 ft^2$	
Mount Projected Surface Area =	$CdAa := 1.3 \cdot ExPA + EPA = 45.9 ft^2$	
Mount Projected Surface Area w/ Ice =	$CdAa_{ice} := 1.3 \cdot ExPA_{ice} + EPA_{ice} = 59.3 ft^2$	
Mount Projected Surface Area w/ Extreme Ice =	$CdAa_{ice.ex} := 1.3 \cdot ExPA_{ice.ex} + EPA_{ice.ex} = 66.1 ft^2$	

Gravity Loads (without ice)

Weight of All Mounts = $Wt_{mnt1} := W = 3265 lb$

Gravity Load (ice only)

Weight of Ice on All Mounts = $Wt_{ice.mnt1} := W_{ice} - W + Wap_{ice} = 603 lb$

Gravity Load (extreme ice only)

Weight of Ice on All Mounts = $Wt_{ice.ex.mnt1} := W_{ice.ex} - W + Wap_{ice.ex} = 999 lb$

Wind Load (NESC Heavy)

Total Mount Wind Force w/ Ice = $Fi_{mnt1} := p \cdot CdAa_{ice} = 237 lb$

Wind Load (NESC Extreme)

Total Mount Wind Force = $F_{mnt1} := qz \cdot CdAa \cdot m = 1964 lb$

Wind Load (NESC Extreme Ice w/ Wind)

Total Mount Wind Force w/ Extreme Ice = $Fi_{ex.mnt1} := p_{ex} \cdot CdAa_{ice.ex} \cdot m = 528 lb$

Total Equipment Loads:

AT&T Loads:

NESC Heavy Wind Vertical =

$$Wt_{tot} := \left(Wt_{ant1} + Wt_{ant2} + Wt_{ant3} + Wt_{ant4} + Wt_{ant5} + Wt_{ant6} + Wt_{ant7} + Wt_{mnt1}\right) = 4419\,lb$$

$$Wt_{ice.tot} := \left(Wt_{ice.ant1} + Wt_{ice.ant2} + Wt_{ice.ant3} + Wt_{ice.ant4} + Wt_{ice.ant5} + Wt_{ice.ant6} + Wt_{ice.ant7} + Wt_{ice.mnt1}\right) = 1360\,lb$$

$$\left(Wt_{tot} + Wt_{ice.tot}\right)\cdot 1.5 = 8668\,lb$$

NESC Heavy Wind Trasnsverse =

$$\left(Fi_{ant1} + Fi_{ant2} + Fi_{ant3} + Fi_{ant4} + Fi_{ant5} + Fi_{ant6} + Fi_{ant7} + Fi_{mnt1}\right)\cdot 2.5 = 2237\,lb$$

NESC Extreme Wind Vertical =

$$\left(Wt_{ant1} + Wt_{ant2} + Wt_{ant3} + Wt_{ant4} + Wt_{ant5} + Wt_{ant6} + Wt_{ant7} + Wt_{mnt1}\right) = 4419\,lb$$

NESC Extreme Wind Trasnsverse =

$$\left(F_{ant1} + F_{ant2} + F_{ant3} + F_{ant4} + F_{ant5} + F_{ant6} + F_{ant7} + F_{mnt1}\right) = 8450\,lb$$

NESC Extreme Ice w/ Wind Vertical =

$$Wt_{ice.ex.tot} := \left(Wt_{ice.ex.ant1} + Wt_{ice.ex.ant2} + Wt_{ice.ex.ant3} + Wt_{ice.ex.ant4} + Wt_{ice.ex.ant5} + Wt_{ice.ex.ant6} + Wt_{ice.ex.ant7} + Wt_{ice.ex.mnt1}\right) = 2167\,lb$$

$$\left(Wt_{tot} + Wt_{ice.ex.tot}\right) = 6586\,lb$$

NESC Extreme Ice w/ Wind Trasnsverse =

$$\left(Fi_{ex.ant1} + Fi_{ex.ant2} + Fi_{ex.ant3} + Fi_{ex.ant4} + Fi_{ex.ant5} + Fi_{ex.ant6} + Fi_{ex.ant7} + Fi_{ex.mnt1}\right) = 1896\,lb$$

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

Subject: Coax Cable on Pole #19540

Location: Shelton, CT

Rev. 0: 7/12/23

Prepared by: T.J.L Checked by: C.F.C.
Job No. 23016.02

Coax Cable on Pole

Coaxial Cable Span	$Coax_{Span} := 10ft$		*(User Input)*
Heavy Wind Pressure =	$p := 4 \cdot psf$		*(User Input)*
Radial Ice Thickness =	$Ir := 0.5 \cdot in$		*(User Input)*
Radial Ice Density =	$Id := 56 \cdot pcf$		*(User Input)*
Extreme Ice w/ Wind Pressure =	$p_{ex} := 6.4 \cdot psf$		*(User Input)*
Extreme Radial Ice Thickness =	$Ir_{ex} := 0.75 \cdot in$		*(User Input)*
Basic Windspeed =	$V := 110$	mph	(User Input)
Height to Top of Coax Above Grade =	$TC := 120$	ft	(User Input)
Multiplier Gust Response Factor =	$m := 1.00$		(User Input - Only for NESC Extreme wind case)
Velocity Pressure Coefficient =	$Kz := 2.01 \cdot \left(\frac{0.67TC}{900}\right)^{\frac{2}{9.5}} = 1.209$		(NESC 2023 Table 250-2)
Turbulence Intensity Constant =	$C_{exp} := 0.2$		(NESC 2023 Table 250-3)
Integral Length Scale of Turbulence Constant =	$L_s := 220$		(NESC 2023 Table 250-3)
Effective Height =	$z_s := 0.67 \cdot TC = 80.4$		(NESC 2023 Table 250-3)
Turbulence Intensity =	$I_z := C_{exp} \cdot \left(\frac{33}{z_s}\right)^{\frac{1}{6}} = 0.172$		(NESC 2023 Table 250-3)
Response Term =	$B_t := \left[\frac{1}{\left[1 + \left(0.56 \cdot \frac{z_s}{L_s}\right)\right]}\right]^{0.5} = 0.911$		(NESC 2023 Table 250-3)
Gust Response Factor =	$Grf := \frac{\left[1 + \left(4.61 \cdot I_z \cdot B_t\right)\right]}{\left(1 + 6.1 \cdot I_z\right)} = 0.84$		(NESC 2023 Table 250-3)
Wind Pressure =	$qz := 0.00256 \cdot Kz \cdot V^2 \cdot Grf = 31.5$	psf	(NESC 2023 Section 250.C.1)

Diameter of Coax Cable =	$D_{coax} := 1.98 \cdot in$	*(User Input)*	
Weight of Coax Cable =	$W_{coax} := 1.04 \cdot plf$	*(User Input)*	
Number of Coax Cables =	$N_{coax} := 27$	*(User Input)*	(24) AT&T Coax Cables (1) AT&T Fiber Cable (2) AT&T DC Cables {1-5/8 size conservatively used for all}
Number of Projected Coax Cables =	$NP_{coax} := 4$	*(User Input)*	

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Shape Factor = $Cd_{coax} := 1.6$ *(User Input)*

Overload Factor for NESC Heavy Wind Transverse Load = $OF_{HWT} := 2.5$ *(User Input)*

Overload Factor for NESC Heavy Wind Vertical Load = $OF_{HWV} := 1.5$ *(User Input)*

Overload Factor for NESC Extreme Wind Transverse Load = $OF_{EWT} := 1.0$ *(User Input)*

Overload Factor for NESC Extreme Wind Vertical Load = $OF_{EWV} := 1.0$ *(User Input)*

Overload Factor for NESC Extreme Ice w/ Wind Transverse Load = $OF_{EIT} := 1.0$ *(User Input)*

Overload Factor for NESC Extreme Ice w/ Wind Vertical Load = $OF_{EIV} := 1.0$ *(User Input)*

Projected width without Ice = $A := \left(NP_{coax} \cdot D_{coax}\right) = 7.92 \cdot in$

Projected width with Ice = $A_{ice} := \left(NP_{coax} \cdot D_{coax} + 2 \cdot Ir\right) = 8.92 \cdot in$

Projected width with Extreme Ice = $A_{ice.ex} := \left(NP_{coax} \cdot D_{coax} + 2 \cdot Ir_{ex}\right) = 9.42 \cdot in$

Ice Area per Liner Ft = $Ai_{coax} := \frac{\pi}{4} \cdot \left[\left(D_{coax} + 2 \cdot Ir\right)^2 - D_{coax}^2\right] = 0.027\,ft^2$

Weight of Ice on All Coax Cables = $W_{ice} := Ai_{coax} \cdot Id \cdot N_{coax} = 40.904 \cdot plf$

Extreme Ice Area per Liner Ft = $Ai_{coax.ex} := \frac{\pi}{4} \cdot \left[\left(D_{coax} + 2 \cdot Ir_{ex}\right)^2 - D_{coax}^2\right] = 0.045\,ft^2$

Weight of Extreme Ice on All Coax Cables = $W_{ice.ex} := Ai_{coax.ex} \cdot Id \cdot N_{coax} = 67.54 \cdot plf$

Heavy Wind Vertical Load =

$$Heavy\_WInd_{Vert} := \overrightarrow{\left[\left(N_{coax} \cdot W_{coax} + W_{ice}\right) \cdot Coax_{Span} \cdot OF_{HWV}\right]}$$

Heavy Wind Transverse Load =

$$Heavy\_Wind_{Trans} := \overrightarrow{\left(p \cdot A_{ice} \cdot Cd_{coax} \cdot Coax_{Span} \cdot OF_{HWT}\right)}$$

$Heavy\_WInd_{Vert} = 1035\,lb$ $Heavy\_Wind_{Trans} = 119\,lb$

Extreme Wind Vertical Load =

$$Extreme\_Wind_{Vert} := \overrightarrow{\left(N_{coax} \cdot W_{coax} \cdot Coax_{Span} \cdot OF_{EWV}\right)}$$

Extreme Wind Transverse Load =

$$Extreme\_Wind_{Trans} := \overrightarrow{\left[\left(qz \cdot psf \cdot A \cdot Cd_{coax}\right) \cdot Coax_{Span} \cdot OF_{EWT}\right]}$$

$Extreme\_Wind_{Vert} = 281\,lb$ $Extreme\_Wind_{Trans} = 332\,lb$

Extreme Ice w/ Wind Vertical Load =

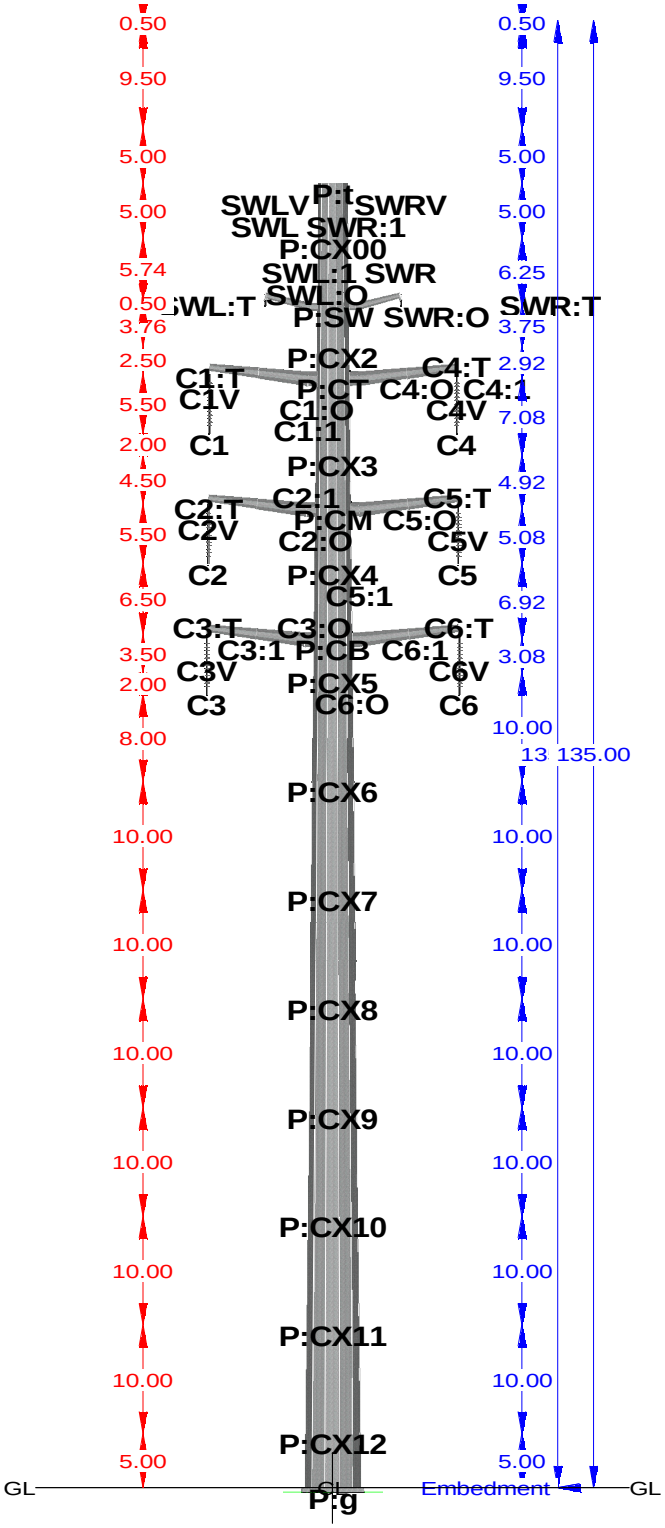
$$Extreme\_Ice_{Vert} := \overrightarrow{\left[\left(N_{coax} \cdot W_{coax} + W_{ice.ex}\right) \cdot Coax_{Span} \cdot OF_{EIV}\right]}$$

Extreme Ice w/ Wind Transverse Load =

$$Extreme\_Ice_{Trans} := \overrightarrow{\left(p_{ex} \cdot A_{ice.ex} \cdot Cd_{coax} \cdot Coax_{Span} \cdot OF_{EIT}\right)}$$

$Extreme\_Ice_{Vert} = 956\,lb$ $Extreme\_Ice_{Trans} = 80\,lb$

Centek Engineering Inc, Project: "204-23-24184-135FT"
PLS-POLE Version 17.50, 4:30:14 PM Thursday, July 13, 2023
Undeformed geometry displayed



10 (ft)

Project Name : 23016.02 - CT2044
Project Notes: Structure # 19540 / AT&T CT2044
Project File : J:\Jobs\2301600.WI\02_CT2044\05_Structural\Tower Analysis\Backup Documentation\Rev (1)\Calcs\PLS-Pole\204-23-24184-135FT.POL
Date run : 1:43:57 PM Wednesday, August 09, 2023
by : PLS-POLE Version 17.50
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Successfully performed nonlinear analysis

Load case 'NESC Rule 250C' uses loading method NESC 2023 which is still being tested and/or is a draft. Carefully check your results. ??
The model has 1 warning. ??

Loads from file: J:\Jobs\2301600.WI\02_CT2044\05_Structural\Tower Analysis\Backup Documentation\Rev (1)\Calcs\PLS-Pole\204-23-24184.lca

*** Analysis Results:

Maximum element usage is 69.14% for Steel Pole "P" in load case "NESC Rule 250C"
Maximum insulator usage is 25.75% for Suspension "C1" in load case "NESC Rule 250B"

Foundation Design Forces For All Load Cases:

Note: loads are factored.

Load Case	Foundation Description	Axial Force (kips)	Shear Force (kips)	Resultant Force (kips)	Bending Moment (ft-k)	Foundation Usage %
NESC Rule 250B	P:g	115.42	35.59	120.78	3163.43	0.00
NESC Rule 250C	P:g	66.34	63.43	91.79	5531.30	0.00
NESC Rule 250D	P:g	102.40	23.51	105.07	2103.76	0.00

Summary of Joint Support Reactions For All Load Cases:

Load Case	Joint Label	Long. Force (kips)	Tran. Force (kips)	Vert. Force (kips)	Shear Force (kips)	Tran. Moment (ft-k)	Long. Moment (ft-k)	Bending Moment (ft-k)	Vert. Moment (ft-k)	Found. Usage %
NESC Rule 250B	P:g	-0.20	-35.59	-115.42	35.59	3163.41	-11.35	3163.43	-0.00	0.00
NESC Rule 250C	P:g	-0.05	-63.43	-66.34	63.43	5531.30	-2.81	5531.30	-0.00	0.00
NESC Rule 250D	P:g	-0.08	-23.51	-102.40	23.51	2103.75	-4.58	2103.76	-0.00	0.00

Summary of Tip Deflections For All Load Cases:

Note: positive tip load results in positive deflection

Load Case	Joint Label	Long. Defl. (in)	Tran. Defl. (in)	Vert. Defl. (in)	Resultant Defl. (in)	Long. Rot. (deg)	Tran. Rot. (deg)	Twist (deg)
NESC Rule 250B	P:t	0.08	27.45	-0.39	27.45	0.00	-1.80	0.00
NESC Rule 250C	P:t	0.02	48.48	-1.08	48.50	0.00	-3.24	0.00
NESC Rule 250D	P:t	0.03	18.43	-0.20	18.43	0.00	-1.21	0.00

Tubes Summary:

Pole Label	Tube Num.	Weight (lbs)	Load Case	Maximum Usage %	Resultant Moment (ft-k)

P	1	1135	NESC	Rule	250C	5.95	93.25
P	2	5504	NESC	Rule	250C	62.94	1514.23
P	3	3224	NESC	Rule	250C	66.62	2439.18
P	4	15522	NESC	Rule	250C	69.14	5531.30

*** Overall summary for all load cases - Usage = Maximum Stress / Allowable Stress

Summary of Steel Pole Usages:

Steel Pole Label	Maximum Usage %			Load Case		Height AGL (ft)	Segment Number	Weight (lbs)
P	69.14	NESC	Rule	250C		2.5	30	28528.4

Summary of Tubular Davit Usages:

Tubular Davit Label	Maximum Usage %			Load Case		Height AGL (ft)	Segment Number	Weight (lbs)
SWL	21.66	NESC	Rule	250D		108.8	1	74.1
SWR	23.96	NESC	Rule	250D		108.8	1	74.1
C1	24.18	NESC	Rule	250D		102.3	2	326.1
C4	25.01	NESC	Rule	250B		102.1	1	326.1
C2	24.19	NESC	Rule	250D		90.3	2	326.1
C5	25.02	NESC	Rule	250B		90.1	1	326.1
C3	24.21	NESC	Rule	250D		78.3	2	326.1
C6	25.05	NESC	Rule	250B		78.1	1	326.1

*** Maximum Stress Summary for Each Load Case

Summary of Maximum Usages by Load Case:

Load Case			Maximum Usage %	Element Label	Element Type
NESC	Rule	250B	40.77	P	Steel Pole
NESC	Rule	250C	69.14	P	Steel Pole
NESC	Rule	250D	27.49	P	Steel Pole

Summary of Steel Pole Usages by Load Case:

Load Case			Maximum Usage %	Steel Pole Label	Height AGL (ft)	Segment Number
NESC	Rule	250B	40.77	P	2.5	30
NESC	Rule	250C	69.14	P	2.5	30
NESC	Rule	250D	27.49	P	2.5	30

Summary of Base Plate Usages by Load Case:

Load Case			Pole Label	Bend Line #	Length (in)	Vertical Load (kips)	X Moment (ft-k)	Y Moment (ft-k)	Bending Stress (ksi)	Bolt Moment Sum (ft-k)	# Bolts Acting On Bend Line	Max Bolt Load For Bend Line (kips)	Minimum Plate Thickness (in)	Usage %
NESC	Rule	250B	P	1	16.412	112.273	4058.699	-14.568	30.001	96.165	-3	114.855	2.905	0.00
NESC	Rule	250C	P	1	16.412	63.199	5531.300	-2.806	39.751	127.419	3	152.617	3.344	0.00

NESC	Rule	250D	P	1	16.412	99.262	4058.716	-8.837	29.823	95.596	-3	114.257	2.896	0.00

Summary of Tubular Davit Usages by Load Case:

Load Case			Maximum Usage %	Tubular Davit Label	Height AGL (ft)	Segment Number
NESC	Rule	250B	25.05	C6	78.1	1
NESC	Rule	250C	15.12	C6	78.1	1
NESC	Rule	250D	24.81	C6	78.1	1

Summary of Insulator Usages:

Insulator Label	Insulator Type	Maximum Usage %	Load Case			Weight (lbs)
CX2	Clamp	1.04	NESC	Rule	250B	0.0
CX3	Clamp	1.04	NESC	Rule	250B	0.0
CX4	Clamp	1.04	NESC	Rule	250B	0.0
CX5	Clamp	1.04	NESC	Rule	250B	0.0
CX6	Clamp	1.04	NESC	Rule	250B	0.0
CX7	Clamp	1.04	NESC	Rule	250B	0.0
CX8	Clamp	1.04	NESC	Rule	250B	0.0
CX9	Clamp	1.04	NESC	Rule	250B	0.0
CX10	Clamp	1.04	NESC	Rule	250B	0.0
CX11	Clamp	1.04	NESC	Rule	250B	0.0
CX12	Clamp	1.04	NESC	Rule	250B	0.0
CX00	Clamp	1.04	NESC	Rule	250B	0.0
CX000	Clamp	9.54	NESC	Rule	250C	0.0
SWL	Suspension	17.27	NESC	Rule	250D	50.0
SWR	Suspension	17.27	NESC	Rule	250D	50.0
C1	Suspension	25.75	NESC	Rule	250B	300.0
C4	Suspension	25.75	NESC	Rule	250B	300.0
C2	Suspension	25.75	NESC	Rule	250B	300.0
C5	Suspension	25.75	NESC	Rule	250B	300.0
C3	Suspension	25.75	NESC	Rule	250B	300.0
C6	Suspension	25.75	NESC	Rule	250B	300.0

*** Weight of structure (lbs):

Weight of Tubular Davit Arms:	2104.8
Weight of Steel Poles:	28528.4
Weight of Suspensions:	1900.0
Total:	32533.3

*** End of Report

```
**************************************************************************
*                                                                        *
*                              PLS-POLE                                  *
*                   POLE AND FRAME ANALYSIS AND DESIGN                   *
*               Copyright Power Line Systems 1999-2022                   *
*                                                                        *
**************************************************************************

Project Name : 23016.02 - CT2044
Project Notes: Structure # 19540 / AT&T CT2044
Project File : J:\Jobs\2301600.WI\02_CT2044\05_Structural\Tower Analysis\Backup Documentation\Rev (1)\Calcs\PLS-Pole\204-23-24184-135FT.POL
Date run     : 1:43:56 PM Wednesday, August 09, 2023
by           : PLS-POLE Version 17.50
Licensed to  : Centek Engineering Inc

Successfully performed nonlinear analysis

Load case 'NESC  Rule  250C' uses loading method NESC 2023 which is still being tested and/or is a draft.  Carefully check your results. ??
The model has 1 warning.  ??
```

```
Modeling options:
  Offset Arms from Pole/Mast:   Yes
  Offset Braces from Pole/Mast: Yes
  Offset Guys from Pole/Mast:   Yes
  Offset Posts from Pole/Mast:  Yes
  Offset Strains from Pole/Mast:  Yes
  Use Alternate Convergence Process: No
  Steel poles and tubular arms checked with ASCE/SEI 48-19
  Base plates are NOT checked  ??
```

Vang Connectivity:

Vang Label	Attach Label	Tip Label	Azimuth (deg)	Length (ft)	Measured Relative To
SWLV	SWL:T	SWLV	0	0.25	Face

SWRV	SWR:T	SWRV	0	0.25	Face
C1V	C1:T	C1V	0	0.25	Face
C4V	C4:T	C4V	0	0.25	Face
C2V	C2:T	C2V	0	0.25	Face
C5V	C5:T	C5V	0	0.25	Face
C3V	C3:T	C3V	0	0.25	Face
C6V	C6:T	C6V	0	0.25	Face

Default Modulus of Elasticity for Steel = 29000.00 (ksi)
Default Weight Density for Steel = 490.00 (lbs/ft^3)

Steel Pole Properties:

Steel Pole Property	Stock Number	Length	Default Embedded Length	Base Plate	Shape	Tip Diameter	Base Diameter	Taper	Default Drag Coef.	Tubes	Modulus of Elasticity Override	Weight Density Override	Shape At Base	Strength Check Type	Distance From Tip	Ultimate Ultimate Texture Trans. Load	Ultimate Ultimate Texture Long. Load
		(ft)	(ft)			(in)	(in)	(in/ft)			(ksi)	(lbs/ft^3)			(ft)	(kips)	(kips)
204-23-24184-135FT		120.00	0	Yes	12F	32.32	61.25	0	1.6	4 tubes	0	0		Calculated	0.000	0.0000	0.0000

Steel Tubes Properties:

Pole Property	Tube No.	Length	Thickness	Lap Length	Lap Factor	Lap Butt Offset	Gap or	Yield Stress	Moment Cap. Override	Tube Weight	Center of Gravity	Taper	Calculated Tube Top Diameter	Tube Bot. Diameter	1.5x Diam. Lap Length	Actual Overlap
		(ft)	(in)	(ft)		(in)		(ksi)	(ft-k)	(lbs)	(ft)	(in/ft)	(in)	(in)	(ft)	(ft)
204-23-24184-135FT	1	10	0.3125	0.000	0.000	0.000		65.000	0.000	1135	5.06	0.23796	32.32	34.70	4.259	0.000
204-23-24184-135FT	2	41	0.3125	0.000	0.000	0.000		65.000	0.000	5504	21.35	0.23796	34.70	44.46	5.479	0.000
204-23-24184-135FT	3	17	0.375	0.000	0.000	0.000		65.000	0.000	3224	8.62	0.23796	44.58	48.63	5.985	0.000
204-23-24184-135FT	4	52	0.5	0.000	0.000	0.000		65.000	0.000	15522	26.98	0.23796	48.88	61.25	0.000	0.000

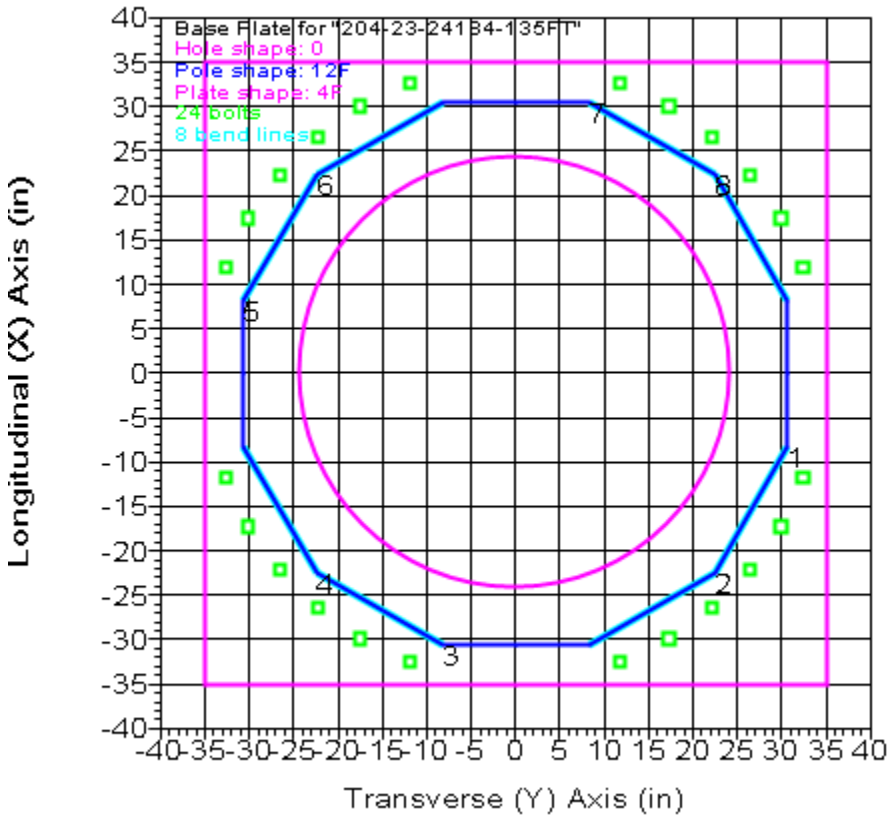
Base Plate Properties:

Pole Property	Plate Diam.	Plate Shape	Plate Thick.	Plate Weight	Bend Line Length Override	Hole Diam.	Hole Shape	Steel Density	Steel Yield Stress	Bolt Diam.	Bolt Pattern Diam.	Num. Of Bolts	Bolt Cage X Inertia	Bolt Cage Y Inertia
	(in)		(in)	(lbs)	(in)	(in)		(lbs/ft^3)	(ksi)	(in)	(in)		(in^4)	(in^4)
204-23-24184-135FT	70.125	4F	3.750	3143	0.000	48.750	0	490.00	50.000	2.250	69.250	24	57196.68	57196.68

Base Plate Bolt Coordinates for Property "204-23-24184-135FT":

Bolt X	Bolt Y	Bolt

Coord.	Coord.	Angle (deg)
0.343	0.9386	0
0.5018	0.8664	0
0.6426	0.7653	0
0.7653	0.6426	0
0.8664	0.5018	0
0.9386	0.343	0

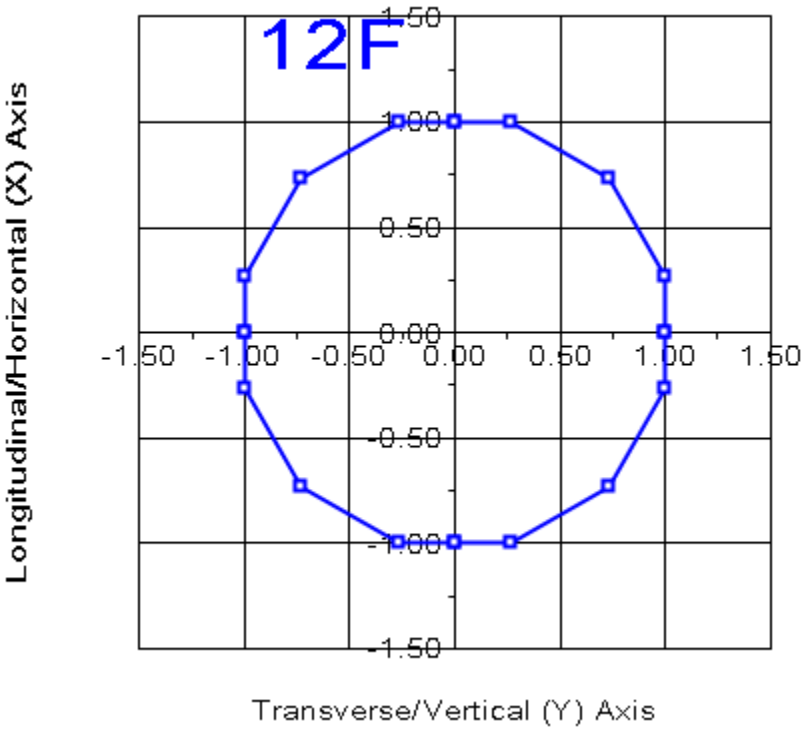


Steel Pole Connectivity:

Pole Label	Tip Joint	Base Joint	X of Base (ft)	Y of Base (ft)	Z of Base (ft)	Inclin. About X (deg)	Inclin. About Y (deg)	Property Set	Attach. Labels	Base Connect	Embed % Override	Embed C. Override (ft)
P			0	0	0	0	0	204-23-24184-135FT	16 labels		0.00	0

Relative Attachment Labels for Steel Pole "P":

Joint Label	Distance From Origin/Top Joint (ft)	Global Z of Attach (ft)
P:CX2	15.00	0.00
P:SW	11.25	0.00
P:CT	17.92	0.00
P:CX3	25.00	0.00
P:CM	29.92	0.00
P:CX5	45.00	0.00
P:CB	41.92	0.00
P:CX6	55.00	0.00
P:CX7	65.00	0.00
P:CX8	75.00	0.00
P:CX9	85.00	0.00
P:CX10	95.00	0.00
P:CX11	105.00	0.00
P:CX12	115.00	0.00
P:CX4	35.00	0.00
P:CX00	5.00	0.00



Pole Steel Properties:

Element	Joint	Joint	Rel. Outer	Area	T-Moment	L-Moment	D/t	W/t	Fy	Fa	T-Moment	L-Moment

Label	Label	Position	Dist. (ft)	Diam. (in)	(in^2)	Inertia (in^4)	Inertia (in^4)		Max. (ksi)		Min. (ksi)	Capacity (ft-k)	Capacity (ft-k)
P	P:t	P:t Ori	0.00	32.32	32.16	4217.55	4217.55	0.00	25.0	65.00	65.00	1413.68	1413.68
P	P:CX00	P:CX00 End	5.00	33.51	33.36	4705.55	4705.55	0.00	26.1	65.00	65.00	1521.25	1521.25
P	P:CX00	P:CX00 Ori	5.00	33.51	33.36	4705.55	4705.55	0.00	26.1	65.00	65.00	1521.25	1521.25
P	#P:0	SpliceT End	10.00	34.70	34.55	5229.81	5229.81	0.00	27.1	65.00	65.00	1632.76	1632.76
P	#P:0	SpliceT Ori	10.00	34.70	34.55	5229.81	5229.81	0.00	27.1	65.00	65.00	1632.76	1632.76
P	P:SW	P:SW End	11.25	35.00	34.85	5366.69	5366.69	0.00	27.3	65.00	65.00	1661.26	1661.26
P	P:SW	P:SW Ori	11.25	35.00	34.85	5366.69	5366.69	0.00	27.3	65.00	65.00	1661.26	1661.26
P	P:CX2	P:CX2 End	15.00	35.89	35.75	5791.63	5791.63	0.00	28.1	65.00	65.00	1748.22	1748.22
P	P:CX2	P:CX2 Ori	15.00	35.89	35.75	5791.63	5791.63	0.00	28.1	65.00	65.00	1748.22	1748.22
P	P:CT	P:CT End	17.92	36.58	36.45	6137.63	6137.63	0.00	28.7	65.00	65.00	1817.47	1817.47
P	P:CT	P:CT Ori	17.92	36.58	36.45	6137.63	6137.63	0.00	28.7	65.00	65.00	1817.47	1817.47
P	#P:1	Tube 2 End	21.46	37.43	37.29	6575.24	6575.24	0.00	29.4	65.00	65.00	1903.24	1903.24
P	#P:1	Tube 2 Ori	21.46	37.43	37.29	6575.24	6575.24	0.00	29.4	65.00	65.00	1903.24	1903.24
P	P:CX3	P:CX3 End	25.00	38.27	38.14	7033.16	7033.16	0.00	30.1	65.00	64.67	1980.83	1980.83
P	P:CX3	P:CX3 Ori	25.00	38.27	38.14	7033.16	7033.16	0.00	30.1	65.00	64.67	1980.83	1980.83
P	P:CM	P:CM End	29.92	39.44	39.32	7704.22	7704.22	0.00	31.1	65.00	63.68	2073.33	2073.33
P	P:CM	P:CM Ori	29.92	39.44	39.32	7704.22	7704.22	0.00	31.1	65.00	63.68	2073.33	2073.33
P	#P:2	Tube 2 End	32.46	40.04	39.92	8066.78	8066.78	0.00	31.7	65.00	63.17	2121.06	2121.06
P	#P:2	Tube 2 Ori	32.46	40.04	39.92	8066.78	8066.78	0.00	31.7	65.00	63.17	2121.06	2121.06
P	P:CX4	P:CX4 End	35.00	40.65	40.53	8440.54	8440.54	0.00	32.2	65.00	62.67	2168.72	2168.72
P	P:CX4	P:CX4 Ori	35.00	40.65	40.53	8440.54	8440.54	0.00	32.2	65.00	62.67	2168.72	2168.72
P	#P:3	Tube 2 End	38.46	41.47	41.36	8968.00	8968.00	0.00	32.9	65.00	61.97	2233.53	2233.53
P	#P:3	Tube 2 Ori	38.46	41.47	41.36	8968.00	8968.00	0.00	32.9	65.00	61.97	2233.53	2233.53
P	P:CB	P:CB End	41.92	42.30	42.18	9517.00	9517.00	0.00	33.6	65.00	61.28	2298.13	2298.13
P	P:CB	P:CB Ori	41.92	42.30	42.18	9517.00	9517.00	0.00	33.6	65.00	61.28	2298.13	2298.13
P	P:CX5	P:CX5 End	45.00	43.03	42.92	10024.16	10024.16	0.00	34.2	65.00	60.66	2355.41	2355.41
P	P:CX5	P:CX5 Ori	45.00	43.03	42.92	10024.16	10024.16	0.00	34.2	65.00	60.66	2355.41	2355.41
P	#P:4	Tube 2 End	48.00	43.74	43.64	10535.16	10535.16	0.00	34.8	65.00	60.06	2410.96	2410.96
P	#P:4	Tube 2 Ori	48.00	43.74	43.64	10535.17	10535.17	0.00	34.8	65.00	60.06	2410.96	2410.96
P	#P:5	SpliceT End	51.00	44.46	44.36	11063.25	11063.25	0.00	35.4	65.00	59.46	2466.24	2466.24
P	#P:5	SpliceT Ori	51.00	44.58	53.30	13332.66	13332.66	0.00	29.2	65.00	65.00	3239.88	3239.88
P	P:CX6	P:CX6 End	55.00	45.53	54.45	14212.52	14212.52	0.00	29.9	65.00	64.94	3378.50	3378.50
P	P:CX6	P:CX6 Ori	55.00	45.53	54.45	14212.52	14212.52	0.00	29.9	65.00	64.94	3378.50	3378.50
P	#P:6	Tube 3 End	60.00	46.72	55.88	15365.72	15365.72	0.00	30.7	65.00	64.11	3513.87	3513.87
P	#P:6	Tube 3 Ori	60.00	46.72	55.88	15365.72	15365.72	0.00	30.7	65.00	64.11	3513.87	3513.87
P	P:CX7	P:CX7 End	65.00	47.91	57.32	16579.67	16579.67	0.00	31.6	65.00	63.27	3649.20	3649.20
P	P:CX7	P:CX7 Ori	65.00	47.91	57.32	16579.67	16579.67	0.00	31.6	65.00	63.27	3649.20	3649.20
P	#P:7	SpliceT End	68.00	48.63	58.18	17337.85	17337.85	0.00	32.1	65.00	62.77	3730.29	3730.29
P	#P:7	SpliceT Ori	68.00	48.88	77.77	23298.32	23298.32	0.00	23.5	65.00	65.00	5164.03	5164.03
P	#P:8	Tube 4 End	71.50	49.71	79.11	24522.40	24522.40	0.00	24.0	65.00	65.00	5344.28	5344.28
P	#P:8	Tube 4 Ori	71.50	49.71	79.11	24522.40	24522.40	0.00	24.0	65.00	65.00	5344.28	5344.28
P	P:CX8	P:CX8 End	75.00	50.54	80.45	25788.61	25788.61	0.00	24.4	65.00	65.00	5527.62	5527.62
P	P:CX8	P:CX8 Ori	75.00	50.54	80.45	25788.62	25788.62	0.00	24.4	65.00	65.00	5527.62	5527.62
P	#P:9	Tube 4 End	80.00	51.73	82.36	27672.01	27672.01	0.00	25.0	65.00	65.00	5794.90	5794.90
P	#P:9	Tube 4 Ori	80.00	51.73	82.36	27672.02	27672.02	0.00	25.0	65.00	65.00	5794.90	5794.90
P	P:CX9	P:CX9 End	85.00	52.92	84.28	29644.96	29644.96	0.00	25.7	65.00	65.00	6068.49	6068.49
P	P:CX9	P:CX9 Ori	85.00	52.92	84.28	29644.96	29644.96	0.00	25.7	65.00	65.00	6068.49	6068.49
P	#P:10	Tube 4 End	90.00	54.11	86.19	31709.52	31709.52	0.00	26.3	65.00	65.00	6348.39	6348.39
P	#P:10	Tube 4 Ori	90.00	54.11	86.19	31709.52	31709.52	0.00	26.3	65.00	65.00	6348.39	6348.39
P	P:CX10	P:CX10 End	95.00	55.30	88.10	33867.78	33867.78	0.00	27.0	65.00	65.00	6634.60	6634.60
P	P:CX10	P:CX10 Ori	95.00	55.30	88.10	33867.78	33867.78	0.00	27.0	65.00	65.00	6634.60	6634.60
P	#P:11	Tube 4 End	100.00	56.49	90.02	36121.81	36121.81	0.00	27.6	65.00	65.00	6927.12	6927.12
P	#P:11	Tube 4 Ori	100.00	56.49	90.02	36121.82	36121.82	0.00	27.6	65.00	65.00	6927.12	6927.12
P	P:CX11	P:CX11 End	105.00	57.68	91.93	38473.71	38473.71	0.00	28.2	65.00	65.00	7225.96	7225.96
P	P:CX11	P:CX11 Ori	105.00	57.68	91.93	38473.71	38473.71	0.00	28.2	65.00	65.00	7225.96	7225.96
P	#P:12	Tube 4 End	110.00	58.87	93.84	40925.54	40925.54	0.00	28.9	65.00	65.00	7531.11	7531.11

P	#P:12	Tube 4 Ori	110.00	58.87	93.84	40925.54	40925.54	0.00	28.9	65.00	65.00	7531.11	7531.11
P	P:CX12	P:CX12 End	115.00	60.06	95.75	43479.39	43479.39	0.00	29.5	65.00	65.00	7842.56	7842.56
P	P:CX12	P:CX12 Ori	115.00	60.06	95.75	43479.39	43479.39	0.00	29.5	65.00	65.00	7842.56	7842.56
P	P:g	P:g End	120.00	61.25	97.67	46137.33	46137.33	0.00	30.1	65.00	64.66	8117.45	8117.45

Tubular Davit Properties:

Davit Property Label	Stock Number	Steel Shape	Thickness (in)	Base Diameter or Depth (in)	Tip Diameter or Depth (in)	Taper (in/ft)	Drag Coef.	Modulus of Elasticity (ksi)	Geometry Check Type	Strength Vertical Capacity (lbs)	Tension Capacity (lbs)	Compres. Capacity (lbs)	Long. Capacity (lbs)	Yield Stress (ksi)	Steel Texture Density (lbs/ft^3)	Shape Override	At End
9FT COND ARM		8F	0.25	16	8	0	1.3	29000	2 points Calculated	0	0	0	0	65	0		
4FT SW ARM-204		8F	0.1875	9	6	0	1.3	29000	2 points Calculated	0	0	0	0	65	0		

Intermediate Joints for Davit Property "9FT COND ARM":

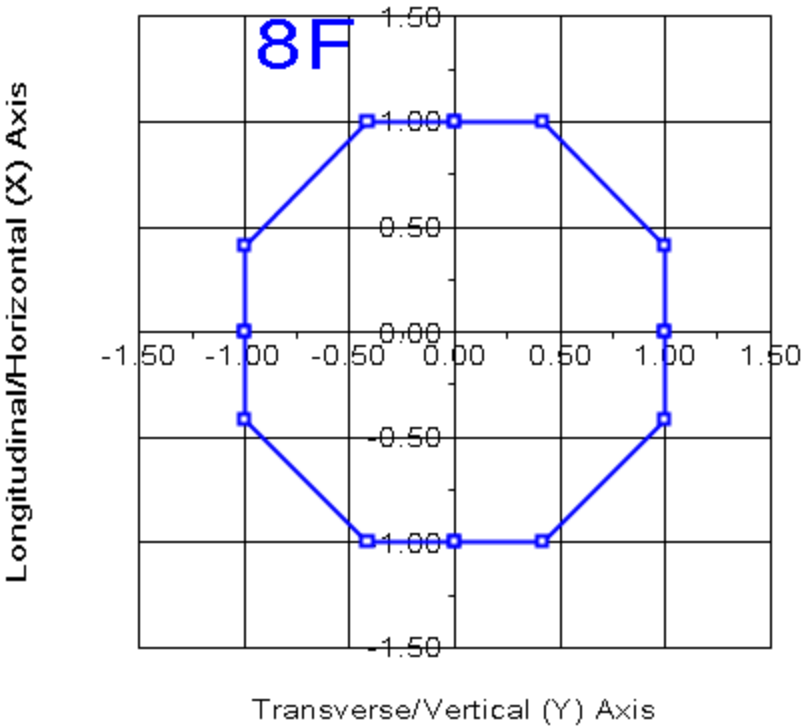
Joint Label	Horz. Offset (ft)	Vert. Offset (ft)
1	0.79	0
T	9.79	-1

Intermediate Joints for Davit Property "4FT SW ARM-204":

Joint Label	Horz. Offset (ft)	Vert. Offset (ft)
1	0.67	0
T	4.67	-1

Tubular Davit Arm Connectivity:

Davit Label	Attach Label	Davit Property Set	Azimuth (deg)
SWL	P:SW	4FT SW ARM-204	180
SWR	P:SW	4FT SW ARM-204	0
C1	P:CT	9FT COND ARM	180
C4	P:CT	9FT COND ARM	0
C2	P:CM	9FT COND ARM	180
C5	P:CM	9FT COND ARM	0
C3	P:CB	9FT COND ARM	180
C6	P:CB	9FT COND ARM	0



Tubular Davit Arm Steel Properties:

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Outer Diam. (in)	Area (in^2)	V-Moment Inertia (in^4)	H-Moment Inertia (in^4)	D/t	W/t Max.	Fy (ksi)	Fa Min. (ksi)	V-Moment Capacity (ft-k)	H-Moment Capacity (ft-k)
SWL	SWL:O	Origin	0.00	9.00	5.48	56.22	56.22	0.00	15.7	65.00	65.00	67.67	67.67
SWL	SWL:1	End	0.67	8.58	5.21	48.57	48.57	0.00	14.8	65.00	65.00	61.32	61.32
SWL	SWL:1	Origin	0.67	8.58	5.21	48.57	48.57	0.00	14.8	65.00	65.00	61.32	61.32
SWL	SWL:T	End	4.79	6.00	3.61	16.14	16.14	0.00	9.1	65.00	65.00	29.14	29.14
SWR	SWR:O	Origin	0.00	9.00	5.48	56.22	56.22	0.00	15.7	65.00	65.00	67.67	67.67
SWR	SWR:1	End	0.67	8.58	5.21	48.57	48.57	0.00	14.8	65.00	65.00	61.32	61.32
SWR	SWR:1	Origin	0.67	8.58	5.21	48.57	48.57	0.00	14.8	65.00	65.00	61.32	61.32
SWR	SWR:T	End	4.79	6.00	3.61	16.14	16.14	0.00	9.1	65.00	65.00	29.14	29.14
C1	C1:O	Origin	0.00	16.00	13.05	427.83	427.83	0.00	22.4	65.00	65.00	289.67	289.67
C1	C1:1	End	0.79	15.36	12.52	377.63	377.63	0.00	21.3	65.00	65.00	266.37	266.37
C1	C1:1	Origin	0.79	15.36	12.52	377.63	377.63	0.00	21.3	65.00	65.00	266.37	266.37
C1	#C1:0	End	5.32	11.68	9.47	163.51	163.51	0.00	15.2	65.00	65.00	151.67	151.67
C1	#C1:0	Origin	5.32	11.68	9.47	163.51	163.51	0.00	15.2	65.00	65.00	151.67	151.67
C1	C1:T	End	9.85	8.00	6.42	51.01	51.01	0.00	9.1	65.00	65.00	69.08	69.08

C4	C4:O	Origin	0.00	16.00	13.05	427.83	427.83	0.00	22.4	65.00	65.00	289.67	289.67
C4	C4:1	End	0.79	15.36	12.52	377.63	377.63	0.00	21.3	65.00	65.00	266.37	266.37
C4	C4:1	Origin	0.79	15.36	12.52	377.63	377.63	0.00	21.3	65.00	65.00	266.37	266.37
C4	#C4:0	End	5.32	11.68	9.47	163.51	163.51	0.00	15.2	65.00	65.00	151.67	151.67
C4	#C4:0	Origin	5.32	11.68	9.47	163.51	163.51	0.00	15.2	65.00	65.00	151.67	151.67
C4	C4:T	End	9.85	8.00	6.42	51.01	51.01	0.00	9.1	65.00	65.00	69.08	69.08
C2	C2:O	Origin	0.00	16.00	13.05	427.83	427.83	0.00	22.4	65.00	65.00	289.67	289.67
C2	C2:1	End	0.79	15.36	12.52	377.63	377.63	0.00	21.3	65.00	65.00	266.37	266.37
C2	C2:1	Origin	0.79	15.36	12.52	377.63	377.63	0.00	21.3	65.00	65.00	266.37	266.37
C2	#C2:0	End	5.32	11.68	9.47	163.51	163.51	0.00	15.2	65.00	65.00	151.67	151.67
C2	#C2:0	Origin	5.32	11.68	9.47	163.51	163.51	0.00	15.2	65.00	65.00	151.67	151.67
C2	C2:T	End	9.85	8.00	6.42	51.01	51.01	0.00	9.1	65.00	65.00	69.08	69.08
C5	C5:O	Origin	0.00	16.00	13.05	427.83	427.83	0.00	22.4	65.00	65.00	289.67	289.67
C5	C5:1	End	0.79	15.36	12.52	377.63	377.63	0.00	21.3	65.00	65.00	266.37	266.37
C5	C5:1	Origin	0.79	15.36	12.52	377.63	377.63	0.00	21.3	65.00	65.00	266.37	266.37
C5	#C5:0	End	5.32	11.68	9.47	163.51	163.51	0.00	15.2	65.00	65.00	151.67	151.67
C5	#C5:0	Origin	5.32	11.68	9.47	163.51	163.51	0.00	15.2	65.00	65.00	151.67	151.67
C5	C5:T	End	9.85	8.00	6.42	51.01	51.01	0.00	9.1	65.00	65.00	69.08	69.08
C3	C3:O	Origin	0.00	16.00	13.05	427.83	427.83	0.00	22.4	65.00	65.00	289.67	289.67
C3	C3:1	End	0.79	15.36	12.52	377.63	377.63	0.00	21.3	65.00	65.00	266.37	266.37
C3	C3:1	Origin	0.79	15.36	12.52	377.63	377.63	0.00	21.3	65.00	65.00	266.37	266.37
C3	#C3:0	End	5.32	11.68	9.47	163.51	163.51	0.00	15.2	65.00	65.00	151.67	151.67
C3	#C3:0	Origin	5.32	11.68	9.47	163.51	163.51	0.00	15.2	65.00	65.00	151.67	151.67
C3	C3:T	End	9.85	8.00	6.42	51.01	51.01	0.00	9.1	65.00	65.00	69.08	69.08
C6	C6:O	Origin	0.00	16.00	13.05	427.83	427.83	0.00	22.4	65.00	65.00	289.67	289.67
C6	C6:1	End	0.79	15.36	12.52	377.63	377.63	0.00	21.3	65.00	65.00	266.37	266.37
C6	C6:1	Origin	0.79	15.36	12.52	377.63	377.63	0.00	21.3	65.00	65.00	266.37	266.37
C6	#C6:0	End	5.32	11.68	9.47	163.51	163.51	0.00	15.2	65.00	65.00	151.67	151.67
C6	#C6:0	Origin	5.32	11.68	9.47	163.51	163.51	0.00	15.2	65.00	65.00	151.67	151.67
C6	C6:T	End	9.85	8.00	6.42	51.01	51.01	0.00	9.1	65.00	65.00	69.08	69.08

*** Insulator Data

Clamp Properties:

Label	Stock Number	Holding Capacity (lbs)	Hardware Capacity (lbs)	Notes
Clamp		1e+05	1e+05	

Clamp Insulator Connectivity:

Clamp Label	Structure And Tip Attach	Property Set	Min. Required Vertical Load (uplift) (lbs)
CX2	P:CX2	Clamp	No Limit
CX3	P:CX3	Clamp	No Limit
CX4	P:CX4	Clamp	No Limit
CX5	P:CX5	Clamp	No Limit
CX6	P:CX6	Clamp	No Limit
CX7	P:CX7	Clamp	No Limit
CX8	P:CX8	Clamp	No Limit

CX9	P:CX9	Clamp	No Limit
CX10	P:CX10	Clamp	No Limit
CX11	P:CX11	Clamp	No Limit
CX12	P:CX12	Clamp	No Limit
CX00	P:CX00	Clamp	No Limit
CX000	P:t	Clamp	No Limit

Suspension Properties:

Label	Stock Number	Length (ft)	Weight (lbs)	Wind Area (ft^2)	Tension Capacity (lbs)	Top Rect Width (ft)	Top Rect Height (ft)	Bot. Rect Width (ft)	Bot. Rect Height (ft)	Vert. Rect Width (ft)	Vert. Rect Height (ft)	Hardware Capacity (lbs)	Notes	Draw Rigid
SW INSULATOR		0.5	50	3	2e+04	0	0	0	0	0	0	0	Shedless	No
CONDUCTOR INSULATOR		5.5	300	7	3e+04	0	0	0	0	0	0	0	Sheds	No

Suspension Insulator Connectivity:

Suspension Label	Structure Attach	Tip Label	Property Set	Cond. 1 Minimum Swing (deg)	Cond. 1 Maximum Swing (deg)	Cond. 2 Minimum Swing (deg)	Cond. 2 Maximum Swing (deg)	Cond. 3 Minimum Swing (deg)	Cond. 3 Maximum Swing (deg)	Cond. 4 Minimum Swing (deg)	Cond. 4 Maximum Swing (deg)	Min. Required Vertical Load (uplift) (lbs)
SWL	SWLV	SWL	SW INSULATOR	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	No Limit
SWR	SWRV	SWR	SW INSULATOR	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	No Limit
C1	C1V	C1	CONDUCTOR INSULATOR	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	No Limit
C4	C4V	C4	CONDUCTOR INSULATOR	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	No Limit
C2	C2V	C2	CONDUCTOR INSULATOR	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	No Limit
C5	C5V	C5	CONDUCTOR INSULATOR	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	No Limit
C3	C3V	C3	CONDUCTOR INSULATOR	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	No Limit
C6	C6V	C6	CONDUCTOR INSULATOR	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	No Limit

*** Loads Data

Loads from file: J:\Jobs\2301600.WI\02_CT2044\05_Structural\Tower Analysis\Backup Documentation\Rev (1)\Calcs\PLS-Pole\204-23-24184.lca

Insulator dead and wind loads are calculated by the program and are not included in the point loads printed below.

Loading Method Parameters:

Structure Height Summary (used for calculating wind/ice adjust with height):
  Z of ground for wind height adjust 0.00 (ft) and structure Z coordinate that will be put on the centerline ground profile in PLS-CADD.
  Ground elevation shift 0.00 (ft)
  Z of ground with shift 0.00 (ft)
  Z of structure top (highest joint) 120.00 (ft)
  Structure height 120.00 (ft)
  Structure height above ground 120.00 (ft)

Vector Load Cases:

Load Case Description	Dead Load	Wind Area Factor	Ice Factor	Temperature Steel Poles and Tubular Towers	SF for Wood Arms	SF for Pole Conc. Poles	SF for Pole Ult. Check	SF for First Crack	SF for Zero Tens.	SF for Guys and Cables	SF for Tubular Arms	SF for Non Insuls.	SF For Braces Hardware	Point Found.	Wind/Ice Loads	Trans. Longit. Wind Model	Ice Thick. (in)	Ice Density (lbs/ft^3)	Wind Pressure (deg F)	Deflection Limit % or (ft)	Deflection Pressure (psf)	Wind Pressure (psf)
NESC Rule 250B	1.5000	2.5000	1.00000	0.0000	0.0000	0.0000	0.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	21 loads	Wind on All	4	0	0.500	57.000	0.0	No Limit	0
NESC Rule 250C	1.0000	1.0000	1.00000	0.0000	0.0000	0.0000	0.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	21 loads	NESC 2023	31	0	0.000	57.000	60.0	No Limit	0
NESC Rule 250D	1.0000	1.0000	1.00000	0.0000	0.0000	0.0000	0.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	21 loads	Wind on All	6.4	0	0.750	57.000	15.0	No Limit	0

Point Loads for Load Case "NESC Rule 250B":

Joint Label	Vertical Load (lbs)	Transverse Load (lbs)	Longitudinal Load (lbs)	Load Comment
SWL	2200	2000	0	
SWR	2200	2000	0	
C1	6500	3300	0	
C4	6500	3300	0	
C2	6500	3300	0	
C5	6500	3300	0	
C3	6500	3300	0	
C6	6500	3300	0	
P:t	8668	2237	0	ANTENNA LOAD
P:CX2	1035	119	0	COAX CABLE LOAD
P:CX3	1035	119	0	COAX CABLE LOAD
P:CX4	1035	119	0	COAX CABLE LOAD
P:CX5	1035	119	0	COAX CABLE LOAD
P:CX6	1035	119	0	COAX CABLE LOAD

P:CX7	1035	119	0 COAX CABLE LOAD
P:CX8	1035	119	0 COAX CABLE LOAD
P:CX9	1035	119	0 COAX CABLE LOAD
P:CX10	1035	119	0 COAX CABLE LOAD
P:CX11	1035	119	0
P:CX12	1035	119	0
P:CX00	1035	119	0

Detailed Pole Loading Data for Load Case "NESC Rule 250B":

Notes: Does not include loads from equipment, arms, guys, braces, etc. or user input loads.
Wind load is calculated for the undeformed shape of a pole.

Pole Label	Top Joint	Bottom Joint	Section Top Z (ft)	Section Bottom Z (ft)	Section Average Elevation (ft)	Outer Diameter (in)	Reynolds Number	Drag Coef.	Adjusted Wind Pressure (psf)	Adjusted Ice Thickness (in)	Pole Vert. Load (lbs)	Pole Wind Load (lbs)	Pole Ice Vertical Load (lbs)	Pole Ice Wind Load (lbs)	Tran. Wind Load (lbs)	Long. Wind Load (lbs)
P	P:t	P:CX00	120.00	115.00	117.50	32.915	1.56e+06	1.600	10.00	0.50	836.04	219.44	104.73	6.67	226.11	0.00
P	P:CX00		115.00	110.00	112.50	34.105	1.61e+06	1.600	10.00	0.50	866.55	227.38	108.52	6.67	234.04	0.00
P		P:SW	110.00	108.75	109.38	34.848	1.65e+06	1.600	10.00	0.50	221.41	58.08	27.72	1.67	59.75	0.00
P	P:SW	P:CX2	108.75	105.00	106.88	35.443	1.68e+06	1.600	10.00	0.50	675.66	177.23	84.58	5.00	182.23	0.00
P	P:CX2	P:CT	105.00	102.08	103.54	36.237	1.72e+06	1.600	10.00	0.50	538.00	141.09	67.34	3.89	144.98	0.00
P	P:CT		102.08	98.54	100.31	37.005	1.75e+06	1.600	10.00	0.50	666.18	174.67	83.37	4.72	179.39	0.00
P		P:CX3	98.54	95.00	96.77	37.848	1.79e+06	1.600	10.00	0.50	681.48	178.65	85.26	4.72	183.37	0.00
P	P:CX3	P:CM	95.00	90.08	92.54	38.854	1.84e+06	1.600	10.00	0.50	972.54	254.90	121.65	6.56	261.46	0.00
P	P:CM		90.08	87.54	88.81	39.742	1.88e+06	1.600	10.00	0.50	513.64	134.60	64.24	3.39	137.99	0.00
P		P:CX4	87.54	85.00	86.27	40.346	1.91e+06	1.600	10.00	0.50	521.52	136.65	65.22	3.39	140.03	0.00
P	P:CX4		85.00	81.54	83.27	41.060	1.94e+06	1.600	10.00	0.50	723.08	189.43	90.41	4.61	194.05	0.00
P		P:CB	81.54	78.08	79.81	41.884	1.98e+06	1.600	10.00	0.50	737.69	193.23	92.22	4.61	197.85	0.00
P	P:CB	P:CX5	78.08	75.00	76.54	42.662	2.02e+06	1.600	10.00	0.50	668.97	175.21	83.62	4.11	179.31	0.00
P	P:CX5		75.00	72.00	73.50	43.385	2.05e+06	1.600	10.00	0.50	662.72	173.55	82.83	4.00	177.55	0.00
P			72.00	69.00	70.50	44.099	2.09e+06	1.600	10.00	0.50	673.70	176.41	84.19	4.00	180.41	0.00
P		P:CX6	69.00	65.00	67.00	45.057	2.13e+06	1.600	10.00	0.50	1099.97	240.32	114.69	5.33	245.65	0.00
P	P:CX6		65.00	60.00	62.50	46.128	2.18e+06	1.600	10.00	0.50	1407.91	307.53	146.77	6.67	314.20	0.00
P		P:CX7	60.00	55.00	57.50	47.317	2.24e+06	1.600	10.00	0.50	1444.52	315.47	150.56	6.67	322.13	0.00
P	P:CX7		55.00	52.00	53.50	48.269	2.29e+06	1.600	10.00	0.50	884.29	193.09	92.15	4.00	197.09	0.00
P			52.00	48.50	50.25	49.293	2.33e+06	1.600	10.00	0.50	1401.36	230.04	109.79	4.67	234.71	0.00
P		P:CX8	48.50	45.00	46.75	50.125	2.37e+06	1.600	10.00	0.50	1425.28	233.93	111.65	4.67	238.60	0.00
P	P:CX8		45.00	40.00	42.50	51.137	2.42e+06	1.600	10.00	0.50	2077.61	340.93	162.71	6.67	347.60	0.00
P		P:CX9	40.00	35.00	37.50	52.327	2.48e+06	1.600	10.00	0.50	2126.43	348.86	166.50	6.67	355.53	0.00
P	P:CX9		35.00	30.00	32.50	53.516	2.53e+06	1.600	10.00	0.50	2175.25	356.79	170.28	6.67	363.46	0.00
P		P:CX10	30.00	25.00	27.50	54.706	2.59e+06	1.600	10.00	0.50	2224.06	364.73	174.07	6.67	371.39	0.00
P	P:CX10		25.00	20.00	22.50	55.896	2.65e+06	1.600	10.00	0.50	2272.88	372.66	177.86	6.67	379.33	0.00
P		P:CX11	20.00	15.00	17.50	57.086	2.7e+06	1.600	10.00	0.50	2321.70	380.59	181.64	6.67	387.26	0.00
P	P:CX11		15.00	10.00	12.50	58.276	2.76e+06	1.600	10.00	0.50	2370.51	388.52	185.43	6.67	395.19	0.00
P		P:CX12	10.00	5.00	7.50	59.465	2.82e+06	1.600	10.00	0.50	2419.33	396.46	189.21	6.67	403.12	0.00
P	P:CX12	P:g	5.00	0.00	2.50	60.655	2.87e+06	1.600	10.00	0.50	2468.15	404.39	193.00	6.67	411.06	0.00

Point Loads for Load Case "NESC Rule 250C":

Joint Label	Vertical Load (lbs)	Transverse Load (lbs)	Longitudinal Load (lbs)	Load Comment
SWL	1400	2100	0	
SWR	1400	2100	0	
C1	3800	5100	0	
C4	3800	5100	0	

C2	3800	5100	0	
C5	3800	5100	0	
C3	3800	5100	0	
C6	3800	5100	0	
P:t	4419	8450	0	ANTENNA LOAD
P:CX2	281	332	0	COAX CABLE LOAD
P:CX3	281	332	0	COAX CABLE LOAD
P:CX4	281	332	0	COAX CABLE LOAD
P:CX5	281	332	0	COAX CABLE LOAD
P:CX6	281	332	0	COAX CABLE LOAD
P:CX7	281	332	0	COAX CABLE LOAD
P:CX8	281	332	0	COAX CABLE LOAD
P:CX9	281	332	0	COAX CABLE LOAD
P:CX10	281	332	0	COAX CABLE LOAD
P:CX11	281	332	0	
P:CX12	281	332	0	
P:CX00	281	332	0	

Detailed Pole Loading Data for Load Case "NESC Rule 250C":

Notes: Does not include loads from equipment, arms, guys, braces, etc. or user input loads.
Wind load is calculated for the undeformed shape of a pole.

Pole Label	Top Joint	Bottom Joint	Section Top Z (ft)	Section Bottom Z (ft)	Section Average Elevation (ft)	Outer Diameter (in)	Reynolds Number	Drag Coef.	Adjusted Wind Pressure (psf)	Adjusted Ice Thickness (in)	Pole Vert. Load (lbs)	Pole Wind Load (lbs)	Pole Ice Vertical Load (lbs)	Pole Ice Wind Load (lbs)	Tran. Wind Load (lbs)	Long. Wind Load (lbs)
P	P:t	P:CX00	120.00	115.00	117.50	32.915	2.76e+06	1.000	31.45	0.00	557.36	431.31	0.00	0.00	431.31	0.00
P	P:CX00		115.00	110.00	112.50	34.105	2.86e+06	1.000	31.45	0.00	577.70	446.90	0.00	0.00	446.90	0.00
P		P:SW	110.00	108.75	109.38	34.848	2.93e+06	1.000	31.45	0.00	147.60	114.16	0.00	0.00	114.16	0.00
P	P:SW	P:CX2	108.75	105.00	106.88	35.443	2.98e+06	1.000	31.45	0.00	450.44	348.33	0.00	0.00	348.33	0.00
P	P:CX2	P:CT	105.00	102.08	103.54	36.237	3.04e+06	1.000	31.45	0.00	358.66	277.30	0.00	0.00	277.30	0.00
P	P:CT		102.08	98.54	100.31	37.005	3.11e+06	1.000	31.45	0.00	444.12	343.31	0.00	0.00	343.31	0.00
P		P:CX3	98.54	95.00	96.77	37.848	3.18e+06	1.000	31.45	0.00	454.32	351.13	0.00	0.00	351.13	0.00
P	P:CX3	P:CM	95.00	90.08	92.54	38.854	3.26e+06	1.000	31.45	0.00	648.36	500.99	0.00	0.00	500.99	0.00
P	P:CM		90.08	87.54	88.81	39.742	3.34e+06	1.000	31.45	0.00	342.43	264.55	0.00	0.00	264.55	0.00
P		P:CX4	87.54	85.00	86.27	40.346	3.39e+06	1.000	31.45	0.00	347.68	268.57	0.00	0.00	268.57	0.00
P	P:CX4		85.00	81.54	83.27	41.060	3.45e+06	1.000	31.45	0.00	482.05	372.32	0.00	0.00	372.32	0.00
P		P:CB	81.54	78.08	79.81	41.884	3.52e+06	1.000	31.45	0.00	491.80	379.79	0.00	0.00	379.79	0.00
P	P:CB	P:CX5	78.08	75.00	76.54	42.662	3.58e+06	1.000	31.45	0.00	445.98	344.36	0.00	0.00	344.36	0.00
P	P:CX5		75.00	72.00	73.50	43.385	3.64e+06	1.000	31.45	0.00	441.81	341.10	0.00	0.00	341.10	0.00
P			72.00	69.00	70.50	44.099	3.7e+06	1.000	31.45	0.00	449.14	346.71	0.00	0.00	346.71	0.00
P		P:CX6	69.00	65.00	67.00	45.057	3.78e+06	1.000	31.45	0.00	733.31	472.33	0.00	0.00	472.33	0.00
P	P:CX6		65.00	60.00	62.50	46.128	3.87e+06	1.000	31.45	0.00	938.61	604.44	0.00	0.00	604.44	0.00
P		P:CX7	60.00	55.00	57.50	47.317	3.97e+06	1.000	31.45	0.00	963.02	620.03	0.00	0.00	620.03	0.00
P	P:CX7		55.00	52.00	53.50	48.269	4.05e+06	1.000	31.45	0.00	589.53	379.50	0.00	0.00	379.50	0.00
P			52.00	48.50	50.25	49.293	4.14e+06	1.000	31.45	0.00	934.24	452.14	0.00	0.00	452.14	0.00
P		P:CX8	48.50	45.00	46.75	50.125	4.21e+06	1.000	31.45	0.00	950.19	459.78	0.00	0.00	459.78	0.00
P	P:CX8		45.00	40.00	42.50	51.137	4.29e+06	1.000	31.45	0.00	1385.07	670.08	0.00	0.00	670.08	0.00
P		P:CX9	40.00	35.00	37.50	52.327	4.39e+06	1.000	31.45	0.00	1417.62	685.67	0.00	0.00	685.67	0.00
P	P:CX9		35.00	30.00	32.50	53.516	4.49e+06	1.000	31.45	0.00	1450.16	701.26	0.00	0.00	701.26	0.00
P		P:CX10	30.00	25.00	27.50	54.706	4.59e+06	1.000	31.45	0.00	1482.71	716.85	0.00	0.00	716.85	0.00
P	P:CX10		25.00	20.00	22.50	55.896	4.69e+06	1.000	31.45	0.00	1515.25	732.44	0.00	0.00	732.44	0.00
P		P:CX11	20.00	15.00	17.50	57.086	4.79e+06	1.000	31.45	0.00	1547.80	748.03	0.00	0.00	748.03	0.00
P	P:CX11		15.00	10.00	12.50	58.276	4.89e+06	1.000	31.45	0.00	1580.34	763.62	0.00	0.00	763.62	0.00
P		P:CX12	10.00	5.00	7.50	59.465	4.99e+06	1.000	31.45	0.00	1612.89	779.21	0.00	0.00	779.21	0.00
P	P:CX12	P:g	5.00	0.00	2.50	60.655	5.09e+06	1.000	31.45	0.00	1645.43	794.80	0.00	0.00	794.80	0.00

Point Loads for Load Case "NESC Rule 250D":

Joint Label	Vertical Load (lbs)	Transverse Load (lbs)	Longitudinal Load (lbs)	Load Comment
SWL	3100	1400	0	
SWR	3100	1400	0	
C1	6700	2100	0	
C4	6700	2100	0	
C2	6700	2100	0	
C5	6700	2100	0	
C3	6700	2100	0	
C6	6700	2100	0	
P:t	6586	1896	0	ANTENNA LOAD
P:CX2	956	80	0	COAX CABLE LOAD
P:CX3	956	80	0	COAX CABLE LOAD
P:CX4	956	80	0	COAX CABLE LOAD
P:CX5	956	80	0	COAX CABLE LOAD
P:CX6	956	80	0	COAX CABLE LOAD
P:CX7	956	80	0	COAX CABLE LOAD
P:CX8	956	80	0	COAX CABLE LOAD
P:CX9	956	80	0	COAX CABLE LOAD
P:CX10	956	80	0	COAX CABLE LOAD
P:CX11	956	80	0	
P:CX12	956	80	0	
P:CX00	956	80	0	

Detailed Pole Loading Data for Load Case "NESC Rule 250D":

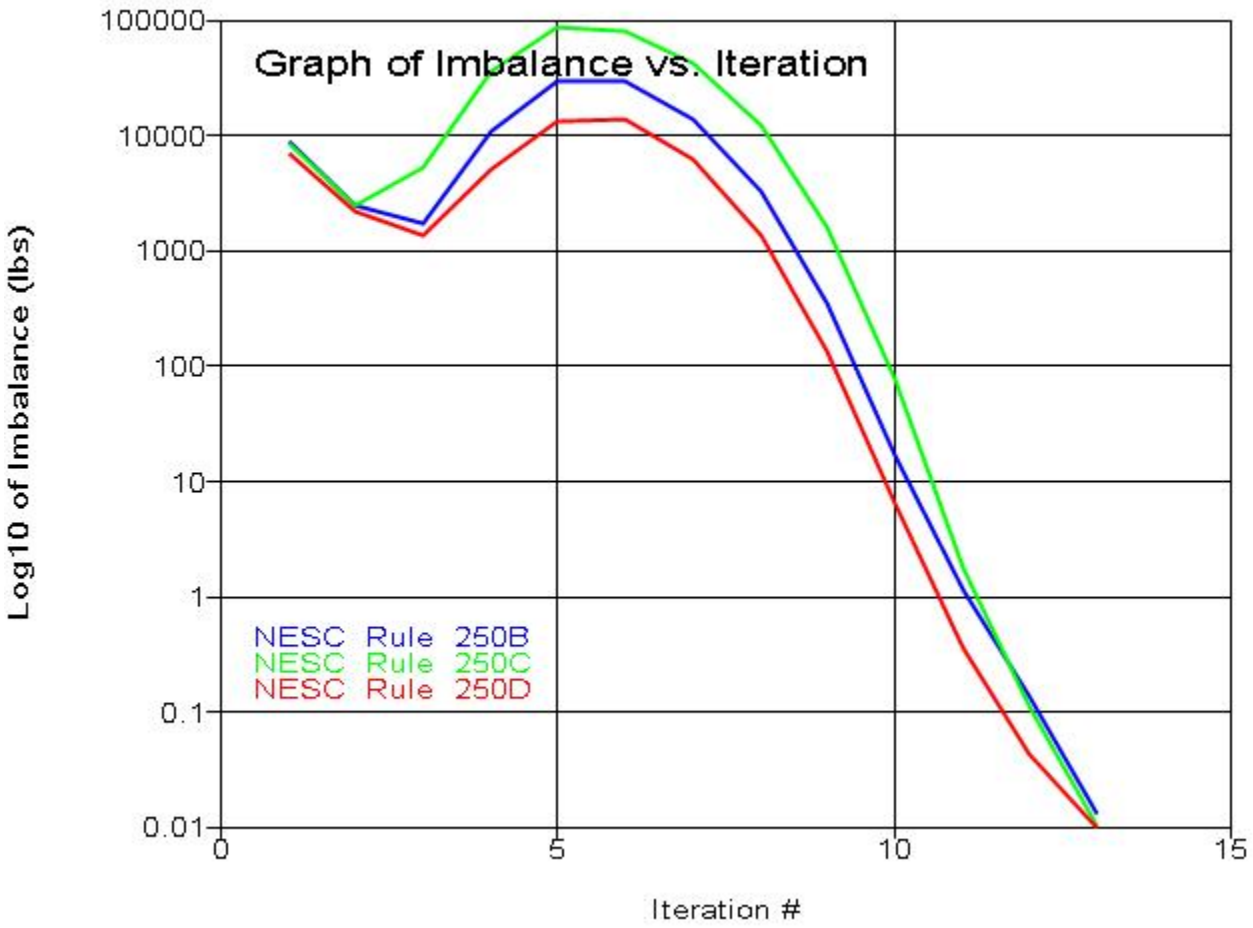
Notes: Does not include loads from equipment, arms, guys, braces, etc. or user input loads.
Wind load is calculated for the undeformed shape of a pole.

Pole Label	Top Joint	Bottom Joint	Section Top Z (ft)	Section Bottom Z (ft)	Section Average Elevation (ft)	Outer Diameter (in)	Reynolds Number	Drag Coef.	Adjusted Wind Pressure (psf)	Adjusted Ice Thickness (in)	Pole Vert. Load (lbs)	Pole Wind Load (lbs)	Pole Ice Vertical Load (lbs)	Pole Ice Wind Load (lbs)	Tran. Wind Load (lbs)	Long. Wind Load (lbs)
P	P:t	P:CX00	120.00	115.00	117.50	32.915	1.25e+06	1.600	6.40	0.75	557.36	140.46	157.10	6.40	146.86	0.00
P	P:CX00		115.00	110.00	112.50	34.105	1.29e+06	1.600	6.40	0.75	577.70	145.53	162.78	6.40	151.93	0.00
P		P:SW	110.00	108.75	109.38	34.848	1.32e+06	1.600	6.40	0.75	147.60	37.18	41.58	1.60	38.78	0.00
P	P:SW	P:CX2	108.75	105.00	106.88	35.443	1.34e+06	1.600	6.40	0.75	450.44	113.43	126.87	4.80	118.23	0.00
P	P:CX2	P:CT	105.00	102.08	103.54	36.237	1.37e+06	1.600	6.40	0.75	358.66	90.30	101.00	3.74	94.04	0.00
P	P:CT		102.08	98.54	100.31	37.005	1.4e+06	1.600	6.40	0.75	444.12	111.80	125.05	4.53	116.33	0.00
P		P:CX3	98.54	95.00	96.77	37.848	1.43e+06	1.600	6.40	0.75	454.32	114.35	127.89	4.53	118.88	0.00
P	P:CX3	P:CM	95.00	90.08	92.54	38.854	1.47e+06	1.600	6.40	0.75	648.36	163.15	182.48	6.30	169.45	0.00
P	P:CM		90.08	87.54	88.81	39.742	1.51e+06	1.600	6.40	0.75	342.43	86.15	96.36	3.25	89.40	0.00
P		P:CX4	87.54	85.00	86.27	40.346	1.53e+06	1.600	6.40	0.75	347.68	87.46	97.82	3.25	90.71	0.00
P	P:CX4		85.00	81.54	83.27	41.060	1.56e+06	1.600	6.40	0.75	482.05	121.25	135.61	4.43	125.68	0.00
P		P:CB	81.54	78.08	79.81	41.884	1.59e+06	1.600	6.40	0.75	491.80	123.68	138.33	4.43	128.11	0.00
P	P:CB	P:CX5	78.08	75.00	76.54	42.662	1.62e+06	1.600	6.40	0.75	445.98	112.14	125.43	3.94	116.08	0.00
P	P:CX5		75.00	72.00	73.50	43.385	1.64e+06	1.600	6.40	0.75	441.81	111.08	124.24	3.84	114.92	0.00
P			72.00	69.00	70.50	44.099	1.67e+06	1.600	6.40	0.75	449.14	112.91	126.29	3.84	116.75	0.00
P		P:CX6	69.00	65.00	67.00	45.057	1.71e+06	1.600	6.40	0.75	733.31	153.81	172.04	5.12	158.93	0.00
P	P:CX6		65.00	60.00	62.50	46.128	1.75e+06	1.600	6.40	0.75	938.61	196.84	220.16	6.40	203.24	0.00
P		P:CX7	60.00	55.00	57.50	47.317	1.79e+06	1.600	6.40	0.75	963.02	201.91	225.84	6.40	208.31	0.00
P	P:CX7		55.00	52.00	53.50	48.269	1.83e+06	1.600	6.40	0.75	589.53	123.59	138.23	3.84	127.43	0.00
P			52.00	48.50	50.25	49.293	1.87e+06	1.600	6.40	0.75	934.24	147.24	164.69	4.48	151.72	0.00
P		P:CX8	48.50	45.00	46.75	50.125	1.9e+06	1.600	6.40	0.75	950.19	149.73	167.47	4.48	154.21	0.00

P	P:CX8		45.00	40.00	42.50	51.137	1.94e+06	1.600	6.40	0.75	1385.07	218.21	244.07	6.40	224.61	0.00
P		P:CX9	40.00	35.00	37.50	52.327	1.98e+06	1.600	6.40	0.75	1417.62	223.29	249.75	6.40	229.69	0.00
P	P:CX9		35.00	30.00	32.50	53.516	2.03e+06	1.600	6.40	0.75	1450.16	228.37	255.43	6.40	234.77	0.00
P		P:CX10	30.00	25.00	27.50	54.706	2.07e+06	1.600	6.40	0.75	1482.71	233.44	261.10	6.40	239.84	0.00
P	P:CX10		25.00	20.00	22.50	55.896	2.12e+06	1.600	6.40	0.75	1515.25	238.52	266.78	6.40	244.92	0.00
P		P:CX11	20.00	15.00	17.50	57.086	2.16e+06	1.600	6.40	0.75	1547.80	243.60	272.46	6.40	250.00	0.00
P	P:CX11		15.00	10.00	12.50	58.276	2.21e+06	1.600	6.40	0.75	1580.34	248.67	278.14	6.40	255.08	0.00
P		P:CX12	10.00	5.00	7.50	59.465	2.25e+06	1.600	6.40	0.75	1612.89	253.75	283.82	6.40	260.15	0.00
P	P:CX12	P:g	5.00	0.00	2.50	60.655	2.3e+06	1.600	6.40	0.75	1645.43	258.83	289.50	6.40	265.23	0.00

*** Analysis Results:

Maximum element usage is 69.14% for Steel Pole "P" in load case "NESC Rule 250C"
Maximum insulator usage is 25.75% for Suspension "C1" in load case "NESC Rule 250B"



*** Analysis Results for Load Case No. 1 "NESC Rule 250B" - Number of iterations in SAPS 13

Equilibrium Joint Positions and Rotations for Load Case "NESC Rule 250B":

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
P:g	0	0	0	0.0000	0.0000	0.0000	0	0	0
P:t	0.006526	2.288	-0.0324	-1.7953	0.0048	0.0000	0.006526	2.288	120
P:CX00	0.006104	2.131	-0.0299	-1.7932	0.0048	0.0000	0.006104	2.131	115

P:SW	0.005578	1.936	-0.02678	-1.7852	0.0048	0.0000	0.005578	1.936	108.7
P:CX2	0.005264	1.819	-0.0249	-1.7759	0.0048	0.0000	0.005264	1.819	105
P:CT	0.00502	1.729	-0.02346	-1.7655	0.0048	0.0000	0.00502	1.729	102.1
P:CX3	0.004436	1.513	-0.01994	-1.7219	0.0047	0.0000	0.004436	1.513	94.98
P:CM	0.00404	1.367	-0.0176	-1.6770	0.0046	0.0000	0.00404	1.367	90.06
P:CX4	0.00364	1.22	-0.01526	-1.6166	0.0044	0.0000	0.00364	1.22	84.98
P:CB	0.003118	1.031	-0.01235	-1.5118	0.0042	0.0000	0.003118	1.031	78.07
P:CX5	0.002895	0.9507	-0.01114	-1.4570	0.0041	0.0000	0.002895	0.9507	74.99
P:CX6	0.002221	0.7132	-0.007771	-1.2598	0.0036	0.0000	0.002221	0.7132	64.99
P:CX7	0.001627	0.5106	-0.005235	-1.0503	0.0031	0.0000	0.001627	0.5106	54.99
P:CX8	0.001122	0.3443	-0.00345	-0.8604	0.0027	0.0000	0.001122	0.3443	45
P:CX9	0.0006983	0.2095	-0.002171	-0.6770	0.0022	0.0000	0.0006983	0.2095	35
P:CX10	0.0003666	0.1075	-0.001272	-0.4867	0.0016	0.0000	0.0003666	0.1075	25
P:CX11	0.0001363	0.03897	-0.0006519	-0.2929	0.0010	0.0000	0.0001363	0.03897	15
P:CX12	1.619e-05	0.004464	-0.0001997	-0.0976	0.0003	0.0000	1.619e-05	0.004464	5
SWL:O	0.005583	1.936	0.01865	-1.7852	0.0048	0.0000	0.005583	0.4782	108.8
SWL:1	0.005585	1.937	0.0393	-1.7525	0.0048	0.0000	0.005585	-0.1914	108.8
SWL:T	0.005681	1.967	0.1536	-1.5808	0.0048	0.0000	0.005681	-4.161	109.9
SWR:O	0.005574	1.935	-0.07221	-1.7852	0.0048	0.0000	0.005574	3.393	108.7
SWR:1	0.005572	1.935	-0.09335	-1.8259	0.0048	0.0000	0.005572	4.063	108.7
SWR:T	0.005643	1.966	-0.2301	-2.0017	0.0048	0.0000	0.005643	8.095	109.5
C1:O	0.005025	1.73	0.02351	-1.7655	0.0048	0.0000	0.005025	0.2052	102.1
C1:1	0.005027	1.73	0.04755	-1.7291	0.0048	0.0000	0.005027	-0.5844	102.1
C1:T	0.005134	1.759	0.2804	-1.2982	0.0048	0.0000	0.005134	-9.555	103.4
C4:O	0.005016	1.728	-0.07042	-1.7655	0.0048	0.0000	0.005016	3.252	102
C4:1	0.005013	1.728	-0.09507	-1.8036	0.0048	0.0000	0.005013	4.042	102
C4:T	0.005067	1.758	-0.4174	-2.2134	0.0048	0.0000	0.005067	13.07	102.7
C2:O	0.004044	1.367	0.03049	-1.6770	0.0046	0.0000	0.004044	-0.276	90.11
C2:1	0.004046	1.368	0.05331	-1.6405	0.0046	0.0000	0.004046	-1.066	90.13
C2:T	0.004148	1.395	0.2722	-1.2093	0.0046	0.0000	0.004148	-10.04	91.35
C5:O	0.004035	1.366	-0.06569	-1.6770	0.0046	0.0000	0.004035	3.009	90.01
C5:1	0.004033	1.366	-0.08912	-1.7151	0.0046	0.0000	0.004033	3.799	89.99
C5:T	0.004085	1.395	-0.3975	-2.1252	0.0046	0.0000	0.004085	12.83	90.68
C3:O	0.003121	1.031	0.03414	-1.5118	0.0042	0.0000	0.003121	-0.7309	78.11
C3:1	0.003123	1.032	0.05469	-1.4753	0.0042	0.0000	0.003123	-1.521	78.13
C3:T	0.003214	1.055	0.2476	-1.0433	0.0042	0.0000	0.003214	-10.5	79.33
C6:O	0.003114	1.03	-0.05885	-1.5118	0.0042	0.0000	0.003114	2.792	78.02
C6:1	0.003112	1.03	-0.08	-1.5500	0.0042	0.0000	0.003112	3.582	78
C6:T	0.003162	1.057	-0.3624	-1.9606	0.0042	0.0000	0.003162	12.61	78.72
SWLV	0.00564	1.954	0.1571	-1.5808	0.0048	0.0000	0.00564	-4.296	109.4
SWRV	0.005602	1.949	-0.234	-2.0017	0.0048	0.0000	0.005602	8.199	109
C1V	0.005086	1.746	0.282	-1.2982	0.0048	0.0000	0.005086	-9.633	102.8
C4V	0.005018	1.735	-0.4195	-2.2134	0.0048	0.0000	0.005018	13.11	102.1
C2V	0.004101	1.383	0.2737	-1.2093	0.0046	0.0000	0.004101	-10.12	90.77
C5V	0.004039	1.373	-0.3995	-2.1252	0.0046	0.0000	0.004039	12.87	90.1
C3V	0.003172	1.045	0.2489	-1.0433	0.0042	0.0000	0.003172	-10.57	78.75
C6V	0.00312	1.037	-0.3643	-1.9606	0.0042	0.0000	0.00312	12.65	78.14

Joint Support Reactions for Load Case "NESC Rule 250B":

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	H-Shear Usage %	Z Force (kips)	Comp. Usage %	Uplift Usage %	Result. Force (kips)	Result. Usage %	X Moment (ft-k)	X-M. Usage %	Y Moment (ft-k)	Y-M. Usage %	H-Bend-M Usage %	Z Moment (ft-k)	Z-M. Usage %	Max. Usage %
P:g	-0.20	0.0	-35.59	0.0	0.0	-115.42	0.0	0.0	120.78	0.0	3163.41	0.0	-11.4	0.0	0.0	-0.00	0.0	0.0

Detailed Steel Pole Usages for Load Case "NESC Rule 250B":

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Trans. Defl. (in)	Long. Defl. (in)	Vert. Defl. (in)	Trans. Mom. (Local Mx) (ft-k)	Long. Mom. (Local My) (ft-k)	Tors. Mom. (ft-k)	Axial Force (kips)	Tran. Shear (kips)	Long. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	Max. Usage %	At Pt.
P	P:t	Origin	0.00	27.45	0.08	-0.39	-0.00	-0.00	-0.0	-9.06	2.64	-0.00	-0.28	0.00	0.17	0.00	0.40	0.6	5
P	P:CX00	End	5.00	25.57	0.07	-0.36	13.18	-0.02	-0.0	-9.06	2.64	-0.00	-0.27	0.56	0.04	0.00	0.84	1.3	2
P	P:CX00	Origin	5.00	25.57	0.07	-0.36	13.18	-0.02	0.0	-11.05	3.05	-0.01	-0.33	0.56	0.05	0.00	0.90	1.4	2
P	SpliceT	End	10.00	23.70	0.07	-0.33	28.40	-0.07	0.0	-11.05	3.05	-0.01	-0.32	1.13	0.05	0.00	1.45	2.2	2
P	SpliceT	Origin	10.00	23.70	0.07	-0.33	28.40	-0.07	-0.0	-11.66	3.21	-0.01	-0.34	1.13	0.05	0.00	1.47	2.3	2
P	P:SW	End	11.25	23.23	0.07	-0.32	32.42	-0.09	-0.0	-11.66	3.21	-0.01	-0.33	1.27	0.05	0.00	1.61	2.5	2
P	P:SW	Origin	11.25	23.23	0.07	-0.32	34.62	-0.09	0.0	-16.81	7.55	-0.02	-0.48	1.36	0.11	0.00	1.85	2.8	2
P	P:CX2	End	15.00	21.83	0.06	-0.30	62.95	-0.15	0.0	-16.81	7.55	-0.02	-0.47	2.34	0.11	0.00	2.82	4.3	2
P	P:CX2	Origin	15.00	21.83	0.06	-0.30	62.95	-0.15	0.0	-18.53	7.89	-0.02	-0.52	2.34	0.12	0.00	2.87	4.4	2
P	P:CT	End	17.92	20.75	0.06	-0.28	85.97	-0.22	0.0	-18.53	7.89	-0.02	-0.51	3.08	0.11	0.00	3.59	5.5	2
P	P:CT	Origin	17.92	20.75	0.06	-0.28	88.94	-0.22	0.0	-33.87	15.26	-0.03	-0.93	3.18	0.22	0.00	4.13	6.4	2
P	Tube 2	End	21.46	19.44	0.06	-0.26	142.96	-0.32	0.0	-33.87	15.26	-0.03	-0.91	4.89	0.22	0.00	5.81	8.9	2
P	Tube 2	Origin	21.46	19.44	0.06	-0.26	142.96	-0.32	0.0	-34.63	15.45	-0.03	-0.93	4.89	0.22	0.00	5.83	9.0	2
P	P:CX3	End	25.00	18.15	0.05	-0.24	197.65	-0.44	0.0	-34.63	15.45	-0.03	-0.91	6.46	0.21	0.00	7.37	11.4	2
P	P:CX3	Origin	25.00	18.15	0.05	-0.24	197.65	-0.44	0.0	-36.60	15.83	-0.04	-0.96	6.46	0.22	0.00	7.43	11.5	2
P	P:CM	End	29.92	16.40	0.05	-0.21	275.52	-0.63	0.0	-36.60	15.83	-0.04	-0.93	8.47	0.21	0.00	9.41	14.8	2
P	P:CM	Origin	29.92	16.40	0.05	-0.21	278.47	-0.63	0.0	-52.12	23.20	-0.05	-1.33	8.56	0.31	0.00	9.90	15.5	2
P	Tube 2	End	32.46	15.51	0.05	-0.20	337.39	-0.75	0.0	-52.12	23.20	-0.05	-1.31	10.06	0.31	0.00	11.37	18.0	2
P	Tube 2	Origin	32.46	15.51	0.05	-0.20	337.39	-0.75	0.0	-52.72	23.33	-0.05	-1.32	10.06	0.31	0.00	11.39	18.0	2
P	P:CX4	End	35.00	14.64	0.04	-0.18	396.64	-0.87	0.0	-52.72	23.33	-0.05	-1.30	11.47	0.30	0.00	12.78	20.4	2
P	P:CX4	Origin	35.00	14.64	0.04	-0.18	396.64	-0.87	0.0	-54.46	23.62	-0.05	-1.34	11.47	0.31	0.00	12.82	20.5	2
P	Tube 2	End	38.46	13.49	0.04	-0.17	478.38	-1.06	0.0	-54.46	23.62	-0.05	-1.32	13.28	0.30	0.00	14.61	23.6	2
P	Tube 2	Origin	38.46	13.49	0.04	-0.17	478.38	-1.06	0.0	-55.31	23.79	-0.06	-1.34	13.28	0.30	0.00	14.63	23.6	2
P	P:CB	End	41.92	12.37	0.04	-0.15	560.69	-1.27	0.0	-55.31	23.79	-0.06	-1.31	14.96	0.30	0.00	16.28	26.6	2
P	P:CB	Origin	41.92	12.37	0.04	-0.15	563.60	-1.27	0.0	-70.82	31.07	-0.07	-1.68	15.04	0.39	0.00	16.73	27.3	2
P	P:CX5	End	45.00	11.41	0.03	-0.13	659.30	-1.47	0.0	-70.82	31.07	-0.07	-1.65	16.99	0.38	0.00	18.65	30.7	2
P	P:CX5	Origin	45.00	11.41	0.03	-0.13	659.30	-1.47	0.0	-72.63	31.34	-0.07	-1.69	16.99	0.39	0.00	18.69	30.8	2
P	Tube 2	End	48.00	10.51	0.03	-0.12	753.33	-1.68	0.0	-72.63	31.34	-0.07	-1.66	18.78	0.38	0.00	20.45	34.1	2
P	Tube 2	Origin	48.00	10.51	0.03	-0.12	753.33	-1.68	0.0	-73.41	31.46	-0.08	-1.68	18.78	0.38	0.00	20.47	34.1	2
P	SpliceT	End	51.00	9.65	0.03	-0.11	847.72	-1.91	0.0	-73.41	31.46	-0.08	-1.66	20.45	0.37	0.00	22.12	37.2	2
P	SpliceT	Origin	51.00	9.65	0.03	-0.11	847.72	-1.91	0.0	-74.44	31.61	-0.08	-1.40	17.02	0.31	0.00	18.42	28.3	2
P	P:CX6	End	55.00	8.56	0.03	-0.09	974.16	-2.23	0.0	-74.44	31.61	-0.08	-1.37	18.74	0.31	0.00	20.11	31.0	2
P	P:CX6	Origin	55.00	8.56	0.03	-0.09	974.16	-2.23	0.0	-76.90	31.95	-0.09	-1.41	18.74	0.31	0.00	20.16	31.0	2
P	Tube 3	End	60.00	7.29	0.02	-0.08	1133.88	-2.67	0.0	-76.90	31.95	-0.09	-1.38	20.70	0.30	0.00	22.08	34.4	2
P	Tube 3	Origin	60.00	7.29	0.02	-0.08	1133.88	-2.67	0.0	-78.54	32.15	-0.10	-1.41	20.70	0.30	0.00	22.11	34.5	2
P	P:CX7	End	65.00	6.13	0.02	-0.06	1294.64	-3.15	0.0	-78.54	32.15	-0.10	-1.37	22.46	0.30	0.00	23.84	37.7	2
P	P:CX7	Origin	65.00	6.13	0.02	-0.06	1294.64	-3.15	0.0	-80.91	32.45	-0.10	-1.41	22.46	0.30	0.00	23.88	37.7	2
P	SpliceT	End	68.00	5.49	0.02	-0.06	1391.99	-3.45	0.0	-80.91	32.45	-0.10	-1.39	23.44	0.29	0.00	24.84	39.6	2
P	SpliceT	Origin	68.00	5.49	0.02	-0.06	1391.99	-3.45	0.0	-82.19	32.60	-0.11	-1.06	17.53	0.22	0.00	18.59	28.6	2
P	Tube 4	End	71.50	4.79	0.02	-0.05	1506.07	-3.83	0.0	-82.19	32.60	-0.11	-1.04	18.33	0.22	0.00	19.37	29.8	2
P	Tube 4	Origin	71.50	4.79	0.02	-0.05	1506.07	-3.83	0.0	-83.74	32.77	-0.11	-1.06	18.33	0.22	0.00	19.39	29.8	2
P	P:CX8	End	75.00	4.13	0.01	-0.04	1620.76	-4.23	0.0	-83.74	32.77	-0.11	-1.04	19.07	0.22	0.00	20.12	30.9	2
P	P:CX8	Origin	75.00	4.13	0.01	-0.04	1620.76	-4.23	0.0	-86.71	33.11	-0.12	-1.08	19.07	0.22	0.00	20.15	31.0	2
P	Tube 4	End	80.00	3.27	0.01	-0.03	1786.32	-4.83	0.0	-86.71	33.11	-0.12	-1.05	20.05	0.21	0.00	21.11	32.5	2
P	Tube 4	Origin	80.00	3.27	0.01	-0.03	1786.32	-4.83	0.0	-89.03	33.35	-0.13	-1.08	20.05	0.21	0.00	21.14	32.5	2
P	P:CX9	End	85.00	2.51	0.01	-0.03	1953.08	-5.48	0.0	-89.03	33.35	-0.13	-1.06	20.94	0.21	0.00	21.99	33.8	2
P	P:CX9	Origin	85.00	2.51	0.01	-0.03	1953.08	-5.48	0.0	-92.44	33.72	-0.14	-1.10	20.94	0.21	0.00	22.04	33.9	2
P	Tube 4	End	90.00	1.85	0.01	-0.02	2121.69	-6.18	0.0	-92.44	33.72	-0.14	-1.07	21.74	0.21	0.00	22.82	35.1	2
P	Tube 4	Origin	90.00	1.85	0.01	-0.02	2121.69	-6.18	0.0	-94.86	33.96	-0.15	-1.10	21.74	0.21	0.00	22.84	35.1	2
P	P:CX10	End	95.00	1.29	0.00	-0.02	2291.48	-6.92	0.0	-94.86	33.96	-0.15	-1.08	22.47	0.20	0.00	23.55	36.2	2
P	P:CX10	Origin	95.00	1.29	0.00	-0.02	2291.48	-6.92	0.0	-98.38	34.32	-0.16	-1.12	22.47	0.21	0.00	23.59	36.3	2
P	Tube 4	End	100.00	0.83	0.00	-0.01	2463.08	-7.71	0.0	-98.38	34.32	-0.16	-1.09	23.13	0.20	0.00	24.23	37.3	2
P	Tube 4	Origin	100.00	0.83	0.00	-0.01	2463.08	-7.71	0.0	-100.92	34.55	-0.17	-1.12	23.13	0.20	0.00	24.26	37.3	2
P	P:CX11	End	105.00	0.47	0.00	-0.01	2635.83	-8.55	0.0	-100.92	34.55	-0.17	-1.10	23.73	0.20	0.00	24.83	38.2	2
P	P:CX11	Origin	105.00	0.47	0.00	-0.01	2635.83	-8.55	0.0	-104.54	34.91	-0.18	-1.14	23.73	0.20	0.00	24.87	38.3	2

P	Tube 4	End	110.00	0.21	0.00	-0.00	2810.36	-9.43	0.0	-104.54	34.91	-0.18	-1.11	24.28	0.20	0.00	25.39	39.1	2
P	Tube 4	Origin	110.00	0.21	0.00	-0.00	2810.36	-9.43	0.0	-107.18	35.13	-0.19	-1.14	24.28	0.20	0.00	25.42	39.1	2
P	P:CX12	End	115.00	0.05	0.00	-0.00	2986.02	-10.37	0.0	-107.18	35.13	-0.19	-1.12	24.77	0.19	0.00	25.89	39.8	2
P	P:CX12	Origin	115.00	0.05	0.00	-0.00	2986.02	-10.37	0.0	-110.91	35.48	-0.20	-1.16	24.77	0.20	0.00	25.93	39.9	2
P	P:g	End	120.00	0.00	0.00	0.00	3163.41	-11.35	0.0	-110.91	35.48	-0.20	-1.14	25.22	0.19	0.00	26.36	40.8	2

Detailed Tubular Davit Arm Usages for Load Case "NESC Rule 250B":

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Trans. Defl. (in)	Long. Defl. (in)	Vert. Defl. (in)	Vert. Mom. (ft-k)	Horz. Mom. (ft-k)	Tors. Mom. (ft-k)	Axial Force (kips)	Vert. Shear (kips)	Horz. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	Max. Usage %	At Pt.
SWL	SWL:O	Origin	0.00	23.24	0.07	0.22	-9.76	0.00	-0.0	-2.10	2.31	-0.00	-0.38	9.37	0.34	0.00	9.77	15.0	2
SWL	SWL:1	End	0.67	23.24	0.07	0.47	-8.21	0.00	-0.0	-2.10	2.31	-0.00	-0.40	8.70	0.35	0.00	9.13	14.0	2
SWL	SWL:1	Origin	0.67	23.24	0.07	0.47	-8.21	0.00	0.0	-2.58	1.69	-0.00	-0.50	8.70	0.26	0.00	9.21	14.2	2
SWL	SWL:T	End	4.79	23.61	0.07	1.84	-1.26	0.00	0.0	-2.58	1.69	-0.00	-0.71	2.81	0.38	0.00	3.59	5.5	2
SWR	SWR:O	Origin	0.00	23.22	0.07	-0.87	-11.96	-0.00	0.0	2.10	2.31	0.00	0.38	11.48	0.34	0.00	11.88	18.3	2
SWR	SWR:1	End	0.67	23.22	0.07	-1.12	-10.41	-0.00	0.0	2.10	2.31	0.00	0.40	11.03	0.36	0.00	11.45	17.6	2
SWR	SWR:1	Origin	0.67	23.22	0.07	-1.12	-10.41	-0.00	0.0	1.50	2.70	0.00	0.29	11.03	0.41	0.00	11.34	17.4	2
SWR	SWR:T	End	4.79	23.60	0.07	-2.76	0.71	0.00	0.0	1.50	2.70	0.00	0.42	0.00	1.55	0.00	2.72	4.2	4
C1	C1:O	Origin	0.00	20.75	0.06	0.28	-68.16	0.01	-0.0	-3.59	7.31	-0.00	-0.28	15.30	0.45	0.00	15.59	24.0	2
C1	C1:1	End	0.79	20.76	0.06	0.57	-62.39	0.01	-0.0	-3.59	7.31	-0.00	-0.29	15.23	0.46	0.00	15.53	23.9	2
C1	C1:1	Origin	0.79	20.76	0.06	0.57	-62.39	0.01	0.0	-4.34	6.72	-0.00	-0.35	15.23	0.43	0.00	15.59	24.0	2
C1	#C1:0	End	5.32	20.95	0.06	2.08	-31.95	0.00	0.0	-4.34	6.72	-0.00	-0.46	13.69	0.57	0.00	14.18	21.8	2
C1	#C1:0	Origin	5.32	20.95	0.06	2.08	-31.95	0.00	0.0	-4.28	6.53	-0.00	-0.45	13.69	0.55	0.00	14.18	21.8	2
C1	C1:T	End	9.85	21.11	0.06	3.36	-2.40	0.00	0.0	-4.28	6.53	-0.00	-0.67	0.94	1.97	0.00	3.77	5.8	3
C4	C4:O	Origin	0.00	20.74	0.06	-0.85	-71.13	-0.01	0.0	3.60	7.31	0.00	0.28	15.96	0.45	0.00	16.26	25.0	2
C4	C4:1	End	0.79	20.73	0.06	-1.14	-65.36	-0.01	0.0	3.60	7.31	0.00	0.29	15.95	0.46	0.00	16.26	25.0	2
C4	C4:1	Origin	0.79	20.73	0.06	-1.14	-65.36	-0.01	-0.0	2.80	7.50	0.00	0.22	15.95	0.48	0.00	16.19	24.9	2
C4	#C4:0	End	5.32	20.91	0.06	-2.97	-31.41	-0.00	-0.0	2.80	7.50	0.00	0.30	13.46	0.63	0.00	13.80	21.2	2
C4	#C4:0	Origin	5.32	20.91	0.06	-2.97	-31.41	-0.00	0.0	2.85	7.27	0.00	0.30	13.46	0.61	0.00	13.80	21.2	2
C4	C4:T	End	9.85	21.09	0.06	-5.01	1.51	0.00	0.0	2.85	7.27	0.00	0.44	0.00	2.36	0.00	4.11	6.3	4
C2	C2:O	Origin	0.00	16.41	0.05	0.37	-68.23	0.01	-0.0	-3.58	7.31	-0.00	-0.27	15.31	0.45	0.00	15.60	24.0	2
C2	C2:1	End	0.79	16.41	0.05	0.64	-62.45	0.01	-0.0	-3.58	7.31	-0.00	-0.29	15.24	0.47	0.00	15.55	23.9	2
C2	C2:1	Origin	0.79	16.41	0.05	0.64	-62.45	0.01	0.0	-4.33	6.73	-0.00	-0.35	15.24	0.43	0.00	15.60	24.0	2
C2	#C2:0	End	5.32	16.59	0.05	2.06	-31.98	0.00	0.0	-4.33	6.73	-0.00	-0.46	13.70	0.57	0.00	14.20	21.8	2
C2	#C2:0	Origin	5.32	16.59	0.05	2.06	-31.98	0.00	0.0	-4.27	6.53	-0.00	-0.45	13.70	0.55	0.00	14.19	21.8	2
C2	C2:T	End	9.85	16.74	0.05	3.27	-2.40	0.00	0.0	-4.27	6.53	-0.00	-0.67	0.94	1.97	0.00	3.77	5.8	3
C5	C5:O	Origin	0.00	16.39	0.05	-0.79	-71.17	-0.01	0.0	3.59	7.31	0.00	0.28	15.97	0.45	0.00	16.26	25.0	2
C5	C5:1	End	0.79	16.39	0.05	-1.07	-65.40	-0.01	0.0	3.59	7.31	0.00	0.29	15.96	0.47	0.00	16.27	25.0	2
C5	C5:1	Origin	0.79	16.39	0.05	-1.07	-65.40	-0.01	-0.0	2.79	7.50	0.00	0.22	15.96	0.48	0.00	16.20	24.9	2
C5	#C5:0	End	5.32	16.55	0.05	-2.81	-31.42	-0.00	-0.0	2.79	7.50	0.00	0.29	13.47	0.63	0.00	13.81	21.2	2
C5	#C5:0	Origin	5.32	16.55	0.05	-2.81	-31.42	-0.00	0.0	2.84	7.27	0.00	0.30	13.47	0.61	0.00	13.81	21.2	2
C5	C5:T	End	9.85	16.74	0.05	-4.77	1.51	0.00	0.0	2.84	7.27	0.00	0.44	0.00	2.36	0.00	4.11	6.3	4
C3	C3:O	Origin	0.00	12.38	0.04	0.41	-68.35	0.01	-0.0	-3.56	7.32	-0.00	-0.27	15.34	0.45	0.00	15.63	24.0	2
C3	C3:1	End	0.79	12.38	0.04	0.66	-62.56	0.01	-0.0	-3.56	7.32	-0.00	-0.28	15.27	0.47	0.00	15.57	24.0	2
C3	C3:1	Origin	0.79	12.38	0.04	0.66	-62.56	0.01	0.0	-4.31	6.74	-0.00	-0.34	15.27	0.43	0.00	15.63	24.0	2
C3	#C3:0	End	5.32	12.54	0.04	1.92	-32.03	0.00	0.0	-4.31	6.74	-0.00	-0.46	13.73	0.57	0.00	14.22	21.9	2
C3	#C3:0	Origin	5.32	12.54	0.04	1.92	-32.03	0.00	0.0	-4.25	6.54	-0.00	-0.45	13.73	0.55	0.00	14.21	21.9	2
C3	C3:T	End	9.85	12.66	0.04	2.97	-2.40	0.00	0.0	-4.25	6.54	-0.00	-0.66	0.94	1.97	0.00	3.77	5.8	3
C6	C6:O	Origin	0.00	12.36	0.04	-0.71	-71.25	-0.01	0.0	3.57	7.32	0.00	0.27	15.99	0.45	0.00	16.28	25.0	2

C6	C6:1	End	0.79	12.36	0.04	-0.96	-65.47	-0.01	0.0	3.57	7.32	0.00	0.29	15.98	0.47	0.00	16.28	25.0	2
C6	C6:1	Origin	0.79	12.36	0.04	-0.96	-65.47	-0.01	-0.0	2.77	7.51	0.00	0.22	15.98	0.48	0.00	16.22	25.0	2
C6	#C6:0	End	5.32	12.51	0.04	-2.55	-31.46	-0.00	-0.0	2.77	7.51	0.00	0.29	13.48	0.63	0.00	13.82	21.3	2
C6	#C6:0	Origin	5.32	12.51	0.04	-2.55	-31.46	-0.00	0.0	2.82	7.28	0.00	0.30	13.48	0.62	0.00	13.82	21.3	2
C6	C6:T	End	9.85	12.68	0.04	-4.35	1.51	0.00	0.0	2.82	7.28	0.00	0.44	0.00	2.36	0.00	4.11	6.3	4

Summary of Clamp Capacities and Usages for Load Case "NESC Rule 250B":

Clamp Label	Force (kips)	Input Holding Capacity (kips)	Factored Holding Capacity (kips)	Holding Usage %	Input Hardware Capacity (kips)	Factored Hardware Capacity (kips)	Hardware Usage %	Max. Usage %
CX2	1.042	100.00	100.00	1.04	100.00	100.00	1.04	1.04
CX3	1.042	100.00	100.00	1.04	100.00	100.00	1.04	1.04
CX4	1.042	100.00	100.00	1.04	100.00	100.00	1.04	1.04
CX5	1.042	100.00	100.00	1.04	100.00	100.00	1.04	1.04
CX6	1.042	100.00	100.00	1.04	100.00	100.00	1.04	1.04
CX7	1.042	100.00	100.00	1.04	100.00	100.00	1.04	1.04
CX8	1.042	100.00	100.00	1.04	100.00	100.00	1.04	1.04
CX9	1.042	100.00	100.00	1.04	100.00	100.00	1.04	1.04
CX10	1.042	100.00	100.00	1.04	100.00	100.00	1.04	1.04
CX11	1.042	100.00	100.00	1.04	100.00	100.00	1.04	1.04
CX12	1.042	100.00	100.00	1.04	100.00	100.00	1.04	1.04
CX00	1.042	100.00	100.00	1.04	100.00	100.00	1.04	1.04
CX000	8.952	100.00	100.00	8.95	100.00	100.00	8.95	8.95

Summary of Suspension Capacities and Usages for Load Case "NESC Rule 250B":

Suspension Label	Tension (kips)	Input Tension Capacity (kips)	Factored Tension Capacity (kips)	Tension Usage %	Input Hardware Capacity (kips)	Factored Hardware Capacity (kips)	Hardware Usage %	Max. Usage %
SWL	3.049	20.00	20.00	15.25	0.00	0.00	0.00	15.25
SWR	3.049	20.00	20.00	15.25	0.00	0.00	0.00	15.25
C1	7.724	30.00	30.00	25.75	0.00	0.00	0.00	25.75
C4	7.724	30.00	30.00	25.75	0.00	0.00	0.00	25.75
C2	7.724	30.00	30.00	25.75	0.00	0.00	0.00	25.75
C5	7.724	30.00	30.00	25.75	0.00	0.00	0.00	25.75
C3	7.724	30.00	30.00	25.75	0.00	0.00	0.00	25.75
C6	7.724	30.00	30.00	25.75	0.00	0.00	0.00	25.75

*** Analysis Results for Load Case No. 2 "NESC Rule 250C" - Number of iterations in SAPS 13

Equilibrium Joint Positions and Rotations for Load Case "NESC Rule 250C":

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
P:g	0	0	0	0.0000	0.0000	0.0000	0	0	0
P:t	0.001599	4.04	-0.09012	-3.2375	0.0012	0.0000	0.001599	4.04	119.9
P:CX00	0.001496	3.758	-0.08212	-3.2304	0.0012	0.0000	0.001496	3.758	114.9
P:SW	0.001368	3.407	-0.07222	-3.2040	0.0012	0.0000	0.001368	3.407	108.7
P:CX2	0.001291	3.198	-0.06636	-3.1780	0.0012	0.0000	0.001291	3.198	104.9
P:CT	0.001231	3.037	-0.06188	-3.1520	0.0012	0.0000	0.001231	3.037	102
P:CX3	0.001089	2.652	-0.05131	-3.0577	0.0011	0.0000	0.001089	2.652	94.95
P:CM	0.0009918	2.393	-0.0444	-2.9674	0.0011	0.0000	0.0009918	2.393	90.04
P:CX4	0.0008941	2.135	-0.0377	-2.8513	0.0011	0.0000	0.0008941	2.135	84.96
P:CB	0.0007662	1.801	-0.02948	-2.6562	0.0010	0.0000	0.0007662	1.801	78.05
P:CX5	0.0007116	1.661	-0.02618	-2.5561	0.0010	0.0000	0.0007116	1.661	74.97
P:CX6	0.0005464	1.245	-0.01722	-2.2028	0.0009	0.0000	0.0005464	1.245	64.98
P:CX7	0.0004007	0.8909	-0.01068	-1.8334	0.0008	0.0000	0.0004007	0.8909	54.99
P:CX8	0.0002764	0.6007	-0.006244	-1.5010	0.0007	0.0000	0.0002764	0.6007	44.99
P:CX9	0.0001722	0.3657	-0.003269	-1.1808	0.0005	0.0000	0.0001722	0.3657	35
P:CX10	9.047e-05	0.1876	-0.001466	-0.8493	0.0004	0.0000	9.047e-05	0.1876	25
P:CX11	3.366e-05	0.06808	-0.0005277	-0.5114	0.0002	0.0000	3.366e-05	0.06808	15
P:CX12	4.002e-06	0.007809	-0.0001171	-0.1706	0.0001	0.0000	4.002e-06	0.007809	5
SWL:O	0.00137	3.409	0.009282	-3.2040	0.0012	0.0000	0.00137	1.951	108.8
SWL:1	0.001371	3.41	0.04661	-3.1864	0.0012	0.0000	0.001371	1.282	108.8
SWL:T	0.001397	3.471	0.2632	-3.0844	0.0012	0.0000	0.001397	-2.657	110
SWR:O	0.001366	3.405	-0.1537	-3.2040	0.0012	0.0000	0.001366	4.863	108.6
SWR:1	0.001365	3.404	-0.1913	-3.2305	0.0012	0.0000	0.001365	5.532	108.6
SWR:T	0.00138	3.455	-0.4239	-3.3377	0.0012	0.0000	0.00138	9.583	109.3
C1:O	0.001234	3.039	0.02194	-3.1520	0.0012	0.0000	0.001234	1.515	102.1
C1:1	0.001235	3.04	0.06522	-3.1325	0.0012	0.0000	0.001235	0.7258	102.1
C1:T	0.001267	3.105	0.5343	-2.8817	0.0012	0.0000	0.001267	-8.209	103.6
C4:O	0.001229	3.034	-0.1457	-3.1520	0.0012	0.0000	0.001229	4.559	101.9
C4:1	0.001228	3.033	-0.1893	-3.1741	0.0012	0.0000	0.001228	5.347	101.9
C4:T	0.001236	3.076	-0.7108	-3.3923	0.0012	0.0000	0.001236	14.39	102.4
C2:O	0.0009938	2.395	0.04067	-2.9674	0.0011	0.0000	0.0009938	0.752	90.12
C2:1	0.0009947	2.396	0.08141	-2.9478	0.0011	0.0000	0.0009947	-0.03693	90.16
C2:T	0.001025	2.456	0.5216	-2.6959	0.0011	0.0000	0.001025	-8.977	91.6
C5:O	0.0009898	2.391	-0.1295	-2.9674	0.0011	0.0000	0.0009898	4.034	89.95
C5:1	0.0009889	2.39	-0.1705	-2.9896	0.0011	0.0000	0.0009889	4.823	89.91
C5:T	0.0009971	2.431	-0.663	-3.2088	0.0011	0.0000	0.0009971	13.86	90.42
C3:O	0.0007679	1.803	0.05219	-2.6562	0.0010	0.0000	0.0007679	0.04072	78.13
C3:1	0.0007687	1.804	0.08864	-2.6364	0.0010	0.0000	0.0007687	-0.7484	78.17
C3:T	0.0007956	1.856	0.48	-2.3825	0.0010	0.0000	0.0007956	-9.696	79.56
C6:O	0.0007645	1.799	-0.1112	-2.6562	0.0010	0.0000	0.0007645	3.562	77.97
C6:1	0.0007637	1.798	-0.1479	-2.6786	0.0010	0.0000	0.0007637	4.351	77.93
C6:T	0.0007725	1.837	-0.5915	-2.8993	0.0010	0.0000	0.0007725	13.39	78.49
SWLV	0.001387	3.445	0.2704	-3.0844	0.0012	0.0000	0.001387	-2.805	109.5
SWRV	0.00137	3.426	-0.4302	-3.3377	0.0012	0.0000	0.00137	9.676	108.8
C1V	0.001255	3.076	0.5383	-2.8817	0.0012	0.0000	0.001255	-8.303	103
C4V	0.001224	3.042	-0.7136	-3.3923	0.0012	0.0000	0.001224	14.42	101.8
C2V	0.001014	2.429	0.5252	-2.6959	0.0011	0.0000	0.001014	-9.068	91.03
C5V	0.0009858	2.399	-0.6657	-3.2088	0.0011	0.0000	0.0009858	13.9	89.83
C3V	0.0007852	1.832	0.4832	-2.3825	0.0010	0.0000	0.0007852	-9.785	78.98
C6V	0.000762	1.807	-0.594	-2.8993	0.0010	0.0000	0.000762	13.42	77.91

Joint Support Reactions for Load Case "NESC Rule 250C":

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	H-Shear Usage %	Z Force (kips)	Comp. Uplift Usage %	Uplift Usage %	Result. Force (kips)	Result. Usage %	X Moment (ft-k)	X-M. Usage %	Y Moment (ft-k)	Y-M. Usage %	H-Bend-M Usage %	Z Moment (ft-k)	Z-M. Usage %	Max. Usage %
P:g	-0.05	0.0	-63.43	0.0	0.0	-66.34	0.0	0.0	91.79	0.0	5531.30	0.0	-2.8	0.0	0.0	-0.00	0.0	0.0

Detailed Steel Pole Usages for Load Case "NESC Rule 250C":

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Trans. Defl. (in)	Long. Defl. (in)	Vert. Defl. (in)	Trans. Mom. (Local Mx) (ft-k)	Long. Mom. (Local My) (ft-k)	Tors. Mom. (ft-k)	Axial Force (kips)	Tran. Shear (kips)	Long. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	Max. Usage %	At Pt.
P	P:t	Origin	0.00	48.48	0.02	-1.08	-0.00	-0.00	-0.0	-4.21	8.92	-0.00	-0.13	0.00	0.56	0.00	0.98	1.5	5
P	P:CX00	End	5.00	45.10	0.02	-0.99	44.58	-0.00	-0.0	-4.21	8.92	-0.00	-0.13	1.91	0.14	0.00	2.05	3.1	2
P	P:CX00	Origin	5.00	45.10	0.02	-0.99	44.58	-0.00	0.0	-5.04	9.73	-0.00	-0.15	1.91	0.15	0.00	2.07	3.2	2
P	SpliceT	End	10.00	41.72	0.02	-0.89	93.25	-0.02	0.0	-5.04	9.73	-0.00	-0.15	3.71	0.15	0.00	3.87	5.9	2
P	SpliceT	Origin	10.00	41.72	0.02	-0.89	93.25	-0.02	-0.0	-5.41	10.03	-0.00	-0.16	3.71	0.15	0.00	3.88	6.0	2
P	P:SW	End	11.25	40.88	0.02	-0.87	105.79	-0.02	-0.0	-5.41	10.03	-0.00	-0.16	4.14	0.15	0.00	4.30	6.6	2
P	P:SW	Origin	11.25	40.88	0.02	-0.87	108.23	-0.02	0.0	-8.50	14.83	-0.00	-0.24	4.23	0.22	0.00	4.50	6.9	2
P	P:CX2	End	15.00	38.38	0.02	-0.80	163.84	-0.04	0.0	-8.50	14.83	-0.00	-0.24	6.09	0.22	0.00	6.34	9.8	2
P	P:CX2	Origin	15.00	38.38	0.02	-0.80	163.84	-0.04	0.0	-9.18	15.51	-0.01	-0.26	6.09	0.23	0.00	6.36	9.8	2
P	P:CT	End	17.92	36.44	0.01	-0.74	209.13	-0.05	0.0	-9.18	15.51	-0.01	-0.25	7.48	0.22	0.00	7.74	11.9	2
P	P:CT	Origin	17.92	36.44	0.01	-0.74	213.85	-0.05	0.0	-17.83	26.95	-0.01	-0.49	7.65	0.39	0.00	8.17	12.6	2
P	Tube 2	End	21.46	34.12	0.01	-0.68	309.23	-0.08	0.0	-17.83	26.95	-0.01	-0.48	10.56	0.38	0.00	11.06	17.0	2
P	Tube 2	Origin	21.46	34.12	0.01	-0.68	309.23	-0.08	0.0	-18.30	27.30	-0.01	-0.49	10.56	0.39	0.00	11.07	17.0	2
P	P:CX3	End	25.00	31.83	0.01	-0.62	405.87	-0.10	0.0	-18.30	27.30	-0.01	-0.48	13.25	0.38	0.00	13.75	21.3	2
P	P:CX3	Origin	25.00	31.83	0.01	-0.62	405.87	-0.10	0.0	-19.15	28.08	-0.01	-0.50	13.25	0.39	0.00	13.77	21.3	2
P	P:CM	End	29.92	28.72	0.01	-0.53	544.02	-0.15	0.0	-19.15	28.08	-0.01	-0.49	16.71	0.38	0.00	17.21	27.0	2
P	P:CM	Origin	29.92	28.72	0.01	-0.53	548.71	-0.15	0.0	-27.97	39.54	-0.01	-0.71	16.85	0.53	0.00	17.59	27.6	2
P	Tube 2	End	32.46	27.15	0.01	-0.49	649.14	-0.18	0.0	-27.97	39.54	-0.01	-0.70	19.34	0.52	0.00	20.06	31.7	2
P	Tube 2	Origin	32.46	27.15	0.01	-0.49	649.14	-0.18	0.0	-28.35	39.80	-0.01	-0.71	19.34	0.53	0.00	20.07	31.8	2
P	P:CX4	End	35.00	25.62	0.01	-0.45	750.23	-0.21	0.0	-28.35	39.80	-0.01	-0.70	21.68	0.52	0.00	22.40	35.7	2
P	P:CX4	Origin	35.00	25.62	0.01	-0.45	750.23	-0.21	0.0	-29.09	40.45	-0.01	-0.72	21.68	0.53	0.00	22.42	35.8	2
P	Tube 2	End	38.46	23.58	0.01	-0.40	890.17	-0.26	0.0	-29.09	40.45	-0.01	-0.70	24.70	0.52	0.00	25.42	41.0	2
P	Tube 2	Origin	38.46	23.58	0.01	-0.40	890.17	-0.26	0.0	-29.64	40.79	-0.01	-0.72	24.70	0.52	0.00	25.43	41.0	2
P	P:CB	End	41.92	21.61	0.01	-0.35	1031.32	-0.31	0.0	-29.64	40.79	-0.01	-0.70	27.50	0.51	0.00	28.22	46.0	2
P	P:CB	Origin	41.92	21.61	0.01	-0.35	1035.96	-0.31	0.0	-38.53	52.16	-0.02	-0.91	27.63	0.65	0.00	28.56	46.6	2
P	P:CX5	End	45.00	19.93	0.01	-0.31	1196.60	-0.36	0.0	-38.53	52.16	-0.02	-0.90	30.82	0.64	0.00	31.74	52.3	2
P	P:CX5	Origin	45.00	19.93	0.01	-0.31	1196.60	-0.36	0.0	-39.33	52.80	-0.02	-0.92	30.82	0.65	0.00	31.76	52.3	2
P	Tube 2	End	48.00	18.35	0.01	-0.28	1354.99	-0.41	0.0	-39.33	52.80	-0.02	-0.90	33.76	0.64	0.00	34.68	57.7	2
P	Tube 2	Origin	48.00	18.35	0.01	-0.28	1354.99	-0.41	0.0	-39.88	53.08	-0.02	-0.91	33.76	0.64	0.00	34.69	57.8	2
P	SpliceT	End	51.00	16.84	0.01	-0.25	1514.23	-0.46	0.0	-39.88	53.08	-0.02	-0.90	36.51	0.63	0.00	37.43	62.9	2
P	SpliceT	Origin	51.00	16.84	0.01	-0.25	1514.23	-0.46	0.0	-40.59	53.43	-0.02	-0.76	30.38	0.53	0.00	31.16	47.9	2
P	P:CX6	End	55.00	14.94	0.01	-0.21	1727.93	-0.54	0.0	-40.59	53.43	-0.02	-0.75	33.22	0.52	0.00	33.97	52.3	2
P	P:CX6	Origin	55.00	14.94	0.01	-0.21	1727.93	-0.54	0.0	-41.84	54.23	-0.02	-0.77	33.22	0.53	0.00	34.00	52.4	2
P	Tube 3	End	60.00	12.72	0.01	-0.16	1999.06	-0.65	0.0	-41.84	54.23	-0.02	-0.75	36.47	0.51	0.00	37.23	58.1	2
P	Tube 3	Origin	60.00	12.72	0.01	-0.16	1999.06	-0.65	0.0	-42.96	54.74	-0.02	-0.77	36.47	0.52	0.00	37.25	58.1	2
P	P:CX7	End	65.00	10.69	0.00	-0.13	2272.73	-0.77	0.0	-42.96	54.74	-0.02	-0.75	39.41	0.50	0.00	40.17	63.5	2
P	P:CX7	Origin	65.00	10.69	0.00	-0.13	2272.73	-0.77	0.0	-44.16	55.48	-0.03	-0.77	39.41	0.51	0.00	40.19	63.5	2
P	SpliceT	End	68.00	9.57	0.00	-0.11	2439.18	-0.84	0.0	-44.16	55.48	-0.03	-0.76	41.05	0.50	0.00	41.82	66.6	2
P	SpliceT	Origin	68.00	9.57	0.00	-0.11	2439.18	-0.84	0.0	-45.03	55.83	-0.03	-0.58	30.70	0.38	0.00	31.29	48.1	2
P	Tube 4	End	71.50	8.35	0.00	-0.09	2634.59	-0.94	0.0	-45.03	55.83	-0.03	-0.57	32.05	0.37	0.00	32.62	50.2	2
P	Tube 4	Origin	71.50	8.35	0.00	-0.09	2634.59	-0.94	0.0	-46.08	56.23	-0.03	-0.58	32.05	0.38	0.00	32.64	50.2	2
P	P:CX8	End	75.00	7.21	0.00	-0.07	2831.39	-1.03	0.0	-46.08	56.23	-0.03	-0.57	33.30	0.37	0.00	33.88	52.1	2
P	P:CX8	Origin	75.00	7.21	0.00	-0.07	2831.39	-1.03	0.0	-47.65	57.06	-0.03	-0.59	33.30	0.37	0.00	33.90	52.1	2

P	Tube 4	End	80.00	5.71	0.00	-0.06	3116.66	-1.18	0.0	-47.65	57.06	-0.03	-0.58	34.96	0.37	0.00	35.55	54.7	2
P	Tube 4	Origin	80.00	5.71	0.00	-0.06	3116.66	-1.18	0.0	-49.21	57.63	-0.03	-0.60	34.96	0.37	0.00	35.57	54.7	2
P	P:CX9	End	85.00	4.39	0.00	-0.04	3404.81	-1.35	0.0	-49.21	57.63	-0.03	-0.58	36.47	0.36	0.00	37.06	57.0	2
P	P:CX9	Origin	85.00	4.39	0.00	-0.04	3404.81	-1.34	0.0	-51.08	58.55	-0.03	-0.61	36.47	0.37	0.00	37.08	57.1	2
P	Tube 4	End	90.00	3.23	0.00	-0.03	3697.54	-1.52	0.0	-51.08	58.55	-0.03	-0.59	37.86	0.36	0.00	38.46	59.2	2
P	Tube 4	Origin	90.00	3.23	0.00	-0.03	3697.54	-1.52	0.0	-52.72	59.13	-0.04	-0.61	37.86	0.36	0.00	38.48	59.2	2
P	P:CX10	End	95.00	2.25	0.00	-0.02	3993.20	-1.70	0.0	-52.72	59.13	-0.04	-0.60	39.13	0.35	0.00	39.73	61.1	2
P	P:CX10	Origin	95.00	2.25	0.00	-0.02	3993.20	-1.70	0.0	-54.67	60.06	-0.04	-0.62	39.13	0.36	0.00	39.75	61.2	2
P	Tube 4	End	100.00	1.45	0.00	-0.01	4293.49	-1.90	0.0	-54.67	60.06	-0.04	-0.61	40.29	0.35	0.00	40.90	62.9	2
P	Tube 4	Origin	100.00	1.45	0.00	-0.01	4293.49	-1.90	0.0	-56.38	60.65	-0.04	-0.63	40.29	0.36	0.00	40.92	63.0	2
P	P:CX11	End	105.00	0.82	0.00	-0.01	4596.75	-2.11	0.0	-56.38	60.65	-0.04	-0.61	41.35	0.35	0.00	41.97	64.6	2
P	P:CX11	Origin	105.00	0.82	0.00	-0.01	4596.75	-2.11	0.0	-58.40	61.59	-0.04	-0.64	41.35	0.35	0.00	41.99	64.6	2
P	Tube 4	End	110.00	0.37	0.00	-0.00	4904.68	-2.33	0.0	-58.40	61.59	-0.04	-0.62	42.34	0.35	0.00	42.96	66.1	2
P	Tube 4	Origin	110.00	0.37	0.00	-0.00	4904.68	-2.33	0.0	-60.18	62.19	-0.05	-0.64	42.34	0.35	0.00	42.98	66.1	2
P	P:CX12	End	115.00	0.09	0.00	-0.00	5215.63	-2.56	0.0	-60.18	62.19	-0.05	-0.63	43.23	0.34	0.00	43.87	67.5	2
P	P:CX12	Origin	115.00	0.09	0.00	-0.00	5215.63	-2.56	0.0	-62.28	63.13	-0.05	-0.65	43.23	0.35	0.00	43.89	67.5	2
P	P:g	End	120.00	0.00	0.00	0.00	5531.30	-2.81	0.0	-62.28	63.13	-0.05	-0.64	44.06	0.34	0.00	44.71	69.1	2

Detailed Tubular Davit Arm Usages for Load Case "NESC Rule 250C":

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Trans. Defl. (in)	Long. Defl. (in)	Vert. Defl. (in)	Vert. Mom. (ft-k)	Horz. Mom. (ft-k)	Tors. Mom. (ft-k)	Axial Force (kips)	Vert. Shear (kips)	Horz. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	Max. Usage %	At Pt.
SWL	SWL:O	Origin	0.00	40.91	0.02	0.11	-5.31	0.00	-0.0	-2.28	1.38	-0.00	-0.42	5.10	0.20	0.00	5.53	8.5	2
SWL	SWL:1	End	0.67	40.92	0.02	0.56	-4.39	0.00	-0.0	-2.28	1.38	-0.00	-0.44	4.65	0.21	0.00	5.10	7.8	2
SWL	SWL:1	Origin	0.67	40.92	0.02	0.56	-4.39	0.00	0.0	-2.53	0.76	-0.00	-0.49	4.65	0.12	0.00	5.14	7.9	2
SWL	SWL:T	End	4.79	41.65	0.02	3.16	-1.24	0.00	0.0	-2.53	0.76	-0.00	-0.70	2.77	0.17	0.00	3.48	5.4	2
SWR	SWR:O	Origin	0.00	40.86	0.02	-1.84	-7.74	-0.00	0.0	2.28	1.40	0.00	0.42	7.43	0.20	0.00	7.86	12.1	2
SWR	SWR:1	End	0.67	40.84	0.02	-2.30	-6.80	-0.00	0.0	2.28	1.40	0.00	0.44	7.21	0.21	0.00	7.66	11.8	2
SWR	SWR:1	Origin	0.67	40.84	0.02	-2.30	-6.80	-0.00	0.0	1.88	1.87	0.00	0.36	7.21	0.29	0.00	7.59	11.7	2
SWR	SWR:T	End	4.79	41.46	0.02	-5.09	0.89	0.00	0.0	1.88	1.87	0.00	0.52	1.98	0.42	0.00	2.60	4.0	2
C1	C1:O	Origin	0.00	36.47	0.01	0.26	-36.57	0.00	-0.0	-5.55	4.10	-0.00	-0.43	8.21	0.25	0.00	8.64	13.3	2
C1	C1:1	End	0.79	36.48	0.01	0.78	-33.33	0.00	-0.0	-5.55	4.10	-0.00	-0.44	8.13	0.26	0.00	8.59	13.2	2
C1	C1:1	Origin	0.79	36.48	0.01	0.78	-33.33	0.00	0.0	-5.95	3.37	-0.00	-0.48	8.13	0.21	0.00	8.62	13.3	2
C1	#C1:0	End	5.32	36.88	0.02	3.66	-18.05	0.00	0.0	-5.95	3.37	-0.00	-0.63	7.74	0.29	0.00	8.38	12.9	2
C1	#C1:0	Origin	5.32	36.88	0.02	3.66	-18.05	0.00	0.0	-5.92	3.25	-0.00	-0.63	7.74	0.27	0.00	8.38	12.9	2
C1	C1:T	End	9.85	37.26	0.02	6.41	-3.35	0.00	0.0	-5.92	3.25	-0.00	-0.92	3.15	0.41	0.00	4.13	6.4	2
C4	C4:O	Origin	0.00	36.41	0.01	-1.75	-41.26	-0.00	0.0	5.56	4.11	0.00	0.43	9.26	0.25	0.00	9.70	14.9	2
C4	C4:1	End	0.79	36.40	0.01	-2.27	-38.02	-0.00	0.0	5.56	4.11	0.00	0.44	9.28	0.26	0.00	9.73	15.0	2
C4	C4:1	Origin	0.79	36.40	0.01	-2.27	-38.02	-0.00	0.0	5.08	4.59	0.00	0.41	9.28	0.29	0.00	9.70	14.9	2
C4	#C4:0	End	5.32	36.65	0.01	-5.34	-17.24	-0.00	0.0	5.08	4.59	0.00	0.54	7.39	0.39	0.00	7.95	12.2	2
C4	#C4:0	Origin	5.32	36.65	0.01	-5.34	-17.24	-0.00	0.0	5.10	4.43	0.00	0.54	7.39	0.37	0.00	7.95	12.2	2
C4	C4:T	End	9.85	36.91	0.01	-8.53	2.82	0.00	0.0	5.10	4.43	0.00	0.79	2.65	0.56	0.00	3.58	5.5	2
C2	C2:O	Origin	0.00	28.74	0.01	0.49	-36.76	0.00	-0.0	-5.54	4.12	-0.00	-0.42	8.25	0.25	0.00	8.68	13.4	2
C2	C2:1	End	0.79	28.76	0.01	0.98	-33.50	0.00	-0.0	-5.54	4.12	-0.00	-0.44	8.18	0.26	0.00	8.63	13.3	2
C2	C2:1	Origin	0.79	28.76	0.01	0.98	-33.50	0.00	0.0	-5.94	3.39	-0.00	-0.47	8.18	0.22	0.00	8.66	13.3	2
C2	#C2:0	End	5.32	29.13	0.01	3.68	-18.14	0.00	0.0	-5.94	3.39	-0.00	-0.63	7.77	0.29	0.00	8.42	12.9	2
C2	#C2:0	Origin	5.32	29.13	0.01	3.68	-18.14	0.00	0.0	-5.91	3.27	-0.00	-0.62	7.77	0.28	0.00	8.41	12.9	2
C2	C2:T	End	9.85	29.48	0.01	6.26	-3.35	0.00	0.0	-5.91	3.27	-0.00	-0.92	3.15	0.41	0.00	4.13	6.4	2
C5	C5:O	Origin	0.00	28.69	0.01	-1.55	-41.43	-0.00	0.0	5.54	4.13	0.00	0.42	9.30	0.25	0.00	9.73	15.0	2
C5	C5:1	End	0.79	28.68	0.01	-2.05	-38.17	-0.00	0.0	5.54	4.13	0.00	0.44	9.31	0.26	0.00	9.77	15.0	2
C5	C5:1	Origin	0.79	28.68	0.01	-2.05	-38.17	-0.00	0.0	5.07	4.60	0.00	0.40	9.31	0.29	0.00	9.73	15.0	2

C5	#C5:0	End	5.32	28.92	0.01	-4.94	-17.32	-0.00	0.0	5.07	4.60	0.00	0.54	7.42	0.39	0.00	7.99	12.3	2
C5	#C5:0	Origin	5.32	28.92	0.01	-4.94	-17.32	-0.00	0.0	5.08	4.45	0.00	0.54	7.42	0.38	0.00	7.99	12.3	2
C5	C5:T	End	9.85	29.17	0.01	-7.96	2.82	0.00	0.0	5.08	4.45	0.00	0.79	2.65	0.56	0.00	3.58	5.5	2
C3	C3:O	Origin	0.00	21.64	0.01	0.63	-37.08	0.00	-0.0	-5.52	4.15	-0.00	-0.42	8.32	0.25	0.00	8.75	13.5	2
C3	C3:1	End	0.79	21.65	0.01	1.06	-33.80	0.00	-0.0	-5.52	4.15	-0.00	-0.44	8.25	0.26	0.00	8.70	13.4	2
C3	C3:1	Origin	0.79	21.65	0.01	1.06	-33.80	0.00	0.0	-5.92	3.43	-0.00	-0.47	8.25	0.22	0.00	8.73	13.4	2
C3	#C3:0	End	5.32	21.97	0.01	3.48	-18.29	0.00	0.0	-5.92	3.43	-0.00	-0.63	7.84	0.29	0.00	8.48	13.0	2
C3	#C3:0	Origin	5.32	21.97	0.01	3.48	-18.29	0.00	0.0	-5.89	3.30	-0.00	-0.62	7.84	0.28	0.00	8.47	13.0	2
C3	C3:T	End	9.85	22.27	0.01	5.76	-3.35	0.00	0.0	-5.89	3.30	-0.00	-0.92	3.15	0.42	0.00	4.13	6.4	2
C6	C6:O	Origin	0.00	21.59	0.01	-1.33	-41.70	-0.00	0.0	5.52	4.16	0.00	0.42	9.36	0.25	0.00	9.79	15.1	2
C6	C6:1	End	0.79	21.58	0.01	-1.78	-38.42	-0.00	0.0	5.52	4.16	0.00	0.44	9.37	0.26	0.00	9.83	15.1	2
C6	C6:1	Origin	0.79	21.58	0.01	-1.78	-38.42	-0.00	0.0	5.04	4.63	0.00	0.40	9.37	0.29	0.00	9.79	15.1	2
C6	#C6:0	End	5.32	21.81	0.01	-4.38	-17.44	-0.00	0.0	5.04	4.63	0.00	0.53	7.47	0.39	0.00	8.04	12.4	2
C6	#C6:0	Origin	5.32	21.81	0.01	-4.38	-17.44	-0.00	0.0	5.06	4.48	0.00	0.53	7.47	0.38	0.00	8.04	12.4	2
C6	C6:T	End	9.85	22.04	0.01	-7.10	2.82	0.00	0.0	5.06	4.48	0.00	0.79	2.65	0.56	0.00	3.58	5.5	2

Summary of Clamp Capacities and Usages for Load Case "NESC Rule 250C":

Clamp Label	Force (kips)	Input Holding Capacity (kips)	Factored Holding Capacity (kips)	Holding Usage %	Input Hardware Capacity (kips)	Factored Hardware Capacity (kips)	Hardware Usage %	Max. Usage %
CX2	0.435	100.00	100.00	0.43	100.00	100.00	0.43	0.43
CX3	0.435	100.00	100.00	0.43	100.00	100.00	0.43	0.43
CX4	0.435	100.00	100.00	0.43	100.00	100.00	0.43	0.43
CX5	0.435	100.00	100.00	0.43	100.00	100.00	0.43	0.43
CX6	0.435	100.00	100.00	0.43	100.00	100.00	0.43	0.43
CX7	0.435	100.00	100.00	0.43	100.00	100.00	0.43	0.43
CX8	0.435	100.00	100.00	0.43	100.00	100.00	0.43	0.43
CX9	0.435	100.00	100.00	0.43	100.00	100.00	0.43	0.43
CX10	0.435	100.00	100.00	0.43	100.00	100.00	0.43	0.43
CX11	0.435	100.00	100.00	0.43	100.00	100.00	0.43	0.43
CX12	0.435	100.00	100.00	0.43	100.00	100.00	0.43	0.43
CX00	0.435	100.00	100.00	0.43	100.00	100.00	0.43	0.43
CX000	9.536	100.00	100.00	9.54	100.00	100.00	9.54	9.54

Summary of Suspension Capacities and Usages for Load Case "NESC Rule 250C":

Suspension Label	Tension (kips)	Input Tension Capacity (kips)	Factored Tension Capacity (kips)	Tension Usage %	Input Hardware Capacity (kips)	Factored Hardware Capacity (kips)	Hardware Usage %	Max. Usage %
SWL	2.630	20.00	20.00	13.15	0.00	0.00	0.00	13.15
SWR	2.630	20.00	20.00	13.15	0.00	0.00	0.00	13.15
C1	6.717	30.00	30.00	22.39	0.00	0.00	0.00	22.39
C4	6.717	30.00	30.00	22.39	0.00	0.00	0.00	22.39
C2	6.717	30.00	30.00	22.39	0.00	0.00	0.00	22.39
C5	6.717	30.00	30.00	22.39	0.00	0.00	0.00	22.39
C3	6.717	30.00	30.00	22.39	0.00	0.00	0.00	22.39
C6	6.717	30.00	30.00	22.39	0.00	0.00	0.00	22.39

*** Analysis Results for Load Case No. 3 "NESC Rule 250D" - Number of iterations in SAPS 13

Equilibrium Joint Positions and Rotations for Load Case "NESC Rule 250D":

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
P:g	0	0	0	0.0000	0.0000	0.0000	0	0	0
P:t	0.002631	1.536	-0.01676	-1.2148	0.0019	0.0000	0.002631	1.536	120
P:CX00	0.002461	1.43	-0.0156	-1.2131	0.0019	0.0000	0.002461	1.43	115
P:SW	0.002249	1.298	-0.01415	-1.2068	0.0019	0.0000	0.002249	1.298	108.7
P:CX2	0.002122	1.219	-0.01326	-1.1996	0.0019	0.0000	0.002122	1.219	105
P:CT	0.002024	1.158	-0.01258	-1.1918	0.0019	0.0000	0.002024	1.158	102.1
P:CX3	0.001789	1.012	-0.01087	-1.1601	0.0019	0.0000	0.001789	1.012	94.99
P:CM	0.001629	0.9139	-0.009729	-1.1283	0.0018	0.0000	0.001629	0.9139	90.07
P:CX4	0.001468	0.8155	-0.008556	-1.0861	0.0018	0.0000	0.001468	0.8155	84.99
P:CB	0.001257	0.6883	-0.007086	-1.0137	0.0017	0.0000	0.001257	0.6883	78.07
P:CX5	0.001167	0.6346	-0.00645	-0.9762	0.0016	0.0000	0.001167	0.6346	74.99
P:CX6	0.0008956	0.4756	-0.004674	-0.8423	0.0015	0.0000	0.0008956	0.4756	65
P:CX7	0.0006562	0.3403	-0.003305	-0.7011	0.0013	0.0000	0.0006562	0.3403	55
P:CX8	0.0004523	0.2293	-0.002317	-0.5738	0.0011	0.0000	0.0004523	0.2293	45
P:CX9	0.0002816	0.1395	-0.001574	-0.4510	0.0009	0.0000	0.0002816	0.1395	35
P:CX10	0.0001479	0.07152	-0.001	-0.3241	0.0006	0.0000	0.0001479	0.07152	25
P:CX11	5.499e-05	0.02592	-0.000551	-0.1949	0.0004	0.0000	5.499e-05	0.02592	15
P:CX12	6.53e-06	0.002969	-0.0001761	-0.0649	0.0001	0.0000	6.53e-06	0.002969	5
SWL:O	0.00225	1.298	0.01656	-1.2068	0.0019	0.0000	0.00225	-0.1601	108.8
SWL:1	0.00225	1.298	0.03035	-1.1585	0.0019	0.0000	0.00225	-0.8299	108.8
SWL:T	0.002287	1.316	0.1001	-0.9176	0.0019	0.0000	0.002287	-4.812	109.9
SWR:O	0.002248	1.297	-0.04486	-1.2068	0.0019	0.0000	0.002248	2.756	108.7
SWR:1	0.002247	1.297	-0.05933	-1.2608	0.0019	0.0000	0.002247	3.426	108.7
SWR:T	0.002277	1.321	-0.1594	-1.5049	0.0019	0.0000	0.002277	7.449	109.6
C1:O	0.002025	1.158	0.01913	-1.1918	0.0019	0.0000	0.002025	-0.366	102.1
C1:1	0.002026	1.159	0.03526	-1.1548	0.0019	0.0000	0.002026	-1.156	102.1
C1:T	0.002065	1.176	0.1778	-0.7238	0.0019	0.0000	0.002065	-10.14	103.3
C4:O	0.002023	1.158	-0.04428	-1.1918	0.0019	0.0000	0.002023	2.682	102
C4:1	0.002022	1.158	-0.06102	-1.2298	0.0019	0.0000	0.002022	3.472	102
C4:T	0.002047	1.18	-0.2933	-1.6475	0.0019	0.0000	0.002047	12.49	102.8
C2:O	0.00163	0.9142	0.02263	-1.1283	0.0018	0.0000	0.00163	-0.7291	90.1
C2:1	0.00163	0.9144	0.03789	-1.0913	0.0018	0.0000	0.00163	-1.519	90.12
C2:T	0.001668	0.9302	0.1704	-0.6601	0.0018	0.0000	0.001668	-10.5	91.25
C5:O	0.001627	0.9136	-0.04209	-1.1283	0.0018	0.0000	0.001627	2.557	90.04
C5:1	0.001627	0.9134	-0.05795	-1.1663	0.0018	0.0000	0.001627	3.347	90.02
C5:T	0.001651	0.9354	-0.2802	-1.5841	0.0018	0.0000	0.001651	12.37	90.8
C3:O	0.001258	0.6885	0.02409	-1.0137	0.0017	0.0000	0.001258	-1.074	78.1
C3:1	0.001259	0.6887	0.03777	-0.9767	0.0017	0.0000	0.001259	-1.864	78.12
C3:T	0.001293	0.7023	0.1523	-0.5452	0.0017	0.0000	0.001293	-10.85	79.23
C6:O	0.001256	0.688	-0.03826	-1.0137	0.0017	0.0000	0.001256	2.45	78.04
C6:1	0.001256	0.6879	-0.05255	-1.0518	0.0017	0.0000	0.001256	3.24	78.03
C6:T	0.001279	0.7083	-0.2568	-1.4698	0.0017	0.0000	0.001279	12.26	78.82
SWLV	0.002271	1.309	0.1021	-0.9176	0.0019	0.0000	0.002271	-4.941	109.4
SWRV	0.002261	1.308	-0.1624	-1.5049	0.0019	0.0000	0.002261	7.558	109.1
C1V	0.002046	1.168	0.1786	-0.7238	0.0019	0.0000	0.002046	-10.21	102.7
C4V	0.002027	1.164	-0.2949	-1.6475	0.0019	0.0000	0.002027	12.54	102.2
C2V	0.00165	0.9235	0.1712	-0.6601	0.0018	0.0000	0.00165	-10.57	90.67
C5V	0.001632	0.9193	-0.2818	-1.5841	0.0018	0.0000	0.001632	12.42	90.22
C3V	0.001275	0.6967	0.1529	-0.5452	0.0017	0.0000	0.001275	-10.92	78.65
C6V	0.001261	0.6934	-0.2583	-1.4698	0.0017	0.0000	0.001261	12.31	78.24

Joint Support Reactions for Load Case "NESC Rule 250D":

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	H-Shear Usage %	Z Force (kips)	Comp. Usage %	Uplift Usage %	Result. Force (kips)	Result. Usage %	X Moment (ft-k)	X-M. Usage %	Y Moment (ft-k)	Y-M. Usage %	H-Bend-M Usage %	Z Moment (ft-k)	Z-M. Usage %	Max. Usage %
P:g	-0.08	0.0	-23.51	0.0	0.0	-102.40	0.0	0.0	105.07	0.0	2103.75	0.0	-4.6	0.0	0.0	-0.00	0.0	0.0

Detailed Steel Pole Usages for Load Case "NESC Rule 250D":

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Trans. Defl. (in)	Long. Defl. (in)	Vert. Defl. (in)	Trans. Mom. (Local Mx) (ft-k)	Long. Mom. (Local My) (ft-k)	Tors. Mom. (ft-k)	Axial Force (kips)	Tran. Shear (kips)	Long. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	Max. Usage %	At Pt.
P	P:t	Origin	0.00	18.43	0.03	-0.20	-0.00	-0.00	-0.0	-6.90	2.12	-0.00	-0.21	0.00	0.13	0.00	0.32	0.5	5
P	P:CX00	End	5.00	17.16	0.03	-0.19	10.58	-0.01	-0.0	-6.90	2.12	-0.00	-0.21	0.45	0.03	0.00	0.66	1.0	2
P	P:CX00	Origin	5.00	17.16	0.03	-0.19	10.58	-0.01	0.0	-8.58	2.38	-0.00	-0.26	0.45	0.04	0.00	0.71	1.1	2
P	SpliceT	End	10.00	15.89	0.03	-0.17	22.48	-0.03	0.0	-8.58	2.38	-0.00	-0.25	0.90	0.04	0.00	1.15	1.8	2
P	SpliceT	Origin	10.00	15.89	0.03	-0.17	22.48	-0.03	-0.0	-9.05	2.49	-0.01	-0.26	0.90	0.04	0.00	1.16	1.8	2
P	P:SW	End	11.25	15.57	0.03	-0.17	25.59	-0.03	-0.0	-9.05	2.49	-0.01	-0.26	1.00	0.04	0.00	1.26	1.9	2
P	P:SW	Origin	11.25	15.57	0.03	-0.17	27.15	-0.03	0.0	-15.82	5.55	-0.01	-0.45	1.06	0.08	0.00	1.52	2.3	2
P	P:CX2	End	15.00	14.63	0.03	-0.16	47.94	-0.06	0.0	-15.82	5.55	-0.01	-0.44	1.78	0.08	0.00	2.23	3.4	2
P	P:CX2	Origin	15.00	14.63	0.03	-0.16	47.94	-0.06	0.0	-17.29	5.76	-0.01	-0.48	1.78	0.09	0.00	2.27	3.5	2
P	P:CT	End	17.92	13.90	0.02	-0.15	64.76	-0.09	0.0	-17.29	5.76	-0.01	-0.47	2.32	0.08	0.00	2.80	4.3	2
P	P:CT	Origin	17.92	13.90	0.02	-0.15	66.67	-0.09	0.0	-32.37	10.46	-0.01	-0.89	2.39	0.15	0.00	3.28	5.1	2
P	Tube 2	End	21.46	13.02	0.02	-0.14	103.71	-0.13	0.0	-32.37	10.46	-0.01	-0.87	3.54	0.15	0.00	4.42	6.8	2
P	Tube 2	Origin	21.46	13.02	0.02	-0.14	103.71	-0.13	0.0	-32.94	10.59	-0.01	-0.88	3.54	0.15	0.00	4.43	6.8	2
P	P:CX3	End	25.00	12.15	0.02	-0.13	141.18	-0.18	0.0	-32.94	10.59	-0.01	-0.86	4.61	0.15	0.00	5.48	8.5	2
P	P:CX3	Origin	25.00	12.15	0.02	-0.13	141.18	-0.18	0.0	-34.61	10.83	-0.02	-0.91	4.61	0.15	0.00	5.52	8.5	2
P	P:CM	End	29.92	10.97	0.02	-0.12	194.46	-0.25	0.0	-34.61	10.83	-0.02	-0.88	5.97	0.15	0.00	6.86	10.8	2
P	P:CM	Origin	29.92	10.97	0.02	-0.12	196.35	-0.25	0.0	-49.81	15.53	-0.02	-1.27	6.03	0.21	0.00	7.31	11.5	2
P	Tube 2	End	32.46	10.37	0.02	-0.11	235.79	-0.30	0.0	-49.81	15.53	-0.02	-1.25	7.03	0.21	0.00	8.28	13.1	2
P	Tube 2	Origin	32.46	10.37	0.02	-0.11	235.79	-0.30	0.0	-50.26	15.61	-0.02	-1.26	7.03	0.21	0.00	8.29	13.1	2
P	P:CX4	End	35.00	9.79	0.02	-0.10	275.44	-0.35	0.0	-50.26	15.61	-0.02	-1.24	7.96	0.20	0.00	9.21	14.7	2
P	P:CX4	Origin	35.00	9.79	0.02	-0.10	275.44	-0.35	0.0	-51.76	15.80	-0.02	-1.28	7.96	0.21	0.00	9.25	14.8	2
P	Tube 2	End	38.46	9.01	0.02	-0.09	330.11	-0.43	0.0	-51.76	15.80	-0.02	-1.25	9.16	0.20	0.00	10.42	16.8	2
P	Tube 2	Origin	38.46	9.01	0.02	-0.09	330.11	-0.43	0.0	-52.39	15.91	-0.02	-1.27	9.16	0.20	0.00	10.44	16.8	2
P	P:CB	End	41.92	8.26	0.02	-0.09	385.15	-0.51	0.0	-52.39	15.91	-0.02	-1.24	10.27	0.20	0.00	11.52	18.8	2
P	P:CB	Origin	41.92	8.26	0.02	-0.09	387.01	-0.51	0.0	-67.58	20.55	-0.03	-1.60	10.32	0.26	0.00	11.93	19.5	2
P	P:CX5	End	45.00	7.62	0.01	-0.08	450.30	-0.59	0.0	-67.58	20.55	-0.03	-1.57	11.60	0.25	0.00	13.18	21.7	2
P	P:CX5	Origin	45.00	7.62	0.01	-0.08	450.30	-0.59	0.0	-69.11	20.72	-0.03	-1.61	11.60	0.25	0.00	13.22	21.8	2
P	Tube 2	End	48.00	7.01	0.01	-0.07	512.47	-0.68	0.0	-69.11	20.72	-0.03	-1.58	12.77	0.25	0.00	14.36	23.9	2
P	Tube 2	Origin	48.00	7.01	0.01	-0.07	512.47	-0.68	0.0	-69.70	20.80	-0.03	-1.60	12.77	0.25	0.00	14.37	23.9	2
P	SpliceT	End	51.00	6.44	0.01	-0.06	574.87	-0.77	0.0	-69.70	20.80	-0.03	-1.57	13.87	0.25	0.00	15.44	26.0	2
P	SpliceT	Origin	51.00	6.44	0.01	-0.06	574.87	-0.77	0.0	-70.46	20.89	-0.03	-1.32	11.54	0.21	0.00	12.86	19.8	2
P	P:CX6	End	55.00	5.71	0.01	-0.06	658.43	-0.90	0.0	-70.46	20.89	-0.03	-1.29	12.66	0.20	0.00	13.96	21.5	2
P	P:CX6	Origin	55.00	5.71	0.01	-0.06	658.43	-0.90	0.0	-72.46	21.11	-0.04	-1.33	12.66	0.20	0.00	14.00	21.6	2
P	Tube 3	End	60.00	4.86	0.01	-0.05	763.96	-1.07	0.0	-72.46	21.11	-0.04	-1.30	13.94	0.20	0.00	15.24	23.8	2
P	Tube 3	Origin	60.00	4.86	0.01	-0.05	763.96	-1.07	0.0	-73.66	21.24	-0.04	-1.32	13.94	0.20	0.00	15.27	23.8	2
P	P:CX7	End	65.00	4.08	0.01	-0.04	870.15	-1.27	0.0	-73.66	21.24	-0.04	-1.29	15.09	0.20	0.00	16.38	25.9	2
P	P:CX7	Origin	65.00	4.08	0.01	-0.04	870.15	-1.27	0.0	-75.60	21.43	-0.04	-1.32	15.09	0.20	0.00	16.42	25.9	2
P	SpliceT	End	68.00	3.66	0.01	-0.04	934.45	-1.39	0.0	-75.60	21.43	-0.04	-1.30	15.73	0.19	0.00	17.03	27.1	2
P	SpliceT	Origin	68.00	3.66	0.01	-0.04	934.45	-1.39	0.0	-76.53	21.53	-0.04	-0.98	11.77	0.15	0.00	12.75	19.6	2
P	Tube 4	End	71.50	3.19	0.01	-0.03	1009.78	-1.54	0.0	-76.53	21.53	-0.04	-0.97	12.29	0.14	0.00	13.26	20.4	2
P	Tube 4	Origin	71.50	3.19	0.01	-0.03	1009.78	-1.54	0.0	-77.65	21.63	-0.05	-0.98	12.29	0.14	0.00	13.27	20.4	2
P	P:CX8	End	75.00	2.75	0.01	-0.03	1085.50	-1.70	0.0	-77.65	21.63	-0.05	-0.97	12.77	0.14	0.00	13.74	21.1	2
P	P:CX8	Origin	75.00	2.75	0.01	-0.03	1085.50	-1.70	0.0	-80.00	21.86	-0.05	-0.99	12.77	0.14	0.00	13.77	21.2	2

P	Tube 4	End	80.00	2.18	0.00	-0.02	1194.78	-1.95	0.0	-80.00	21.86	-0.05	-0.97	13.41	0.14	0.00	14.38	22.1	2
P	Tube 4	Origin	80.00	2.18	0.00	-0.02	1194.78	-1.95	0.0	-81.67	22.01	-0.05	-0.99	13.41	0.14	0.00	14.40	22.2	2
P	P:CX9	End	85.00	1.67	0.00	-0.02	1304.84	-2.21	0.0	-81.67	22.01	-0.05	-0.97	13.98	0.14	0.00	14.95	23.0	2
P	P:CX9	Origin	85.00	1.67	0.00	-0.02	1304.84	-2.21	0.0	-84.34	22.25	-0.06	-1.00	13.98	0.14	0.00	14.99	23.1	2
P	Tube 4	End	90.00	1.23	0.00	-0.02	1416.11	-2.49	0.0	-84.34	22.25	-0.06	-0.98	14.51	0.14	0.00	15.49	23.8	2
P	Tube 4	Origin	90.00	1.23	0.00	-0.02	1416.11	-2.49	0.0	-86.09	22.41	-0.06	-1.00	14.51	0.14	0.00	15.51	23.9	2
P	P:CX10	End	95.00	0.86	0.00	-0.01	1528.16	-2.79	0.0	-86.09	22.41	-0.06	-0.98	14.98	0.13	0.00	15.96	24.6	2
P	P:CX10	Origin	95.00	0.86	0.00	-0.01	1528.16	-2.79	0.0	-88.83	22.65	-0.06	-1.01	14.98	0.14	0.00	15.99	24.6	2
P	Tube 4	End	100.00	0.55	0.00	-0.01	1641.40	-3.11	0.0	-88.83	22.65	-0.06	-0.99	15.41	0.13	0.00	16.40	25.2	2
P	Tube 4	Origin	100.00	0.55	0.00	-0.01	1641.40	-3.11	0.0	-90.66	22.80	-0.07	-1.01	15.41	0.13	0.00	16.42	25.3	2
P	P:CX11	End	105.00	0.31	0.00	-0.01	1755.41	-3.45	0.0	-90.66	22.80	-0.07	-0.99	15.80	0.13	0.00	16.79	25.8	2
P	P:CX11	Origin	105.00	0.31	0.00	-0.01	1755.41	-3.45	0.0	-93.48	23.04	-0.07	-1.02	15.80	0.13	0.00	16.82	25.9	2
P	Tube 4	End	110.00	0.14	0.00	-0.00	1870.62	-3.81	0.0	-93.48	23.04	-0.07	-1.00	16.15	0.13	0.00	17.15	26.4	2
P	Tube 4	Origin	110.00	0.14	0.00	-0.00	1870.62	-3.81	0.0	-95.38	23.20	-0.08	-1.02	16.15	0.13	0.00	17.17	26.4	2
P	P:CX12	End	115.00	0.04	0.00	-0.00	1986.60	-4.18	0.0	-95.38	23.20	-0.08	-1.00	16.47	0.13	0.00	17.47	26.9	2
P	P:CX12	Origin	115.00	0.04	0.00	-0.00	1986.60	-4.18	0.0	-98.28	23.43	-0.08	-1.03	16.47	0.13	0.00	17.50	26.9	2
P	P:g	End	120.00	0.00	0.00	0.00	2103.75	-4.58	0.0	-98.28	23.43	-0.08	-1.01	16.77	0.13	0.00	17.77	27.5	2

Detailed Tubular Davit Arm Usages for Load Case "NESC Rule 250D":

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Trans. Defl. (in)	Long. Defl. (in)	Vert. Defl. (in)	Vert. Mom. (ft-k)	Horz. Mom. (ft-k)	Tors. Mom. (ft-k)	Axial Force (kips)	Vert. Shear (kips)	Horz. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	Max. Usage %	At Pt.
SWL	SWL:O	Origin	0.00	15.58	0.03	0.20	-14.35	0.00	-0.0	-1.49	3.19	-0.00	-0.27	13.78	0.47	0.00	14.08	21.7	2
SWL	SWL:1	End	0.67	15.58	0.03	0.36	-12.22	0.00	-0.0	-1.49	3.19	-0.00	-0.28	12.95	0.49	0.00	13.26	20.4	2
SWL	SWL:1	Origin	0.67	15.58	0.03	0.36	-12.22	0.00	0.0	-2.20	2.70	-0.00	-0.42	12.95	0.42	0.00	13.39	20.6	2
SWL	SWL:T	End	4.79	15.80	0.03	1.20	-1.07	0.00	0.0	-2.20	2.70	-0.00	-0.61	2.39	0.60	0.00	3.17	4.9	2
SWR	SWR:O	Origin	0.00	15.57	0.03	-0.54	-15.91	-0.00	0.0	1.49	3.19	0.00	0.27	15.28	0.47	0.00	15.57	24.0	2
SWR	SWR:1	End	0.67	15.57	0.03	-0.71	-13.77	-0.00	0.0	1.49	3.19	0.00	0.29	14.60	0.49	0.00	14.91	22.9	2
SWR	SWR:1	Origin	0.67	15.57	0.03	-0.71	-13.77	-0.00	0.0	0.69	3.41	0.00	0.13	14.60	0.52	0.00	14.76	22.7	2
SWR	SWR:T	End	4.79	15.85	0.03	-1.91	0.31	0.00	0.0	0.69	3.41	0.00	0.19	0.00	1.97	0.00	3.42	5.3	4
C1	C1:O	Origin	0.00	13.90	0.02	0.23	-69.06	0.00	-0.0	-2.29	7.26	-0.00	-0.18	15.50	0.44	0.00	15.69	24.1	2
C1	C1:1	End	0.79	13.90	0.02	0.42	-63.32	0.00	-0.0	-2.29	7.26	-0.00	-0.18	15.45	0.46	0.00	15.66	24.1	2
C1	C1:1	Origin	0.79	13.90	0.02	0.42	-63.32	0.00	0.0	-3.05	6.87	-0.00	-0.24	15.45	0.44	0.00	15.71	24.2	2
C1	#C1:0	End	5.32	14.02	0.02	1.39	-32.21	0.00	0.0	-3.05	6.87	-0.00	-0.32	13.80	0.58	0.00	14.16	21.8	2
C1	#C1:0	Origin	5.32	14.02	0.02	1.39	-32.21	0.00	0.0	-3.00	6.74	-0.00	-0.32	13.80	0.57	0.00	14.16	21.8	2
C1	C1:T	End	9.85	14.11	0.02	2.13	-1.69	0.00	0.0	-3.00	6.74	-0.00	-0.47	0.00	2.19	0.00	3.82	5.9	4
C4	C4:O	Origin	0.00	13.89	0.02	-0.53	-70.96	-0.00	0.0	2.30	7.26	0.00	0.18	15.92	0.44	0.00	16.12	24.8	2
C4	C4:1	End	0.79	13.89	0.02	-0.73	-65.23	-0.00	0.0	2.30	7.26	0.00	0.18	15.92	0.46	0.00	16.12	24.8	2
C4	C4:1	Origin	0.79	13.89	0.02	-0.73	-65.23	-0.00	-0.0	1.51	7.37	0.00	0.12	15.92	0.47	0.00	16.06	24.7	2
C4	#C4:0	End	5.32	14.02	0.02	-2.02	-31.87	-0.00	-0.0	1.51	7.37	0.00	0.16	13.66	0.62	0.00	13.86	21.3	2
C4	#C4:0	Origin	5.32	14.02	0.02	-2.02	-31.87	-0.00	0.0	1.55	7.21	0.00	0.16	13.66	0.61	0.00	13.86	21.3	2
C4	C4:T	End	9.85	14.16	0.02	-3.52	0.79	0.00	0.0	1.55	7.21	0.00	0.24	0.00	2.34	0.00	4.06	6.2	4
C2	C2:O	Origin	0.00	10.97	0.02	0.27	-69.09	0.00	-0.0	-2.29	7.26	-0.00	-0.18	15.50	0.44	0.00	15.70	24.2	2
C2	C2:1	End	0.79	10.97	0.02	0.45	-63.35	0.00	-0.0	-2.29	7.26	-0.00	-0.18	15.46	0.46	0.00	15.66	24.1	2
C2	C2:1	Origin	0.79	10.97	0.02	0.45	-63.35	0.00	0.0	-3.04	6.88	-0.00	-0.24	15.46	0.44	0.00	15.72	24.2	2
C2	#C2:0	End	5.32	11.08	0.02	1.36	-32.23	0.00	0.0	-3.04	6.88	-0.00	-0.32	13.81	0.58	0.00	14.17	21.8	2
C2	#C2:0	Origin	5.32	11.08	0.02	1.36	-32.23	0.00	0.0	-3.00	6.74	-0.00	-0.32	13.81	0.57	0.00	14.16	21.8	2
C2	C2:T	End	9.85	11.16	0.02	2.04	-1.69	0.00	0.0	-3.00	6.74	-0.00	-0.47	0.00	2.19	0.00	3.82	5.9	4
C5	C5:O	Origin	0.00	10.96	0.02	-0.51	-70.98	-0.00	0.0	2.29	7.26	0.00	0.18	15.93	0.44	0.00	16.12	24.8	2
C5	C5:1	End	0.79	10.96	0.02	-0.70	-65.24	-0.00	0.0	2.29	7.26	0.00	0.18	15.92	0.46	0.00	16.12	24.8	2
C5	C5:1	Origin	0.79	10.96	0.02	-0.70	-65.24	-0.00	-0.0	1.50	7.37	0.00	0.12	15.92	0.47	0.00	16.06	24.7	2

C5	#C5:0	End	5.32	11.08	0.02	-1.92	-31.88	-0.00	-0.0	1.50	7.37	0.00	0.16	13.66	0.62	0.00	13.86	21.3	2
C5	#C5:0	Origin	5.32	11.08	0.02	-1.92	-31.88	-0.00	0.0	1.54	7.22	0.00	0.16	13.66	0.61	0.00	13.87	21.3	2
C5	C5:T	End	9.85	11.22	0.02	-3.36	0.79	0.00	0.0	1.54	7.22	0.00	0.24	0.00	2.34	0.00	4.06	6.2	4
C3	C3:O	Origin	0.00	8.26	0.02	0.29	-69.15	0.00	-0.0	-2.27	7.27	-0.00	-0.17	15.52	0.44	0.00	15.71	24.2	2
C3	C3:1	End	0.79	8.26	0.02	0.45	-63.41	0.00	-0.0	-2.27	7.27	-0.00	-0.18	15.47	0.46	0.00	15.68	24.1	2
C3	C3:1	Origin	0.79	8.26	0.02	0.45	-63.41	0.00	0.0	-3.03	6.88	-0.00	-0.24	15.47	0.44	0.00	15.73	24.2	2
C3	#C3:0	End	5.32	8.36	0.02	1.25	-32.25	0.00	0.0	-3.03	6.88	-0.00	-0.32	13.82	0.58	0.00	14.18	21.8	2
C3	#C3:0	Origin	5.32	8.36	0.02	1.25	-32.25	0.00	0.0	-2.98	6.75	-0.00	-0.32	13.82	0.57	0.00	14.17	21.8	2
C3	C3:T	End	9.85	8.43	0.02	1.83	-1.69	0.00	0.0	-2.98	6.75	-0.00	-0.46	0.00	2.19	0.00	3.82	5.9	4
C6	C6:O	Origin	0.00	8.26	0.02	-0.46	-71.01	-0.00	0.0	2.28	7.27	0.00	0.17	15.93	0.44	0.00	16.13	24.8	2
C6	C6:1	End	0.79	8.25	0.02	-0.63	-65.27	-0.00	0.0	2.28	7.27	0.00	0.18	15.93	0.46	0.00	16.13	24.8	2
C6	C6:1	Origin	0.79	8.25	0.02	-0.63	-65.27	-0.00	-0.0	1.49	7.37	0.00	0.12	15.93	0.47	0.00	16.07	24.7	2
C6	#C6:0	End	5.32	8.37	0.02	-1.75	-31.89	-0.00	-0.0	1.49	7.37	0.00	0.16	13.67	0.62	0.00	13.87	21.3	2
C6	#C6:0	Origin	5.32	8.37	0.02	-1.75	-31.89	-0.00	0.0	1.53	7.22	0.00	0.16	13.67	0.61	0.00	13.87	21.3	2
C6	C6:T	End	9.85	8.50	0.02	-3.08	0.79	0.00	0.0	1.53	7.22	0.00	0.24	0.00	2.34	0.00	4.06	6.2	4

Summary of Clamp Capacities and Usages for Load Case "NESC Rule 250D":

Clamp Label	Force (kips)	Input Holding Capacity (kips)	Factored Holding Capacity (kips)	Holding Usage %	Input Hardware Capacity (kips)	Factored Hardware Capacity (kips)	Hardware Usage %	Max. Usage %
CX2	0.959	100.00	100.00	0.96	100.00	100.00	0.96	0.96
CX3	0.959	100.00	100.00	0.96	100.00	100.00	0.96	0.96
CX4	0.959	100.00	100.00	0.96	100.00	100.00	0.96	0.96
CX5	0.959	100.00	100.00	0.96	100.00	100.00	0.96	0.96
CX6	0.959	100.00	100.00	0.96	100.00	100.00	0.96	0.96
CX7	0.959	100.00	100.00	0.96	100.00	100.00	0.96	0.96
CX8	0.959	100.00	100.00	0.96	100.00	100.00	0.96	0.96
CX9	0.959	100.00	100.00	0.96	100.00	100.00	0.96	0.96
CX10	0.959	100.00	100.00	0.96	100.00	100.00	0.96	0.96
CX11	0.959	100.00	100.00	0.96	100.00	100.00	0.96	0.96
CX12	0.959	100.00	100.00	0.96	100.00	100.00	0.96	0.96
CX00	0.959	100.00	100.00	0.96	100.00	100.00	0.96	0.96
CX000	6.853	100.00	100.00	6.85	100.00	100.00	6.85	6.85

Summary of Suspension Capacities and Usages for Load Case "NESC Rule 250D":

Suspension Label	Tension (kips)	Input Tension Capacity (kips)	Factored Tension Capacity (kips)	Tension Usage %	Input Hardware Capacity (kips)	Factored Hardware Capacity (kips)	Hardware Usage %	Max. Usage %
SWL	3.455	20.00	20.00	17.27	0.00	0.00	0.00	17.27
SWR	3.455	20.00	20.00	17.27	0.00	0.00	0.00	17.27
C1	7.321	30.00	30.00	24.40	0.00	0.00	0.00	24.40
C4	7.321	30.00	30.00	24.40	0.00	0.00	0.00	24.40
C2	7.321	30.00	30.00	24.40	0.00	0.00	0.00	24.40
C5	7.321	30.00	30.00	24.40	0.00	0.00	0.00	24.40
C3	7.321	30.00	30.00	24.40	0.00	0.00	0.00	24.40
C6	7.321	30.00	30.00	24.40	0.00	0.00	0.00	24.40

*** Overall summary for all load cases - Usage = Maximum Stress / Allowable Stress

Summary of Steel Pole Usages:

Steel Pole Label	Maximum Usage %	Load Case	Height AGL (ft)	Segment Number	Weight (lbs)
P	69.14	NESC Rule 250C	2.5	30	28528.4

Base Plate Results by Bend Line:

Pole Label	Load Case	Bend Line #	Start X (ft)	Start Y (ft)	End X (ft)	End Y (ft)	Length (in)	Bending Stress (ksi)	Bolt Mom. Sum (ft-k)	# Bolts Acting	Bolt Max Load (kips)	Min Plate Thickness (in)	Actual Thickness (in)	Usage %	
P	NESC Rule 250B	1	-0.684	2.552	-1.868	1.868	16.412	30.001	96.165	-3	114.855	2.905	3.750	0.00	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-19 6.4.2
P	NESC Rule 250B	2	-1.868	1.868	-2.552	0.684	16.412	17.985	57.650	-3	80.333	2.249	3.750	0.00	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-19 6.4.2
P	NESC Rule 250B	3	-2.552	-0.684	-1.868	-1.868	16.412	15.117	48.455	-3	-70.332	2.062	3.750	0.00	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-19 6.4.2
P	NESC Rule 250B	4	-1.868	-1.868	-0.684	-2.552	16.412	27.219	87.248	-3	-105.211	2.767	3.750	0.00	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-19 6.4.2
P	NESC Rule 250B	5	0.684	-2.552	1.868	-1.868	16.412	27.337	87.628	-3	-105.499	2.773	3.750	0.00	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-19 6.4.2
P	NESC Rule 250B	6	1.868	-1.868	2.552	-0.684	16.412	15.322	49.114	-3	-70.977	2.076	3.750	0.00	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-19 6.4.2
P	NESC Rule 250B	7	2.552	0.684	1.868	1.868	16.412	17.780	56.992	-3	79.689	2.236	3.750	0.00	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-19 6.4.2
P	NESC Rule 250B	8	1.868	1.868	0.684	2.552	16.412	29.882	95.784	-3	114.567	2.899	3.750	0.00	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-19 6.4.2
P	NESC Rule 250C	1	-0.684	2.552	-1.868	1.868	16.412	39.751	127.419	3	152.617	3.344	3.750	0.00	
P	NESC Rule 250C	2	-1.868	1.868	-2.552	0.684	16.412	23.325	74.768	3	105.360	2.561	3.750	0.00	
P	NESC Rule 250C	3	-2.552	-0.684	-1.868	-1.868	16.412	21.787	69.836	3	-99.970	2.475	3.750	0.00	
P	NESC Rule 250C	4	-1.868	-1.868	-0.684	-2.552	16.412	38.229	122.540	3	-147.295	3.279	3.750	0.00	
P	NESC Rule 250C	5	0.684	-2.552	1.868	-1.868	16.412	38.252	122.614	3	-147.350	3.280	3.750	0.00	
P	NESC Rule 250C	6	1.868	-1.868	2.552	-0.684	16.412	21.826	69.962	3	-100.094	2.478	3.750	0.00	
P	NESC Rule 250C	7	2.552	0.684	1.868	1.868	16.412	23.286	74.641	3	105.236	2.559	3.750	0.00	
P	NESC Rule 250C	8	1.868	1.868	0.684	2.552	16.412	39.728	127.346	3	152.561	3.343	3.750	0.00	
P	NESC Rule 250D	1	-0.684	2.552	-1.868	1.868	16.412	29.823	95.596	-3	114.257	2.896	3.750	0.00	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-19 6.4.2
P	NESC Rule 250D	2	-1.868	1.868	-2.552	0.684	16.412	17.790	57.026	-3	79.664	2.237	3.750	0.00	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-19 6.4.2
P	NESC Rule 250D	3	-2.552	-0.684	-1.868	-1.868	16.412	15.311	49.080	-3	-71.002	2.075	3.750	0.00	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-19 6.4.2
P	NESC Rule 250D	4	-1.868	-1.868	-0.684	-2.552	16.412	27.396	87.817	-3	-105.810	2.776	3.750	0.00	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-19 6.4.2
P	NESC Rule 250D	5	0.684	-2.552	1.868	-1.868	16.412	27.469	88.049	-3	-105.985	2.779	3.750	0.00	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-19 6.4.2
P	NESC Rule 250D	6	1.868	-1.868	2.552	-0.684	16.412	15.436	49.479	-3	-71.392	2.084	3.750	0.00	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-19 6.4.2
P	NESC Rule 250D	7	2.552	0.684	1.868	1.868	16.412	17.666	56.627	-3	79.273	2.229	3.750	0.00	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-19 6.4.2
P	NESC Rule 250D	8	1.868	1.868	0.684	2.552	16.412	29.751	95.365	-3	114.082	2.893	3.750	0.00	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-19 6.4.2

Summary of Tubular Davit Usages:

Tubular Davit Label	Maximum Usage %	Load Case	Height AGL (ft)	Segment Number	Weight (lbs)
SWL	21.66	NESC Rule 250D	108.8	1	74.1
SWR	23.96	NESC Rule 250D	108.8	1	74.1
C1	24.18	NESC Rule 250D	102.3	2	326.1
C4	25.01	NESC Rule 250B	102.1	1	326.1
C2	24.19	NESC Rule 250D	90.3	2	326.1
C5	25.02	NESC Rule 250B	90.1	1	326.1
C3	24.21	NESC Rule 250D	78.3	2	326.1
C6	25.05	NESC Rule 250B	78.1	1	326.1

*** Maximum Stress Summary for Each Load Case

Summary of Maximum Usages by Load Case:

Load Case	Maximum Usage %	Element Label	Element Type
NESC Rule 250B	40.77	P	Steel Pole
NESC Rule 250C	69.14	P	Steel Pole
NESC Rule 250D	27.49	P	Steel Pole

Summary of Steel Pole Usages by Load Case:

Load Case	Maximum Usage %	Steel Pole Label	Height AGL (ft)	Segment Number
NESC Rule 250B	40.77	P	2.5	30
NESC Rule 250C	69.14	P	2.5	30
NESC Rule 250D	27.49	P	2.5	30

Summary of Base Plate Usages by Load Case:

Load Case	Pole Label	Bend Line #	Length (in)	Vertical Load (kips)	X Moment (ft-k)	Y Moment (ft-k)	Bending Stress (ksi)	Bolt Moment Sum (ft-k)	# Bolts Acting On Bend Line	Max Bolt Load For Bend Line (kips)	Minimum Plate Thickness (in)	Usage %
NESC Rule 250B	P	1	16.412	112.273	4058.699	-14.568	30.001	96.165	-3	114.855	2.905	0.00
NESC Rule 250C	P	1	16.412	63.199	5531.300	-2.806	39.751	127.419	3	152.617	3.344	0.00
NESC Rule 250D	P	1	16.412	99.262	4058.716	-8.837	29.823	95.596	-3	114.257	2.896	0.00

Summary of Tubular Davit Usages by Load Case:

Load Case	Maximum Usage %	Tubular Davit Label	Height AGL (ft)	Segment Number
NESC Rule 250B	25.05	C6	78.1	1
NESC Rule 250C	15.12	C6	78.1	1
NESC Rule 250D	24.81	C6	78.1	1

Summary of Insulator Usages:

Insulator Label	Insulator Type	Maximum Usage %	Load Case			Weight (lbs)
CX2	Clamp	1.04	NESC	Rule	250B	0.0
CX3	Clamp	1.04	NESC	Rule	250B	0.0
CX4	Clamp	1.04	NESC	Rule	250B	0.0
CX5	Clamp	1.04	NESC	Rule	250B	0.0
CX6	Clamp	1.04	NESC	Rule	250B	0.0
CX7	Clamp	1.04	NESC	Rule	250B	0.0
CX8	Clamp	1.04	NESC	Rule	250B	0.0
CX9	Clamp	1.04	NESC	Rule	250B	0.0
CX10	Clamp	1.04	NESC	Rule	250B	0.0
CX11	Clamp	1.04	NESC	Rule	250B	0.0
CX12	Clamp	1.04	NESC	Rule	250B	0.0
CX00	Clamp	1.04	NESC	Rule	250B	0.0
CX000	Clamp	9.54	NESC	Rule	250C	0.0
SWL	Suspension	17.27	NESC	Rule	250D	50.0
SWR	Suspension	17.27	NESC	Rule	250D	50.0
C1	Suspension	25.75	NESC	Rule	250B	300.0
C4	Suspension	25.75	NESC	Rule	250B	300.0
C2	Suspension	25.75	NESC	Rule	250B	300.0
C5	Suspension	25.75	NESC	Rule	250B	300.0
C3	Suspension	25.75	NESC	Rule	250B	300.0
C6	Suspension	25.75	NESC	Rule	250B	300.0

Loads At Insulator Attachments For All Load Cases:

Load Case		Insulator Label	Insulator Type	Structure Attach Label	Structure Attach Load X (kips)	Structure Attach Load Y (kips)	Structure Attach Load Z (kips)	Structure Attach Load Res. (kips)
NESC	Rule	250B	CX2	Clamp	P:CX2	0.000	0.119	1.035	1.042
NESC	Rule	250B	CX3	Clamp	P:CX3	0.000	0.119	1.035	1.042
NESC	Rule	250B	CX4	Clamp	P:CX4	0.000	0.119	1.035	1.042
NESC	Rule	250B	CX5	Clamp	P:CX5	0.000	0.119	1.035	1.042
NESC	Rule	250B	CX6	Clamp	P:CX6	0.000	0.119	1.035	1.042
NESC	Rule	250B	CX7	Clamp	P:CX7	0.000	0.119	1.035	1.042
NESC	Rule	250B	CX8	Clamp	P:CX8	0.000	0.119	1.035	1.042
NESC	Rule	250B	CX9	Clamp	P:CX9	0.000	0.119	1.035	1.042
NESC	Rule	250B	CX10	Clamp	P:CX10	0.000	0.119	1.035	1.042
NESC	Rule	250B	CX11	Clamp	P:CX11	0.000	0.119	1.035	1.042
NESC	Rule	250B	CX12	Clamp	P:CX12	0.000	0.119	1.035	1.042
NESC	Rule	250B	CX00	Clamp	P:CX00	0.000	0.119	1.035	1.042
NESC	Rule	250B	CX000	Clamp	P:t	0.000	2.237	8.668	8.952
NESC	Rule	250B	SWL	Suspension	SWLV	0.000	2.030	2.275	3.049
NESC	Rule	250B	SWR	Suspension	SWRV	0.000	2.030	2.275	3.049
NESC	Rule	250B	C1	Suspension	C1V	0.000	3.370	6.950	7.724
NESC	Rule	250B	C4	Suspension	C4V	0.000	3.370	6.950	7.724
NESC	Rule	250B	C2	Suspension	C2V	0.000	3.370	6.950	7.724
NESC	Rule	250B	C5	Suspension	C5V	0.000	3.370	6.950	7.724
NESC	Rule	250B	C3	Suspension	C3V	0.000	3.370	6.950	7.724
NESC	Rule	250B	C6	Suspension	C6V	0.000	3.370	6.950	7.724
NESC	Rule	250C	CX2	Clamp	P:CX2	0.000	0.332	0.281	0.435
NESC	Rule	250C	CX3	Clamp	P:CX3	0.000	0.332	0.281	0.435
NESC	Rule	250C	CX4	Clamp	P:CX4	0.000	0.332	0.281	0.435
NESC	Rule	250C	CX5	Clamp	P:CX5	0.000	0.332	0.281	0.435
NESC	Rule	250C	CX6	Clamp	P:CX6	0.000	0.332	0.281	0.435

NESC	Rule	250C	CX7	Clamp	P:CX7	0.000	0.332	0.281	0.435
NESC	Rule	250C	CX8	Clamp	P:CX8	0.000	0.332	0.281	0.435
NESC	Rule	250C	CX9	Clamp	P:CX9	0.000	0.332	0.281	0.435
NESC	Rule	250C	CX10	Clamp	P:CX10	0.000	0.332	0.281	0.435
NESC	Rule	250C	CX11	Clamp	P:CX11	0.000	0.332	0.281	0.435
NESC	Rule	250C	CX12	Clamp	P:CX12	0.000	0.332	0.281	0.435
NESC	Rule	250C	CX00	Clamp	P:CX00	0.000	0.332	0.281	0.435
NESC	Rule	250C	CX000	Clamp	P:t	0.000	8.450	4.419	9.536
NESC	Rule	250C	SWL	Suspension	SWLV	0.000	2.194	1.450	2.630
NESC	Rule	250C	SWR	Suspension	SWRV	0.000	2.194	1.450	2.630
NESC	Rule	250C	C1	Suspension	C1V	0.000	5.320	4.100	6.717
NESC	Rule	250C	C4	Suspension	C4V	0.000	5.320	4.100	6.717
NESC	Rule	250C	C2	Suspension	C2V	0.000	5.320	4.100	6.717
NESC	Rule	250C	C5	Suspension	C5V	0.000	5.320	4.100	6.717
NESC	Rule	250C	C3	Suspension	C3V	0.000	5.320	4.100	6.717
NESC	Rule	250C	C6	Suspension	C6V	0.000	5.320	4.100	6.717
NESC	Rule	250D	CX2	Clamp	P:CX2	0.000	0.080	0.956	0.959
NESC	Rule	250D	CX3	Clamp	P:CX3	0.000	0.080	0.956	0.959
NESC	Rule	250D	CX4	Clamp	P:CX4	0.000	0.080	0.956	0.959
NESC	Rule	250D	CX5	Clamp	P:CX5	0.000	0.080	0.956	0.959
NESC	Rule	250D	CX6	Clamp	P:CX6	0.000	0.080	0.956	0.959
NESC	Rule	250D	CX7	Clamp	P:CX7	0.000	0.080	0.956	0.959
NESC	Rule	250D	CX8	Clamp	P:CX8	0.000	0.080	0.956	0.959
NESC	Rule	250D	CX9	Clamp	P:CX9	0.000	0.080	0.956	0.959
NESC	Rule	250D	CX10	Clamp	P:CX10	0.000	0.080	0.956	0.959
NESC	Rule	250D	CX11	Clamp	P:CX11	0.000	0.080	0.956	0.959
NESC	Rule	250D	CX12	Clamp	P:CX12	0.000	0.080	0.956	0.959
NESC	Rule	250D	CX00	Clamp	P:CX00	0.000	0.080	0.956	0.959
NESC	Rule	250D	CX000	Clamp	P:t	0.000	1.896	6.586	6.853
NESC	Rule	250D	SWL	Suspension	SWLV	0.000	1.419	3.150	3.455
NESC	Rule	250D	SWR	Suspension	SWRV	0.000	1.419	3.150	3.455
NESC	Rule	250D	C1	Suspension	C1V	0.000	2.145	7.000	7.321
NESC	Rule	250D	C4	Suspension	C4V	0.000	2.145	7.000	7.321
NESC	Rule	250D	C2	Suspension	C2V	0.000	2.145	7.000	7.321
NESC	Rule	250D	C5	Suspension	C5V	0.000	2.145	7.000	7.321
NESC	Rule	250D	C3	Suspension	C3V	0.000	2.145	7.000	7.321
NESC	Rule	250D	C6	Suspension	C6V	0.000	2.145	7.000	7.321

Overturning Moments For User Input Concentrated Loads:

Moments are static equivalents based on central axis of 0,0 (i.e. a single pole).

Load Case			Total Tran. Load (kips)	Total Long. Load (kips)	Total Vert. Load (kips)	Transverse Overturning Moment (ft-k)	Longitudinal Overturning Moment (ft-k)	Torsional Moment (ft-k)
NESC	Rule	250B	27.945	0.000	67.338	2627.650	0.000	0.000
NESC	Rule	250C	48.744	0.000	35.291	4621.413	0.000	0.000
NESC	Rule	250D	18.563	0.000	66.358	1759.887	0.000	0.000

*** Weight of structure (lbs):

Weight of Tubular Davit Arms:	2104.8
Weight of Steel Poles:	28528.4
Weight of Suspensions:	1900.0
Total:	32533.3

*** End of Report

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Subject: Anchor Bolt Analysis Pole #19540

Location: Shelton, CT

Rev. 0: 7/13/23

Prepared by: T.J.L. Checked by: C.F.C.
Job No. 23016.02

Anchor Bolt Analysis:

Input Data:

Bolt Force:

Maximum Tensile Force = $T_{Max} := 153 \cdot kips$ (User Input from PLS-Pole)

Maximum Shear Force at Base = $V_{base} := 64 \cdot kips$ (User Input from PLS-Pole)

Anchor Bolt Data:

Use AST MA615 Grade 75

Number of Anchor Bolts = $N := 24$ (User Input)

Bolt "Column" Distance = $l := 3.0 \cdot in$ (User Input)

Bolt Ultimate Strength = $F_u := 100 \cdot ksi$ (User Input)

Bolt Yeild Strength= $F_y := 75 \cdot ksi$ (User Input)

Bolt Modulus = $E := 29000 \cdot ksi$ (User Input)

Diameter of Anchor Bolts = $D := 2.25 \cdot in$ (User Input)

Threads per Inch = $n := 4.5$ (User Input)

Anchor Bolt Analysis:

Stress Area of Bolt = $A_s := \frac{\pi}{4} \cdot \left(D - \frac{0.9743 \cdot in}{n}\right)^2 = 3.248 \cdot in^2$

Maximum Shear Force per Bolt = $V_{Max} := \frac{V_{base}}{N} = 2.7 \times 10^3 \, lbf$

Shear Stress per Bolt = $f_v := \frac{V_{Max}}{A_s} = 821.1 \, psi$

Tensile Stress Permitted = $F_t := 0.75 \cdot F_u = 75 \cdot ksi$

Shear Stress Permitted = $F_v := 0.35 F_u = 35 \cdot ksi$

Permitted Axial Tensile Stress in Conjuction with Shear = $F_{tv} := F_t \cdot \sqrt{1 - \left(\frac{f_v}{F_v}\right)^2} = 74.98 \cdot ksi$

Bolt Tension % of Capacity = $\frac{T_{Max}}{F_{tv} \cdot A_s} = 62.83 \cdot \%$

Condition1 = $Condition1 := if\left(\frac{T_{Max}}{F_{tv} \cdot A_s} \le 1.00, "OK", "Overstressed"\right)$

Condition1 = "OK"

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Subject:	Flange Bolts and Flangeplate Analysis
Location:	Structure 19540 Shelton, CT
Rev. 1: 8/9/23	Prepared by: T.J.L. Checked by: C.F.C. Job No. 23016.02

Flange Bolt and Flange Plate Analysis:

Input Data:

Flange @ 110-ft

Tower Reactions:

Overturning Moment =	OM := 94·ft·kips	(User Input)
Shear Force =	Shear := 10·kips	(User Input)
Axial Force =	Axial := 5.5·kips	(User Input)

Flange Bolt Data:

Use AST MA325

Number of Flange Bolts =	N := 20	(User Input)
Diameter of Bolt Circle =	D_{bc} := 39·in	(User Input)
Bolt Minimum Tensile Strength =	F_{ub} := 120·ksi	(User Input)
Bolt Modulus =	E := 29000·ksi	(User Input)
Diameter of Flange Bolts =	D := 1.00·in	(User Input)
Threads per Inch =	n := 8	(User Input)

Flange Plate Data:

Use AST MA871 Grade 65

Plate Yield Strength =	Fy_{bp} := 65·ksi	(User Input)
Flange Plate Thickness =	t_{bp} := 1.25·in	(User Input)
Flange Plate Diameter =	D_{bp} := 41.75·in	(User Input)
Outer Pole Diameter =	D_{pole} := 34.7·in	(User Input)

Geometric Layout Data:

Distance from Bolts to Centroid of Pole:

Radius of Bolt Circle =: $R_{bc} := \frac{D_{bc}}{2} = 19.5 \cdot in$

Distance to Bolts = $i := 1 .. N$

$d_i := \left| \theta \leftarrow 2 \cdot \pi \cdot \left(\frac{i}{N} \right) \right.$
$\left. d \leftarrow R_{bc} \cdot \sin(\theta) \right.$

$d_1 = 6.03 \cdot in$ $d_7 = 15.78 \cdot in$

$d_2 = 11.46 \cdot in$ $d_8 = 11.46 \cdot in$

$d_3 = 15.78 \cdot in$ $d_9 = 6.03 \cdot in$

$d_4 = 18.55 \cdot in$ $d_{10} = 0.00 \cdot in$

$d_5 = 19.50 \cdot in$ $d_{11} = -6.03 \cdot in$

$d_6 = 18.55 \cdot in$ $d_{12} = -11.46 \cdot in$

Critical Distances For Bending in Plate:

Outer Pole Radius = $R_{pole} := \frac{D_{pole}}{2} = 17.35 \cdot in$

Moment Arms of Bolts about Neutral Axis = $MA_i := if\left(d_i \geq R_{pole}, d_i - R_{pole}, 0in\right)$

$MA_1 = 0.00 \cdot in$ $MA_7 = 0.00 \cdot in$

$MA_2 = 0.00 \cdot in$ $MA_8 = 0.00 \cdot in$

$MA_3 = 0.00 \cdot in$ $MA_9 = 0.00 \cdot in$

$MA_4 = 1.20 \cdot in$ $MA_{10} = 0.00 \cdot in$

$MA_5 = 2.15 \cdot in$ $MA_{11} = 0.00 \cdot in$

$MA_6 = 1.20 \cdot in$ $MA_{12} = 0.00 \cdot in$

Effective Width of Flangeplate for Bending = $B_{eff} := .8 \cdot 2 \cdot \sqrt{\left(\frac{D_{bp}}{2}\right)^2 - \left(\frac{D_{pole}}{2}\right)^2} = 18.6 \cdot in$

Flange Bolt Analysis:

Calculated Flange Bolt Properties:

Polar Moment of Inertia = $I_p := \sum_i \left(d_i\right)^2 = 3.803 \times 10^3 \cdot in^2$

Gross Area of Bolt = $A_g := \frac{\pi}{4} \cdot D^2 = 0.785 \cdot in^2$

Net Area of Bolt = $A_n := \frac{\pi}{4} \cdot \left(D - \frac{0.9743 \cdot in}{n}\right)^2 = 0.606 \cdot in^2$

Check Flange Bolts:

Maximum Shear Stress = $V_{Max} := \frac{Shear}{N \cdot A_g} = 0.6 \cdot ksi$

Permitted Shear Stress = $F_v := \left(0.35 \cdot F_{ub}\right) = 42 \cdot ksi$

Condition1 = $Condition1 := if\left(V_{Max} \le F_v, "OK", "Overstressed"\right)$ $\frac{V_{Max}}{F_v} = 1.52 \cdot \%$

Condition1 = "OK"

Maximum Tensile Stress = $T_{Max} := \frac{\left(OM \cdot \frac{R_{bc}}{I_p} - \frac{Axial}{N}\right)}{A_n} = 9.1 \cdot ksi$

Permitted Tensile Stress = $F_t := \left(0.75 \cdot F_{ub}\right) = 90 \cdot ksi$

Condition2 = $Condition2 := if\left(\frac{T_{Max}}{F_t} \le 1.00, "OK", "Overstressed"\right)$ $\frac{T_{Max}}{F_t} = 10.11 \cdot \%$

Condition2 = "OK"

Permitted Tensile Stress with Shear = $F_{t.v} := F_t \cdot \sqrt{1 - \left(\frac{V_{Max}}{F_v}\right)^2} = 90 \cdot ksi$

Condition3 = $Condition3 := if\left(\frac{T_{Max}}{F_{t.v}} \le 1.00, "OK", "Overstressed"\right)$ $\frac{T_{Max}}{F_{t.v}} = 10.11 \cdot \%$

Condition3 = "OK"

Flange Plate Analysis:

Force from Bolts = $C_i := \frac{OM \cdot d_i}{I_p} + \frac{Axial}{N}$

$C_1 = 2.1 \cdot kips$ $C_7 = 5.0 \cdot kips$

$C_2 = 3.7 \cdot kips$ $C_8 = 3.7 \cdot kips$

$C_3 = 5.0 \cdot kips$ $C_9 = 2.1 \cdot kips$

$C_4 = 5.8 \cdot kips$ $C_{10} = 0.3 \cdot kips$

$C_5 = 6.1 \cdot kips$ $C_{11} = -1.5 \cdot kips$

$C_6 = 5.8 \cdot kips$ $C_{12} = -3.1 \cdot kips$

Maximum Bending Stress in Plate =

$$f_{bp} := \sum_i \frac{6 \cdot C_i \cdot MA_i}{\left(B_{eff} \cdot t_{bp}^2\right)} = 5.5 \cdot ksi$$

Allowable Bending Stress in Plate = $F_{bp} := 0.9 \cdot Fy_{bp} = 58.5 \cdot ksi$

Plate Bending Stress % of Capacity = $\frac{f_{bp}}{F_{bp}} = 9.5 \cdot \%$

Condition1 = $Condition1 := if\left(\frac{f_{bp}}{F_{bp}} < 1.00, "Ok", "Overstressed"\right)$

Condition1 = "Ok"

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Subject:	Flange Bolts and Flangeplate Analysis
Location:	Structure 19540 Shelton, CT
Rev. 1: 8/9/23	Prepared by: T.J.L. Checked by: C.F.C. Job No. 23016.02

Flange Bolt and Flange Plate Analysis:

Input Data:

Flange @ 69-ft

Tower Reactions:

Overturning Moment =	OM := 1515·ft·kips	(User Input)
Shear Force =	Shear := 53.5·kips	(User Input)
Axial Force =	Axial := 40.5·kips	(User Input)

Flange Bolt Data:

Use AST MA325

Number of Flange Bolts =	N := 44	(User Input)
Diameter of Bolt Circle =	D_{bc} := 49.5·in	(User Input)
Bolt Minimum Tensile Strength =	F_{ub} := 120·ksi	(User Input)
Bolt Modulus =	E := 29000·ksi	(User Input)
Diameter of Flange Bolts =	D := 1.00·in	(User Input)
Threads per Inch =	n := 8	(User Input)

Flange Plate Data:

Use AST MA588 Grade 50

Plate Yield Strength =	Fy_{bp} := 50·ksi	(User Input)
Flange Plate Thickness =	t_{bp} := 2.0·in	(User Input)
Flange Plate Diameter =	D_{bp} := 52.25·in	(User Input)
Outer Pole Diameter =	D_{pole} := 44.46·in	(User Input)

Geometric Layout Data:

Distance from Bolts to Centroid of Pole:

Radius of Bolt Circle =: $R_{bc} := \frac{D_{bc}}{2} = 24.75 \cdot in$

Distance to Bolts = $i := 1 .. N$

$d_i := \left\| \theta \leftarrow 2 \cdot \pi \cdot \left(\frac{i}{N} \right) \right.$
$\left. d \leftarrow R_{bc} \cdot \sin(\theta) \right.$

$d_1 = 3.52 \cdot in$ $d_7 = 20.82 \cdot in$
$d_2 = 6.97 \cdot in$ $d_8 = 22.51 \cdot in$
$d_3 = 10.28 \cdot in$ $d_9 = 23.75 \cdot in$
$d_4 = 13.38 \cdot in$ $d_{10} = 24.50 \cdot in$
$d_5 = 16.21 \cdot in$ $d_{11} = 24.75 \cdot in$
$d_6 = 18.70 \cdot in$ $d_{12} = 24.50 \cdot in$

Critical Distances For Bending in Plate:

Outer Pole Radius = $R_{pole} := \frac{D_{pole}}{2} = 22.23 \cdot in$

Moment Arms of Bolts about Neutral Axis = $MA_i := if\left(d_i \geq R_{pole}, d_i - R_{pole}, 0in\right)$

$MA_1 = 0.00 \cdot in$ $MA_7 = 0.00 \cdot in$
$MA_2 = 0.00 \cdot in$ $MA_8 = 0.28 \cdot in$
$MA_3 = 0.00 \cdot in$ $MA_9 = 1.52 \cdot in$
$MA_4 = 0.00 \cdot in$ $MA_{10} = 2.27 \cdot in$
$MA_5 = 0.00 \cdot in$ $MA_{11} = 2.52 \cdot in$
$MA_6 = 0.00 \cdot in$ $MA_{12} = 2.27 \cdot in$

Effective Width of Flangeplate for Bending = $B_{eff} := .8 \cdot 2 \cdot \sqrt{\left(\frac{D_{bp}}{2}\right)^2 - \left(\frac{D_{pole}}{2}\right)^2} = 22 \cdot in$

Flange Bolt Analysis:

Calculated Flange Bolt Properties:

Polar Moment of Inertia = $I_p := \sum_i \left(d_i\right)^2 = 1.348 \times 10^4 \cdot in^2$

Gross Area of Bolt = $A_g := \frac{\pi}{4} \cdot D^2 = 0.785 \cdot in^2$

Net Area of Bolt = $A_n := \frac{\pi}{4} \cdot \left(D - \frac{0.9743 \cdot in}{n}\right)^2 = 0.606 \cdot in^2$

Check Flange Bolts:

Maximum Shear Stress = $V_{Max} := \frac{Shear}{N \cdot A_g} = 1.5 \cdot ksi$

Permitted Shear Stress = $F_v := \left(0.35 \cdot F_{ub}\right) = 42 \cdot ksi$

Condition1 = $Condition1 := if\left(V_{Max} \le F_v, "OK", "Overstressed"\right)$ $\frac{V_{Max}}{F_v} = 3.69 \cdot \%$

Condition1 = "OK"

Maximum Tensile Stress = $T_{Max} := \frac{\left(OM \cdot \frac{R_{bc}}{I_p} - \frac{Axial}{N}\right)}{A_n} = 53.6 \cdot ksi$

Permitted Tensile Stress = $F_t := \left(0.75 \cdot F_{ub}\right) = 90 \cdot ksi$

Condition2 = $Condition2 := if\left(\frac{T_{Max}}{F_t} \le 1.00, "OK", "Overstressed"\right)$ $\frac{T_{Max}}{F_t} = 59.56 \cdot \%$

Condition2 = "OK"

Permitted Tensile Stress with Shear = $F_{t.v} := F_t \cdot \sqrt{1 - \left(\frac{V_{Max}}{F_v}\right)^2} = 89.9 \cdot ksi$

Condition3 = $Condition3 := if\left(\frac{T_{Max}}{F_{t.v}} \le 1.00, "OK", "Overstressed"\right)$ $\frac{T_{Max}}{F_{t.v}} = 59.60 \cdot \%$

Condition3 = "OK"

Flange Plate Analysis:

Force from Bolts = $C_i := \frac{OM \cdot d_i}{I_p} + \frac{Axial}{N}$

$C_1 = 5.7 \cdot kips$ $C_7 = 29.0 \cdot kips$

$C_2 = 10.3 \cdot kips$ $C_8 = 31.3 \cdot kips$

$C_3 = 14.8 \cdot kips$ $C_9 = 33.0 \cdot kips$

$C_4 = 19.0 \cdot kips$ $C_{10} = 34.0 \cdot kips$

$C_5 = 22.8 \cdot kips$ $C_{11} = 34.3 \cdot kips$

$C_6 = 26.2 \cdot kips$ $C_{12} = 34.0 \cdot kips$

Maximum Bending Stress in Plate =

$$f_{bp} := \sum_i \frac{6 \cdot C_i \cdot MA_i}{\left(B_{eff} \cdot t_{bp}^2\right)} = 24.5 \cdot ksi$$

Allowable Bending Stress in Plate = $F_{bp} := 0.9 \cdot Fy_{bp} = 45 \cdot ksi$

Plate Bending Stress % of Capacity = $\frac{f_{bp}}{F_{bp}} = 54.4 \cdot \%$

Condition1 = $Condition1 := if\left(\frac{f_{bp}}{F_{bp}} < 1.00, "Ok", "Overstressed"\right)$

Condition1 = "Ok"

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Subject:	Flange Bolts and Flangeplate Analysis
Location:	Structure 19540 Shelton, CT
Rev. 1: 8/9/23	Prepared by: T.J.L. Checked by: C.F.C. Job No. 23016.02

Flange Bolt and Flange Plate Analysis:

Input Data:

Flange @ 52-ft

Tower Reactions:

Overturning Moment =	OM := 2440·ft·kips	(User Input)
Shear Force =	Shear := 56·kips	(User Input)
Axial Force =	Axial := 45·kips	(User Input)

Flange Bolt Data:

Use AST MA325

Number of Flange Bolts =	N := 60	(User Input)
Diameter of Bolt Circle =	D_{bc} := 54.25·in	(User Input)
Bolt Minimum Tensile Strength =	F_{ub} := 120·ksi	(User Input)
Bolt Modulus =	E := 29000·ksi	(User Input)
Diameter of Flange Bolts =	D := 1·in	(User Input)
Threads per Inch =	n := 8	(User Input)

Flange Plate Data:

Use AST MA588 Grade 50

Plate Yield Strength =	Fy_{bp} := 50·ksi	(User Input)
Flange Plate Thickness =	t_{bp} := 2.5·in	(User Input)
Flange Plate Diameter =	D_{bp} := 57.0·in	(User Input)
Outer Pole Diameter =	D_{pole} := 48.63·in	(User Input)

Geometric Layout Data:

Distance from Bolts to Centroid of Pole:

Radius of Bolt Circle =: $R_{bc} := \frac{D_{bc}}{2} = 27.125 \cdot in$

Distance to Bolts = $i := 1 .. N$

$d_i := \left| \theta \leftarrow 2 \cdot \pi \cdot \left(\frac{i}{N} \right) \right.$
$\left. d \leftarrow R_{bc} \cdot \sin(\theta) \right.$

$d_1 = 3.52 \cdot in$ $d_9 = 23.75 \cdot in$
$d_2 = 5.64 \cdot in$ $d_{10} = 23.49 \cdot in$
$d_3 = 8.38 \cdot in$ $d_{11} = 24.78 \cdot in$
$d_4 = 11.03 \cdot in$ $d_{12} = 25.80 \cdot in$
$d_5 = 13.56 \cdot in$ $d_{13} = 26.53 \cdot in$
$d_6 = 15.94 \cdot in$ $d_{14} = 26.98 \cdot in$
$d_7 = 18.15 \cdot in$ $d_{15} = 27.13 \cdot in$
$d_8 = 20.16 \cdot in$

Critical Distances For Bending in Plate:

Outer Pole Radius = $R_{pole} := \frac{D_{pole}}{2} = 24.315 \cdot in$

Moment Arms of Bolts about Neutral Axis = $MA_i := if\left(d_i \geq R_{pole}, d_i - R_{pole}, 0in\right)$

$MA_1 = 0.00 \cdot in$ $MA_7 = 0.00 \cdot in$ $MA_{13} = 2.22 \cdot in$
$MA_2 = 0.00 \cdot in$ $MA_8 = 0.00 \cdot in$ $MA_{14} = 2.66 \cdot in$
$MA_3 = 0.00 \cdot in$ $MA_9 = 0.00 \cdot in$ $MA_{15} = 2.81 \cdot in$
$MA_4 = 0.00 \cdot in$ $MA_{10} = 0.00 \cdot in$
$MA_5 = 0.00 \cdot in$ $MA_{11} = 0.46 \cdot in$
$MA_6 = 0.00 \cdot in$ $MA_{12} = 1.48 \cdot in$

Effective Width of Flangeplate for Bending = $B_{eff} := .8 \cdot 2 \cdot \sqrt{\left(\frac{D_{bp}}{2}\right)^2 - \left(\frac{D_{pole}}{2}\right)^2} = 23.8 \cdot in$

Flange Bolt Analysis:

Calculated Flange Bolt Properties:

Polar Moment of Inertia = $I_p := \sum_i \left(d_i\right)^2 = 2.207 \times 10^4 \cdot in^2$

Gross Area of Bolt = $A_g := \frac{\pi}{4} \cdot D^2 = 0.785 \cdot in^2$

Net Area of Bolt = $A_n := \frac{\pi}{4} \cdot \left(D - \frac{0.9743 \cdot in}{n}\right)^2 = 0.606 \cdot in^2$

Check Flange Bolts:

Maximum Shear Stress = $V_{Max} := \frac{Shear}{N \cdot A_g} = 1.2 \cdot ksi$

Permitted Shear Stress = $F_v := \left(0.35 \cdot F_{ub}\right) = 42 \cdot ksi$

Condition1 = $Condition1 := if\left(V_{Max} \le F_v, "OK", "Overstressed"\right)$ $\frac{V_{Max}}{F_v} = 2.83 \cdot \%$

Condition1 = "OK"

Maximum Tensile Stress = $T_{Max} := \frac{\left(OM \cdot \frac{R_{bc}}{I_p} - \frac{Axial}{N}\right)}{A_n} = 58.2 \cdot ksi$

Permitted Tensile Stress = $F_t := \left(0.75 \cdot F_{ub}\right) = 90 \cdot ksi$

Condition2 = $Condition2 := if\left(\frac{T_{Max}}{F_t} \le 1.00, "OK", "Overstressed"\right)$ $\frac{T_{Max}}{F_t} = 64.62 \cdot \%$

Condition2 = "OK"

Permitted Tensile Stress with Shear = $F_{t.v} := F_t \cdot \sqrt{1 - \left(\frac{V_{Max}}{F_v}\right)^2} = 90 \cdot ksi$

Condition3 = $Condition3 := if\left(\frac{T_{Max}}{F_{t.v}} \le 1.00, "OK", "Overstressed"\right)$ $\frac{T_{Max}}{F_{t.v}} = 64.65 \cdot \%$

Condition3 = "OK"

Flange Plate Analysis:

Force from Bolts = $C_i := \frac{OM \cdot d_i}{I_p} + \frac{Axial}{N}$

$C_1 = 4.5 \cdot kips$ $C_7 = 24.8 \cdot kips$ $C_{13} = 35.9 \cdot kips$

$C_2 = 8.2 \cdot kips$ $C_8 = 27.5 \cdot kips$ $C_{14} = 36.5 \cdot kips$

$C_3 = 11.9 \cdot kips$ $C_9 = 29.9 \cdot kips$ $C_{15} = 36.7 \cdot kips$

$C_4 = 15.4 \cdot kips$ $C_{10} = 31.9 \cdot kips$

$C_5 = 18.7 \cdot kips$ $C_{11} = 33.6 \cdot kips$

$C_6 = 21.9 \cdot kips$ $C_{12} = 35.0 \cdot kips$

Maximum Bending Stress in Plate =

$$f_{bp} := \sum_i \frac{6 \cdot C_i \cdot MA_i}{\left(B_{eff} \, t_{bp}^{\,2}\right)} = 23.9 \cdot ksi$$

Allowable Bending Stress in Plate = $F_{bp} := 0.9 \cdot Fy_{bp} = 45 \cdot ksi$

Plate Bending Stress % of Capacity = $\frac{f_{bp}}{F_{bp}} = 53.1 \cdot \%$

Condition1 = $Condition1 := if\left(\frac{f_{bp}}{F_{bp}} < 1.00, "Ok", "Overstressed"\right)$

Condition1 = "Ok"

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Subject:	Baseplate Analysis
Location:	Shelton, CT
Rev. 0: 7/13/23	Prepared by: T.J.L. Checked by: C.F.C. Job No. 23016.02

Base Plate Analysis:

Input Data:

Tower Reactions:

Overturning Moment =	OM := 5532·ft·kips	(Input From tnxTower)
Shear Force =	Shear := 64·kips	(Input From tnxTower)
Axial Force =	Axial := 66·kips	(Input From tnxTower)

Anchor Bolt Data:

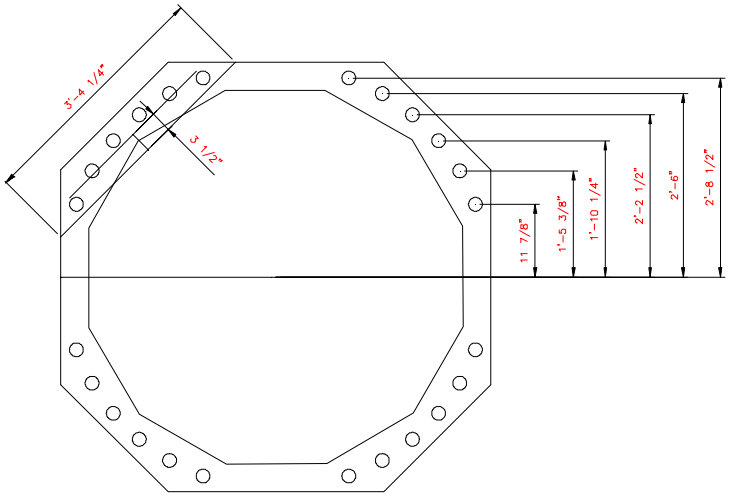
ASTMA615 Grade 75

Number of Anchor Bolts =	N := 24	(User Input)
Bolt Ultimate Strength =	F_u := 100·ksi	(User Input)
Bolt Yield Strength =	F_y := 75·ksi	(User Input)
Diameter of Anchor Bolts =	D := 2.25·in	(User Input)

Base Plate Data:

Use AST MA588 Grade 50

Plate Yield Strength =	Fy_{bp} := 50·ksi	(User Input)
Base Plate Thickness =	t_{bp} := 3.75·in	(User Input)
Base Plate Diameter =	D_{bp} := 70.125·in	(User Input)
Outer Pole Diameter =	D_{pole} := 61.25·in	(User Input)



Geometric Layout Data:

Distance from Bolts to Centroid of Pole:

$d_1 := 32.5in$ $d_2 := 30in$ $d_3 := 26.5in$ $d_4 := 22.25in$ $d_5 := 17.375in$ $d_6 := 11.875in$ (User Input)

Critical Distances For Bending in Plate: (User Input)

$ma_1 := 3.5in$

Effective Width of Baseplate for Bending = $B_{eff} := 40.25in$ (User Input)

Polar Moment of Inertia = $I_p := \left[(d_1)^2 \cdot 4 + (d_2)^2 \cdot 4 + (d_3)^2 \cdot 4 + (d_4)^2 \cdot 4 + (d_5)^2 \cdot 4 + (d_6)^2 \cdot 4\right] = 14385.9 \cdot in^2$

Base Plate Analysis:

Force from Bolts =

$$C_1 := \frac{OM \cdot d_1}{I_p} + \frac{Axial}{N} = 152.722 \cdot kips$$

$$C_2 := \frac{OM \cdot d_2}{I_p} + \frac{Axial}{N} = 141.186 \cdot kips$$

$$C_3 := \frac{OM \cdot d_3}{I_p} + \frac{Axial}{N} = 125.035 \cdot kips$$

$$C_4 := \frac{OM \cdot d_4}{I_p} + \frac{Axial}{N} = 105.423 \cdot kips$$

$$C_5 := \frac{OM \cdot d_5}{I_p} + \frac{Axial}{N} = 82.927 \cdot kips$$

$$C_6 := \frac{OM \cdot d_6}{I_p} + \frac{Axial}{N} = 57.548 \cdot kips$$

Applied Bending Stress in Plate =

$$f_{bp} := \frac{6 \cdot \left(C_1 \cdot ma_1 + C_2 \cdot ma_1 + C_3 \cdot ma_1 + C_4 \cdot ma_1 + C_5 \cdot ma_1 + C_6 \cdot ma_1\right)}{B_{eff} \, t_{bp}^2} = 24.67 \cdot ksi$$

Allowable Bending Stress in Plate = $F_{bp} := Fy_{bp} = 50 \cdot ksi$

Plate Bending Stress % of Capacity = $\frac{f_{bp}}{F_{bp}} = 49.3 \cdot \%$

Condition2= = $Condition1 := if\left(\frac{f_{bp}}{F_{bp}} < 1.00, "Ok", "Overstressed"\right)$

Condition1 = "Ok"

Section 1 - RFDS GENERAL INFORMATION

RFDS NAME:	CTL02044	DATE:	12/7/2021	RF DESIGN ENG:	Mohammad Minhaj Hussain	RF PERF ENG:	Folarin Ayo
ISSUE:	RRH Down	Approved? (Y/N):	Yes	RF DESIGN PHONE:	510-493-3024	RF PERF PHONE:	508-271-8354
REVISION:	Final	RF MANAGER:	John Benedetto	RF DESIGN EMAIL:	mh705r@att.com	RF PERF EMAIL:	sm4897@att.com
INITIATIVE PROJECT	C-Band , DoD and Multi Carrier SOW. Note: RRH Down Site, SOW need to be discussed.					ADDITIONAL WORKFLOW NOTIFICATIONS:	
						RFDS VERSION:	3.00
						UMTS FREQUENCY:	
						LTE FREQUENCY:	700,1900,AWS,WCS
						5G FREQUENCY:	850,1900,AWS,CBAND,DoD
						IPLAN JOB # 1:	ER_-RCTB-21-05086
						IPLAN JOB # 2:	ER_-RCTB-21-04330
						IPLAN JOB # 3:	ER_-RCTB-21-03398
						IPLAN JOB # 4:	ER_-RCTB-21-05173
						IPLAN JOB # 5:	ER_-RCTB-21-05084
						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:	2021 5G NR Radio		
RFDS TECHNOLOGY:	5G NR 1SR CBAND		
STATE/STATUS:	Final/Approved		
RFDS ID:	4767169		
Created By:	mh705r	Updated By:	mh705r
Created:	9/27/2021	Updated:	3/29/2022
Estimated SQIN:	13,794	Expiration:	
RER Initiative:		Calculation ID:	20220329172457498 1
PRD || SUB GRP #1	5G NR Radio || 5G NR 1SR CBand		
PRD || SUB GRP #2	Cell Site RF Modifications || BBU reconfiguration with new IDs		
PRD || SUB GRP #3	Cell Site RF Modifications || 5G NR Upgrade		
PRD || SUB GRP #4	5G NR Software Radio || 5G NR Activation		
PRD || SUB GRP #5	5G NR Radio || 5G NR 1SR CBand		
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:	60377	FA LOCATION CODE:	10035243	LOCATION NAME:	SHELTON NU PWR MT	ORACLE PRJT # 1:	2051A11LE3
REGION:	NORTHEAST	MARKET CLUSTER:	NEW ENGLAND	MARKET:	CONNECTICUT	ORACLE PRJT # 2:	2051A11LH1
ADDRESS:	17 DAYBREAK LANE	CITY:	SHELTON	STATE:	CT	ORACLE PRJT # 3:	2051A11LS7
ZIP CODE:	06484	COUNTY:	FAIRFIELD	LONG (DEC. DEG.):	-73.1183319	ORACLE PRJT # 4:	
LATITUDE (D-M-S):	41d 16m 21.072s	LONGITUDE (D-M-S):	-73d -7m -5.99484s	LAT (DEC. DEG.):	41.2725200	ORACLE PRJT # 5:	2051A11LE2
DIRECTIONS, ACCESS AND EQUIPMENT LOCATION:	2044 UPDATED 1719SHELTON NU PWR MT (RT8 NORTH) FOLLOW TO EXIT 12 GO RIGHT AT END OF RAMP TAKE YOUR FIRST RIGHT ONTO DAYBREAK LANE SITE LOCATED AT POWER LINE TOWERADDRESS: 17 DAYBREAK LANE SHELTON CT 06484ACCESS: GATE CODE 2500 24/7CONTACT: CROWN CASTLESECURITY: NONEPOWER COMPANY: UNITES ILLUMINATING (800) 7225584METER					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):	BRPTCT04CR0R05

PACE JOB #1:	MRCTB056087		
PACE JOB #2:	MRCTB055674		
PACE JOB #3:	MRCTB054839		
PACE JOB #4:	MRCTB053591		
PACE JOB #5:	MRCTB056282		
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):	05991		
RNC(UMTS):	BRIDGEPORT RNC05		
MME POOL ID(LTE):	FF01		

Section 3 - LICENSE COVERAGE/FILING INFORMATION

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

CGSA CALL SIGNS:

Section 4 - TOWER/REGULATORY INFORMATION

STRUCTURE AT&T OWNED?:	No	GROUND ELEVATION (ft):	0	STRUCTURE TYPE:	UTILITY
ADDITIONAL REGULATORY?:	No	HEIGHT OVERALL (ft):	0.00	FCC ASR NUMBER:	
SUB-LEASE RIGHTS?:	No	STRUCTURE HEIGHT (ft):	81.00		
LIGHTING TYPE:	NOT REQUIRED				

MARKET LOCATION 700 MHz Band:	
MARKET LOCATION 850 MHz Band:	On-Air
MARKET LOCATION 1900 MHz Band:	On-Air
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		0		
SECTOR B				INTRADO		0		
SECTOR C				INTRADO		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		0		
SECTOR B				INTRADO		0		
SECTOR C				INTRADO		0		
SECTOR D								
SECTOR E								
SECTOR F								
OMNI								

Section 6/7 - BBU INFORMATION - existing

	BBU 1	BBU 2	BBU 3	BBU 4	BBU 5
BBU ID:	262653	210606	362922	570285	824779
TECHNOLOGY:	UMTS	UMTS	LTE	LTE	5G
BBU NAME:	CTU2044	CTV2044	CTL02044	CTL06044R	CTCN002044
BBU USID:	60377	60377	60377	60377	60377
CELL ID / BCF:	CTV2044	CTV2044	CTL02044	CTL06044R	CTCN002044
BTA/TID:	321V	321U	321L	321L	321N
4-9 DIGIT SITE ID:	9044	2044	02044	06044	14002044
COW OR TOY?:	No	No	No	No	No
CELL SITE TYPE:	SECTORIZED	SECTORIZED	SECTORIZED	SECTORIZED	SECTORIZED
SITE TYPE:	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL
BTS LOCATION ID:	INTERNAL	INTERNAL	INTERNAL	INTERNAL	INTERNAL
BASE STATION TYPE:	BASE	BASE	BASE	BASE	BASE
EQUIPMENT NAME:	SHELTON - NU PWR MT	SHELTON NU PWR MT	SHELTON NU PWR MT	SHELTON NU PWR MT	SHELTON NU PWR MT
DISASTER PRIORITY:	0	0	3	3	3
EQUIPMENT VENDOR:	ERICSSON	ERICSSON	ERICSSON	ERICSSON	ERICSSON
EQUIPMENT TYPE (Model):			6601 RADIONODE 5216	6601 RADIONODE 5216	BASEBAND 6630
BASEBAND CONFIGURATION :					xxxxx / 1x6630 / xxxxx
MARKET STATE CODE:			CT	CT	CTC
NODE B NUMBER:	0	0	2044	6044	2044
SIDEHAUL SWITCH VENDOR:					
SIDEHAUL SWITCH MODEL:					
SIDEHAUL SWITCH NAME:					
CSS - CTS COMMON ID:	CTU2044	CTV2044	CTL02044	CTL06044R	CTCN002044
CSS - SECONDARY FUNCTION ID:					

Section 6/7 - BBU INFORMATION - final

	BBU 1	BBU 2	BBU 3
BBU ID:	362922	0	824779
TECHNOLOGY:	LTE	5G	LTE,5G
BBU NAME:	CTL02044	CTCN032044	CTL08044R,CTCN002044
BBU USID:	60377	60377	60377
CELL ID / BCF:	CTL02044	CTCN032044	CTCN002044
BTA/TID:	321L	321L	321N
4-9 DIGIT SITE ID:	02044	14032044	14002044
COW OR TOY?:	No	No	No
CELL SITE TYPE:	SECTORIZED	SECTORIZED	SECTORIZED
SITE TYPE:	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL
BTS LOCATION ID:	INTERNAL	INTERNAL	INTERNAL
BASE STATION TYPE:	BASE	OVERLAY	BASE
EQUIPMENT NAME:	SHELTON NU PWR MT	CTCN032044 Cband RBS	SHELTON NU PWR MT
DISASTER PRIORITY:	3	3	3
EQUIPMENT VENDOR:	ERICSSON	ERICSSON	ERICSSON
EQUIPMENT TYPE (Model):	6601 RADIONODE 5216	BASEBAND 6648	BASEBAND 6630
BASEBAND CONFIGURATION :	2x6601 / 1x5216 / 2xXMU03	xxxxx / 1x6648 / xxxxx	xxxxx / 1x6630 Mixed-Mode / xxxxx +
MARKET STATE CODE:	CT	CTC	CT,CTC
NODE B NUMBER:	2044	32044	8044,2044
SIDEHAUL SWITCH VENDOR:			
SIDEHAUL SWITCH MODEL:			
SIDEHAUL SWITCH NAME:		CLEAR	
CSS - CTS COMMON ID:	CTL02044		CTCN002044
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	BBU 4	BBU 5
CTS Common ID	CTU2044	CTV2044	CTL02044	CTL06044R	CTCN002044
Soft Sector IDs	CTU20444	CTV20441	CTL02044_2A_2	CTL06044_2A_2	CTCN002044_N005A_1
	CTU20445	CTV20442	CTL02044_2B_2	CTL06044_2B_2	CTCN002044_N005B_1
	CTU20446	CTV20443	CTL02044_2C_2	CTL06044_2C_2	CTCN002044_N005C_1
	CTU20447	CTV2044A	CTL02044_3A_1	CTL06044_3C_1	
	CTU2044B	CTV2044B	CTL02044_3B_1	CTL06044_7A_2_E	
	CTU20449	CTV2044C	CTL02044_3C_1	CTL06044_7A_3_F	
			CTL02044_7A_1	CTL06044_7B_2_E	
			CTL02044_7A_2_E	CTL06044_7B_3_F	
			CTL02044_7B_1	CTL06044_7C_1	
			CTL02044_7B_2_E	CTL06044_7C_2_E	
			CTL02044_7C_1	CTL06044_7C_3_F	
			CTL02044_7C_2_E	CTL06044_8A_1	
			CTL02044_8A_1	CTL06044_8B_1	
			CTL02044_8B_1	CTL06044_8C_1	
			CTL02044_8C_1	CTL06044_9A_1	
			CTL02044_9A_1	CTL06044_9A_2	
			CTL02044_9A_2	CTL06044_9B_1	
			CTL02044_9B_1	CTL06044_9B_2	
			CTL02044_9B_2	CTL06044_9C_1	
			CTL02044_9C_1	CTL06044_9C_2	
			CTL02044_9C_2		

Section 8 - RBS/SECTOR ASSOCIATION - final

	BBU 1	BBU 2	BBU 3
CTS Common ID	CTL02044	CTCN032044	CTL08044R,CTCN002044
Soft Sector IDs	CTL02044_3A_1	CTCN032044_N077A_1	CTCN002044_N002A_1
	CTL02044_3B_1	CTCN032044_N077A_2	CTCN002044_N002B_1
	CTL02044_3C_1	CTCN032044_N077B_1	CTCN002044_N002C_1
	CTL02044_7A_1	CTCN032044_N077B_2	CTCN002044_N005A_1
	CTL02044_7A_3_F	CTCN032044_N077C_1	CTCN002044_N005B_1
	CTL02044_7B_1	CTCN032044_N077C_2	CTCN002044_N005C_1
	CTL02044_7B_3_F		CTCN002044_N066A_1
	CTL02044_7C_1		CTCN002044_N066B_1
	CTL02044_7C_3_F		CTCN002044_N066C_1
			CTL08044_2A_2
			CTL08044_2B_2
			CTL08044_2C_2
			CTL08044_9A_1
			CTL08044_9A_2
			CTL08044_9B_1
			CTL08044_9B_2
			CTL08044_9C_1
			CTL08044_9C_2

Section 9 - SOFT SECTOR ID - existing (1 of 2)

	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 700	LTE 2ND 850	LTE 2ND 1900	LTE 2ND AWS	LTE 2ND WCS	LTE 3RD 700	LTE 3RD 1900	LTE 4TH 700	LTE 4TH 1900	LTE 4TH AWS	LTE 5TH 700	5G 1ST 850	5G 1ST 1900	5G 1ST AWS	5G 1ST CBAND
USEID (excluding Hard Sector)	60377.850.3G.1	60377.1900.3G.1	60377.850.3G.4	60377.1900.3G.2																				
SECTOR A SOFT SECTOR ID	CTV20441	CTU20447	CTV2044A	CTU20444	CTL02044_7A_1	CTL02044_8A_1	CTL06044_9A_1	CTL02044_2A_2	CTL02044_3A_1	CTL06044_7A_2_E	CTL06044_8A_1	CTL06044_9A_2	CTL06044_2A_2		CTL06044_7A_3_F	CTL02044_9A_1	CTL02044_7A_2_E	CTL02044_9A_2			CTCN002044_N005A_1			
SECTOR B	CTV20442	CTU20448	CTV2044B	CTU20445	CTL02044_7B_1	CTL02044_8B_1	CTL06044_9B_1	CTL02044_2B_2	CTL02044_3B_1	CTL06044_7B_2_E	CTL06044_8B_1	CTL06044_9B_2	CTL06044_2B_2		CTL06044_7B_3_F	CTL02044_9B_1	CTL02044_7B_2_E	CTL02044_9B_2			CTCN002044_N005B_1			
SECTOR C	CTV20443	CTU20449	CTV2044C	CTU20446	CTL02044_7C_1	CTL02044_8C_1	CTL06044_9C_1	CTL02044_2C_2	CTL02044_3C_1	CTL06044_7C_2_E	CTL06044_8C_1	CTL06044_9C_2	CTL06044_2C_2	CTL06044_3C_1	CTL06044_7C_3_F	CTL02044_9C_1	CTL02044_7C_2_E	CTL02044_9C_2		CTL06044_7C_1	CTCN002044_N005C_1			
SECTOR D																								
SECTOR E																								
SECTOR F																								
OMNI																								

Section 9 - SOFT SECTOR ID - existing (2 of 2)

	5G 2ND CBAND
USEID (excluding Hard Sector)	
SECTOR A SOFT SECTOR ID	
SECTOR B	
SECTOR C	
SECTOR D	
SECTOR E	
SECTOR F	
OMNI	

Section 9 - SOFT SECTOR ID - final (1 of 2)

	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 700	LTE 2ND 850	LTE 2ND 1900	LTE 2ND AWS	LTE 2ND WCS	LTE 3RD 700	LTE 3RD 1900	LTE 4TH 700	LTE 4TH 1900	LTE 4TH AWS	LTE 5TH 700	5G 1ST 850	5G 1ST 1900	5G 1ST AWS	5G 1ST CBAND
USEID (excluding Hard Sector)																								
SECTOR A SOFT SECTOR ID					CTL02044_7A_1		CTL08044_9A_1		CTL02044_3A_1									CTL08044_9A_2	CTL08044_2A_2	CTL02044_7A_3_F	CTCN002044_N005	CTCN002044_N002	CTCN002044_N066	CTCN032044_N077
SECTOR B					CTL02044_7B_1		CTL08044_9B_1		CTL02044_3B_1									CTL08044_9B_2	CTL08044_2B_2	CTL02044_7B_3_F	CTCN002044_N005	CTCN002044_N002	CTCN002044_N066	CTCN032044_N077
SECTOR C					CTL02044_7C_1		CTL08044_9C_1		CTL02044_3C_1									CTL08044_9C_2	CTL08044_2C_2	CTL02044_7C_3_F	CTCN002044_N005	CTCN002044_N002	CTCN002044_N066	CTCN032044_N077
SECTOR D																								
SECTOR E																								
SECTOR F																								
OMNI																								

Section 9 - SOFT SECTOR ID - final (2 of 2)

	5G 2ND CBAND

USEID (excluding Hard Sector)	
SECTOR A SOFT_SECTOR ID	CTCN032044_N077A_2
SECTOR B	CTCN032044_N077B_2
SECTOR C	CTCN032044_N077C_2
SECTOR D	
SECTOR E	
SECTOR F	
OMNI	

Section 9 - Cell Number - existing (1 of 2)

	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 700	LTE 2ND 850	LTE 2ND 1900	LTE 2ND AWS	LTE 2ND WCS	LTE 3RD 700	LTE 3RD 1900	LTE 4TH 700	LTE 4TH 1900	LTE 4TH AWS	LTE 5TH 700	5G 1ST 850	5G 1ST 1900	5G 1ST AWS	5G 1ST CBAND
USEID (excluding Hard Sector)	60377.850.3G.1	60377.1900.3G.1	60377.850.3G.4	60377.1900.3G.2																				
SECTOR A CELL NUMBER					15	1	8	192	149	185	1	178	192		171	8	185	178			25			
SECTOR B					16	2	9	193	150	186	2	179	193		172	9	186	179			49			
SECTOR C					17	3	10	194	151	187	3	180	194	151	173	10	187	180		17	73			
SECTOR D																								
SECTOR E																								
SECTOR F																								
OMNI																								

Section 9 - Cell Number - existing (2 of 2)

	5G 2ND CBAND
USEID (excluding Hard Sector)	
SECTOR A CELL NUMBER	
SECTOR B	
SECTOR C	
SECTOR D	
SECTOR E	
SECTOR F	
OMNI	

Section 9 - Cell Number - final (1 of 2)

	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 700	LTE 2ND 850	LTE 2ND 1900	LTE 2ND AWS	LTE 2ND WCS	LTE 3RD 700	LTE 3RD 1900	LTE 4TH 700	LTE 4TH 1900	LTE 4TH AWS	LTE 5TH 700	5G 1ST 850	5G 1ST 1900	5G 1ST AWS	5G 1ST CBAND
USEID (excluding Hard Sector)																								
SECTOR A CELL NUMBER					15		8		149									178	192	171	25	26	27	36
SECTOR B					16		9		150									179	193	172	49	50	51	60
SECTOR C					17		10		151									180	194	173	73	74	75	84
SECTOR D																								
SECTOR E																								
SECTOR F																								
OMNI																								

Section 9 - Cell Number - final (2 of 2)

	5G 2ND CBAND
USEID (excluding Hard Sector)	
SECTOR A CELL NUMBER	37
SECTOR B	61
SECTOR C	85
SECTOR D	
SECTOR E	
SECTOR F	
OMNI	

Section 10 - CID/SAC - existing (1 of 2)

	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 700	LTE 2ND 850	LTE 2ND 1900	LTE 2ND AWS	LTE 2ND WCS	LTE 3RD 700	LTE 3RD 1900	LTE 4TH 700	LTE 4TH 1900	LTE 4TH AWS	LTE 5TH 700	5G 1ST 850	5G 1ST 1900	5G 1ST AWS	5G 1ST CBAND
SECTOR A CID/SAC	20441	20447	60441	20444																				
SECTOR B	20442	20448	60442	20445																				
SECTOR C	20443	20449	60443	20446																				
SECTOR D																								
SECTOR E																								
SECTOR F																								
OMNI																								

Section 10 - CID/SAC - existing (2 of 2)

	5G 2ND CBAND
SECTOR A CID/SAC	
SECTOR B	
SECTOR C	
SECTOR D	
SECTOR E	
SECTOR F	
OMNI	

Section 10 - CID/SAC - final (1 of 2)

	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 700	LTE 2ND 850	LTE 2ND 1900	LTE 2ND AWS	LTE 2ND WCS	LTE 3RD 700	LTE 3RD 1900	LTE 4TH 700	LTE 4TH 1900	LTE 4TH AWS	LTE 5TH 700	5G 1ST 850	5G 1ST 1900	5G 1ST AWS	5G 1ST CBAND
SECTOR A CID/SAC																								
SECTOR B																								
SECTOR C																								
SECTOR D																								
SECTOR E																								
SECTOR F																								
OMNI																								

Section 10 - CID/SAC - final (2 of 2)

	5G 2ND CBAND
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		OPA-65R-LCUU-H6				HPA-65R-BUU-H6							
ANTENNA VENDOR	Powerwave		CCI Products				CCI Products							
ANTENNA SIZE (H x W x D)	55X11X5		72X14.8X7.4				72X14.8X9							
ANTENNA WEIGHT	35		73				51							
AZIMUTH	143		30				30							
MAGNETIC DECLINATION														
RADIATION CENTER (feet)	98		98				98							
ANTENNA TIP HEIGHT														
MECHANICAL DOWNTILT	0		0				0							
FEEDER AMOUNT	2		4				4							
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	7020		Built in				Built in						
SURGE ARRESTOR (QTY/MODEL)			4	TSXDC-4310FM			4	TSXDC-4310FM						
DIPLEXER (QTY/MODEL)	2	LGP21901	4	SPX-0726			2	DBC2055F1V1-2						
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)	1	860-10006												
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)	2	LGP21401	2	TMA2117F00V1-1			2	TMA2093F00V1-1						
CURRENT INJECTORS FOR TMA (QTY/MODEL)	2	1000860	2	1000860										
PDU FOR TMAS (QTY/MODEL)	1	LGP12104												
FILTER (QTY/MODEL)			1	WCS-IMFQ-AMT										
SQUID (QTY/MODEL)														
FIBER TRUNK (QTY/MODEL)														
DC TRUNK (QTY/MODEL)														
REPEATER (QTY/MODEL)														
RRH - 700 band (QTY/MODEL)			1	4449 B5/B12			1	4478 B14						
RRH - 850 band (QTY/MODEL)				with another band										
RRH - 1900 band (QTY/MODEL)							2	RRUS-12 B2						
RRH - AWS band (QTY/MODEL)			1	RRUS-32 B66A										
RRH - WCS band (QTY/MODEL)			1	RRUS-32 B30										
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)			2	782 10253				AISG Equipment						
Additional Component 2 (QTY/MODEL)			8	APTDC-BDFDM-DBW			4	APTDC-BDFDM-DBW						
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			CTV20441	CTV20441		UMTS 850	7770.00.850.06	13.5	143	6	None	7/8" - Andrew	141						234.96			
ANTENNA POSITION 2	PORT 1			CTL02044_8A_1	CTL02044_8A_1		LTE 850	H6_849MHz_02DT	14.6	30	2	Bottom	7/8 Andrew	141						1000			
	PORT 2			CTL02044_7A_1	CTL02044_7A_1		LTE 700	H6_719MHz_03DT	13.9	30	3	Bottom	7/8 Andrew	141						1475.7065			
	PORT 3			CTL02044_3A_1	CTL02044_3A_1		LTE WCS	H6_2350MHz_01DT	17.6	30	1	Bottom	7/8 Andrew	141						1285.2866			
	PORT 4			CTL06044_2A_2	CTL06044_2A_2		LTE AWS	H6_2133MHz_02DT	17.4	30	2	Bottom	7/8 Andrew	141						5070.2572			
	PORT 5			CTCN002044_N005A_1	CTCN002044_N005A_1		5G 850	H6_849MHz_02DT	14.6	30	2	Bottom	7/8 Andrew	141						1000			
ANTENNA POSITION 4	PORT 1			CTL06044_7A_3_F	CTL06044_7A_3_F		LTE 700	H6_719MHz_02DT	14.28	30	2	Bottom	7/8 Andrew	141						1475.7065			
	PORT 3			CTL06044_9A_1	CTL06044_9A_1		LTE 1900	H6_1930MHz_02DT	16.85	30	2	Bottom	7/8 Andrew	141						7328.7514			
	PORT 4			CTL06044_9A_2	CTL06044_9A_2		LTE 1900	H6_1930MHz_02DT	16.85	30	2	Bottom	7/8 Andrew	141						7328.7514			

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		OPA-65R-LCUU-H6				HPA-65R-BUU-H6							
ANTENNA VENDOR	Powerwave		CCI Products				CCI Products							
ANTENNA SIZE (H x W x D)	55X11X5		72X14.8X7.4				72X14.8X9							
ANTENNA WEIGHT	35		73				51							
AZIMUTH	263		150				150							
MAGNETIC DECLINATION														
RADIATION CENTER (feet)	98		98				98							
ANTENNA TIP HEIGHT														
MECHANICAL DOWNTILT	0		0				0							
FEEDER AMOUNT	2		4				4							
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	7020		Built in				Built in						
SURGE ARRESTOR (QTY/MODEL)			4	TSXDC-4310FM			4	TSXDC-4310FM						
DIPLEXER (QTY/MODEL)	2	LGP21901	4	SPX-0726			2	DBC2055F1V1-2						
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)														
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)	2	LGP21401	2	TMA2117F00V1-1			2	TMA2093F00V1-1						
CURRENT INJECTORS FOR TMA (QTY/MODEL)	2	1000860	2	1000860										
PDU FOR TMAS (QTY/MODEL)														
FILTER (QTY/MODEL)			1	WCS-IMFQ-AMT										
SQUID (QTY/MODEL)														
FIBER TRUNK (QTY/MODEL)														
DC TRUNK (QTY/MODEL)														
REPEATER (QTY/MODEL)														
RRH - 700 band (QTY/MODEL)			1	4449 B5/B12			1	4478 B14						
RRH - 850 band (QTY/MODEL)				with another band										
RRH - 1900 band (QTY/MODEL)							2	RRUS-12 B2						
RRH - AWS band (QTY/MODEL)			1	RRUS-32 B66A										
RRH - WCS band (QTY/MODEL)			1	RRUS-32 B30										
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)			2	782 10253				AISG Equipment						
Additional Component 2 (QTY/MODEL)			8	APTDC-BDFDM-DBW			4	APTDC-BDFDM-DBW						
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			CTV20442	CTV20442		UMTS 850	7770.00.850.05	13.5	263	5	None	7/8" - Andrew	141						234.96			
ANTENNA POSITION 2	PORT 1			CTL02044_8B_1	CTL02044_8B_1		LTE 850	H6_849MHz_02DT	14.6	150	2	Bottom	7/8 Andrew	141						1000			
	PORT 2			CTL02044_7B_1	CTL02044_7B_1		LTE 700	H6_719MHz_03DT	13.9	150	3	Bottom	7/8 Andrew	141						1475.7065			
	PORT 3			CTL02044_3B_1	CTL02044_3B_1		LTE WCS	H6_2350MHz_03DT	17.8	150	3	Bottom	7/8 Andrew	141						1285.2866			
	PORT 4			CTL06044_2B_2	CTL06044_2B_2		LTE AWS	H6_2133MHz_03DT	17.4	150	3	Bottom	7/8 Andrew	141						5070.2572			
	PORT 5			CTCN002044_N005B_1	CTCN002044_N005B_1		5G 850	H6_849MHz_02DT	14.6	150	2	Bottom	7/8 Andrew	141						1000			
ANTENNA POSITION 4	PORT 1			CTL06044_7B_3_F	CTL06044_7B_3_F		LTE 700	H6_719MHz_02DT	14.28	150	2	Bottom	7/8 Andrew	141						1475.7065			
	PORT 2			CTL06044_9B_1	CTL06044_9B_1		LTE 1900	H6_1930MHz_03DT	17	150	3	Bottom	7/8 Andrew	141						7328.7514			
	PORT 4			CTL06044_9B_2	CTL06044_9B_2		LTE 1900	H6_1930MHz_03DT	17	150	3	Bottom	7/8 Andrew	141						7328.7514			

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		OPA-65R-LCUU-H6				HPA-65R-BUU-H6							
ANTENNA VENDOR	Powerwave		CCI Products				CCI Products							
ANTENNA SIZE (H x W x D)	55X11X5		72X14.8X7.4				72X14.8X9							
ANTENNA WEIGHT	35		73				51							
AZIMUTH	23		270				270							
MAGNETIC DECLINATION														
RADIATION CENTER (feet)	98		98				98							
ANTENNA TIP HEIGHT														
MECHANICAL DOWNTILT	0		0				0							
FEEDER AMOUNT	2		4				4							
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	7020		Built in				Built in						
SURGE ARRESTOR (QTY/MODEL)			4	TSXDC-4310FM			4	TSXDC-4310FM						
DIPLEXER (QTY/MODEL)	2	LGP21901	4	SPX-0726			2	DBC2055F1V1-2						
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)														
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)	2	LGP21401	2	TMA2117F00V1-1			2	TMA2093F00V1-1						
CURRENT INJECTORS FOR TMA (QTY/MODEL)	2	1000860	2	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	4449 B5/B12			1	4478 B14						
RRH - 850 band (QTY/MODEL)				with another band										
RRH - 1900 band (QTY/MODEL)							2	RRUS-12 B2						
RRH - AWS band (QTY/MODEL)			1	RRUS-32 B66A										
RRH - WCS band (QTY/MODEL)			1	RRUS-32 B30										
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)			2	782 10253				AISG Equipment						
Additional Component 2 (QTY/MODEL)			8	APTDC-BDFDM-DBW			4	APTDC-BDFDM-DBW						
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			CTV20443	CTV20443		UMTS 850	7770.00.850.05	13.5	23	5	None	7/8" - Andrew	141						234.96			
ANTENNA POSITION 2	PORT 1			CTL02044_8C_1	CTL02044_8C_1		LTE 850	H6_849MHz_02DT	14.6	270	2	Bottom	7/8 Andrew	141						1000			
	PORT 2			CTL02044_7C_1	CTL02044_7C_1		LTE 700	H6_719MHz_03DT	13.9	270	3	Bottom	7/8 Andrew	141						1475.7065			
	PORT 3			CTL02044_3C_1	CTL02044_3C_1		LTE WCS	H6_2350MHz_03DT	17.8	270	3	Bottom	7/8 Andrew	141						1285.2866			
	PORT 4			CTL06044_2C_2	CTL06044_2C_2		LTE AWS	H6_2133MHz_02DT	17.4	270	2	Bottom	7/8 Andrew	141						5070.2572			
	PORT 5			CTCN002044_N005C_1	CTCN002044_N005C_1		5G 850	H6_849MHz_02DT	14.6	270	2	Bottom	7/8 Andrew	141						1000			
ANTENNA POSITION 4	PORT 1			CTL06044_7C_3_F	CTL06044_7C_3_F		LTE 700	H6_719MHz_02DT	14.28	270	2	Bottom	7/8 Andrew	141						1475.7065			
	PORT 3			CTL06044_9C_1	CTL06044_9C_1		LTE 1900	H6_1930MHz_02DT	16.85	270	2	Bottom	7/8 Andrew	141						7328.7514			
	PORT 4			CTL06044_9C_2	CTL06044_9C_2		LTE 1900	H6_1930MHz_02DT	16.85	270	2	Bottom	7/8 Andrew	141						7328.7514			

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		TPA65R-BU6DA-K	AIR6449 B77D+AIR6419 B77G STACKED	OPA65R-BU6DA			
ANTENNA VENDOR		CCI	Ericsson	CCI			
ANTENNA SIZE (H x W x D)		71.2X20X7.7	30.4X15.9X8.1	71.2X21X7.8			
ANTENNA WEIGHT		69	81.6	60.2			
AZIMUTH		30	30	30			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		98	98	98			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT		0	0	0			
FEEDER AMOUNT			Fiber				
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	Built in			
SURGE ARRESTOR (QTY/MODEL)				4 TSXDC-4310FM			
DIPLEXER (QTY/MODEL)		2 TBC0038F1V94-1					
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)		2 TMA2116F00V1-1					
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)			1 DC6-48-60-18				
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)							
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)				1 4415 B25			
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)			1 integrated within: AIR6449 B77D				
Additional RRH #2 - any band (QTY/MODEL)			1 integrated within: AIR6419 B77G				
RRH_7B_1 (QTY/MODEL)							
RRH_7B_2 (QTY/MODEL)							
RRH_7B_3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)				2 K SBT 782-11055			
Additional Component 2 (QTY/MODEL)		2 K SBT 782-11055		2 APTDC-BDFDM-DB			
Additional Component 3 (QTY/MODEL)		2 APTDC-BDFDM-DB					
Local Market Note 1	-Follow Antenna/RRHs positions as per PDs. -Replace Antennas and RRHs.						
Local Market Note 2							
Local Market Note 3	1x5216+2x0MU+1x6630+IDLe+1x6648+Xcede Cable						

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 1			CTL02044_7A_3_F	CTL02044_7A_3_F		LTE 700	H6_719MHz_02DT	14.28	30	2	Bottom	7/8 Andrew	141						1475.7065		3	
	PORT 3			CTL02044_3A_1	CTL02044_3A_1		LTE WCS	H6_2350MHz_01DT	17.6	30	1	Bottom	7/8 Andrew	141						1285.2866		4	
	PORT 4			CTL08044_2A_2	CTL08044_2A_2		LTE AWS	H6_2133MHz_02DT	17.4	30	2	Bottom	7/8 Andrew	141						5070.2572		4	
	PORT 7			#REF!	CTCN002044_N066A_1		5G AWS	H6_2133MHz_02DT	17.4	30	2	Bottom	7/8 Andrew	141						5070.2572		4	
ANTENNA POSITION 3	PORT 1						5G CBAND			30	0	Integrated	Fiber	0								5	
	PORT 2						5G CBAND			30	0	Integrated	Fiber	0								5	
ANTENNA POSITION 4	PORT 1			CTL02044_7A_1	CTL02044_7A_1		LTE 700	H6_719MHz_03DT	13.9	30	3	Bottom	7/8 Andrew	141						1475.7065		7	
	PORT 2			CTCN002044_N005A_1	CTCN002044_N005A_1		5G 850	H6_849MHz_02DT	14.6	30	2	Bottom	7/8 Andrew	141						1000		7	
	PORT 3			CTL08044_9A_1	CTL08044_9A_1		LTE 1900	H6_1930MHz_02DT	16.85	30	2	Bottom	7/8 Andrew	141						7328.7514		8	
	PORT 4			CTL08044_9A_2	CTL08044_9A_2		LTE 1900	H6_1930MHz_02DT	16.85	30	2	Bottom	7/8 Andrew	141						7328.7514		8	
	PORT 7			CTCN002044_N002A_1	CTCN002044_N002A_1		5G 1900	H6_1930MHz_02DT	16.85	30	2	Bottom	7/8 Andrew	141						7328.7514		8	

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		TPA65R-BU6DA-K	AIR6449 B77D+AIR6419 B77G STACKED	OPA65R-BU6DA			
ANTENNA VENDOR		CCI	Ericsson	CCI			
ANTENNA SIZE (H x W x D)		71.2X20X7.7	30.4X15.9X8.1	71.2X21X7.8			
ANTENNA WEIGHT		69	81.6	60.2			
AZIMUTH		150	150	150			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		98	98	98			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT		0	0	0			
FEEDER AMOUNT			Fiber				
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	Built in			
SURGE ARRESTOR (QTY/MODEL)				4 TSXDC-4310FM			
DIPLEXER (QTY/MODEL)		2 TBC0038F1V94-1					
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)		2 TMA2116F00V1-1					
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)							
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)				1 4415 B25			
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)			1 integrated within: AIR6449 B77D				
Additional RRH #2 - any band (QTY/MODEL)			1 integrated within: AIR6419 B77G				
RRH_7B_1 (QTY/MODEL)							
RRH_7B_2 (QTY/MODEL)							
RRH_7B_3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)				2 K SBT 782-11055			
Additional Component 2 (QTY/MODEL)		2 K SBT 782-11055		2 APTDC-BDFDM-DB			
Additional Component 3 (QTY/MODEL)		2 APTDC-BDFDM-DB					
Local Market Note 1	-Follow Antenna/RRHs positions as per PDs. -Replace Antennas and RRHs.						
Local Market Note 2							
Local Market Note 3	1x5216+2x0MU+1x6630+IDLe+1x6648+Xcede Cable						

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 1			CTL02044_7B_3_F	CTL02044_7B_3_F		LTE 700	H6_719MHz_02DT	14.28	150	2	Bottom	7/8 Andrew	141						1475.7065		11	
	PORT 3			CTL02044_3B_1	CTL02044_3B_1		LTE WCS	H6_2350MHz_03DT	17.8	150	3	Bottom	7/8 Andrew	141						1285.2866		12	
	PORT 4			CTL08044_2B_2	CTL08044_2B_2		LTE AWS	H6_2133MHz_03DT	17.4	150	3	Bottom	7/8 Andrew	141						5070.2572		12	
	PORT 7			#REF!	CTCN002044_N066B_1		5G AWS	H6_2133MHz_03DT	17.4	150	3	Bottom	7/8 Andrew	141						5070.2572		12	
ANTENNA POSITION 3	PORT 1						5G CBAND			150	0	Integrated	Fiber	0								13	
	PORT 2						5G CBAND			150	0	Integrated	Fiber	0								13	
ANTENNA POSITION 4	PORT 1			CTL02044_7B_1	CTL02044_7B_1		LTE 700	H6_719MHz_03DT	13.9	150	3	Bottom	7/8 Andrew	141						1475.7065		15	
	PORT 2			CTCN002044_N005B_1	CTCN002044_N005B_1		5G 850	H6_849MHz_02DT	14.6	150	2	Bottom	7/8 Andrew	141						1000		15	
	PORT 3			CTL08044_9B_1	CTL08044_9B_1		LTE 1900	H6_1930MHz_03DT	17	150	3	Bottom	7/8 Andrew	141						7328.7514		16	
	PORT 4			CTL08044_9B_2	CTL08044_9B_2		LTE 1900	H6_1930MHz_03DT	17	150	3	Bottom	7/8 Andrew	141						7328.7514		16	
	PORT 7			CTCN002044_N002B_1	CTCN002044_N002B_1		5G 1900	H6_1930MHz_03DT	17	150	3	Bottom	7/8 Andrew	141						7328.7514		16	

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		TPA65R-BU6DA-K	AIR6449 B77D+AIR6419 B77G STACKED	OPA65R-BU6DA			
ANTENNA VENDOR		CCI	Ericsson	CCI			
ANTENNA SIZE (H x W x D)		71.2X20X7.7	30.4X15.9X8.1	71.2X21X7.8			
ANTENNA WEIGHT		69	81.6	60.2			
AZIMUTH		270	270	270			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		98	98	98			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT		0	0	0			
FEEDER AMOUNT			Fiber				
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		Built in			
SURGE ARRESTOR (QTY/MODEL)			4	TSXDC-4310FM			
DIPLEXER (QTY/MODEL)	2	TBC0038F1V94-1					
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)	2	TMA2116F00V1-1					
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)							
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)				1 4415 B25			
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)			1 integrated within: AIR6449 B77D				
Additional RRH #2 - any band (QTY/MODEL)			1 integrated within: AIR6419 B77G				
RRH_7B_1 (QTY/MODEL)							
RRH_7B_2 (QTY/MODEL)							
RRH_7B_3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)			2	K SBT 782-11055			
Additional Component 2 (QTY/MODEL)	2 K SBT 782-11055		2 APTDC-BDFDM-DB				
Additional Component 3 (QTY/MODEL)	2 APTDC-BDFDM-DB						
Local Market Note 1	-Follow Antenna/RRHs positions as per PDs. -Replace Antennas and RRHs.						
Local Market Note 2							
Local Market Note 3	1x5216+2x0MU+1x6630+IDLe+1x6648+Xcede Cable						

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 1			CTL02044_7C_3_F	CTL02044_7C_3_F		LTE 700	H6_719MHz_02DT	14.28	270	2	Bottom	7/8 Andrew	141						1475.7065		19	
	PORT 3			CTL02044_3C_1	CTL02044_3C_1		LTE WCS	H6_2350MHz_03DT	17.8	270	3	Bottom	7/8 Andrew	141						1285.2866		20	
	PORT 4			CTL08044_2C_2	CTL08044_2C_2		LTE AWS	H6_2133MHz_02DT	17.4	270	2	Bottom	7/8 Andrew	141						5070.2572		20	
	PORT 7			#REF!	CTCN002044_N066C_1		5G AWS	H6_2133MHz_02DT	17.4	270	2	Bottom	7/8 Andrew	141						5070.2572		20	
ANTENNA POSITION 3	PORT 1						5G CBAND			270	0	Integrated	Fiber	0								21	
	PORT 2						5G CBAND			270	0	Integrated	Fiber	0								21	
ANTENNA POSITION 4	PORT 1			CTL02044_7C_1	CTL02044_7C_1		LTE 700	H6_719MHz_03DT	13.9	270	3	Bottom	7/8 Andrew	141						1475.7065		23	
	PORT 2			CTCN002044_N005C_1	CTCN002044_N005C_1		5G 850	H6_849MHz_02DT	14.6	270	2	Bottom	7/8 Andrew	141						1000		23	
	PORT 3			CTL08044_9C_1	CTL08044_9C_1		LTE 1900	H6_1930MHz_02DT	16.85	270	2	Bottom	7/8 Andrew	141						7328.7514		24	
	PORT 4			CTL08044_9C_2	CTL08044_9C_2		LTE 1900	H6_1930MHz_02DT	16.85	270	2	Bottom	7/8 Andrew	141						7328.7514		24	
	PORT 7			CTCN002044_N002C_1	CTCN002044_N002C_1		5G 1900	H6_1930MHz_02DT	16.85	270	2	Bottom	7/8 Andrew	141						7328.7514		24	

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		TPA65R-BU6DA-K	AIR6449 B77D+AIR6419 B77G STACKED	OPA65R-BU6DA			
ANTENNA VENDOR		CCI	Ericsson	CCI			
ANTENNA SIZE (H x W x D)		71.2X20X7.7	30.4X15.9X8.1	71.2X21X7.8			
ANTENNA WEIGHT		69	81.6	60.2			
AZIMUTH		30	30	30			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		98	98	98			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT		0	0	0			
FEEDER AMOUNT		4	Fiber	4			
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	Built in			
SURGE ARRESTOR (QTY/MODEL)		4 TSXDC-4310FM		8 TSXDC-4310FM			
DIPLEXER (QTY/MODEL)		2 TBC0038F1V94-1		2 DBC2055F1V1-2			
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)		2 TMA2116F00V1-1		2 TMA2117F00V1-1			
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)		1 WCS-IMFQ-AMT					
SQUID (QTY/MODEL)			1 DC6-48-60-18				
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)		1 4478 B14		1 4449 B5/B12			
RRH - 850 band (QTY/MODEL)				with another band			
RRH - 1900 band (QTY/MODEL)				1 4415 B25			
RRH - AWS band (QTY/MODEL)		1 RRUS-32 B66A					
RRH - WCS band (QTY/MODEL)		1 RRUS-32 B30					
Additional RRH #1 - any band (QTY/MODEL)			1 integrated within: AIR6449 B77D				
Additional RRH #2 - any band (QTY/MODEL)			1 integrated within: AIR6419 B77G				
RRH_7B_1 (QTY/MODEL)							
RRH_7B_2 (QTY/MODEL)							
RRH_7B_3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)		8 APTDC-BDFDM-DBW		2 K SBT 782-11055			
Additional Component 2 (QTY/MODEL)		2 K SBT 782-11055		2 APTDC-BDFDM-DB			
Additional Component 3 (QTY/MODEL)		2 APTDC-BDFDM-DB					
Local Market Note 1	-Follow Antenna/RRHs positions as per PDs. -Replace Antennas and RRHs.						
Local Market Note 2							
Local Market Note 3	1x5216+2x0MU+1x6630+IDLe+1x6648+Xcede Cable						

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 1	60377.A.700.4G.1.mp5		CTL02044_7A_3_F	CTL02044_7A_3_F		LTE 700	H6_719MHz_02DT	14.28	30	2	Bottom	7/8 Andrew	141						1475.7065		3	
	PORT 2	60377.A.WCS.4G.tmp1		CTL02044_3A_1	CTL02044_3A_1		LTE WCS	H6_2350MHz_01DT	17.6	30	1	Bottom	7/8 Andrew	141						1285.2866		4	
	PORT 4	60377.A.AWS.4G.tmp4		CTL08044_2A_2	CTL08044_2A_2		LTE AWS	H6_2133MHz_02DT	17.4	30	2	Bottom	7/8 Andrew	141						5070.2572		4	
	PORT 7	60377.A.AWS.5G.tmp1		CTCN002044_N066A_1	CTCN002044_N066A_1		5G AWS	H6_2133MHz_02DT	17.4	30	2	Bottom	7/8 Andrew	141						5070.2572		4	
ANTENNA POSITION 3	PORT 1	60377.A.CBAND.5G.tmp1		CTCN032044_N077A_1	CTCN032044_N077A_1		5G CBAND			30	0	Integrated	Fiber	0								5	
	PORT 2	60377.A.CBAND.5G.tmp2		CTCN032044_N077A_2	CTCN032044_N077A_2		5G CBAND			30	0	Integrated	Fiber	0								5	
ANTENNA POSITION 4	PORT 1	60377.A.700.4G.1		CTL02044_7A_1	CTL02044_7A_1		LTE 700	H6_719MHz_03DT	13.9	30	3	Bottom	7/8 Andrew	141						1475.7065		7	
	PORT 2	60377.A.850.5G.1		CTCN002044_N005A_1	CTCN002044_N005A_1		5G 850	H6_849MHz_02DT	14.6	30	2	Bottom	7/8 Andrew	141						1000		7	
	PORT 3	60377.A.1900.4G.tmp1		CTL08044_9A_1	CTL08044_9A_1		LTE 1900	H6_1930MHz_02DT	16.85	30	2	Bottom	7/8 Andrew	141						7328.7514		8	
	PORT 4	60377.A.1900.4G.tmp4		CTL08044_9A_2	CTL08044_9A_2		LTE 1900	H6_1930MHz_02DT	16.85	30	2	Bottom	7/8 Andrew	141						7328.7514		8	
	PORT 7	60377.A.1900.5G.tmp1		CTCN002044_N002A_1	CTCN002044_N002A_1		5G 1900	H6_1930MHz_02DT	16.85	30	2	Bottom	7/8 Andrew	141						7328.7514		8	

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		TPA65R-BU6DA-K	AIR6449 B77D+AIR6419 B77G STACKED	OPA65R-BU6DA			
ANTENNA VENDOR		CCI	Ericsson	CCI			
ANTENNA SIZE (H x W x D)		71.2X20X7.7	30.4X15.9X8.1	71.2X21X7.8			
ANTENNA WEIGHT		69	81.6	60.2			
AZIMUTH		150	150	150			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		98	98	98			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT		0	0	0			
FEEDER AMOUNT		4	Fiber	4			
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	Built in			
SURGE ARRESTOR (QTY/MODEL)		4 TSXDC-4310FM		8 TSXDC-4310FM			
DIPLEXER (QTY/MODEL)		2 TBC0038F1V94-1		2 DBC2055F1V1-2			
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)		2 TMA2116F00V1-1		2 TMA2117F00V1-1			
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)		1 WCS-IMFQ-AMT					
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)		1 4478 B14		1 4449 B5/B12			
RRH - 850 band (QTY/MODEL)				with another band			
RRH - 1900 band (QTY/MODEL)				1 4415 B25			
RRH - AWS band (QTY/MODEL)		1 RRUS-32 B66A					
RRH - WCS band (QTY/MODEL)		1 RRUS-32 B30					
Additional RRH #1 - any band (QTY/MODEL)			1 integrated within: AIR6449 B77D				
Additional RRH #2 - any band (QTY/MODEL)			1 integrated within: AIR6419 B77G				
RRH_7B_1 (QTY/MODEL)							
RRH_7B_2 (QTY/MODEL)							
RRH_7B_3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)		8 APTDC-BDFDM-DBW		2 K SBT 782-11055			
Additional Component 2 (QTY/MODEL)		2 K SBT 782-11055		2 APTDC-BDFDM-DB			
Additional Component 3 (QTY/MODEL)		2 APTDC-BDFDM-DB					
Local Market Note 1	-Follow Antenna/RRHs positions as per PDs. -Replace Antennas and RRHs.						
Local Market Note 2							
Local Market Note 3	1x5216+2x0MU+1x6630+IDLe+1x6648+Xcede Cable						

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 1	60377.B.700.4G.tmp5		CTL02044_7B_3_F	CTL02044_7B_3_F		LTE 700	H6_719MHz_02DT	14.28	150	2	Bottom	7/8 Andrew	141						1475.7065		11	
	PORT 3	60377.B.WCS.4G.tmp1		CTL02044_3B_1	CTL02044_3B_1		LTE WCS	H6_2350MHz_03DT	17.8	150	3	Bottom	7/8 Andrew	141						1285.2866		12	
	PORT 4	60377.B.AWS.4G.tmp4		CTL08044_2B_2	CTL08044_2B_2		LTE AWS	H6_2133MHz_03DT	17.4	150	3	Bottom	7/8 Andrew	141						5070.2572		12	
	PORT 7	60377.B.AWS.5G.tmp1		CTCN002044_N066B_1	CTCN002044_N066B_1		5G AWS	H6_2133MHz_03DT	17.4	150	3	Bottom	7/8 Andrew	141						5070.2572		12	
ANTENNA POSITION 3	PORT 1	60377.B.CBAND.5G.tmp1		CTCN032044_N077B_1	CTCN032044_N077B_1		5G CBAND			150	0	Integrated	Fiber	0								13	
	PORT 2	60377.B.CBAND.5G.tmp2		CTCN032044_N077B_2	CTCN032044_N077B_2		5G CBAND			150	0	Integrated	Fiber	0								13	
ANTENNA POSITION 4	PORT 1	60377.B.700.4G.tmp1		CTL02044_7B_1	CTL02044_7B_1		LTE 700	H6_719MHz_03DT	13.9	150	3	Bottom	7/8 Andrew	141						1475.7065		15	
	PORT 2	60377.B.850.5G.tmp2		CTCN002044_N005B_1	CTCN002044_N005B_1		5G 850	H6_849MHz_02DT	14.6	150	2	Bottom	7/8 Andrew	141						1000		15	
	PORT 3	60377.B.1900.4G.tmp1		CTL08044_9B_1	CTL08044_9B_1		LTE 1900	H6_1930MHz_03DT	17	150	3	Bottom	7/8 Andrew	141						7328.7514		16	
	PORT 4	60377.B.1900.4G.tmp4		CTL08044_9B_2	CTL08044_9B_2		LTE 1900	H6_1930MHz_03DT	17	150	3	Bottom	7/8 Andrew	141						7328.7514		16	
	PORT 7	60377.B.1900.5G.tmp1		CTCN002044_N002B_1	CTCN002044_N002B_1		5G 1900	H6_1930MHz_03DT	17	150	3	Bottom	7/8 Andrew	141						7328.7514		16	

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		TPA65R-BU6DA-K	AIR6449 B77D+AIR6419 B77G STACKED	OPA65R-BU6DA			
ANTENNA VENDOR		CCI	Ericsson	CCI			
ANTENNA SIZE (H x W x D)		71.2X20X7.7	30.4X15.9X8.1	71.2X21X7.8			
ANTENNA WEIGHT		69	81.6	60.2			
AZIMUTH		270	270	270			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		98	98	98			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT		0	0	0			
FEEDER AMOUNT		4	Fiber	4			
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	Built in			
SURGE ARRESTOR (QTY/MODEL)		4 TSXDC-4310FM		8 TSXDC-4310FM			
DIPLEXER (QTY/MODEL)		2 TBC0038F1V94-1		2 DBC2055F1V1-2			
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)		2 TMA2116F00V1-1		2 TMA2117F00V1-1			
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 4478 B14		1 4449 B5/B12			
RRH - 850 band (QTY/MODEL)				with another band			
RRH - 1900 band (QTY/MODEL)				1 4415 B25			
RRH - AWS band (QTY/MODEL)		1 RRUS-32 B66A					
RRH - WCS band (QTY/MODEL)		1 RRUS-32 B30					
Additional RRH #1 - any band (QTY/MODEL)			1 integrated within: AIR6449 B77D				
Additional RRH #2 - any band (QTY/MODEL)			1 integrated within: AIR6419 B77G				
RRH_7B_1 (QTY/MODEL)							
RRH_7B_2 (QTY/MODEL)							
RRH_7B_3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)		8 APTDC-BDFDM-DBW		2 K SBT 782-11055			
Additional Component 2 (QTY/MODEL)		2 K SBT 782-11055		2 APTDC-BDFDM-DB			
Additional Component 3 (QTY/MODEL)		2 APTDC-BDFDM-DB					
Local Market Note 1	-Follow Antenna/RRHs positions as per PDs. -Replace Antennas and RRHs.						
Local Market Note 2							
Local Market Note 3	1x5216+2x0MU+1x6630+IDLe+1x6648+Xcede Cable						

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 1	60377.C.700.4G.tmp5		CTL02044_7C_3_F	CTL02044_7C_3_F		LTE 700	H6_719MHz_02DT	14.28	270	2	Bottom	7/8 Andrew	141						1475.7065		19	
	PORT 3	60377.C.WCS.4G.tmp1		CTL02044_3C_1	CTL02044_3C_1		LTE WCS	H6_2350MHz_02DT	17.8	270	3	Bottom	7/8 Andrew	141						1285.2866		20	
	PORT 4	60377.C.AWS.4G.tmp4		CTL08044_2C_2	CTL08044_2C_2		LTE AWS	H6_2133MHz_02DT	17.4	270	2	Bottom	7/8 Andrew	141						5070.2572		20	
	PORT 7	60377.C.AWS.5G.tmp1		CTCN002044_N066C_1	CTCN002044_N066C_1		5G AWS	H6_2133MHz_02DT	17.4	270	2	Bottom	7/8 Andrew	141						5070.2572		20	
ANTENNA POSITION 3	PORT 1	60377.C.CBAND.5G.tmp1		CTCN032044_N077C_1	CTCN032044_N077C_1		5G CBAND			270	0	Integrated	Fiber	0								21	
	PORT 2	60377.C.CBAND.5G.tmp2		CTCN032044_N077C_2	CTCN032044_N077C_2		5G CBAND			270	0	Integrated	Fiber	0								21	
ANTENNA POSITION 4	PORT 1	60377.C.700.4G.1		CTL02044_7C_1	CTL02044_7C_1		LTE 700	H6_719MHz_03DT	13.9	270	3	Bottom	7/8 Andrew	141						1475.7065		23	
	PORT 2	60377.C.850.5G.3		CTCN002044_N005C_1	CTCN002044_N005C_1		5G 850	H6_849MHz_02DT	14.6	270	2	Bottom	7/8 Andrew	141						1000		23	
	PORT 3	60377.C.1900.4G.tmp1		CTL08044_9C_1	CTL08044_9C_1		LTE 1900	H6_1930MHz_02DT	16.85	270	2	Bottom	7/8 Andrew	141						7328.7514		24	
	PORT 4	60377.C.1900.4G.tmp4		CTL08044_9C_2	CTL08044_9C_2		LTE 1900	H6_1930MHz_02DT	16.85	270	2	Bottom	7/8 Andrew	141						7328.7514		24	
	PORT 7	60377.C.1900.5G.tmp1		CTCN002044_N002C_1	CTCN002044_N002C_1		5G 1900	H6_1930MHz_02DT	16.85	270	2	Bottom	7/8 Andrew	141						7328.7514		24	

Antennas

MultiPort Series

DATA SHEET

Multi-Band Twelve-Port Antenna

TPA65R-BU6D

- Six foot (1.8 m) multiband, twelve port antenna with a 65° azimuth beamwidth covering 698-896 MHz and 1695-2400 MHz frequencies
- Eight high band ports covering 1695-2400 MHz and four low band ports covering 698-896 MHz in a single antenna enclosure
- Innovative Low and High Band Array configuration allows for 4T4R (4x4 MIMO) on Low Band and Dual 4T4R (4x4 MIMO) High Band Arrays, using full length arrays (non stacked), all in a 20.7" (525 mm) width enclosure, an Industry First
- Full Spectrum Compliance for WCS and AWS-3 frequencies and Band 14 Operations
- Array configuration allows for 4T4R (4X4 MIMO) on Low Band, essential for Band 14 Operations
- LTE Optimized FBR and SPR performance, providing for an efficient use of valuable radio capacity
- LTE Optimized Boresight and Sector XPD and USL performance, essential for LTE Performance
- Exceeds minimum PIM performance requirements
- Equipped with new 4.3-10 connector, which is 40% smaller than traditional 7/16 DIN connector
- Ordering options for External RET Controllers (Type 1) or Internally Integrated RET Controllers (Type 17)

Overview

The CCI 12-Port multiband array is a twelve port antenna, with eight wide band ports covering 1695-2400 MHz and four low band ports covering 698-896 MHz. The antenna provides the capability to deploy Dual 4×4 Multiple-input Multiple-output (MIMO) in the high band and 4X4 Multiple-input Multiple-output (MIMO) across low band ports. The CCI 12-Port allows independent tilt control between the low band ports and high band ports and independent tilt control between left and right antenna arrays.

In this three RET configuration, the 1st RET is dedicated for the four Low Band ports. The 2nd RET is dedicated for the four Left High Band ports and the 3th RET is dedicated for the four Right High Band ports. This RET arrangement allows for complete flexibility in coverage control between left and right antenna arrays.

CCI antennas are designed and produced to ISO 9001 certification standards for reliability and quality in our state-of-the-art manufacturing facilities.

Applications

- Dual 4×4 MIMO for the High Band and 4X4 MIMO Low Band ports
- Ready for Network Standardization on 4.3-10 DIN connectors
- With CCI's multiband antennas, wireless providers can connect multiple platforms to a single antenna, reducing tower load, lease expense, deployment time and installation costs

SPECIFICATIONS

Multi-Band Twelve-Port Antenna

TPA65R-BU6D

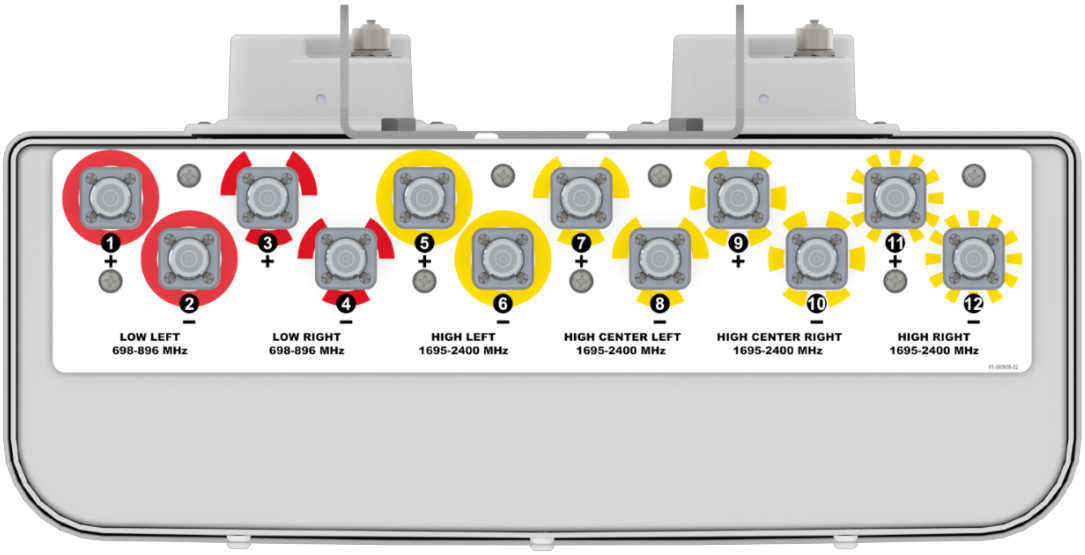
Mechanical

Dimensions (LxWxD)	71.2x20.7x7.7 in (1808x525x197 mm)
Survival Wind Speed	> 150 mph (> 241 kph)
Front Wind Load	325 lbs (1446 N) @ 100 mph (161 kph)
Side Wind Load	144 lbs (642 N) @ 100 mph (161 kph)
Equivalent Flat Plate Area	12.7 ft^2 (1.2 m^2)
Weight *	68.3 lbs (31.0 kg)
Packaging Dimensions (LxWxD)	81.4x25.2x13.9 in (2067x641x354 mm)
Packaged Weight ~	116.8 lbs (53.0 kg)
Connector	12 x 4.3-10 female
Mounting Pole	2 to 5 in (5 to 12 cm)

** Weight excludes mounting*

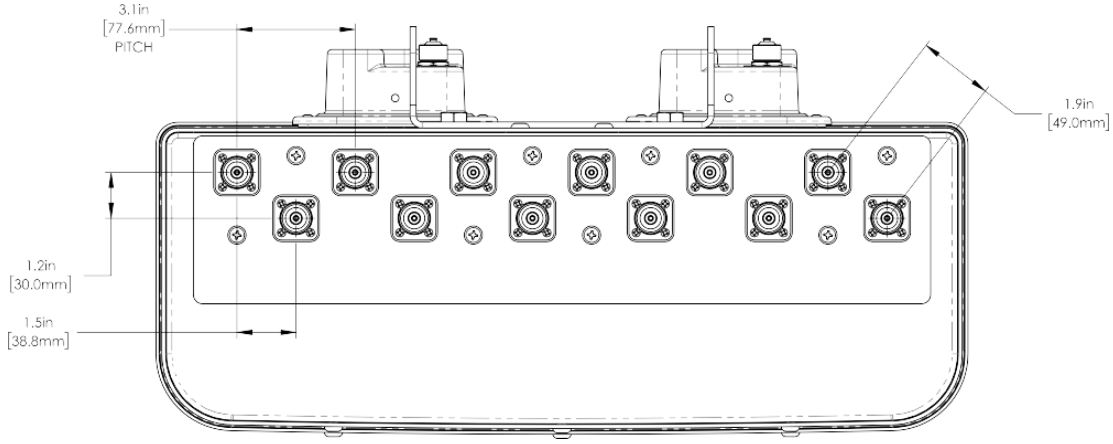
Bottom View

TPA65R-BU6DA



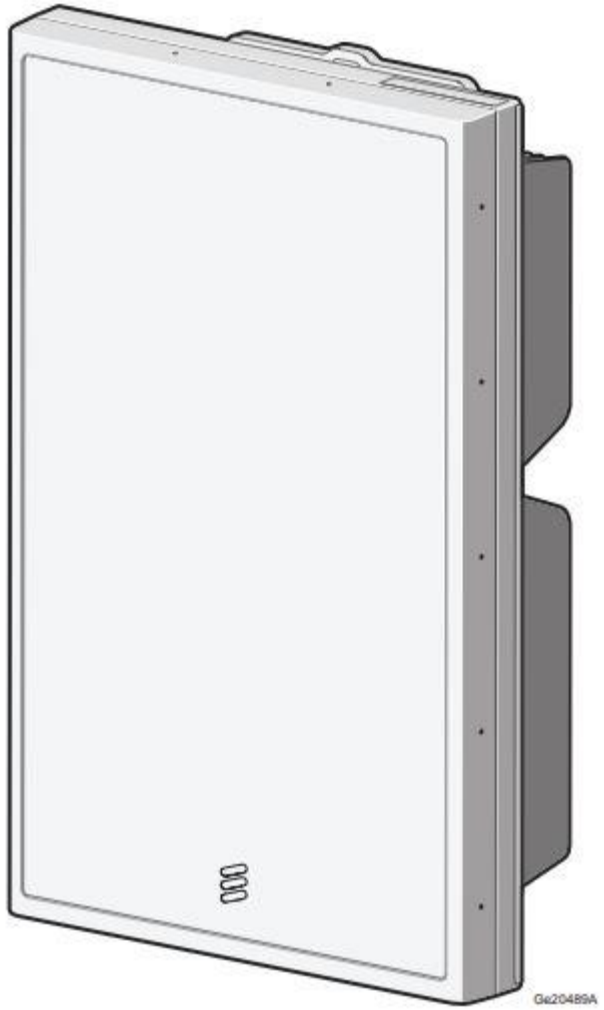
Connector Spacing

TPA65R-BU6DA



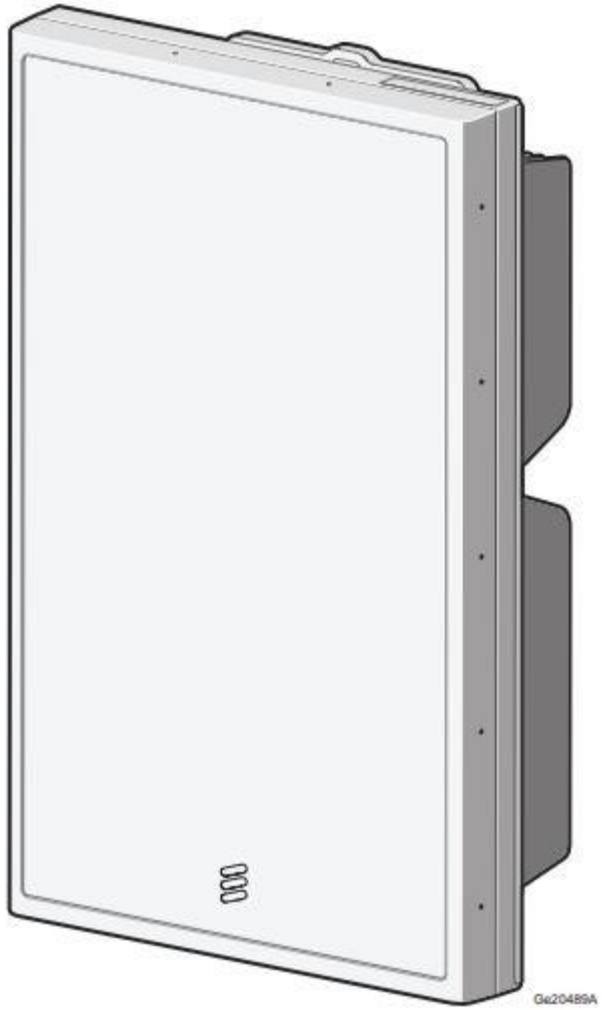
ERICSSON AIR 6419 B77G

- ERICSSON AIR 6419 has a total of 2 ECPRI connections @ 25.8 Gbps, 1 DC Power cable connection
- Operates over B77G DOD band (3.4-3.6 GHz)
- Breaker size = 45A DC, DC Power Consumption = 1280W (for dimensioning)
- Dimensions
  - Height: 31.1” (790 mm)
  - Width: 16.1” (408 mm)
  - Depth: 7.3” (186 mm)
- Weight, excl. mounting hardware = 44 lbs (20 kg)
- Weight with Mounting Hardware = 55.4 lbs (25.2 kg)
- Max Frontal Wind Load @ 42m/s = 454 N
- Horizontal Separation Required between AIR 6419 = 100mm
- Minimum Vertical Space Required below/above AIR 6419 = 300mm
- Minimum Height Above Users = 5m
- Outdoor Installation locations to avoid:
  - Hot microclimates caused by, for example, heat radiated or reflected from dark or metallic walls or floors
  - Chimney mouths or ventilation system outlets
  - In front of Large glass surfaces or concrete surfaces
- Avoid radio interference by keeping the area directly in front of the antenna clear of metal surfaces such as railing, ladders or chains or equipment generating electromagnetic fields, for example, electric motors in air conditioners or diesel generators in front of antenna
- Do not use metallic paint to cover the AIR 6419 If painting is required. Do not paint underside of AIR 6419.



ERICSSON AIR 6449 B77

- ERICSSON AIR 6449 has a total of 4 ECPRI connections @ 25 Gbps
- Operates over B77 band (3.3-4.2 GHz)
- Breaker size = 50A DC, DC Power Consumption = 1280W (for dimensioning)
- Dimensions
  - Height: 30.6” (778 mm)
  - Width: 15.9” (403 mm)
  - Depth: 10.6” (268 mm)
- Weight, excl. mounting hardware = 82.5 lbs (37.5 kg)
- Weight with Mounting Hardware = 95.5 lbs (43.4 kg)
- Max Frontal Wind Load @ 42m/s = 478 N
- Horizontal Separation Required between AIR 6449 = 100mm
- Minimum Vertical Space Required below AIR 6449 = 300mm
- Minimum Height Above Users = 5m
- Outdoor Installation locations to avoid:
  - Hot microclimates caused by, for example, heat radiated or reflected from dark or metallic walls or floors
  - Chimney mouths or ventilation system outlets
  - In front of Large glass surfaces or concrete surfaces
- Avoid radio interference by keeping the area directly in front of the antenna clear of metal surfaces such as railing, ladders or chains or equipment generating electromagnetic fields, for example, electric motors in air conditioners or diesel generators in front of antenna
- Do not use metallic paint to cover the AIR 6449 If painting is required. Do not paint underside of AIR 6449.



Antennas

MultiPort Series

DATA SHEET

Multi-Band Eight-Port Antenna

OPA65R-BU6D

- Six foot (1.8 m) multiband, eigth port antenna with a 65° azimuth beamwidth covering 698-896 MHz and 1695-2400 MHz frequencies
- Four high band ports covering 1695-2400 MHz and four low band ports covering 698-896 MHz in a single antenna enclosure
- Innovative Low and High Band Array configuration allows for 4T4R (4x4 MIMO) on Low Band and High Band Arrays, using full length arrays (non stacked), all in a 21.0" (534 mm) width enclosure, an Industry First
- Full Spectrum Compliance for WCS and AWS-3 frequencies and Band 14 Operations
- Array configuration allows for 4T4R (4X4 MIMO) on Low Band, essential for Band 14 Operations
- LTE Optimized FBR and SPR performance, providing for an efficient use of valuable radio capacity
- LTE Optimized Boresight and Sector XPD and USL performance, essential for LTE Performance
- Exceeds minimum PIM performance requirements
- Equipped with new 4.3-10 connector, which is 40% smaller than traditional 7/16 DIN connector
- Ordering options for External RET Controllers (Type 1) or Internally Integrated RET Controllers (Type 17)

Overview

The CCI Multi-Port multiband array is a eight port antenna, with four wide band ports covering 1695-2400 MHz and four low band ports covering 698-896 MHz. The antenna provides the capability to deploy 4x4 Multiple-input Multiple-output (MIMO) in the high band and 4X4 Multiple-input Multiple-output (MIMO) across low band ports. The CCI 8-Port allows independent tilt control between the low band ports and high band ports and independent tilt control between left and right antenna arrays.

CCI antennas are designed and produced to ISO 9001 certification standards for reliability and quality in our state-of-the-art manufacturing facilities.

Applications

- 4x4 MIMO for the High Band and 4X4 MIMO Low Band ports
- Ready for Network Standardization on 4.3-10 DIN connectors
- With CCI's multiband antennas, wireless providers can connect multiple platforms to a single antenna, reducing tower load, lease expense, deployment time and installation costs

SPECIFICATIONS

Multi-Band Eight-Port Antenna

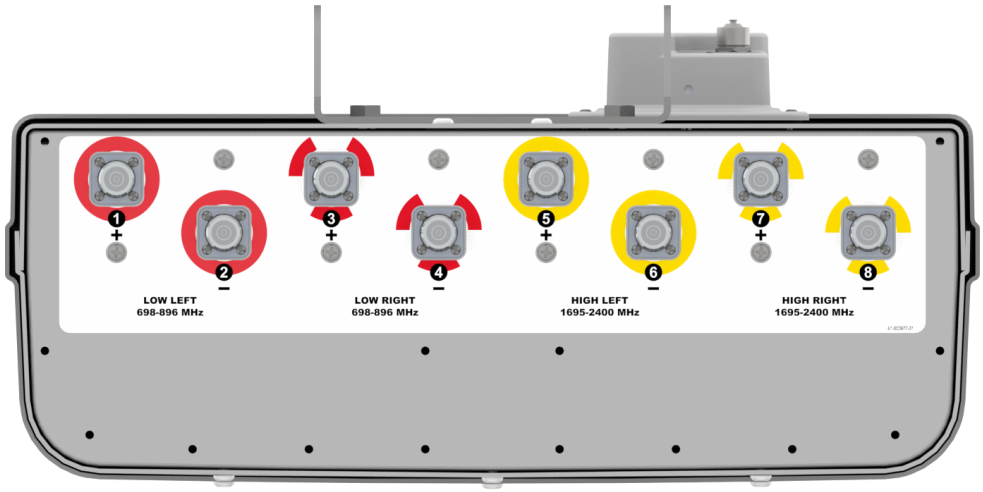
OPA65R-BU6D

Mechanical

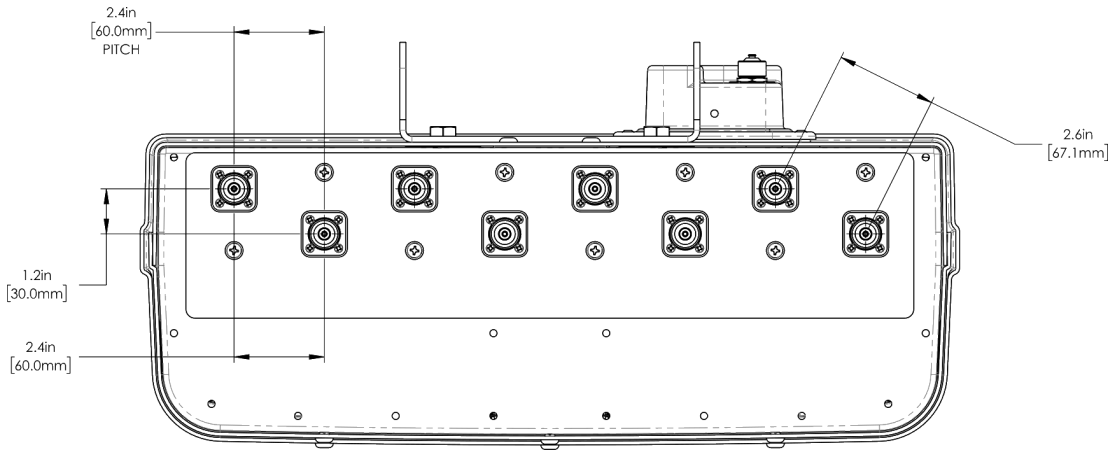
Dimensions (LxWxD)	71.2x21.0x7.8 in (1808x534x198 mm)
Survival Wind Speed	> 150 mph (> 241 kph)
Front Wind Load	330 lbs (1467 N) @ 100 mph (161 kph)
Side Wind Load	145 lbs (646 N) @ 100 mph (161 kph)
Equivalent Flat Plate Area	12.9 ft^2 (1.2 m^2)
Weight *	63.2 lbs (28.7 kg)
Connector	8 x 4.3-10 female
Mounting Pole	2 to 5 in (5 to 12 cm)

** Weight excludes mounting*

Bottom View



Connector Spacing



TMA2117F00V1-1

PCS / WCS Dual Band Twin TMA, with 700/850 bypass, AISG2.0

Designed to be deployed in co-located PCS & WCS systems with wideband antennas, the Kaelus TMA provides internal diplexing and gain in both bands while allowing 700/850 services to pass through to a separate antenna, thereby saving hardware costs.

PRODUCT FEATURES

- Improved base station sensitivity through gain in PCS and WCS bands
- Hardware and software configuration using AISG "Personality" upload
- High Linearity and low noise performance; Bypass provided for 700/850MHz services
- Fail safe bypass mode with lightning protection

TECHNICAL SPECIFICATIONS

Downlink Path, Band 1	PCS
Passband	1930 - 1990
Insertion Loss	0.5dB typ
Return Loss	18dB min
Max Average input power (W)	160
Max PEP Input Power (W)	2000
Intermodulation, 2 x 43dBm TX carriers (dBc)	-153dBc max
Uplink Path, Band 1	
Passband	1850 - 1910
Gain (dB)	3dB to 13dB in 1dB steps
Gain window	+/- 1dB max
Return Loss (Operating)	18dB min
Return Loss (Bypass)	12dB min
Noise Figure	1.4dB typ
Bypass Loss	2.5dB typ

Supply Current, alarm mode	320 +/- 30mA per port (programmable)

AISG MODE OF OPERATION (AUTO SELECTED ON VALID AISG 2.0 FRAMES)

AISG Version	2
AISG Supply Current	400mA @ 8.5V, 120mA @ 30V typical
AISG Connector	IEC60130-9, 8-pin female
AISG Connector Current rating	< 4A peak, 2A continuous, pin 6
Field firmware upgradable	Yes

ENVIRONMENTAL

Temperature range	-40ºC to +65ºC | -40º to +149ºF
Environmental sealing	IP67
Lightning protection	RF port: +/- 5kA max (8/20us), AISG port: +/- 2kA max (8/20us) IEC61312-1
MTBF	>1,000,000 hours
Compliance	EMC:EN301 489, Ingress ETSI EN 300 019 class 4.1, RoHS

MECHANICAL

Connectors	DIN 4.3-10 (F) x 8 long shank, AISG (F) x 1
Dimensions, H x D x W	216 x 300 x 107mm | 8.46 x 11.81 x 4.21in
Finish	Powder coated, light grey (RAL7035)
Weight	8 kg | 17.6lbs est
Mounting	Pole / wall bracket supplied with two metal clamps for 45-178 mm diameter poles

ELECTRICAL BLOCK DIAGRAM

TMA2116F00V1-1

TWIN TMA AWS/WCS, LOWPASS

Designed to be deployed in co-located AWS & WCS systems with wideband antennas, the Kaelus TMA provides internal diplexing and gain in both bands while allowing 700/850 services to pass through to a separate antenna, thereby saving hardware costs

FEATURES

- Improved base station sensitivity through gain in AWS and WCS bands
- High linearity and low noise performance; Bypass provided for 700/850MHz services
- Hardware and software configuration using AISG “Personality” upload
- Fail safe bypass mode with lightning protection

TECHNICAL SPECIFICATIONS

BAND NAME	AWS	WCS
DOWNLINK		
Passband	2110 - 2180MHz	2350 - 2360MHz
Insertion loss	0.4dB typical	0.5dB typical
Return loss	18dB minimum	
Maximum input power	160W (average) / 2kW (PEP)	120W (average) / 1.2kW (PEP)
UPLINK		
Passband	1710 - 1780MHz	2305 - 2315MHz
Gain	13dB	12dB
Variable gain	3dB to 13dB in 1dB steps (controlled by AISG commands)	2dB to 12dB in 1dB steps (controlled by AISG commands)
Gain variation	±1dB maximum	
Return loss	18dB minimum operating, 12dB in bypass	
Bypass return loss	18dB minimum typical, 14dB minimum guarantied	
Bypass loss	2.5dB typical	3.3dB typical
Noise figure	1.3dB typical	1.7dB typical
Output IP3	+30dBm typical	
Maximum input power with no damage	+12dBm maximum	
Rejection	27.5dB minimum@2324.54 - 2341.285MHz	
LOW BAND PATH		
Passband	698 - 896MHz	
Return loss	18dB minimum	
Insertion loss	0.35dB typical	
Maximum input power with no damage	200W (average) / 2kW (PEP)	
ELECTRICAL		
Impedance	50Ohms	
Intermodulation products	-153dBc maximum in RX band with 2 x 20 carriers	

POWER SUPPLY AND ALARM (CURRENT WINDOW ALARM MODE, DEFAULT)	
Current window alarm mode (CWA) is the default TMA operating mode and can be configured to specific customer requirements. The generic personality (F00V1) is configured so that both channels are independently powered and monitored via the respective BTS port. The BTS port sinks additional current to indicate an alarm state in its uplink path. Normal operating and alarm current values are configured independently via a field-loadable personality file, Please contact Kaelus for more information.	
DC supply voltage	8.5 to 30V DC, case is DC ground
DC supply	Each BTS powered individually (programmable)
DC supply current, normal mode	200 ± 20mA per port (programmable)
DC supply current, alarm mode	300 ± 30mA per port(programmable)

AISG MODE OF OPERATION (AUTO SELECTED ON VALID AISG 2.0 FRAMES)	
AISG signals can be applied to either BTS1 or BTS2 ports. The TMA2116FxxVx-1 unit switches to AISG mode when valid frames are detected on one of the BTS ports. Both LNAs take DC power from the port with AISG frames or, if DC is present on both ports, both channels supply equal power to the TMA2116FxxVx-1.	
DC supply voltage	+8.5V to +30V DC
AISG version	2.0 (1.1 optional)
Supply current, AISG mode	400mA @ 8.5V, 120mA @ 30V typical
AISG connector, current rating	IEC60130-9, 8-pin female ,< 4A peak, 2A continuous, pin 6
Field firmware upgradable	Yes

ENVIRONMENTAL	
For further details of environmental compliance, please contact Kaelus.	
Temperature range	-40ºC to +65ºC | -40°F to +149°F
Ingress protection	IP67
Lightning protection	IEC61312-1, RF: ±5kA maximum (8/20us), AISG: ±2kA maximum (8/20us)
MTBF	>1,000,000 hours
Compliance	FCC part 15, ETSI EN 300 019 class 4.1, RoHS

MECHANICAL	
Dimensions H x D x W	300 x 215x 123mm | 11.8 x 8.46 x 4.8in
Weight	11kg | 24lbs
Finish	Painted, light grey (RAL7035)
Connectors	4.3-10 (F) x 8 long shank, AISG (F) x 1
Mounting	Pole/wall bracket supplied with two metal clamps 45-178mm diameter poles

ORDERING INFORMATION

PART NUMBER	DESCRIPTION
TMA2116F00V1-1	TWIN TMA AWS/WCS, 698-896 LOWPASS, 6 ANT

DATA SHEET

DC Surge Protection Solutions

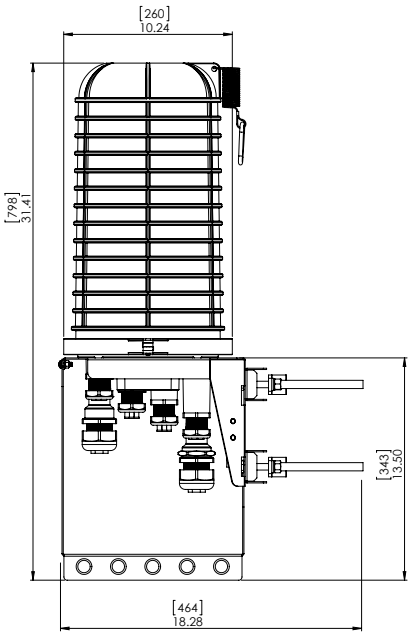
DC6-48-60-18-8C-EV

Overvoltage Protection and Fiber Distribution/Cable Management Solution

Rooftop / Towertop

The DC6-48-60-18-8C-EV is designed to provide the ultimate coordination between the SPD and the RRH/RRU by offering industry-leading low-clamping voltage of 160V and extremely robust protection for use in a high DC voltage environment. Capable of providing 12.5kA (10/350 µs) max per circuit surge capacity for up to 6 -48V DC circuits.

powered by **Strikesorb®**



Features

- Provides discrete protection for six individual -48V DC circuits
- Surge protection of 90kA 8/20 µs
- Maximum impulse current 12.5kA 10/350 µs
- Fiber connections for up to 18 fiber pair
- Simplifies inter-connectivity and cable management for DC conductors
- UL 1449 4th Edition Type 2 protective device
- IEC 61643-11 Class I protection for DC applications
- Form C relay contacts included, allowing remote monitoring of suppressor status
- Copper-coated lid to reduce power line interference
- Patented design
- Patented Strikesorb technology ensures lowest let-through voltage available in the industry, providing enhanced coordination with the RRH/RRU
- Raycap recommends that DC protection system be installed within 5 meters of the radio

Benefits

- Strikesorb modules are fully recognized to UL 1449 4th Edition, and IEC 61643-11 Safety Standards, meeting all intermediate and high current fault requirements to facilitate use in original equipment manufacturers (OEM) applications
- Strikesorb offers unique maintenance-free protection against direct lightning currents
- Design provides maximum flexibility for installation
- NEMA 4X enclosure allows for indoor or outdoor installation

G02-01-203 180122

Raycap

www.raycap.com

SPECIFICATIONS

DC Surge Protection Solutions

DC6-48-60-18-8C-EV

Overvoltage Protection and Fiber Distribution/Cable Management Solution

powered by **Strikesorb®**

Electrical

Model Number		DC6-48-60-18-8C-EV
CEQ / ANT Number		CEQ.18537
Number of Circuits Protected		6
Surge Protective Device (SPD) Type per UL 1449 4th Edition		Type 2
Surge Protection Class as per IEC 61643-11		Class I
Nominal Operating DC Voltage [U_n]		48 V
Nominal Discharge Current [I_n] per UL 1449 4th Edition		20 kA 8/20 µs
Maximum Surge Current [I_{max}] per IEC 61643-11		90 kA 8/20 µs
Maximum Impulse (Lightning) Current [I_{imp}] per IEC 61643-11		12.5 kA 10/350 µs
Maximum Continuous Operating DC Voltage [U_c] (MCOV)		60 VDC
Voltage Protection Level [U_p] per IEC 61643-11		160 V
Voltage Protection Rating (VPR) per UL 1449 4th Edition		330 V
Suppression Technology		MOV
Strikesorb Module Type 2CA (UL 1449 4th edition)		30-V1-EV
Protection Modes:	Normal Mode	-48V to Return
	Common Mode	Return to Ground

Mechanical

Connection Terminal (Alarm) Method		Form C Hardwired, #22 to #12 AWG [0.34 to 4 mm²]
Connection Terminal (Suppression) Method (for all power cables)		Compression lug 2 hole, #10, 5/8 pitch, #12 – #4 AWG [3.3 – 21.15 mm²]
Connection Terminal (Terminal Block) Method	Copper	#12 to #4 AWG [3.3 – 21.15 mm²]
Fiber Connection Method		LC-LC Single Mode
Environmental Ingress Protection (IP) Rating		IP 68
Operating Temperature (°C)		-40° C to +100° C
Storage Temperature (°C)		-70° C to +80° C
Cold Temperature Cycling IEC 61300-2-22		-30° C to +60° C 200 hrs @5 PSI
Resistance to Aggressive Materials CEI IEC 61073-2		Including Acids and Bases
UV Protection ISO 4892-2 Method A		Xenon-Arc 2160 hrs
Enclosure Type		Outdoor NEMA 4X
Enclosure Dimensions (L x W x H)		18.28" x 10.24" x 31.4" [464 x 260 x 797 mm]
Weight*		System: 16.0 lbs [7.25 kg] Mount: 10.2 lbs [4.62 kg] Total: 26.2 lbs [11.87 kg]
Combined Wind Loading	Sustained	150 mph Sustained: 105.7 lbs [470 N]
	Gust	195 mph Gust: 213.6 lbs [950 N]

Standards Compliance & Certifications

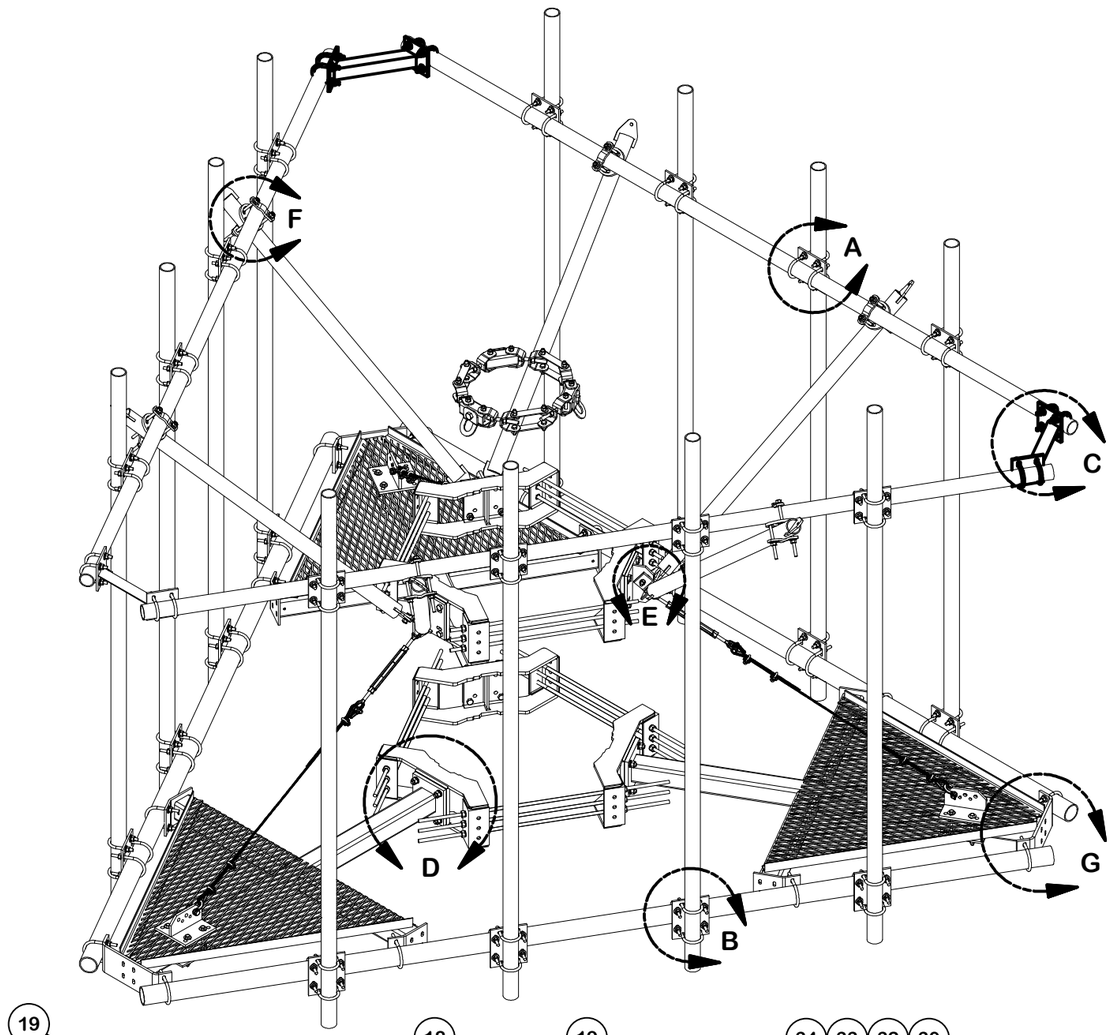
NEBS certified to: GR-63-CORE Issue 4, GR-1089-CORE Issue 6, GR-3108-CORE Issue 3, GR-487-CORE Issue 4, ATT-TP-76200 Issue 18

Strikesorb modules are compliant to the following Surge Protection Device Standards:

Standards: UL 1449 4th Edition: 2011, IEC 61643-11: 2011, EN 61643-11: 2012, IEEE C62.11: 2005, IEEE C62.41: 2002, IEEE C62.45: 2002, NEMA-LS-1

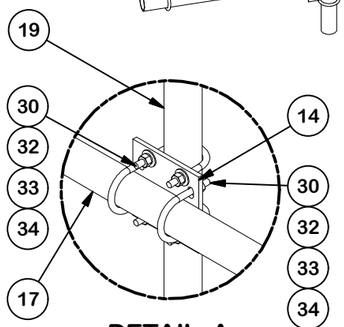
Certifications: UL, VDE, CE

AWG=American Wire Gauge

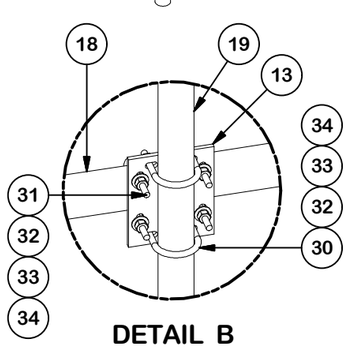


PARTS LIST

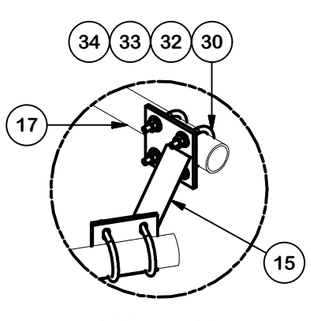
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	6	X-LWRM	RING MOUNT WELDMENT		68.81	412.85
2	3	X-SV196L	LONG PLATFORM WELDMENT		230.94	692.81
3	6	X-TBW	T-BRACKET WELDMENT		13.60	81.60
4	6	SHCM-T	CHAIN MOUNT TIGHTENER BRACKET	3 in	1.86	11.15
5	6	X-VSKL	LONG SUPPORT WELDMENT FOR VSK REINFORCEMENTS		37.05	222.33
6	6	X-127594	FLAT DISK CLAMP PLATE 4" CENTERS (GALV.)		2.51	15.04
7	12	X-100064	CLAMP (4" V-CLAMP) GALVANIZED		0.92	11.06
8	3	320751-I	1/2" CHAIN SHACKLE		0.76	2.29
9	3	320601-I	5/8" TURNBUCKLE		2.63	7.89
10	6	320777-I	5/16" THIMBLE		0.06	0.36
11	12	320152-I	5/16" WIRE ROPE CLIP		1.32	15.78
12	3	AC516-10	5/16" AIRECRAFT CABLE		1.25	3.76
13	15	SCX4	CROSSOVER PLATE	8 1/2 in	6.02	90.32
14	12	SCX2	CROSSOVER PLATE	7 in	4.80	57.56
15	3	X-AHCP	ANGLE HANDRAIL CORNER PLATE		12.92	38.76
17	3	P30174	2-7/8" O.D. x 174" SCH. 40 PIPE	174 in	84.20	252.59
18	3	P3174	3-1/2" X 174" SCH 40 GALVANIZED PIPE	174 in	109.97	329.90
19	12	P30120	2-7/8" x 120" (2-1/2" SCH. 40) GALVANIZED PIPE	120 in	58.07	696.79
20	18	G58R-48	5/8" x 48" THREADED ROD (HDG.)		4.18	75.27
20	18	G58R-24	5/8" x 24" THREADED ROD (HDG.)		2.09	37.63
21	12	A582114	5/8" x 2-1/4" HDG A325 HEX BOLT	2 1/4 in	0.31	3.75
22	12	A58234	5/8" x 2-3/4" HDG A325 HEX BOLT	2 3/4 in	0.36	4.27
23	12	A58FW	5/8" HDG A325 FLATWASHER		0.03	0.41
24	60	G58LW	5/8" HDG LOCKWASHER		0.03	1.57
25	60	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	7.79
26	6	G12112	1/2" x 1-1/2" HDG HEX BOLT GR5	1/2 in	0.15	0.89
27	3	G12212	1/2" x 2-1/2" HDG HEX BOLT GR5	2 1/2 in	0.20	0.61
28	12	G1204	1/2" x 4" HDG HEX BOLT GR5 FULL THREAD	4 in	0.27	3.24
29	24	G12065	1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD	5 1/2 in	0.41	9.83
30	84	X-UB1300	1/2" X 3" X 5" X 2" U-BOLT (HDG.)		0.67	56.19
31	36	X-UB1306	1/2" X 3-5/8" X 6" X 3" U-BOLT (HDG.)		0.83	29.82
32	288	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	9.82
33	285	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	3.96
34	285	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	20.41
35	1	HALO40	5,000 LB. MAINTENANCE TIE-OFF POINT		41.12	41.12
					TOTAL WT. #	3249.41



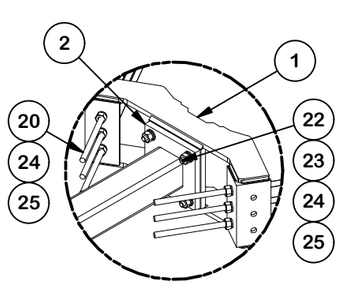
DETAIL A



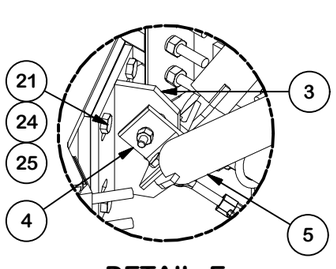
DETAIL B



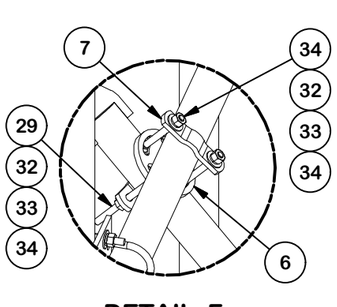
DETAIL C



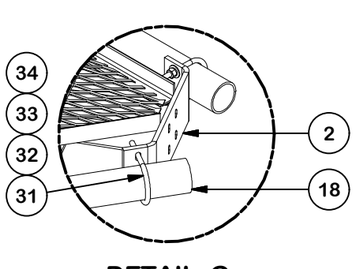
DETAIL D



DETAIL E



DETAIL F



DETAIL G

TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES (± 0.030")
DRILLED AND GAS CUT HOLES (± 0.030") - NO CONING OF HOLES
LASER CUT EDGES AND HOLES (± 0.010") - NO CONING OF HOLES
BENDS AND ANGLES ARE ± 1/2 DEGREE
ALL OTHER MACHINING (± 0.030")
ALL OTHER ASSEMBLY (± 0.060")

DESCRIPTION
14' 6" LOW PROFILE PLATFORM
WITH TWELVE 2-7/8" ANTENNA MOUTING
PIPES, REINFORCED HANDRAIL, AND CABLE

SITE PRO 1
A valmont COMPANY
Engineering Support Team: 1-888-753-7446
Locations:
New York, NY
Atlanta, GA
Los Angeles, CA
Plymouth, IN
Salem, OR
Dallas, TX
Tampa, FL

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
	CSL 10/17/2019	10/18/2019	RMQLP-4120-H10

CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
87	02	CUSTOMER	BMC 10/18/2019	RMQLP-4120-H10

SITE PRO 1
A valmont COMPANY
1545 Pidco Drive
Plymouth, IN 46563
Phone: 574.936.4221
Fax: 574.936.8925
Email: SP1Engineering@valmont.com
www.sitepro1.com

June 5, 2020

Site Pro 1 / Valmont Mounting System:

Part Number = RMQLP-4120-H10
Part Description = 14' Low Pro-Platform with Handrail System

Mount EPA (no antenna pipes, walkway included (0.67*EPA)):

EPA_N	= 42.20(28.15) sq-Ft	$EPA_{N\ (0.5"\ Ice)}$	= 51.14(34.10) sq-Ft	$EPA_{N\ (1"\ Ice)}$	= 60.14(40.10) sq-Ft
EPA_T	= 39.62(26.41) sq-Ft	$EPA_{T\ (0.5"\ Ice)}$	= 48.52(32.35) sq-Ft	$EPA_{T(1"\ Ice)}$	= 57.81(38.54) sq-Ft
Weight	= 3265 lb	$Weight_{(0.5"\ Ice)}$	=3657 lb	$Weight_{(1"\ Ice)}$	= 4180 lb

Classification Rating:

Heavy 10

Design Standards

ANSI/TIA-222-G-2012
ANSI/TIA-222-H-2018
ASCE 7-16
ATT-002-291-373
International Building Code 2018
TIA-5053

Analysis and Modeling Technique

An elastic, three-dimensional, frame, truss model was developed to examine the structural behavior of the mount. All orientations in the engineering model correspond with the assembly drawing constraints. The mount was analyzed with twelve (12) mounting locations (antenna, mount pipe, radio, dish, and any other appurtenance) evenly spaced across the face of the mount, with a zero inch (0) vertical eccentricity on the mast pipe. Wind directions considered were perpendicular (normal) to the face of the frame and at 30 degree increments up to 90 degrees (tangential) to the face of the frame. Wind, dead weight and ice weight on the mount was also included in the model.

Modeling Software

Autodesk Inventor
RISA-3D

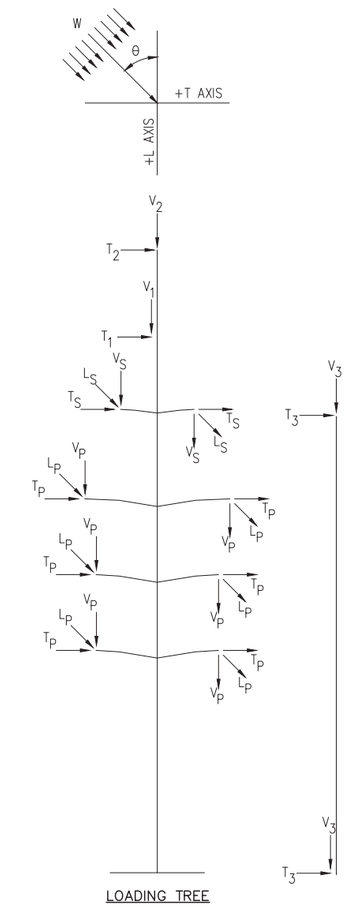
LOAD TABLE 8: 115kV TANGENT
115–kV CONDUCTOR: 1–1590 ACSS FALCON CONDUCTOR
SHIELD WIRE: 1–96 FIBER OPGW 16.4MM
RULING SPAN: 500–900FT.
WIND SPAN: 700FT.
WEIGHT SPAN (SW ICED, SW UNICED, COND ICED, COND UNICED): 900FT, 900FT, 900FT, 900FT.
TENSION LIMIT (SW, COND): 6750LBS, 14100LBS @ NESC B Creep.
LINE ANGLE: 0°–2°.

LOADING CASE										DESIGN LOADS													
DESCRIPTION		Wind (mph)	Wind (psf)	Structure Wind (mph)	Structure Wind (psf)	θ	Ice	Temp	I/C	VS (k)	TS (k)	LS (k)	VP (k)	TP (k)	LP (k)	T1 (k)	V1 (k)	T2 (k)	V2 (k)	T3 (k)	V3 (k)	W (PSF)	K
1	NESC Rule 250B	39.5	4.0	39.5	4.0	90.0	0.5	0.0	C	1.7	1.4	0.0	5.1	2.3	0.0	6.0	2.0	6.0	2.0	0.2	2.1	10.0	1.5
2	NESC Rule 250C (115–165)	113.5	33.0	121.8	38.0	90.0	0.0	60.0	C	0.5	1.5	0.0	2.1	3.5	0.0	2.9	8.1	2.9	8.1	0.5	0.5	38.0	1.0
3	NESC Rule 250C (w/o wires) (115–165)	0.0	0.0	121.8	38.0	90.0	0.0	60.0	C	0.1	0.0	0.0	0.3	0.0	0.0	2.9	8.1	2.9	8.1	0.5	0.5	38.0	1.0
4	NESC Rule 250D	40.0	4.1	40.0	4.1	90.0	1.0	15.0	C	2.3	1.0	0.0	5.1	1.5	0.0	4.5	2.2	4.5	2.2	0.1	2.0	4.1	1.0
5	Deflection	0.0	0.0	0.0	0.0	90.0	0.0	60.0	C	0.5	0.1	0.0	2.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
6	Broken Wire	39.5	4.0	39.5	4.0	90.0	0.5	0.0	C	1.7	1.2	−11.1	5.0	1.9	−23.2	6.0	2.0	6.0	2.0	0.2	2.1	10.0	1.5

STRUCTURES IN LOAD GROUP: 19539.

NOTES:

1. ALL INDICATED LOADS ARE ULTIMATE AND INCLUDE ALL OVERLOAD FACTORS.
2. V, T & L ARE IN KIPS AND ARE THE LOADS IN THE DIRECTION OF THE STRUCTURES VERTICAL, TRANSVERSE, AND LONGITUDINAL AXIS RESPECTIVELY.
3. W IS THE DESIGN WIND PRESSURE TO APPLY TO THE STRUCTURE. A SHAPE FACTOR OF 1.6 SHALL BE APPLIED TO MEMBERS WITH FEWER THAN 8 SIDES. FOR MEMBERS WITH SIDES 8 TO 12 SIDES, A SHAPE FACTOR OF 1.3 SHALL BE APPLIED. FOR MEMBERS WITH MORE THAN 12 SIDES, A SHAPE FACTOR OF 1.0 SHALL BE APPLIED.
4. APPLY ALL TRANSVERSE LOADS IN BOTH THE NEGATIVE AND POSITIVE TRANSVERSE DIRECTION.
5. THETA IS THE ANGLE IN DEGREES BETWEEN THE L–AXIS AND THE WIND DIRECTION AS SHOWN ON THE LOADING TREE DIAGRAM.
6. THE DEAD LOAD OF THE STRUCTURE SHALL BE MULTIPLIED BY K.
7. STRUCTURE SHALL BE DESIGNED FOR THE FOLLOWING CRITERIA OPTIONS:
   A. ALL CONDUCTORS AND GROUND WIRES INSTALLED UNDER ALL LOAD CASES EXCEPT LOAD CASE 3.
   B. APPLY LOAD CASE 6 TO ONE SHIELD WIRE ATTACHMENT OR ONE CONDUCTOR ATTACHMENT IN ONE DIRECTION WITH LOAD CASE 1 APPLIED TO ALL OTHER ATTACHMENTS. DO THIS FOR EVERY SHIELD WIRE AND CONDUCTOR.
   C. DOUBLE CIRCUIT STRUCTURES WILL BE DESIGNED FOR ONE CIRCUIT INSTALLATION WITH TWO SHIELD WIRES FOR THE FOLLOWING LOAD CASES: L1, L2, L4, L5, L6
8. STRUCTURES SHALL BE FABRICATED FROM WEATHERING STEEL
9. STRUCTURES SHALL BE DESIGNED FOR ECCENTRIC MOMENT LOADING DUE TO DEFLECTED SHAPE OF STRUCTURE PLUS A FOUNDATION ROTATION OF 1.5DEG FOR ALL LOAD CASES EXCEPT LOAD CASES 5 (DEFLECTION).
10. POLE SECTIONS SHALL BE EQUIPPED WITH SLIP TYPE CONNECTIONS. FLANGE CONNECTIONS MAY ALSO BE REQUIRED IF SUPPLIER IS NOTIFIED BY ENGINEER.
11. MINIMUM ANCHOR BOLT PROJECTION SHALL BE 12 INCHES WITH THE ANCHOR BOLT THREADED LENGTH BEING SUFFICIENT TO ACCOMMODATE STRUCTURE RAKING. PROVIDE ONE (1) BOLT DIAMETER OF THREAD PROJECTING ABOVE THE TOP NUT.
12. STRUCTURES SHALL BE DESIGNED CONSIDERING A 2% DEFLECTION LIMIT UNDER LOAD CASE 5.
13. COAX CABLE LOADS V3 & T3 APPLIED AT 10' INCREMENTS ALONG POLE.



LOADING TREE

DRAWING NOT TO SCALE

ISSUED FOR CONSTRUCTION

NO.	DATE	DESIGN REVISIONS	BY	CHK	APP	APP
0	01/06/23	ISSUED FOR CONSTRUCTION	RVD	FLM	ACR	

BURNS McDONNELL

132498

date 01/06/2023
designed RVD
detailed MSS
checked CNM

NO.	DATE	AS BUILT REVISIONS	BY	CHK	APP	APP
–	–	–	–	–	–	–

EVERSOURCE ENERGY

TITLE
TRAP FALL S/S - POOTATUCK S/S
115–kV TRANSMISSION LINE
DOUBLE CIRCUIT VERTICAL MONOPOLE 0°–2° CELL TOWER STR. 19539
SHELTON & STRATFORD, CT

BY	RVD	CHKD	FLM	APP	ACR	APP	–
DATE	01/06/2023	DATE	01/06/2023	DATE	01/06/2023	DATE	
H–SCALE	N/A	SIZE	D	FIELD BOOK & PAGES			
V–SCALE	N/A	V.S.		R.E. DWG		–	
R.E. PROJ. NUMBER				DWG NO.		01250-40016p002	

April 20, 2023

SAI Communications
12 Industrial Way
Salem NH, 03079

RE:	AT&T Site Number:	CT2044 (C-BAND)
	FA Number:	10035243
	PACE Number:	MRCTB056282
	PT Number:	2051A11LE2
	TEP Project Number:	350575
	Site Name:	SHELTON NU PWR MT
	Site Address:	17 Daybreak Lane Shelton, CT 06484

To Whom It May Concern:

TEP Northeast (TEP NE) has been authorized by SAI Communications to perform a mount analysis on the proposed AT&T antenna mount to determine its capability of supporting the following loading:

- **(3) TPA65R-BU6DA-K Antennas (71.2"x20.7"x7.7" – Wt. = 69 lbs. /each)**
- **(3) AIR6419 Antennas (31.0"x16.1"x7.3" – Wt. = 66 lbs. /each)**
- **(3) AIR6449 Antennas (30.6"x15.9"x10.6" – Wt. = 82 lbs. /each)**
- **(3) OPA65R-BU6DA Antennas (71.2.0"x20.7"x7.7"– Wt. = 64 lbs. /each)**
- **(6) TMA2116F00V1-1 TMA's (11.8"x4.8"x8.5" – Wt. = 24 lbs. /each)**
- **(6) TMA2117F00V1-1 TMA's (11.9"x9.9"x4.7" – Wt. = 26 lbs. /each)**
- **(1) DC6-48-60-18 Surge Arrestor (31.4"x10.2" Ø – Wt. = 29 lbs.)**

*Proposed equipment shown in bold.

Mount fabrication drawings prepared by SitePro1 P/N RMQLP-4120-H10 dated October 18, 2019, were used to perform this analysis. TEP NE conducted a ground audit of the existing AT&T antenna mount on March 1, 2022.

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 2021 with 2022 Connecticut State Building Code, and AT&T Mount Technical Directive – R22.
- TEP NE 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 P of the Connecticut State Building Code, the max basic wind speed for this site is equal to 120 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 1.11 in was used for this analysis.
- TEP NE considers this site to be exposure category C; tower is located near large, flat, open, terrain/grasslands.
- TEP NE considers this site to be topographic category 1; tower is located on flat terrain or the bottom of a hill or ridge.
- TEP NE considers this site to have a spectral response acceleration parameter at short periods, S_S, of 0.203 and a spectral response acceleration parameter at a period of 1 second, S_1, of 0.054.
- 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 3.
- The mount has been analyzed with load combinations consisting of a 250 lbs live load in a worst case location on the mount.
- The proposed mount is to be secured to the proposed transmission tower with ring mounts and threaded rods. TEP NE considers the threaded rods to be the governing connection member.

Based on our evaluation, we have determined that the Proposed SitePro1 RMQLP-4120-H10 mount **IS CAPABLE** of supporting the proposed installation.

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
Proposed Mount Rating	45	LC2	35%	**PASS**

Reference Documents:

- Fabrication drawings prepared by SitePro1 P/N RMQLP-4120-H10 dated October 18, 2019

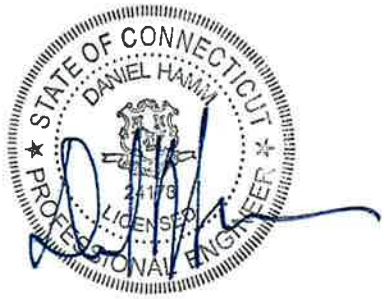
This determination was based on the following limitations and assumptions:

1. TEP NE is not responsible for any modifications completed prior to and hereafter which TEP NE 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 proposed mount will be adequately secured to the tower structure per the mount manufacturer's specifications.
5. All components pertaining to AT&T's mount must be tightened and re-plumbed prior to the installation of new appurtenances.
6. TEP NE 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,
TEP Northeast

Michael Cabral
Director



Daniel P. Hamm, PE
Vice President

FIELD PHOTOS:

*Note: Existing mount and tower to be removed and replaced.

FIELD PHOTOS (CONT.):

*Note: Existing mount and tower to be removed and replaced.

Wind & Ice
Calculations

Date: 4/20/2023
Project Name: SHELTON NU PWR MT
Project No.: CT2044
Designed By: KSBM **Checked By:** MSC

2.6.5.2 Velocity Pressure Coeff:

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

z=	98.0	(ft)
z_g=	900	(ft)
α=	9.5	
K_z=	**1.260**	

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=	1.0	(from Table 2-4)
K_t=	0	(from Table 2-5)
f=	0	(from Table 2-5)
z=	98.0	
z_s=	176	(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=	0.99	(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=	1.00	(from Table 2-3)
K_{iz} =	1.11	(from Sec. 2.6.10)

$t_{iz} = t_i * I * K_{iz} * (K_{zt})^{0.35}$ t_{iz} = 1.11 in

Date: 4/20/2023
Project Name: SHELTON NU PWR MT
Project No.: CT2044
Designed By: KSBM Checked By: MSC

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=	100.0	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=	1.260	(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=	**39.24**	K_e=	0.99	(from 2.6.8)
$q_{z\ (ice)}$=	**4.36**	K_d=	0.85	(from Table 2-2)
$q_{z\ (30)}$=	**2.45**	V_{max}=	120	mph (Ultimate Wind Speed)
		$V_{max\ (ice)}$=	40	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: 4/20/2023
Project Name: SHELTON NU PWR MT
Project No.: CT2044
Designed By: KSBM Checked By: MSC

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		$1.2 - 2.8(r_s) \geq 0.85$	$1.4 - 4.0(r_s) \geq 0.90$	$2.0 - 6.0(r_s) \geq 1.25$
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 = **1.11** **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)
TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.44	1.24	**499**	**63**	**31**
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.93	1.20	**164**	**22**	**10**
AIR6449 Antenna	30.6	15.9	10.6	3.38	1.92	1.20	**159**	**22**	**10**
OPA65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.44	1.24	**499**	**63**	**31**
TMA2116F00V1-1 TMA	11.8	4.8	8.5	0.39	2.46	1.20	**19**	**4**	**1**
TMA2117F00V1-1 TMA	11.9	4.7	9.9	0.39	2.53	1.20	**18**	**4**	**1**
DC6-48-60-18 Surge Arrestor	31.4	10.2	10.2	2.22	3.08	0.70	**61**	**9**	**4**
Plate 6x3/8	6.0	12.0		0.50	0.50	2.00	**39**		
HSS 4x4	4.0	12.0		0.33	0.33	1.25	**16**		
2x2 Angle	2.0	12.0		0.17	0.17	2.00	**13**		
2-1/2x2-1/2 Angle	2.5	12.0		0.21	0.21	2.00	**16**		
2" Pipe	2.4	12.0		0.20	0.20	1.20	**9**		
2-1/2" Pipe	2.9	12.0		0.24	0.24	1.20	**11**		
3" Pipe	3.5	12.0		0.29	0.29	1.20	**14**		

Date: 4/20/2023
Project Name: SHELTON NU PWR MT
Project No.: CT2044
Designed By: KSBM Checked By: MSC

WIND LOADS

Angle =	30	(deg)	Ice Thickness =	1.11	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)
TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	499	220	429
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	164	79	143
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	159	108	146
OPA65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	499	220	429
TMA2116F00V1-1 TMA	11.8	4.8	8.5	0.39	0.70	2.46	1.39	1.20	1.20	19	33	22
TMA2117F00V1-1 TMA	11.9	4.7	9.9	0.39	0.82	2.53	1.20	1.20	1.20	18	39	23

WIND LOADS WITH ICE:

TPA65R-BU6DA-K Antenna	73.4	22.9	9.9	11.69	5.06	3.20	7.39	1.23	1.41	63	31	55
AIR6419 Antenna	33.3	18.3	9.5	4.24	2.21	1.82	3.50	1.20	1.24	22	12	20
AIR6449 Antenna	32.8	18.1	12.8	4.13	2.93	1.81	2.56	1.20	1.20	22	15	20
OPA65R-BU6DA Antenna	73.4	22.9	9.9	11.69	5.06	3.20	7.39	1.23	1.41	63	31	55
TMA2116F00V1-1 TMA	14.0	7.0	10.7	0.68	1.05	2.00	1.31	1.20	1.20	4	5	4
TMA2117F00V1-1 TMA	14.1	6.9	12.1	0.68	1.19	2.04	1.16	1.20	1.20	4	6	4

WIND LOADS AT 30 MPH:

TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	31	14	27
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	10	5	9
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	10	7	9
OPA65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	31	14	27
TMA2116F00V1-1 TMA	11.8	4.8	8.5	0.39	0.70	2.46	1.39	1.20	1.20	1	2	1
TMA2117F00V1-1 TMA	11.9	4.7	9.9	0.39	0.82	2.53	1.20	1.20	1.20	1	2	1

Date: 4/20/2023
Project Name: SHELTON NU PWR MT
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Designed By: KSBM Checked By: MSC

TEP NORTHEAST

WIND LOADS

Angle =	60	(deg)	Ice Thickness =	1.11	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)
TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	499	220	290
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	164	79	100
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	159	108	120
OPA65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	499	220	290
TMA2116F00V1-1 TMA	11.8	4.8	8.5	0.39	0.70	2.46	1.39	1.20	1.20	19	33	29
TMA2117F00V1-1 TMA	11.9	4.7	9.9	0.39	0.82	2.53	1.20	1.20	1.20	18	39	33

WIND LOADS WITH ICE:

TPA65R-BU6DA-K Antenna	73.4	22.9	9.9	11.69	5.06	3.20	7.39	1.23	1.41	63	31	39
AIR6419 Antenna	33.3	18.3	9.5	4.24	2.21	1.82	3.50	1.20	1.24	22	12	15
AIR6449 Antenna	32.8	18.1	12.8	4.13	2.93	1.81	2.56	1.20	1.20	22	15	17
OPA65R-BU6DA Antenna	73.4	22.9	9.9	11.69	5.06	3.20	7.39	1.23	1.41	63	31	39
TMA2116F00V1-1 TMA	14.0	7.0	10.7	0.68	1.05	2.00	1.31	1.20	1.20	4	5	5
TMA2117F00V1-1 TMA	14.1	6.9	12.1	0.68	1.19	2.04	1.16	1.20	1.20	4	6	6

WIND LOADS AT 30 MPH:

TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	31	14	18
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	10	5	6
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	10	7	8
OPA65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	31	14	18
TMA2116F00V1-1 TMA	11.8	4.8	8.5	0.39	0.70	2.46	1.39	1.20	1.20	1	2	2
TMA2117F00V1-1 TMA	11.9	4.7	9.9	0.39	0.82	2.53	1.20	1.20	1.20	1	2	2

Date: 4/20/2023
Project Name: SHELTON NU PWR MT
Project No.: CT2044
Designed By: KSBM Checked By: MSC

WIND LOADS

Angle =	90	(deg)	Ice Thickness =	1.11	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)
TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	499	220	220
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	164	79	79
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	159	108	108
OPA65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	499	220	220
TMA2116F00V1-1 TMA	11.8	4.8	8.5	0.39	0.70	2.46	1.39	1.20	1.20	19	33	33
TMA2117F00V1-1 TMA	11.9	4.7	9.9	0.39	0.82	2.53	1.20	1.20	1.20	18	39	39
WIND LOADS WITH ICE:												
TPA65R-BU6DA-K Antenna	73.4	22.9	9.9	11.69	5.06	3.20	7.39	1.23	1.41	63	31	31
AIR6419 Antenna	33.3	18.3	9.5	4.24	2.21	1.82	3.50	1.20	1.24	22	12	12
AIR6449 Antenna	32.8	18.1	12.8	4.13	2.93	1.81	2.56	1.20	1.20	22	15	15
OPA65R-BU6DA Antenna	73.4	22.9	9.9	11.69	5.06	3.20	7.39	1.23	1.41	63	31	31
TMA2116F00V1-1 TMA	14.0	7.0	10.7	0.68	1.05	2.00	1.31	1.20	1.20	4	5	5
TMA2117F00V1-1 TMA	14.1	6.9	12.1	0.68	1.19	2.04	1.16	1.20	1.20	4	6	6
WIND LOADS AT 30 MPH:												
TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	31	14	14
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	10	5	5
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	10	7	7
OPA65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	31	14	14
TMA2116F00V1-1 TMA	11.8	4.8	8.5	0.39	0.70	2.46	1.39	1.20	1.20	1	2	2
TMA2117F00V1-1 TMA	11.9	4.7	9.9	0.39	0.82	2.53	1.20	1.20	1.20	1	2	2

Date: 4/20/2023
Project Name: SHELTON NU PWR MT
Project No.: CT2044
Designed By: KSBM Checked By: MSC

TEP NORTHEAST

WIND LOADS

Angle =	120	(deg)	Ice Thickness =	1.11	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)
TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	499	220	290
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	164	79	100
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	159	108	120
OPA65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	499	220	290
TMA2116F00V1-1 TMA	11.8	4.8	8.5	0.39	0.70	2.46	1.39	1.20	1.20	19	33	29
TMA2117F00V1-1 TMA	11.9	4.7	9.9	0.39	0.82	2.53	1.20	1.20	1.20	18	39	33

WIND LOADS WITH ICE:

TPA65R-BU6DA-K Antenna	73.4	22.9	9.9	11.69	5.06	3.20	7.39	1.23	1.41	63	31	39
AIR6419 Antenna	33.3	18.3	9.5	4.24	2.21	1.82	3.50	1.20	1.24	22	12	15
AIR6449 Antenna	32.8	18.1	12.8	4.13	2.93	1.81	2.56	1.20	1.20	22	15	17
OPA65R-BU6DA Antenna	73.4	22.9	9.9	11.69	5.06	3.20	7.39	1.23	1.41	63	31	39
TMA2116F00V1-1 TMA	14.0	7.0	10.7	0.68	1.05	2.00	1.31	1.20	1.20	4	5	5
TMA2117F00V1-1 TMA	14.1	6.9	12.1	0.68	1.19	2.04	1.16	1.20	1.20	4	6	6

WIND LOADS AT 30 MPH:

TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	31	14	18
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	10	5	6
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	10	7	8
OPA65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	31	14	18
TMA2116F00V1-1 TMA	11.8	4.8	8.5	0.39	0.70	2.46	1.39	1.20	1.20	1	2	2
TMA2117F00V1-1 TMA	11.9	4.7	9.9	0.39	0.82	2.53	1.20	1.20	1.20	1	2	2

Date: 4/20/2023
Project Name: SHELTON NU PWR MT
Project No.: CT2044
Designed By: KSBM Checked By: MSC

WIND LOADS

Angle =	150	(deg)	Ice Thickness =	1.11	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)
TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	499	220	429
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	164	79	143
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	159	108	146
OPA65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	499	220	429
TMA2116F00V1-1 TMA	11.8	4.8	8.5	0.39	0.70	2.46	1.39	1.20	1.20	19	33	22
TMA2117F00V1-1 TMA	11.9	4.7	9.9	0.39	0.82	2.53	1.20	1.20	1.20	18	39	23

WIND LOADS WITH ICE:

TPA65R-BU6DA-K Antenna	73.4	22.9	9.9	11.69	5.06	3.20	7.39	1.23	1.41	63	31	55
AIR6419 Antenna	33.3	18.3	9.5	4.24	2.21	1.82	3.50	1.20	1.24	22	12	20
AIR6449 Antenna	32.8	18.1	12.8	4.13	2.93	1.81	2.56	1.20	1.20	22	15	20
OPA65R-BU6DA Antenna	73.4	22.9	9.9	11.69	5.06	3.20	7.39	1.23	1.41	63	31	55
TMA2116F00V1-1 TMA	14.0	7.0	10.7	0.68	1.05	2.00	1.31	1.20	1.20	4	5	4
TMA2117F00V1-1 TMA	14.1	6.9	12.1	0.68	1.19	2.04	1.16	1.20	1.20	4	6	4

WIND LOADS AT 30 MPH:

TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	31	14	27
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	10	5	9
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	10	7	9
OPA65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	31	14	27
TMA2116F00V1-1 TMA	11.8	4.8	8.5	0.39	0.70	2.46	1.39	1.20	1.20	1	2	1
TMA2117F00V1-1 TMA	11.9	4.7	9.9	0.39	0.82	2.53	1.20	1.20	1.20	1	2	1

Date: 4/20/2023
Project Name: SHELTON NU PWR MT
Project No.: CT2044
Designed By: KSBM **Checked By:** MSC

ICE WEIGHT CALCULATIONS

Thickness of ice: 1.11 in.
Density of ice: 56 pcf

TPA65R-BU6DA-K Antenna

Weight of ice based on total radial SF area:

Height (in):	71.2	
Width (in):	20.7	
Depth (in):	7.7	
Total weight of ice on object:		187 lbs
Weight of object:	69.0 lbs	
Combined weight of ice and object:		256 lbs

AIR6419 Antenna

Weight of ice based on total radial SF area:

Height (in):	31.1	
Width (in):	16.1	
Depth (in):	7.3	
Total weight of ice on object:		66 lbs
Weight of object:	66.0 lbs	
Combined weight of ice and object:		132 lbs

AIR6449 Antenna

Weight of ice based on total radial SF area:

Height (in):	30.6	
Width (in):	15.9	
Depth (in):	10.6	
Total weight of ice on object:		70 lbs
Weight of object:	82.0 lbs	
Combined weight of ice and object:		152 lbs

OPA65R-BU6DA Antenna

Weight of ice based on total radial SF area:

Height (in):	71.2	
Width (in):	20.7	
Depth (in):	7.7	
Total weight of ice on object:		187 lbs
Weight of object:	64.0 lbs	
Combined weight of ice and object:		251 lbs

TMA2116F00V1-1 TMA

Weight of ice based on total radial SF area:

Height (in):	11.8	
Width (in):	4.8	
Depth (in):	8.5	
Total weight of ice on object:		14 lbs
Weight of object:	24.0 lbs	
Combined weight of ice and object:		38 lbs

TMA2117F00V1-1 TMA

Weight of ice based on total radial SF area:

Height (in):	11.9	
Width (in):	4.7	
Depth (in):	9.9	
Total weight of ice on object:		16 lbs
Weight of object:	26.0 lbs	
Combined weight of ice and object:		42 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:		40 lbs
Weight of object:	29 lbs	
Combined weight of ice and object:		69 lbs

PL 6x3/8

Weight of ice based on total radial SF area:

Height (in):	6	
Width (in):	0.38	
Per foot weight of ice on object:		10 plf

HSS 4x4

Weight of ice based on total radial SF area:

Height (in):	4	
Width (in):	4	
Per foot weight of ice on object:		9 plf

2" pipe

Per foot weight of ice:

diameter (in):	2.38	
Per foot weight of ice on object:		5 plf

L 2x2 Angles

Weight of ice based on total radial SF area:

Height (in):	2	
Width (in):	2	
Per foot weight of ice on object:		5 plf

2-1/2" pipe

Per foot weight of ice:

diameter (in):	2.88	
Per foot weight of ice on object:		5 plf

3" Pipe

Per foot weight of ice:

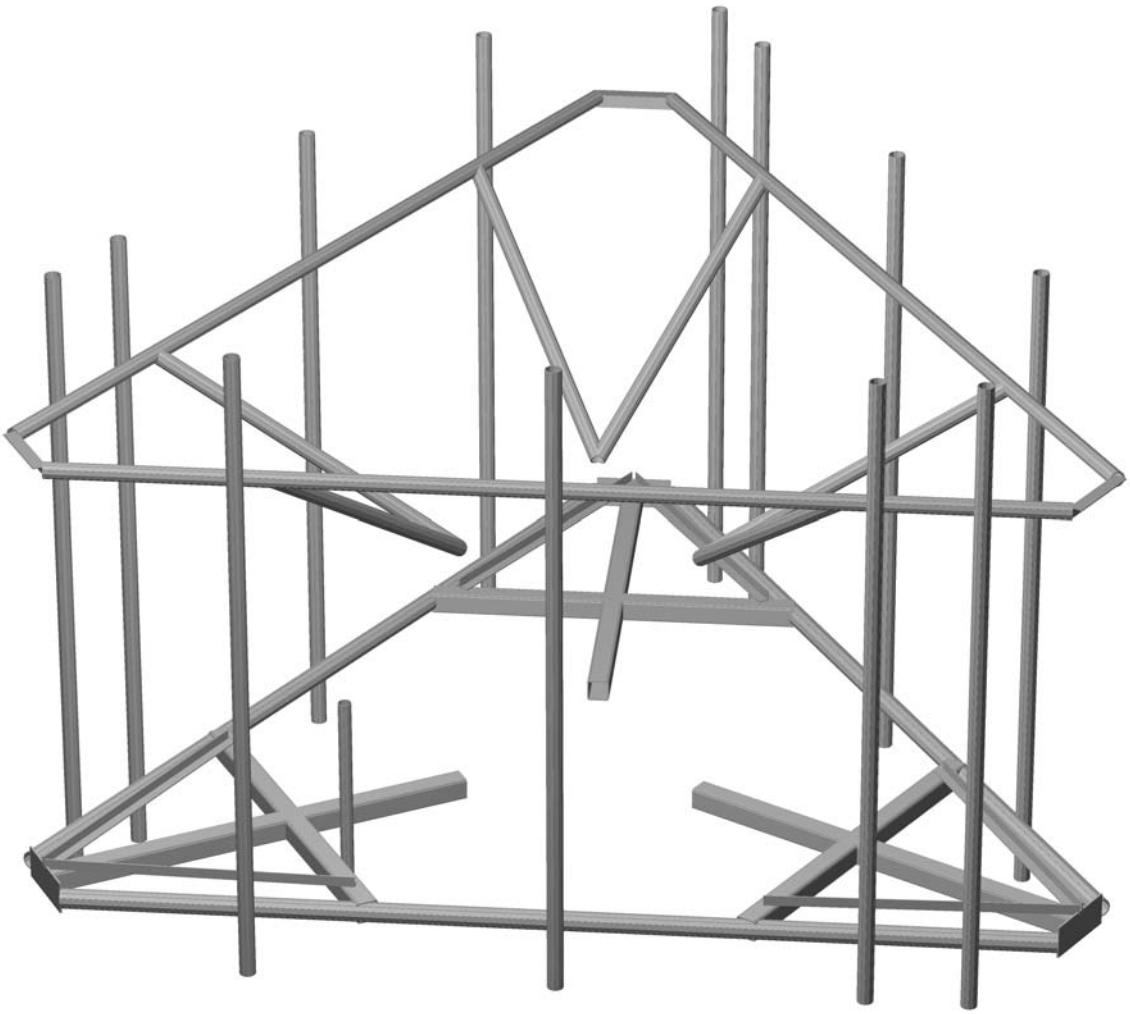
diameter (in):	3.5	
Per foot weight of ice on object:		6 plf

L 2-1/2x2-1/2 Angles

Weight of ice based on total radial SF area:

Height (in):	2.5	
Width (in):	2.5	
Per foot weight of ice on object:		6 plf

Mount Calculations
(Proposed Conditions)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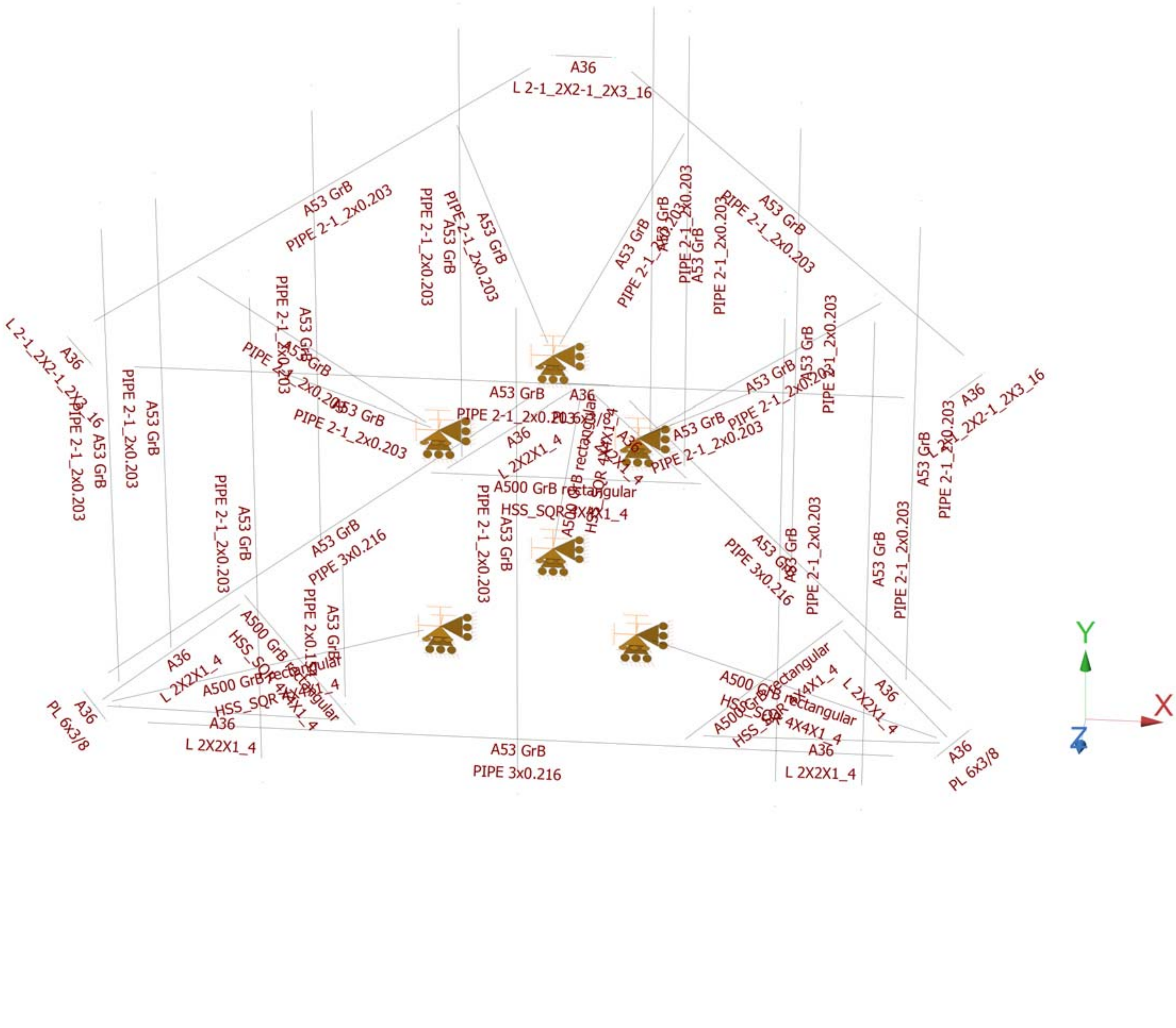
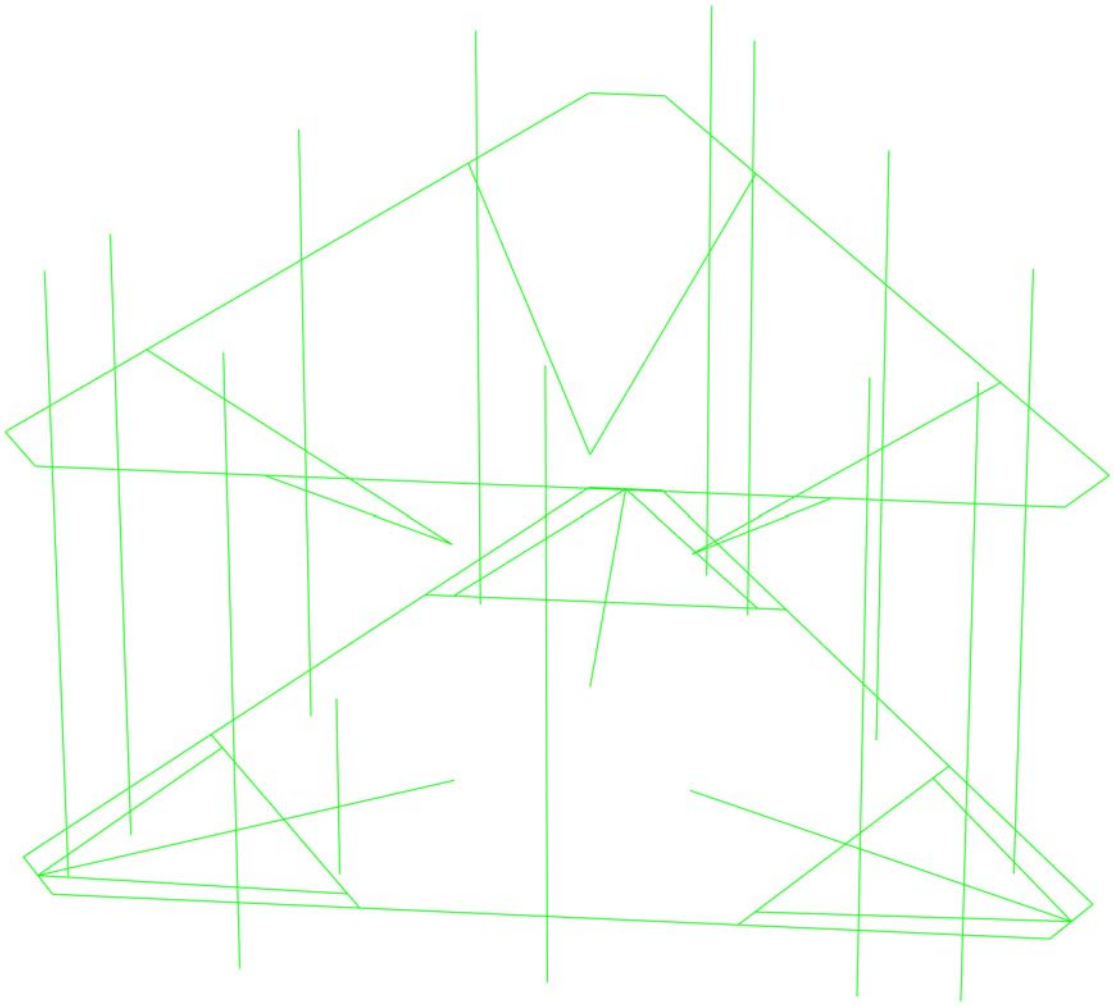
RAM® Elements CONNECT Edition

Current Date: 4/20/2023 3:20 PM
Units system: English

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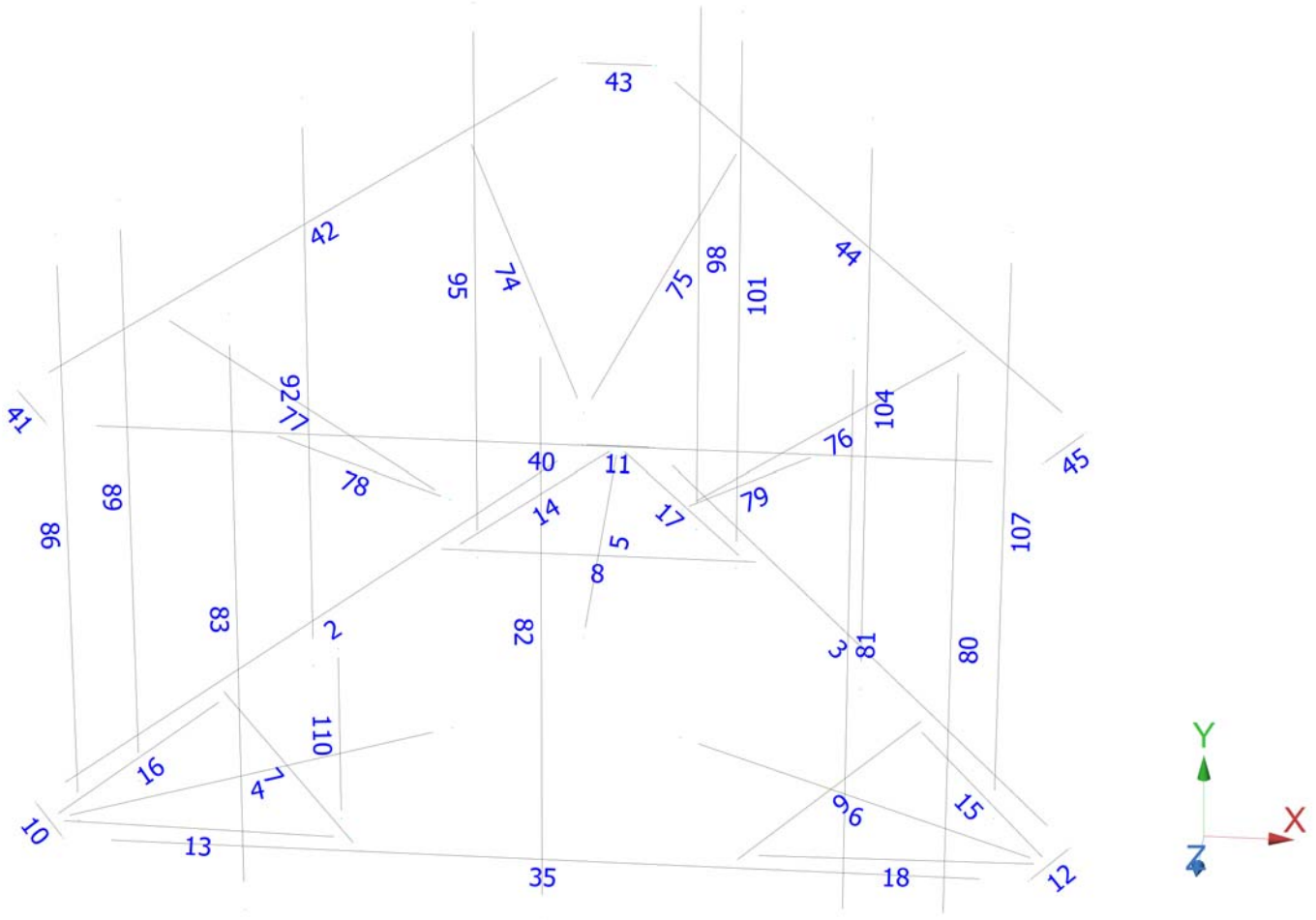
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Z

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CONNECT Edition

Current Date: 4/20/2023 3:25 PM
Units system: English

Load data

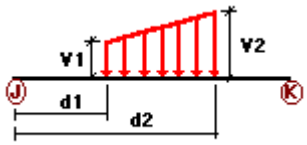
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

Condition	Description	Comb.	Category
DL	Dead Load	No	DL
W0	Wind Load 0/60/120 deg	No	WIND
W30	Wind Load 30/90/150 deg	No	WIND
Di	Ice Load	No	LL
Wi0	Ice Wind Load 0/60/120 deg	No	WIND
Wi30	Ice Wind Load 30/90/150 deg	No	WIND
WL0	WL 30 mph 0/60/120 deg	No	WIND
WL30	WL 30 mph 30/90/150 deg	No	WIND
LL1	250 lb Live Load Center of Mount	No	LL
LL2	250 lb Live Load 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



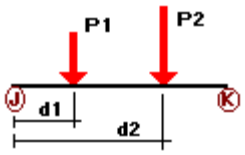
Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
DL	4	y	-0.01	-0.01	0.00	No	3.90	No
	5	y	-0.01	-0.01	0.00	No	3.90	No
	6	y	-0.01	-0.01	0.00	No	3.90	No
	7	y	-0.01	0.00	0.00	No	0.00	No
	8	y	-0.01	0.00	0.00	No	0.00	No
	9	y	-0.01	0.00	0.00	No	0.00	No
	13	y	-0.01	0.00	0.00	No	0.00	No
	14	y	-0.01	0.00	0.00	No	0.00	No
	15	y	-0.01	0.00	0.00	No	0.00	No
	16	y	-0.01	0.00	0.00	No	0.00	No
	17	y	-0.01	0.00	0.00	No	0.00	No
	18	y	-0.01	0.00	0.00	No	0.00	No
W0	2	z	-0.014	0.00	0.00	No	0.00	No
	3	z	-0.014	0.00	0.00	No	0.00	No
	4	z	-0.016	0.00	0.00	No	0.00	No
	5	z	-0.016	0.00	0.00	No	0.00	No

	6	z	-0.016	0.00	0.00	No	0.00	No
	7	z	-0.016	0.00	0.00	No	0.00	No
	8	z	-0.016	0.00	0.00	No	0.00	No
	9	z	-0.016	0.00	0.00	No	0.00	No
	10	z	-0.039	0.00	0.00	No	0.00	No
	11	z	-0.039	0.00	0.00	No	0.00	No
	12	z	-0.039	0.00	0.00	No	0.00	No
	13	z	-0.013	0.00	0.00	No	0.00	No
	14	z	-0.013	0.00	0.00	No	0.00	No
	15	z	-0.013	0.00	0.00	No	0.00	No
	16	z	-0.013	0.00	0.00	No	0.00	No
	17	z	-0.013	0.00	0.00	No	0.00	No
	18	z	-0.013	0.00	0.00	No	0.00	No
	35	z	-0.014	0.00	0.00	No	0.00	No
	40	z	-0.011	0.00	0.00	No	0.00	No
	41	z	-0.016	0.00	0.00	No	0.00	No
	42	z	-0.011	0.00	0.00	No	0.00	No
	43	z	-0.016	0.00	0.00	No	0.00	No
	44	z	-0.011	0.00	0.00	No	0.00	No
	45	z	-0.016	0.00	0.00	No	0.00	No
	74	z	-0.011	0.00	0.00	No	0.00	No
	75	z	-0.011	0.00	0.00	No	0.00	No
	76	z	-0.011	0.00	0.00	No	0.00	No
	77	z	-0.011	0.00	0.00	No	0.00	No
	78	z	-0.011	0.00	0.00	No	0.00	No
	79	z	-0.011	0.00	0.00	No	0.00	No
	80	z	-0.011	0.00	0.00	No	0.00	No
	81	z	-0.011	-0.011	0.00	No	2.00	No
		z	-0.011	-0.011	8.00	No	10.00	No
	82	z	-0.011	-0.011	0.00	No	1.75	No
		z	-0.011	-0.011	8.25	No	10.00	No
	83	z	-0.011	-0.011	0.00	No	2.00	No
		z	-0.011	-0.011	8.00	No	10.00	No
	86	z	-0.011	0.00	0.00	No	0.00	No
	89	z	-0.011	0.00	0.00	No	0.00	No
	92	z	-0.011	0.00	0.00	No	0.00	No
	95	z	-0.011	0.00	0.00	No	0.00	No
	98	z	-0.011	0.00	0.00	No	0.00	No
	101	z	-0.011	0.00	0.00	No	0.00	No
	104	z	-0.011	0.00	0.00	No	0.00	No
	107	z	-0.011	0.00	0.00	No	0.00	No
	110	z	-0.009	0.00	0.00	No	0.00	No
W30	2	x	-0.014	0.00	0.00	No	0.00	No
	3	x	-0.014	0.00	0.00	No	0.00	No
	4	x	-0.016	0.00	0.00	No	0.00	No
	5	x	-0.016	0.00	0.00	No	0.00	No
	6	x	-0.016	0.00	0.00	No	0.00	No
	7	x	-0.016	0.00	0.00	No	0.00	No
	8	x	-0.016	0.00	0.00	No	0.00	No
	9	x	-0.016	0.00	0.00	No	0.00	No
	10	x	-0.039	0.00	0.00	No	0.00	No
	11	x	-0.039	0.00	0.00	No	0.00	No
	12	x	-0.039	0.00	0.00	No	0.00	No
	13	x	-0.013	0.00	0.00	No	0.00	No
	14	x	-0.013	0.00	0.00	No	0.00	No
	15	x	-0.013	0.00	0.00	No	0.00	No
	16	x	-0.013	0.00	0.00	No	0.00	No
	17	x	-0.013	0.00	0.00	No	0.00	No
	18	x	-0.013	0.00	0.00	No	0.00	No
	41	x	-0.016	0.00	0.00	No	0.00	No

	42	x	-0.011	0.00	0.00	No	0.00	No
	43	x	-0.016	0.00	0.00	No	0.00	No
	44	x	-0.011	0.00	0.00	No	0.00	No
	45	x	-0.016	0.00	0.00	No	0.00	No
	74	x	-0.011	0.00	0.00	No	0.00	No
	75	x	-0.011	0.00	0.00	No	0.00	No
	76	x	-0.011	0.00	0.00	No	0.00	No
	77	x	-0.011	0.00	0.00	No	0.00	No
	78	x	-0.011	0.00	0.00	No	0.00	No
	79	x	-0.011	0.00	0.00	No	0.00	No
	80	x	-0.011	0.00	0.00	No	0.00	No
	81	x	-0.011	0.00	0.00	No	0.00	No
	82	x	-0.011	0.00	0.00	No	0.00	No
	83	x	-0.011	0.00	0.00	No	0.00	No
	86	x	-0.011	0.00	0.00	No	0.00	No
	89	x	-0.011	0.00	0.00	No	0.00	No
	92	x	-0.011	0.00	0.00	No	0.00	No
	95	x	-0.011	0.00	0.00	No	0.00	No
	98	x	-0.011	0.00	0.00	No	0.00	No
	101	x	-0.011	0.00	0.00	No	0.00	No
	104	x	-0.011	0.00	0.00	No	0.00	No
	107	x	-0.011	0.00	0.00	No	0.00	No
	110	x	-0.009	0.00	0.00	No	0.00	No
Di	2	y	-0.006	0.00	0.00	No	0.00	No
	3	y	-0.006	0.00	0.00	No	0.00	No
	4	y	-0.009	0.00	0.00	No	0.00	No
	5	y	-0.009	0.00	0.00	No	0.00	No
	6	y	-0.009	0.00	0.00	No	0.00	No
	7	y	-0.009	0.00	0.00	No	0.00	No
	8	y	-0.009	0.00	0.00	No	0.00	No
	9	y	-0.009	0.00	0.00	No	0.00	No
	10	y	-0.01	0.00	0.00	No	0.00	No
	11	y	-0.01	0.00	0.00	No	0.00	No
	12	y	-0.01	0.00	0.00	No	0.00	No
	13	y	-0.005	0.00	0.00	No	0.00	No
	14	y	-0.005	0.00	0.00	No	0.00	No
	15	y	-0.005	0.00	0.00	No	0.00	No
	16	y	-0.005	0.00	0.00	No	0.00	No
	17	y	-0.005	0.00	0.00	No	0.00	No
	18	y	-0.005	0.00	0.00	No	0.00	No
	35	y	-0.006	0.00	0.00	No	0.00	No
	40	y	-0.005	0.00	0.00	No	0.00	No
	41	y	-0.006	0.00	0.00	No	0.00	No
	42	y	-0.005	0.00	0.00	No	0.00	No
	43	y	-0.006	0.00	0.00	No	0.00	No
	44	y	-0.005	0.00	0.00	No	0.00	No
	45	y	-0.006	0.00	0.00	No	0.00	No
	74	y	-0.005	0.00	0.00	No	0.00	No
	75	y	-0.005	0.00	0.00	No	0.00	No
	76	y	-0.005	0.00	0.00	No	0.00	No
	77	y	-0.005	0.00	0.00	No	0.00	No
	78	y	-0.005	0.00	0.00	No	0.00	No
	79	y	-0.005	0.00	0.00	No	0.00	No
	80	y	-0.005	0.00	0.00	No	0.00	No
	81	y	-0.005	0.00	0.00	No	0.00	No
	82	y	-0.005	0.00	0.00	No	0.00	No
	83	y	-0.005	0.00	0.00	No	0.00	No
	86	y	-0.005	0.00	0.00	No	0.00	No
	89	y	-0.005	0.00	0.00	No	0.00	No
	92	y	-0.005	0.00	0.00	No	0.00	No

	95	y	-0.005	0.00	0.00	No	0.00	No
	98	y	-0.005	0.00	0.00	No	0.00	No
	101	y	-0.005	0.00	0.00	No	0.00	No
	104	y	-0.005	0.00	0.00	No	0.00	No
	107	y	-0.005	0.00	0.00	No	0.00	No
	110	y	-0.005	0.00	0.00	No	0.00	No

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	81	y	-0.035	2.50	No
		y	-0.035	7.50	No
		y	-0.024	50.00	Yes
		y	-0.024	50.00	Yes
	82	y	-0.033	2.25	No
		y	-0.033	4.00	No
		y	-0.041	6.00	No
		y	-0.041	7.75	No
	83	y	-0.032	2.50	No
		y	-0.032	7.50	No
		y	-0.026	50.00	Yes
		y	-0.026	50.00	Yes
	89	y	-0.035	2.50	No
		y	-0.035	7.50	No
		y	-0.024	50.00	Yes
		y	-0.024	50.00	Yes
	92	y	-0.033	2.25	No
		y	-0.033	4.00	No
		y	-0.041	6.00	No
		y	-0.041	7.75	No
	95	y	-0.032	2.50	No
		y	-0.032	7.50	No
		y	-0.026	50.00	Yes
		y	-0.026	50.00	Yes
	101	y	-0.035	2.50	No
		y	-0.035	7.50	No
		y	-0.024	50.00	Yes
		y	-0.024	50.00	Yes
	104	y	-0.033	2.25	No
		y	-0.033	4.00	No
		y	-0.041	6.00	No
		y	-0.041	7.75	No
	107	y	-0.032	2.50	No
		y	-0.032	7.50	No
		y	-0.026	50.00	Yes
		y	-0.026	50.00	Yes
	110	y	-0.029	50.00	Yes
W0	81	z	-0.25	2.50	No
		z	-0.25	7.50	No

	82	z	-0.082	2.25	No
		z	-0.082	4.00	No
		z	-0.08	6.00	No
		z	-0.08	7.75	No
	83	z	-0.25	2.50	No
		z	-0.25	7.50	No
	89	z	-0.145	2.50	No
		z	-0.145	7.50	No
		z	-0.029	50.00	Yes
	92	z	-0.051	2.25	No
		z	-0.051	4.00	No
		z	-0.061	6.00	No
		z	-0.061	7.75	No
	95	z	-0.145	2.50	No
		z	-0.145	7.50	No
		z	-0.033	50.00	Yes
	101	z	-0.145	2.50	No
		z	-0.145	7.50	No
		z	-0.029	50.00	Yes
	104	z	-0.051	2.25	No
		z	-0.051	4.00	No
		z	-0.061	6.00	No
		z	-0.061	7.75	No
	107	z	-0.145	2.50	No
		z	-0.145	7.50	No
		z	-0.033	50.00	Yes
	110	z	-0.061	50.00	Yes
W30	81	x	-0.111	2.50	No
		x	-0.111	7.50	No
		x	-0.033	50.00	Yes
	82	x	-0.04	2.25	No
		x	-0.04	4.00	No
		x	-0.054	6.00	No
		x	-0.054	7.75	No
	83	x	-0.111	2.50	No
		x	-0.111	7.50	No
		x	-0.039	50.00	Yes
	89	x	-0.215	2.50	No
		x	-0.215	7.50	No
		x	-0.022	50.00	Yes
	92	x	-0.072	2.25	No
		x	-0.072	4.00	No
		x	-0.074	6.00	No
		x	-0.074	7.75	No
	95	x	-0.215	2.50	No
		x	-0.215	7.50	No
		x	-0.023	50.00	Yes
	101	x	-0.215	2.50	No
		x	-0.215	7.50	No
		x	-0.022	50.00	Yes
	104	x	-0.072	2.25	No
		x	-0.072	4.00	No
		x	-0.074	6.00	No
		x	-0.074	7.75	No
	107	x	-0.215	2.50	No
		x	-0.215	7.50	No
		x	-0.023	50.00	Yes
	110	x	-0.061	50.00	Yes
Di	81	y	-0.094	2.50	No
		y	-0.094	7.50	No

		y	-0.014	50.00	Yes
		y	-0.014	50.00	Yes
	82	y	-0.034	2.25	No
		y	-0.034	4.00	No
		y	-0.035	6.00	No
		y	-0.035	7.75	No
	83	y	-0.094	2.50	No
		y	-0.094	7.50	No
		y	-0.016	50.00	Yes
		y	-0.016	50.00	Yes
	89	y	-0.094	2.50	No
		y	-0.094	7.50	No
		y	-0.014	50.00	Yes
		y	-0.014	50.00	Yes
	92	y	-0.034	2.25	No
		y	-0.034	4.00	No
		y	-0.035	6.00	No
		y	-0.035	7.75	No
	95	y	-0.094	2.50	No
		y	-0.094	7.50	No
		y	-0.016	50.00	Yes
		y	-0.016	50.00	Yes
	101	y	-0.094	2.50	No
		y	-0.094	7.50	No
		y	-0.014	50.00	Yes
		y	-0.014	50.00	Yes
	104	y	-0.034	2.25	No
		y	-0.034	4.00	No
		y	-0.035	6.00	No
		y	-0.035	7.75	No
	107	y	-0.094	2.50	No
		y	-0.094	7.50	No
		y	-0.016	50.00	Yes
		y	-0.016	50.00	Yes
	110	y	-0.029	50.00	Yes
Wi0	81	z	-0.032	2.50	No
		z	-0.032	7.50	No
	82	z	-0.012	2.25	No
		z	-0.012	4.00	No
		z	-0.011	6.00	No
		z	-0.011	7.75	No
	83	z	-0.032	2.50	No
		z	-0.032	7.50	No
	89	z	-0.02	2.50	No
		z	-0.02	7.50	No
		z	-0.005	50.00	Yes
	92	z	-0.008	2.25	No
		z	-0.008	4.00	No
		z	-0.009	6.00	No
		z	-0.009	7.75	No
	95	z	-0.02	2.50	No
		z	-0.02	7.50	No
		z	-0.006	50.00	Yes
	101	z	-0.02	2.50	No
		z	-0.02	7.50	No
		z	-0.005	50.00	Yes
	104	z	-0.008	2.25	No
		z	-0.008	4.00	No
		z	-0.009	6.00	No
		z	-0.009	7.75	No

	107	z	-0.02	2.50	No
		z	-0.02	7.50	No
		z	-0.006	50.00	Yes
	110	z	-0.009	50.00	Yes
Wi30	81	x	-0.016	2.50	No
		x	-0.016	7.50	No
		x	-0.005	50.00	Yes
	82	x	-0.006	2.25	No
		x	-0.006	4.00	No
		x	-0.008	6.00	No
		x	-0.008	7.75	No
	83	x	-0.016	2.50	No
		x	-0.016	7.50	No
		x	-0.006	50.00	Yes
	89	x	-0.028	2.50	No
		x	-0.028	7.50	No
		x	-0.004	50.00	Yes
	92	x	-0.01	2.25	No
		x	-0.01	4.00	No
		x	-0.011	6.00	No
		x	-0.011	7.75	No
	95	x	-0.028	2.50	No
		x	-0.028	7.50	No
		x	-0.004	50.00	Yes
	101	x	-0.028	2.50	No
		x	-0.028	7.50	No
		x	-0.004	50.00	Yes
	104	x	-0.01	2.25	No
		x	-0.01	4.00	No
		x	-0.011	6.00	No
		x	-0.011	7.75	No
	107	x	-0.028	2.50	No
		x	-0.028	7.50	No
		x	-0.004	50.00	Yes
	110	x	-0.009	50.00	Yes
WL0	81	z	-0.016	2.50	No
		z	-0.016	7.50	No
		z	-0.001	50.00	Yes
	82	z	-0.006	2.25	No
		z	-0.006	4.00	No
		z	-0.005	6.00	No
		z	-0.005	7.75	No
	83	z	-0.016	2.50	No
		z	-0.016	7.50	No
		z	-0.001	50.00	Yes
	89	z	-0.01	2.50	No
		z	-0.01	7.50	No
		z	-0.002	50.00	Yes
	92	z	-0.004	2.25	No
		z	-0.004	4.00	No
		z	-0.004	6.00	No
		z	-0.004	7.75	No
	95	z	-0.01	2.50	No
		z	-0.01	7.50	No
		z	-0.002	50.00	Yes
	101	z	-0.01	2.50	No
		z	-0.01	7.50	No
		z	-0.002	50.00	Yes
	104	z	-0.004	2.25	No
		z	-0.004	4.00	No

		z	-0.004	6.00	No
		z	-0.004	7.75	No
	107	z	-0.01	2.50	No
		z	-0.01	7.50	No
		z	-0.002	50.00	Yes
	110	z	-0.004	50.00	Yes
WL30	81	x	-0.007	2.50	No
		x	-0.007	7.50	No
		x	-0.002	50.00	Yes
	82	x	-0.003	2.25	No
		x	-0.003	4.00	No
		x	-0.004	6.00	No
		x	-0.004	7.75	No
	83	x	-0.007	2.50	No
		x	-0.007	7.50	No
		x	-0.002	50.00	Yes
	89	x	-0.014	2.50	No
		x	-0.014	7.50	No
		x	-0.001	50.00	Yes
	92	x	-0.005	2.25	No
		x	-0.005	4.00	No
		x	-0.005	6.00	No
		x	-0.005	7.75	No
	95	x	-0.014	2.50	No
		x	-0.014	7.50	No
		x	-0.001	50.00	Yes
	101	x	-0.014	2.50	No
		x	-0.014	7.50	No
		x	-0.001	50.00	Yes
	104	x	-0.005	2.25	No
		x	-0.005	4.00	No
		x	-0.005	6.00	No
		x	-0.005	7.75	No
	107	x	-0.014	2.50	No
		x	-0.014	7.50	No
		x	-0.001	50.00	Yes
	110	x	-0.004	50.00	Yes
LL1	40	y	-0.25	50.00	Yes
LL2	40	y	-0.25	100.00	Yes
LLa1	80	y	-0.50	50.00	Yes
LLa2	81	y	-0.50	50.00	Yes
LLa3	82	y	-0.50	50.00	Yes
LLa4	83	y	-0.50	50.00	Yes

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
DL	Dead Load	No	0.00	-1.00	0.00
W0	Wind Load 0/60/120 deg	No	0.00	0.00	0.00
W30	Wind Load 30/90/150 deg	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00
Wi0	Ice Wind Load 0/60/120 deg	No	0.00	0.00	0.00
Wi30	Ice Wind Load 30/90/150 deg	No	0.00	0.00	0.00
WL0	WL 30 mph 0/60/120 deg	No	0.00	0.00	0.00

WL30	WL 30 mph 30/90/150 deg	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 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. [%]
DL	0.00	0.00	0.00
W0	0.00	0.00	0.00
W30	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
WL0	0.00	0.00	0.00
WL30	0.00	0.00	0.00
LL1	0.00	0.00	0.00
LL2	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

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Units system: English

Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

LC1=1.2DL+W0
LC2=1.2DL+W30
LC3=1.2DL-W0
LC4=1.2DL-W30
LC5=0.9DL+W0
LC6=0.9DL+W30
LC7=0.9DL-W0
LC8=0.9DL-W30
LC9=1.2DL+Di+Wi0
LC10=1.2DL+Di+Wi30
LC11=1.2DL+Di-Wi0
LC12=1.2DL+Di-Wi30
LC13=1.4DL
LC14=1.2DL+1.6LL1
LC15=1.2DL+1.6LL2
LC16=1.2DL+WL0+1.6LLa1
LC17=1.2DL+WL30+1.6LLa1
LC18=1.2DL-WL0+1.6LLa1
LC19=1.2DL-WL30+1.6LLa1
LC20=1.2DL+WL0+1.6LLa2
LC21=1.2DL+WL30+1.6LLa2
LC22=1.2DL-WL0+1.6LLa2
LC23=1.2DL-WL30+1.6LLa2
LC24=1.2DL+WL0+1.6LLa3
LC25=1.2DL+WL30+1.6LLa3
LC26=1.2DL-WL0+1.6LLa3
LC27=1.2DL-WL30+1.6LLa3
LC28=1.2DL+WL0+1.6LLa4
LC29=1.2DL+WL30+1.6LLa4
LC30=1.2DL-WL0+1.6LLa4
LC31=1.2DL-WL30+1.6LLa4

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	HSS_SQR 4X4X1_4	**4**	LC3 at 100.00%	0.13	OK	
		5	LC4 at 100.00%	**0.15**	**OK**	
		6	LC3 at 100.00%	0.12	OK	
		7	LC2 at 50.00%	0.14	OK	
		8	LC1 at 48.44%	0.12	OK	
		9	LC4 at 48.44%	0.14	OK	
	L 2-1_2X2-1_2X3_16	**41**	LC4 at 100.00%	0.31	OK	
		43	LC3 at 0.00%	0.34	OK	
		45	LC2 at 100.00%	**0.35**	**OK**	
	L 2X2X1_4	**13**	LC3 at 100.00%	0.14	OK	
		14	LC1 at 100.00%	0.14	OK	
		15	LC4 at 100.00%	**0.16**	**OK**	
		16	LC2 at 0.00%	0.15	OK	
		17	LC1 at 0.00%	0.14	OK	
		18	LC3 at 0.00%	0.13	OK	
	PIPE 2-1_2x0.203	**40**	LC1 at 76.79%	0.16	OK	

	42	LC3 at 76.79%	0.18	OK
	44	LC2 at 76.79%	0.19	OK
	74	LC2 at 0.00%	0.19	OK
	75	LC4 at 0.00%	**0.21**	**OK**
	76	LC4 at 0.00%	0.16	OK
	77	LC1 at 0.00%	0.17	OK
	78	LC3 at 0.00%	0.12	OK
	79	LC3 at 0.00%	0.13	OK
	80	LC18 at 89.58%	0.09	OK
	81	LC3 at 75.00%	0.10	OK
	82	LC3 at 60.42%	0.08	OK
	83	LC3 at 75.00%	0.11	OK
	86	LC2 at 89.58%	0.11	OK
	89	LC2 at 89.58%	0.12	OK
	92	LC1 at 89.58%	0.10	OK
	95	LC1 at 89.58%	0.14	OK
	98	LC1 at 89.58%	0.10	OK
	101	LC1 at 89.58%	0.12	OK
	104	LC4 at 60.42%	0.10	OK
	107	LC4 at 89.58%	0.14	OK
PIPE 2x0.154	**110**	LC3 at 65.63%	**0.03**	**OK**
PIPE 3x0.216	**2**	LC2 at 49.11%	0.11	OK
	3	LC4 at 81.25%	0.13	OK
	35	LC25 at 50.00%	**0.16**	**OK**
PL 6x3/8	**10**	LC2 at 50.00%	0.11	OK
	11	LC1 at 50.00%	**0.13**	**OK**
	12	LC4 at 50.00%	0.11	OK

RAM® Elements
CONNECT Edition

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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
3	0.596	-4.00	-8.7157	0
4	7.846	-4.00	3.8417	0
9	-7.846	-4.00	3.8417	0
10	-0.596	-4.00	-8.7157	0
12	7.25	-4.00	4.874	0
13	-7.25	-4.00	4.874	0
14	7.548	-4.00	4.3578	0
15	1.7716	-4.00	1.0228	0
18	-7.548	-4.00	4.3578	0
19	-1.7716	-4.00	1.0228	0
20	0.00	-4.00	-8.7157	0
21	0.00	-4.00	-2.0457	0
22	2.846	-4.00	-4.8186	0
23	5.596	-4.00	-0.0554	0
26	-2.846	-4.00	-4.8186	0
27	-5.596	-4.00	-0.0554	0
28	-2.75	-4.00	4.874	0
29	2.75	-4.00	4.874	0
30	5.3725	-4.00	0.3317	0
31	2.9735	-4.00	4.4869	0
34	-2.9735	-4.00	4.4869	0
35	-5.3725	-4.00	0.3317	0
36	-2.399	-4.00	-4.8186	0

37	2.399	-4.00	-4.8186	0
108	-7.25	3.00	4.874	0
109	-7.846	3.00	3.8417	0
110	-0.596	3.00	-8.7157	0
111	0.596	3.00	-8.7157	0
112	7.25	3.00	4.874	0
113	7.846	3.00	3.8417	0
114	-1.7716	0.00	1.0228	0
115	0.00	0.00	-2.0457	0
116	1.7716	0.00	1.0228	0
173	6.221	3.00	1.0271	0
174	-4.00	3.00	4.874	0
175	-2.221	3.00	-5.9011	0
176	4.00	3.00	4.874	0
177	-6.221	3.00	1.0271	0
178	2.221	3.00	-5.9011	0
182	6.00	5.00	5.074	0
183	6.00	-5.00	5.074	0
184	4.50	5.00	5.074	0
185	4.50	-5.00	5.074	0
186	0.00	5.00	5.074	0
187	0.00	-5.00	5.074	0
188	-4.50	5.00	5.074	0
189	-4.50	-5.00	5.074	0
198	-7.3942	5.00	2.6592	0
199	1.3942	5.00	-7.7332	0
200	-7.3942	-5.00	2.6592	0
201	1.3942	-5.00	-7.7332	0
210	-6.6442	5.00	1.3601	0
211	2.1442	5.00	-6.4341	0
212	-6.6442	-5.00	1.3601	0
213	2.1442	-5.00	-6.4341	0
222	-4.3942	5.00	-2.537	0
223	4.3942	5.00	-2.537	0
224	-4.3942	-5.00	-2.537	0
225	4.3942	-5.00	-2.537	0
234	-2.1442	5.00	-6.4341	0
235	6.6442	5.00	1.3601	0
236	-2.1442	-5.00	-6.4341	0
237	6.6442	-5.00	1.3601	0
244	-3.3707	-2.00	2.2531	0
245	-3.3707	-5.00	2.2531	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
15	1	1	1	1	1	1
19	1	1	1	1	1	1
21	1	1	1	1	1	1
114	1	1	1	1	1	1
115	1	1	1	1	1	1
116	1	1	1	1	1	1

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	lg factor
2	9	10		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
3	3	4		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
4	18	19		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
5	20	21		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
6	14	15		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
7	28	27		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
8	26	22		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
9	23	29		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
10	13	9		PL 6x3/8	A36	0.00	0.00	0.00
11	10	3		PL 6x3/8	A36	0.00	0.00	0.00
12	12	4		PL 6x3/8	A36	0.00	0.00	0.00
13	34	18		L 2X2X1_4	A36	0.00	0.00	0.00
14	36	20		L 2X2X1_4	A36	0.00	0.00	0.00
15	30	14		L 2X2X1_4	A36	0.00	0.00	0.00
16	18	35		L 2X2X1_4	A36	0.00	0.00	0.00
17	20	37		L 2X2X1_4	A36	0.00	0.00	0.00
18	14	31		L 2X2X1_4	A36	0.00	0.00	0.00
35	12	13		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
40	112	108		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
41	108	109		L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
42	109	110		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
43	110	111		L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
44	111	113		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
45	112	113		L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
74	115	175		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
75	115	178		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
76	116	173		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
77	114	177		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
78	114	174		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
79	116	176		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
80	182	183		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
81	184	185		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
82	186	187		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
83	188	189		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
86	198	200		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
89	210	212		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
92	222	224		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
95	234	236		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
98	199	201		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
101	211	213		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
104	223	225		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
107	235	237		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
110	244	245		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00

Orientation of local axes

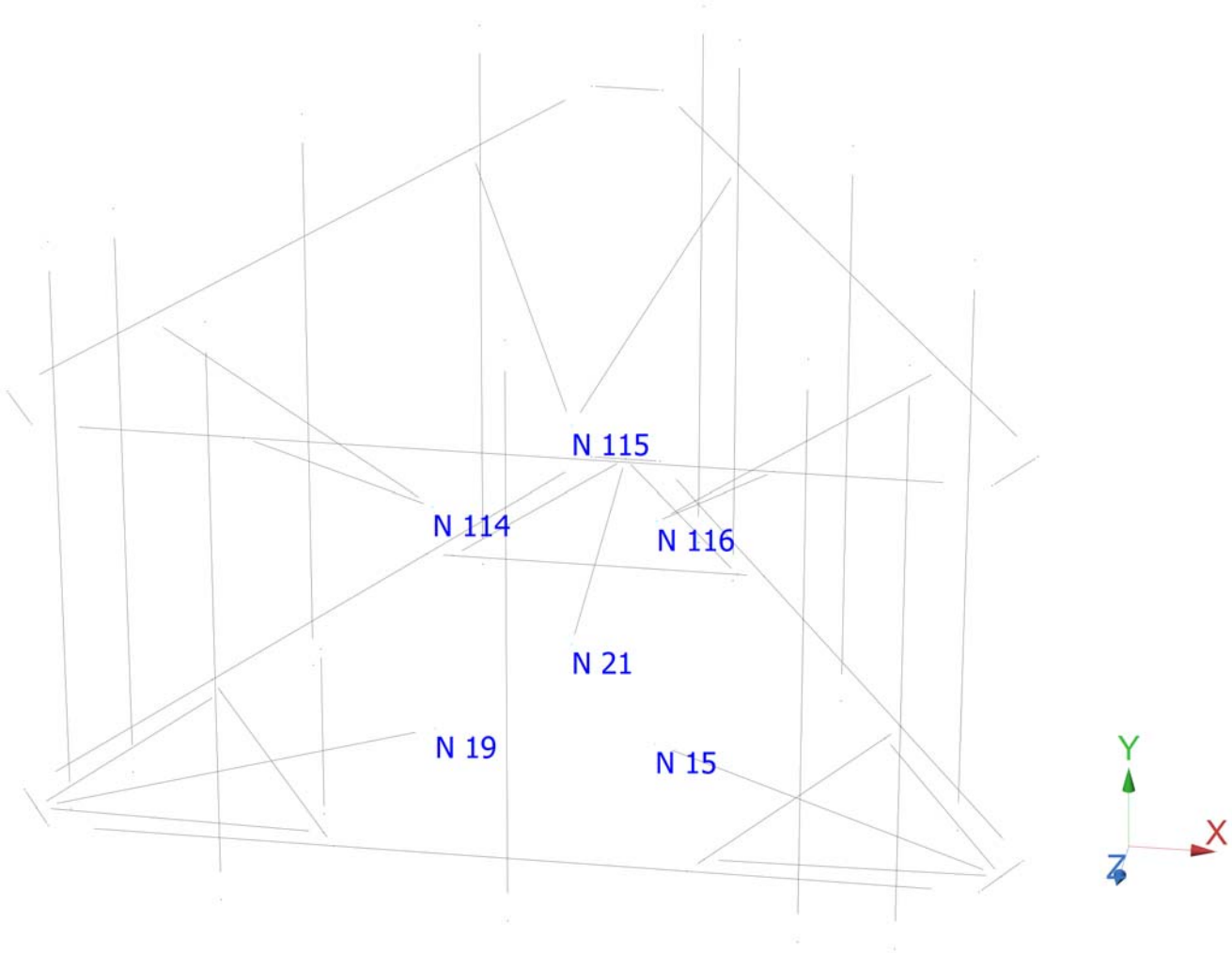
Member	Rotation [Deg]	Axes23	NX	NY	NZ
41	180.00	0	0.00	0.00	0.00
43	180.00	0	0.00	0.00	0.00
45	90.00	0	0.00	0.00	0.00

Rigid end offsets

Member	DJX [in]	DJY [in]	DJZ [in]	DKX [in]	DKY [in]	DKZ [in]
13	0.00	3.00	0.00	0.00	3.00	0.00
14	0.00	3.00	0.00	0.00	3.00	0.00
15	0.00	3.00	0.00	0.00	3.00	0.00
16	0.00	3.00	0.00	0.00	3.00	0.00
17	0.00	3.00	0.00	0.00	3.00	0.00
18	0.00	3.00	0.00	0.00	3.00	0.00

Hinges

	Node-J				Node-K						
Member	**M33**	**M22**	**V3**	**V2**	**M33**	**M22**	**V3**	**V2**	**TOR**	**AXL**	**Axial rigidity**
74	0	0	0	0	1	1	0	0	0	0	Full
75	0	0	0	0	1	1	0	0	0	0	Full
76	0	0	0	0	1	1	0	0	0	0	Full
77	0	0	0	0	1	1	0	0	0	0	Full
78	0	0	0	0	1	1	0	0	0	0	Full
79	0	0	0	0	1	1	0	0	0	0	Full


N 115
N 114
N 116
N 21
N 19
N 15
Y
X
Z

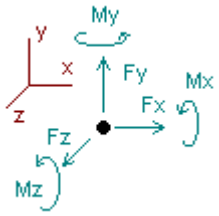
RAM® Elements
CONNECT Edition

Current Date: 4/20/2023 3:28 PM
Units system: English

Analysis result

Envelope for nodal reactions

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



Direction of positive forces and moments

Envelope of nodal reactions for :

LC1=1.2DL+W0
LC2=1.2DL+W30
LC3=1.2DL-W0
LC4=1.2DL-W30
LC5=0.9DL+W0
LC6=0.9DL+W30
LC7=0.9DL-W0
LC8=0.9DL-W30
LC9=1.2DL+Di+Wi0
LC10=1.2DL+Di+Wi30
LC11=1.2DL+Di-Wi0
LC12=1.2DL+Di-Wi30
LC13=1.4DL
LC14=1.2DL+1.6LL1
LC15=1.2DL+1.6LL2
LC16=1.2DL+WL0+1.6LLa1
LC17=1.2DL+WL30+1.6LLa1
LC18=1.2DL-WL0+1.6LLa1
LC19=1.2DL-WL30+1.6LLa1
LC20=1.2DL+WL0+1.6LLa2
LC21=1.2DL+WL30+1.6LLa2
LC22=1.2DL-WL0+1.6LLa2
LC23=1.2DL-WL30+1.6LLa2
LC24=1.2DL+WL0+1.6LLa3
LC25=1.2DL+WL30+1.6LLa3
LC26=1.2DL-WL0+1.6LLa3
LC27=1.2DL-WL30+1.6LLa3
LC28=1.2DL+WL0+1.6LLa4
LC29=1.2DL+WL30+1.6LLa4
LC30=1.2DL-WL0+1.6LLa4
LC31=1.2DL-WL30+1.6LLa4

		Forces						Moments					
Node		**Fx** [Kip]	**Ic**	**Fy** [Kip]	**Ic**	**Fz** [Kip]	**Ic**	**Mx** [Kip*ft]	**Ic**	**My** [Kip*ft]	**Ic**	**Mz** [Kip*ft]	**Ic**
15	Max	1.197	LC2	0.971	LC12	0.927	LC1	0.18428	LC5	0.82023	LC7	1.24497	LC12
	Min	-1.135	LC8	0.152	LC6	-0.879	LC7	-1.02894	LC26	-0.85574	LC1	0.05738	LC6
19	Max	1.218	LC6	1.017	LC10	0.985	LC1	0.19685	LC5	0.93046	LC5	-0.10539	LC8
	Min	-1.291	LC4	0.189	LC8	-0.957	LC7	-1.06369	LC26	-0.96364	LC3	-1.28649	LC10

21	Max	0.919	LC2	0.971	LC9	1.404	LC5	1.42125	LC9	1.53512	LC8	0.58489	LC4
	Min	-0.908	LC8	0.145	LC7	-1.482	LC3	0.23373	LC7	-1.56885	LC2	-0.57904	LC6
114	Max	1.052	LC6	0.898	LC4	0.761	LC1	0.37874	LC5	0.40250	LC1	0.22855	LC8
	Min	-1.155	LC4	-0.672	LC6	-0.699	LC7	-0.46541	LC3	-0.35240	LC7	-0.44596	LC2
115	Max	0.603	LC6	0.961	LC3	1.175	LC5	0.49547	LC1	0.70525	LC4	0.57783	LC4
	Min	-0.606	LC4	-0.736	LC5	-1.294	LC3	-0.26485	LC7	-0.65425	LC6	-0.54352	LC6
116	Max	1.145	LC2	0.900	LC2	0.779	LC1	0.34234	LC5	0.40778	LC3	0.43981	LC4
	Min	-1.040	LC8	-0.674	LC8	-0.722	LC7	-0.48836	LC3	-0.35559	LC5	-0.25802	LC6

Connection Check

Date: 4/20/2023
Project Name: SHELTON NU PWR MT
Project No.: CT2044
Designed By: KSBM **Checked By:** MSC

CHECK CONNECTION CAPACITY (Worst Case)

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

Bolt Type = A36 5/8" (Threaded Rod)

Allowable Tensile Load =

F_{Tall} = 6673 lbs.

Allowable Shear Load =

F_{Vall} = 4004 lbs.

TENSILE FORCES

Reaction **F =** 985 lbs. (See Bentley Output)

SHEAR FORCES

Reactions in X direction: 1291 lbs. (See Bentley Output)
Reactions in Y direction: 1017 lbs. (See Bentley Output)

Resultant: 1643 lbs.

No. of Supports = 1
No. of Bolts / Support = 3

Tension Design Load /Bolts =

f_t = 328.33 lbs. < 6673 lbs. **Therefore, OK !**

Shear Design Load / Bolts=

f_v = 547.82 lbs. < 4004 lbs. **Therefore, OK !**

CHECK COMBINED TENSION AND SHEAR

f_t / F_T	+	f_v / F_V	≤	1.0			
0.049	+	0.137	=	0.186	<	1.0	**Therefore, OK !**

The Assessor's office is responsible for the maintenance of records on the ownership of properties. Assessments are computed at 70% of the estimated market value of real property at the time of the last revaluation which was 2021.

City of Shelton, Connecticut

Vision to See, Faith to Believe, Courage to Do...

Information on the Property Records for the Municipality of Shelton was last updated on 11/16/2023.

Parcel Information

Location:	15 DAYBREAK LA	Property Use:	Residential	Primary Use:	Residential
Unique ID:	29 10	Map Block Lot:	29 10	Acres:	1.1200
490 Acres:	0.00	Zone:	R-1	Volume / Page:	4203/ 350
Developers Map / Lot:	LOT#17 FAR MILL ACRE	Census:			

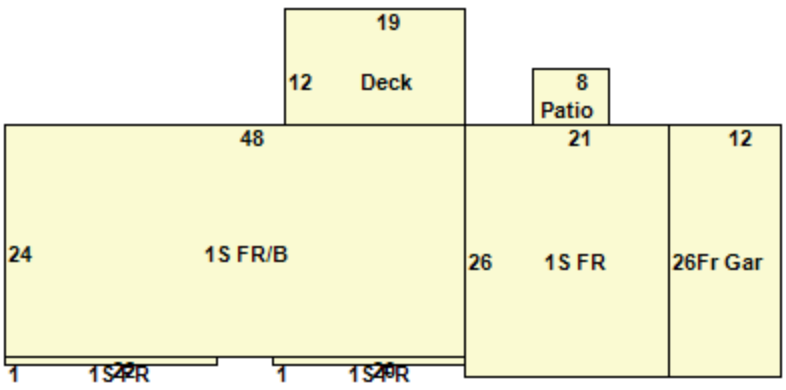
Value Information

	Appraised Value	Assessed Value
Land	156,000	109,200
Buildings	322,500	225,750
Detached Outbuildings	0	0
Total	478,500	334,950

Owner's Information

Owner's Data
SHERWOOD JOANNE ESTATE BUCKLAND AUDRA M ADMIN CTA C/O LAW OFFICE OF NEIL CRANE LLC 2679 WHITNEY AVE HAMDEN, CT 06518

Building 1



Building Use:	Single Family	Style:	Raised Ranch	Living Area:	1,740
Stories:	1.00	Construction:	Wood Frame	Year Built:	1972

Total Rooms:	11	Bedrooms:	4	Full Baths:	2
Half Baths:	1	Fireplaces:	0	Heating:	
Fuel:	Oil	Cooling Percent:	100	Basement Area:	1,152
Basement Finished Area:	624	Basement Garages:	2	Roof Material:	
Siding:	Alum/Vinyl Siding	Units:	One w/In Law		

Special Features

Fireplace	1

Attached Components

Type:	Year Built:	Area:
Wood Deck	2007	228
Frame Garage	2007	312
HotTubA	2007	1
Patio	1968	128
Patio	2007	48

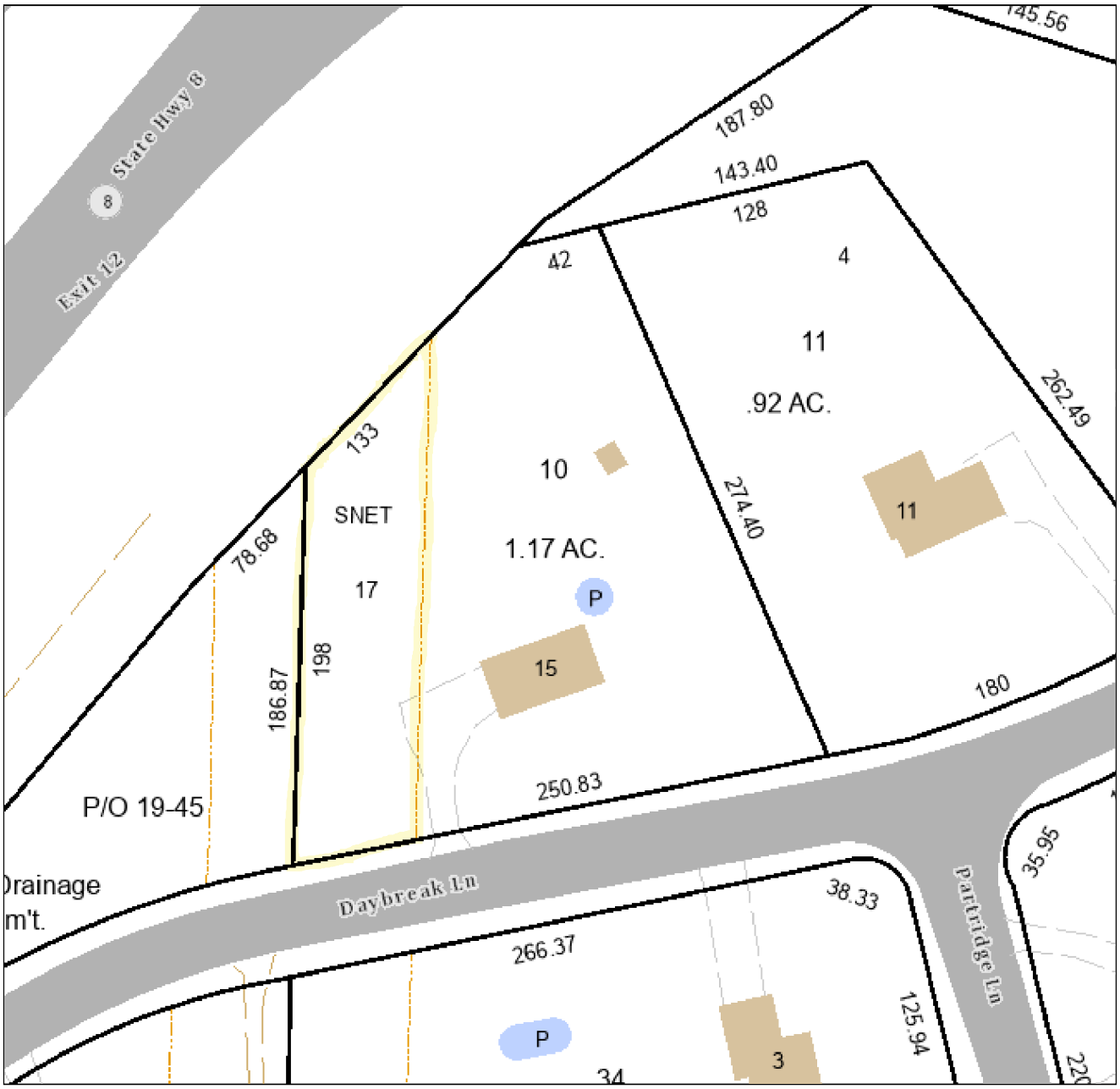
Owner History - Sales

Owner Name	Volume	Page	Sale Date	Deed Type	Sale Price
SHERWOOD JOANNE ESTATE	4203	0350	07/05/2022	Probate	$0
SHERWOOD JOANNE	3466	0319	02/10/2014	Warranty Deed	$355,000
DANDRIA JOHN R JR & THOMAS &	3187	0045	02/14/2011	Administrators Deed	$0
DANDRIA JOHN R SR &	2770	0340	12/29/2006	Certificate of Devise	$0
DANDRIA GENEVIEVE M	2645	0106	01/20/2006	Quit Claim	$0
DANDRIA JOHN R SR &	0255	0424			$0

City of Shelton

Geographic Information System (GIS)

Date Printed: 5/17/2023



MAP DISCLAIMER - NOTICE OF LIABILITY

This map is for assessment purposes only. It is not for legal description or conveyances. All information is subject to verification by any user. The City of Shelton and its mapping contractors assume no legal responsibility for the information contained herein.

0 75 Feet

N W E S

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@ct.gov
Web Site: portal.ct.gov/csc

VIA ELECTRONIC MAIL & CERTIFIED MAIL
RETURN RECEIPT REQUESTED

October 13, 2023

Deborah Denfeld
Team Lead – Transmission Siting
Eversource Energy
P.O. Box 270
Hartford, CT 06141
deborah.denfeld@eversource.com

RE: **PETITION NO. 1582 -** The Connecticut Light and Power Company d/b/a Eversource Energy petition for a declaratory ruling, pursuant to Connecticut General Statutes §4-176 and §16-50k, for the proposed Pootatuck to West Devon Rebuild Project consisting of the replacement and reconductoring of electric transmission line structures along approximately 3.3 miles of its existing electric transmission line right-of-way shared by its existing 115-kilovolt (kV) 1580, 1241, 1483 and 1545 Lines between The United Illuminating Company's (UI) Pootatuck Substation in Shelton, UI's Trap Falls Substation in Shelton and Eversource's West Devon Junction in Stratford, traversing the municipalities of Shelton and Stratford, Connecticut, and related electric transmission line and substation improvements.

Dear Deborah Denfeld:

At a public meeting held on October 12, 2023, the Connecticut Siting Council (Council) considered and ruled that the above-referenced proposal would not have a substantial adverse environmental effect, and pursuant to Connecticut General Statutes § 16-50k, would not require a Certificate of Environmental Compatibility and Public Need with the following conditions:

1. Approval of any project changes be delegated to Council staff;

2. Submit a copy of the Department of Energy and Environmental Protection (DEEP) Stormwater Permit prior to commencement of construction;

3. Submit a copy of the Final DEEP Natural Diversity Database (NDDB) Determination Letter prior to commencement of construction;

4. Incorporate pollinator habitat in the restoration of disturbed areas consistent with CGS §16-50hh, where feasible;

5. An environmental monitor shall oversee construction activities in sensitive resource areas;

6. Implement the Vernal Pool Protection Plan;

7. Submit a Post-Construction Temporary Wetland Impact Restoration Report for project areas where temporary matting is utilized;

8. Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed within three years from the date of the mailing of the Council's decision, this decision shall be void,

and the facility owner/operator shall dismantle the facility and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made. The time between the filing and resolution of any appeals of the Council's decision shall not be counted in calculating this deadline. Authority to monitor and modify this schedule, as necessary, is delegated to the Executive Director. The facility owner/operator shall provide written notice to the Executive Director of any schedule changes as soon as is practicable;

9. The Council shall be notified in writing at least two weeks prior to the commencement of site construction activities;

10. Any request for extension of the time period to fully construct the facility shall be filed with the Council not later than 60 days prior to the expiration date of this decision and shall be served on all parties and intervenors, if applicable, and the City of Shelton and the Town of Stratford;

11. Within 45 days after completion of construction, the Council shall be notified in writing that construction has been completed **along with a representative photograph of the project**;

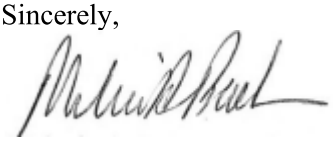
12. The facility owner/operator shall remit timely payments associated with annual assessments and invoices submitted by the Council for expenses attributable to the facility under Conn. Gen. Stat. §16-50v; and

13. This Declaratory Ruling may be transferred or partially transferred, provided both the facility owner/operator/transferor and the transferee are current with payments to the Council for their respective annual assessments and invoices under Conn. Gen. Stat. §16-50v. The Council shall be notified of such sale and/or transfer and of any change in contact information for the individual or representative responsible for management and operations of the facility within 30 days of the sale and/or transfer. Both the facility owner/operator/transferor and the transferee shall provide the Council with a written agreement as to the entity responsible for any quarterly assessment charges under Conn. Gen. Stat. §16-50v(b)(2) that may be associated with this facility, including contact information for the individual acting on behalf of the transferee.

This decision is under the exclusive jurisdiction of the Council and is not applicable to any other modification or construction. All work is to be implemented as specified in the petition dated July 3, 2023, and additional information dated August 17, 2023.

Enclosed for your information is a copy of the staff report on this project.

Sincerely,



Melanie A. Bachman
Executive Director

MAB/MP/dll

Enclosure: Staff Report dated October 12, 2023

c: The Honorable Mark A. Lauretti, Mayor, City of Shelton (shelton01@cityofshelton.org)
The Honorable Laura R. Hoydick, Mayor, Town of Stratford (mayor@townofstratford.com)
Kathleen Shanley, Eversource Energy (Kathleen.shanley@eversource.com)

STATE OF CONNECTICUT)

: ss. Southington, Connecticut October 13, 2023

COUNTY OF HARTFORD)

I hereby certify that the foregoing is a true and correct copy of the Decision and Staff Report in Petition No. 1582 issued by the Connecticut Siting Council, State of Connecticut.

ATTEST:

Melanie A. Bachman
Executive Director
Connecticut Siting Council

STATE OF CONNECTICUT)

: ss. New Britain, Connecticut October 13, 2023

COUNTY OF HARTFORD)

I certify that a copy of the Connecticut Siting Council Decision and Staff Report in Petition No. 1582 has been forwarded by Certified First Class Return Receipt Requested mail, on October 13, 2023, to each party and intervenor, or its authorized representative, as listed on the attached service list, dated July 3, 2023.

ATTEST:

Dakota LaFountain
Clerk Typist
Connecticut Siting Council

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square
New Britain, Connecticut 06051
Phone: (860) 827-2935
Fax: (860) 827-2950

CERTIFIED MAIL Z 276 419 655
RETURN RECEIPT REQUESTED

March 26, 1999

Peter W. van Wilgen
SNET Mobility, Inc.
500 Enterprise Drive
Rocky Hill, CT 06067-3900

RE PETITION NO. 412 – Springwich Cellular Limited Partnership petition for a Declaratory Ruling that no Certificate of Environmental Compatibility and Public Need is required to modify a Connecticut Light & Power high-voltage electric transmission line support structure located off 17 Daybreak Lane in Shelton, Connecticut.

Dear Mr. van Wilgen:

At a public meeting held on March 24, 1999, the Connecticut Siting Council (Council) considered and ruled that the proposed modification to an existing electric transmission line structure located off of Daybreak Lane in Shelton, Connecticut, would not have a substantial adverse environmental effect, and pursuant to General Statutes § 16-50k would not require a Certificate of Environmental Compatibility and Public Need.

This decision applies only to Petition No 412, and is not applicable to any other modification or construction. All work is to be implemented as specified in the petition, dated March 10, 1999, with a condition that landscaping be placed around the equipment building and a gate installed at the entrance off of Daybreak Lane.

This facility has been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequency now used on this tower. 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.

Please notify the Council upon completion of construction. Enclosed for your information is a copy of the staff report on this project.

Yours very truly,

Joel M. Rinebold
Executive Director

JMR/RKE/jlh
Enclosure (1): Staff Report dated March 24, 1999
c: Honorable Mark A. Lauretti, Mayor, City of Shelton
Dorian E. Hill, Principal Engineer, Northeast Utilities

I:\siting\petitions\412\dc032499.doc

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square
New Britain, Connecticut 06051
Phone: (860) 827-2935
Fax: (860) 827-2950

Petition No. 412
Springwich Cellular Limited Partnership
Shelton, Connecticut
Staff Report
March 24, 1999

On March 22, 1999, Daniel P. Lynch, Jr., of the Connecticut Siting Council (Council) and Robert K. Erling of the Council staff met Marshall West of Springwich Cellular Limited Partnership (Springwich) for a field review of this petition in Shelton, Connecticut. Springwich is petitioning the Council for a determination that no Certificate of Environmental Compatibility and Public Need (Certificate) would be required for modifications to existing Connecticut Light and Power (CL&P) electric transmission line # 1570, and structure # 1340 off of Daybreak Lane in Shelton.

Springwich submits no Certificate would be required because the installation of its antennas and associated equipment at this tower would not have a substantial adverse environmental effect.

Springwich proposes to attach its panel antennas to the top of an existing 71.7-foot CL&P electric transmission line lattice tower. The top of the antennas would be approximately 89.1 feet above ground level. At CL&P's request, the antenna platform would be designed to support Springwich's antennas only. Other nearby transmission towers range from 80 to 85 feet in height.

Springwich would install a 12-foot by 26-foot equipment shelter within the transmission line right-of-way near the base of the tower. An eight-foot security fence would be placed around the equipment shelter.

Access to the transmission line tower would be from Daybreak Lane onto land currently covered under the present right-of-way agreement held by CL&P. A permanent driveway approximately 200 feet in length would be constructed to access the tower both during antenna installation and for maintenance purposes.

The area surrounding the transmission line structure includes unoccupied residential lots to the west and east, Daybreak Lane to the south, and Route 8 to the north. The nearest residence is approximately 350 feet east of the transmission tower, with existing vegetative screening between the tower and the residence. This resident has granted Springwich access to the site through his property.

There are no wetlands in the vicinity of the tower site. All erosion and sediment control measures would be installed as required in accordance with the Connecticut Guidelines for Soil Erosion and Sediment Control.

The total calculated radio frequency power density at the base of the tower would be 0.1064 mW/cm^2, 18.14 percent of the maximum permissible exposure for uncontrolled environments based on Federal Communications Bulletin 65, August 1997.

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