October 10, 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 CT2117
200 Edgemark Acres, Meriden, CT 06451 (the "Property")
Latitude: 41-31-51.7 N Longitude: -72-50-33.6 W

Dear Ms. Bachman:

AT&T currently maintains (9) antennas at the 90' level on the existing 79.75'+- Eversource transmission structure #783 ("Structure") located at 200 Edgemark Acres, Meriden, CT. The property is owned by Martorelli Realty Co., and the Structure is owned by Connecticut Light & Power ("Eversource"). Eversource plans on replacing the existing Structure with a 110' transmission structure. AT&T intends on modifying its Facility by removing all (9) antennas & equipment from the existing Structure and placing (3) AIR6449 B77D antennas, (3) AIR6419 B77G antennas, (3) DMP65R-BU8DA antennas & (3) OPA65R-BU8DA antennas at the 110' level of the replacement Structure. The (3) AIR6449 B77D antennas & (3) AIR6419 B77G antennas are stacked one on top of the other. AT&T also intends on placing (12) TMAT192123B68-31 TMAs on the replacement structure. The height of AT&Ts existing antennas is 79.75'+- and proposed antennas is 110' 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 AT&T facility received CT Siting Council ("Council") approval in Petition 1122 on January 8, 2015. The Council approved Eversource's Structure replacement under Petition 1574 on August 17, 2023. The approvals contained no conditions that could feasibly be violated by this modification, including facility height or mounting restrictions. 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 to R.C.S.A §16-50j-73, a copy of this letter is being sent to the Honorable Kevin Scarpati, Mayor, City of Meriden, as chief elected official, Ms.

Monica Sims, Director of Planning & Enforcement, City of Meriden, Martorelli Realty Co., the property owner & 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 modifications will not result in an increase in the height of the existing structure.

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

3. The proposed modification will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the modified facility will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The existing structure and foundation can support the proposed loading.

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

Sincerely,

Hollis M. Redding

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

Enclosures

Cc: Honorable Kevin Scarpati, Mayor, City of Meriden, chief elected official
Ms. Monica Sims, Director of Planning & Enforcement, City of Meriden
Martorelli Realty Co., the property owner
Connecticut Light & Power (''Eversource"), the structure owner

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

Calculated Radio Frequency Emissions Report

CT2117

200 Edgemark Acres, Meriden, CT 06825

October 4, 2023

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1. Introduction

The purpose of this report is to investigate compliance with applicable FCC regulations for the proposed installation of AT&T antenna arrays to be mounted at 110' AGL on a proposed transmission tower located at 200 Edgemark Acres in Meriden, CT. The coordinates of the tower are 41° 31' 51.74" N, 72° 50' 33.64" W.

AT&T is proposing the following:

1) Install twelve (12) multi-band antennas (four (4) per 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 08/22/2023

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)
AT&T	Alpha / 0°	700	160	15.1	5177	DMP65R-BU8D	75	0	8.0	110
		850	160	16.0	6370		64			
		2100	240	18.2	15857		68			
		700	160	15.7	5945	OPA65R-BU8D	75	0	8.0	110
		1900	160	17.9	9866		67			
		2300	100	18.3	6761		54			
		3500	54.2	25.65	19907	AIR 6419	11	0	2.35	110
		3700	86.7	25.65	31843	AIR 6449	11	0	2.53	110
	Beta / 120°	700	160	15.1	5177	DMP65R-BU8D	75	0	8.0	110
		850	160	16.0	6370		64			
		2100	240	18.2	15857		68			
		700	160	15.7	5945	OPA65R-BU8D	75	0	8.0	110
		1900	160	17.9	9866		67			
		2300	100	18.3	6761		54			
		3500	54.2	25.65	19907	AIR 6419	11	0	2.35	110
		3700	86.7	25.65	31843	AIR 6449	11	0	2.53	110
	Gamma / 240°	700	160	15.1	5177	DMP65R-BU8D	75	0	8.0	110
		850	160	16.0	6370		64			
		2100	240	18.2	15857		68			
		700	160	15.7	5945	OPA65R-BU8D	75	0	8.0	110
		1900	160	17.9	9866		67			
		2300	100	18.3	6761		54			
		3500	54.2	25.65	19907	AIR 6419	11	0	2.35	110
		3700	86.7	25.65	31843	AIR 6449	11	0	2.53	110

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

[2] AT&T's Radio Frequency Design Sheet, dated 08/22/2023

[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.

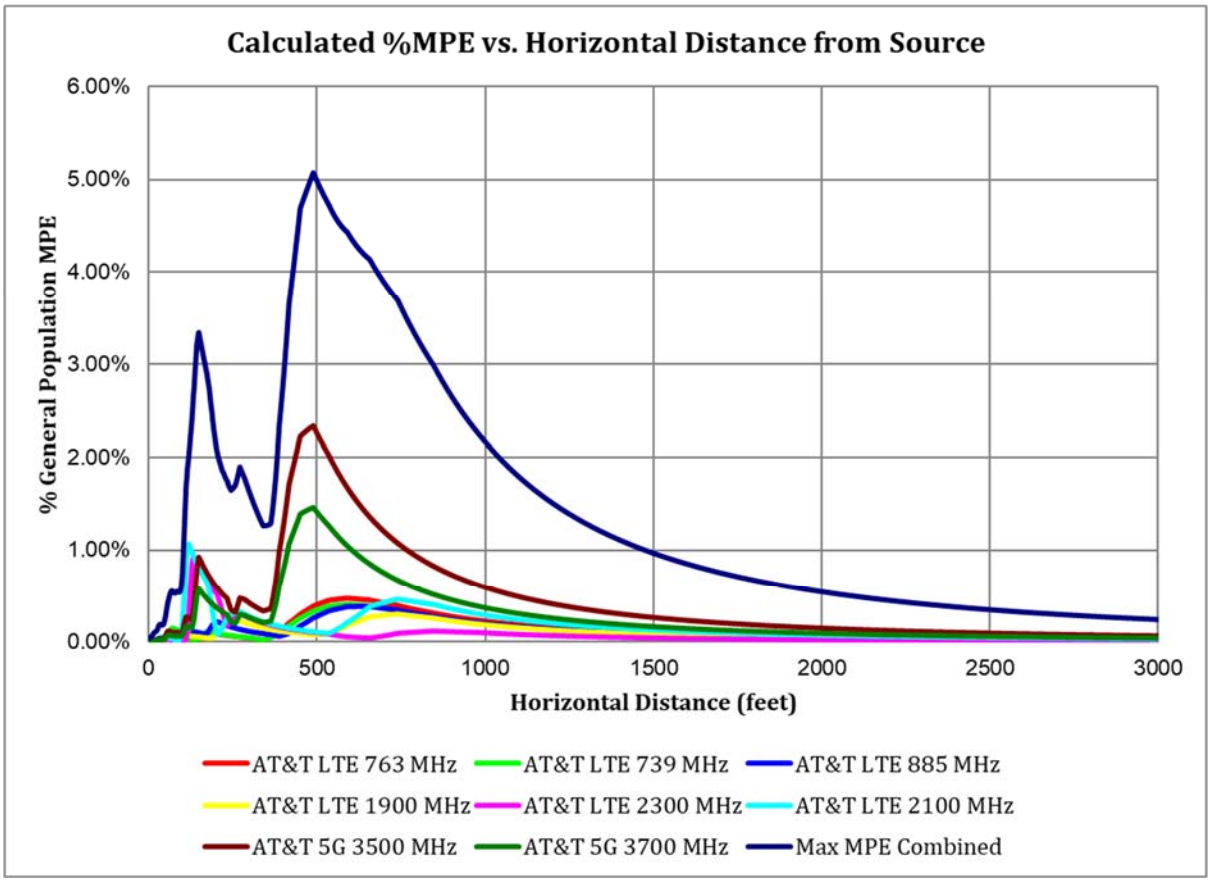


Figure 1: Graph of General Population % MPE vs. Distance

The highest percent of MPE (5.07% of the General Population limit) is calculated to occur at a horizontal distance of 489 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 489 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	86.7	110.0	489	0.023366	1.000	2.34%
AT&T 5G 3700 MHz	1	54.2	110.0	489	0.014613	1.000	1.46%
AT&T LTE 1900 MHz	1	160.0	110.0	489	0.000773	1.000	0.08%
AT&T LTE 2100 MHz	1	240.0	110.0	489	0.001110	1.000	0.11%
AT&T LTE 2300 MHz	1	100.0	110.0	489	0.001050	1.000	0.10%
AT&T LTE 739 MHz	1	160.0	110.0	489	0.001641	0.493	0.33%
AT&T LTE 763 MHz	1	160.0	110.0	489	0.001977	0.509	0.39%
AT&T LTE 885 MHz	1	160.0	110.0	489	0.001537	0.590	0.26%
						Total	**5.07%**

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 **5.07% of the FCC limit (General Population/Uncontrolled)**. This maximum cumulative percent of MPE value is calculated to occur 489 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

October 2, 2023
Date

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

October 4, 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.

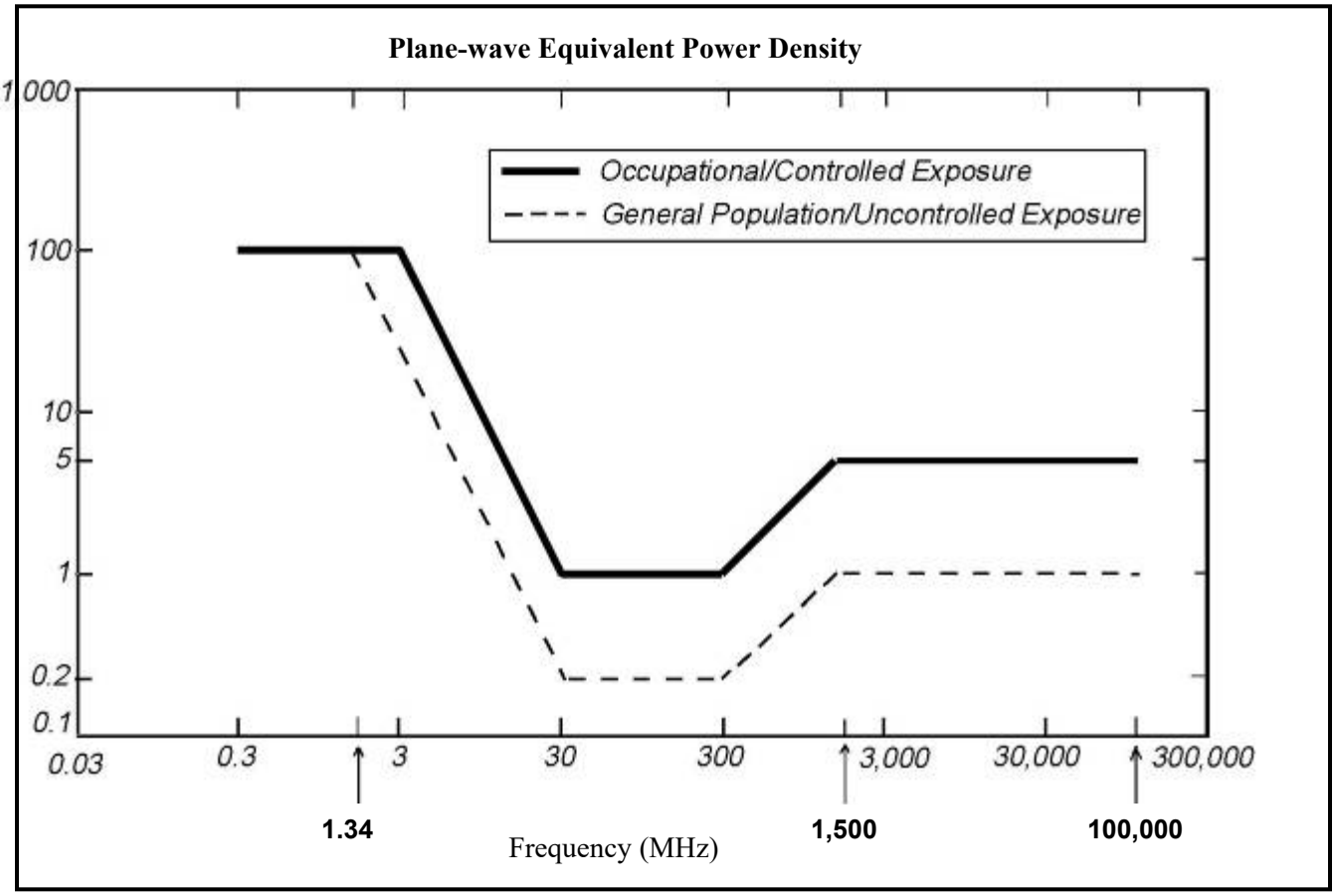
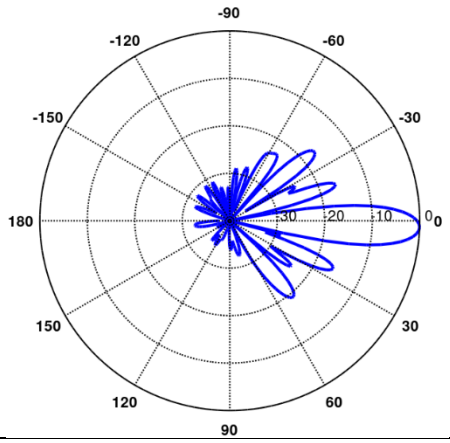
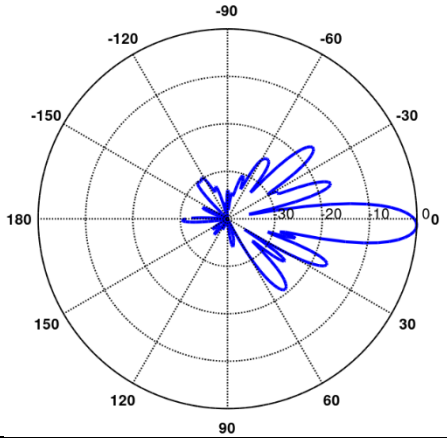
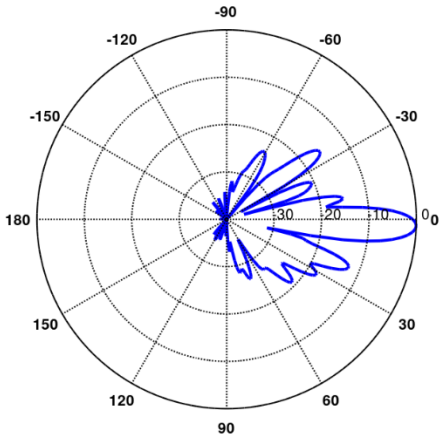


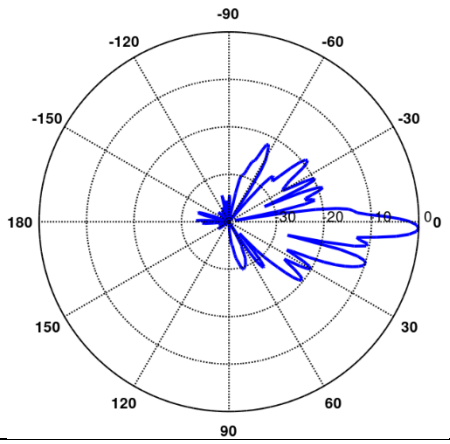
Figure 2: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

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

700 MHz Manufacturer: CCI Model #: DMP65R-BU8D Frequency Band: 698-798 MHz Gain: 15.1 dBi Vertical Beamwidth: 9.5° Horizontal Beamwidth: 75° Polarization: Dual Linear 45° Dimensions (L x W x D): 96” x 20.7” x 7.7”	
700 MHz Manufacturer: CCI Model #: OPA65R-BU8D Frequency Band: 698-806 MHz Gain: 15.7 dBi Vertical Beamwidth: 9.5° Horizontal Beamwidth: 75° Polarization: Dual Linear 45° Dimensions (L x W x D): 96” x 20.7” x 7.7”	
850 MHz Manufacturer: CCI Model #: DMP65R-BU8D Frequency Band: 824-896 MHz Gain: 16.0 dBi Vertical Beamwidth: 8.0° Horizontal Beamwidth: 64° Polarization: Dual Linear 45° Dimensions (L x W x D): 96” x 20.7” x 7.7”	

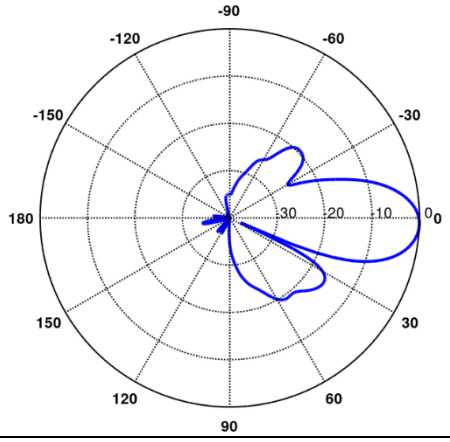
1900 MHz

Manufacturer:	CCI
Model #:	OPA65R-BU8D
Frequency Band:	1850-1990 MHz
Gain:	17.9 dBi
Vertical Beamwidth:	5.1°
Horizontal Beamwidth:	67°
Polarization:	Dual Linear 45°
Dimensions (L x W x D):	96” x 20.7” x 7.7”



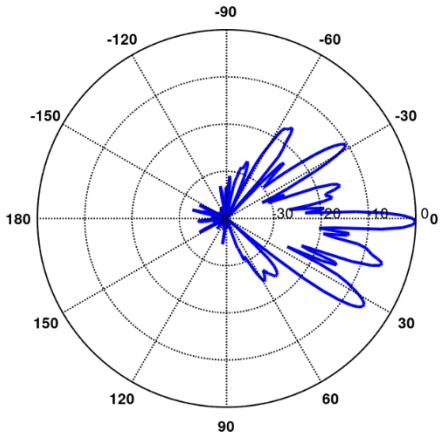
2100 MHz

Manufacturer:	CCI
Model #:	DMP65R-BU8D
Frequency Band:	1920-2180 MHz
Gain:	18.2 dBi
Vertical Beamwidth:	4.8°
Horizontal Beamwidth:	68°
Polarization:	Dual Linear 45°
Dimensions (L x W x D):	96” x 20.7” x 7.7”



2300 MHz

Manufacturer:	CCI
Model #:	OPA65R-BU8D
Frequency Band:	2300-2400 MHz
Gain:	18.3 dBi
Vertical Beamwidth:	4.1°
Horizontal Beamwidth:	54°
Polarization:	Dual Linear 45°
Dimensions (L x W x D):	96” x 20.7” x 7.7”



SITE NAME: EDGEMARK ACRES
SITE ID: CTL02117
EVERSOURCE STRUCT. NO. 783
200 EDGEMARK ACRES
MERIDEN, CT 06451

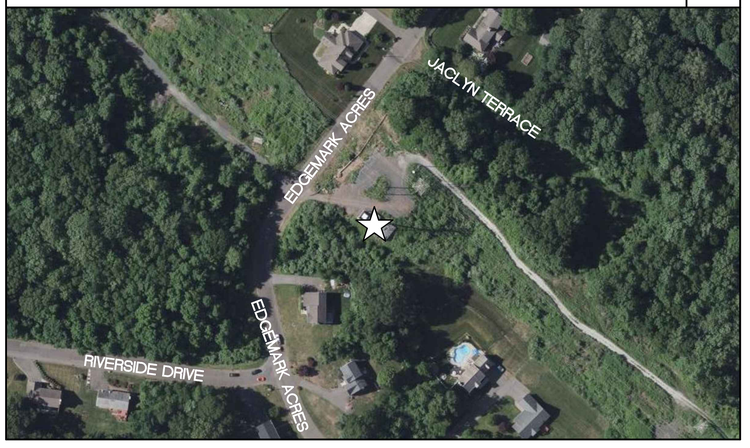
RFDS GENERAL INFORMATION

CELL SITE RF MODIFICATIONS:	LTE NEXT CARRIER LTE 4C 5G NR RADIO 5G NR 1SR CBAND 5G NR 1DR-1 ANTENNA MODIFICATIONS 4TX4RX SOFTWARE RETROFIT 5G NR 1SR 5G NR SOFTWARE RADIO 5G NR ACTIVATION
PACE ID:	PACE JOB 1 – MRCTB054333 PACE JOB 2 – MRCTB056570 PACE JOB 3 – MRCTB056567 PACE JOB 4 – MRCTB055369 PACE JOB 5 – MRCTB056301 PACE JOB 6 – MRCTB054893 PACE JOB 7 – MRCTB053462
FA LOCATION CODE:	10126684

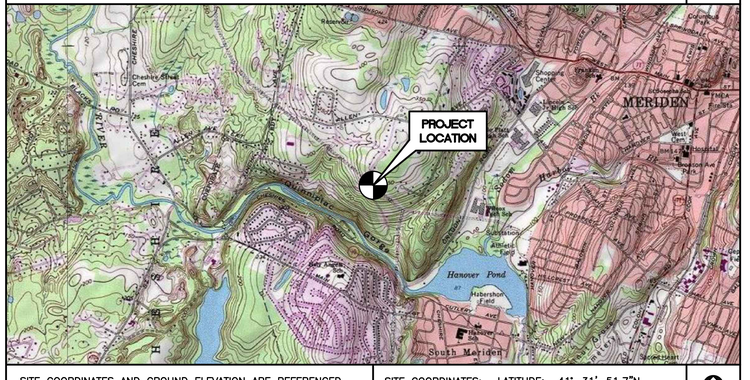
GENERAL NOTES

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 ARE REFERENCED FROM GOOGLE EARTH.

SITE COORDINATES: LATITUDE: 41°-31'-51.7"N
LONGITUDE: 72°-50'-33.6"W
GROUND ELEVATION: ±352' 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 CCI ANTENNAS
2. REMOVE (6) EXISTING KAELUS DBC2055F1V1-2 DIPLEXERS
3. REMOVE (6) EXISTING CCI TMABPD7823VG12A TMAS
4. REMOVE (3) EXISTING RRUs-11 B12 RADIOS
5. INSTALL (1) NEW 14'-6" ANTENNA MOUNT (SITEPRO P/N: RMQLP-4120-H10)
6. INSTALL (3) PROPOSED ERICSSON AIR6419 B77G ANTENNAS (AT TOWER)
7. INSTALL (3) PROPOSED ERICSSON AIR6449 B77 ANTENNAS (AT TOWER)
8. INSTALL (3) PROPOSED CCI DMP65R-BU8DA ANTENNAS (AT TOWER)
9. INSTALL (3) PROPOSED CCI OPA65R-BU8DA ANTENNAS (AT TOWER)
10. INSTALL (12) COMMSCOPE TMAT192123B68-31 TMAs (AT TOWER)
11. INSTALL (3) PROPOSED ERICSSON 4478 B14 RADIOS (AT GRADE)
12. INSTALL (3) PROPOSED ERICSSON 4449 B5/B12 RADIOS (AT GRADE)
13. INSTALL (3) PROPOSED ERICSSON 4426 B66 RADIOS (AT GRADE)
14. INSTALL (12) PROPOSED QBC0007F1V51-1 DIPLEXERS (AT GRADE)
15. INSTALL NEW UNISTRUTS AS NEEDED TO ACCOMADATE PROPOSED GROUND EQUIPMENT
16. INSTALL (1) PROPOSED RAYCAP DC6-48-60-18-8F SQUID (AT TOWER)
17. INSTALL (24) PROPOSED ANDREW 1-5/8" CABLES (AT TOWER)
18. INSTALL (1) FIBER CABLE AND (2) DC CABLES (AT TOWER)
19. INSTALL 6651 W/ XCEDE CABLE AT SHELTER

PROJECT INFORMATION

SITE NAME:	EDGEMARK ACRES
SITE ID:	CTL02117
SITE ADDRESS:	200 EDGEMARK ACRES MERIDEN, CT. 06451
APPLICANT:	AT&T MOBILITY 500 ENTERPRISE DRIVE, SUITE 3A ROCKY HILL, CT 06067
CONTACT PERSON:	TARAH NOLAN SITE ACQUISITION MANAGER (SAI) (203) 488-0580
ENGINEER OF RECORD:	CENTEK ENGINEERING, INC. 63-2 NORTH BRANFORD ROAD BRANFORD, CT. 06405 CARLO F. CENTORE, PE (203) 488-0580 EXT. 122
SITE COORDINATES:	LATITUDE: 41°-31'-51.7"N LONGITUDE: 72°-50'-33.6"W GROUND ELEVATION: ±352' AMSL SITE COORDINATES AND GROUND ELEVATION REFERENCED FROM GOOGLE EARTH.

SHEET INDEX

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C-2	ANTENNA PLANS & ELEVATIONS	1
C-3	TYPICAL EQUIPMENT DETAILS	1
C-4	RF PLUMBING DIAGRAM	1
E-1	ELECTRICAL GROUNDING PLAN AND SCHEMATIC	1
E-2	TYPICAL ELECTRICAL DETAILS	1
E-3	ELECTRICAL SPECIFICATIONS	1

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
1	09/29/23	ASC	TJR	CONSTRUCTION DRAWINGS – ISSUED FOR CONSTRUCTION
0	09/06/23	ASC	TJR	CONSTRUCTION DRAWINGS – ISSUED FOR CONSTRUCTION
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AT&T MOBILITY

SITE ID: CT2117
EDGEMARK ACRES - EVERSOURCE
200 EDGEMARK ACRES
MERIDEN, CT 06451

DATE: 07/07/23
SCALE: AS NOTED
JOB NO. 22021.04

TITLE SHEET

T-1

Sheet No. 1 of 9

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 C/ 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.
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ANTENNA SCHEDULE

SECTOR	EXISTING/PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA ℄ HEIGHT	AZIMUTH	(E/P) RRU (QTY) AT GRADE	(P) TMA (QTY) AT TOWER	(E/P) FEEDER (QTY) AT TOWER LENGTH: ±200'	(E/P) SQUID (QTY)
A1	PROPOSED	4T4R/4T4R	CCI DMP65R-BU8DA	96 x 20.7 x 7.7	110'	0°	(P) RADIO 4449 B5/B12 (1), (P) RADIO 4426 B66 (1)	(P) TMAT192123B68-31 (2)	(P) 1-5/8"ø CABLES (24) (P) FIBER CABLE (1) (P) DC CABLES (2)	(P) DC6-48-60-18-8F (1)
A2	PROPOSED	4T4R/DUAL 4T4R	CCI OPA65R-BU8DA	96 x 21 x 7.8	110'	0°	(P) RADIO 4478 B14 (1), (E) RADIO 4415 B25 (1), (E) RRUs 32 B30 (1)	(P) TMAT192123B68-31 (2)		
A4	PROPOSED	B77+B77G DOD	ERICSSON AIR6449 B77D + AIR6419 B77G (STACKED)	30.6 x 15.9 x 10.6 + 31.1 x 16.1 x 7.3	110'	0°	(P) RRU INTEGRATED WITHIN AIR6449 B77D (1), (P) RRU INTEGRATED WITHIN AIR6419 B77G (1)			
B1	PROPOSED	4T4R/4T4R	CCI DMP65R-BU8DA	96 x 20.7 x 7.7	110'	120°	(P) RADIO 4449 B5/B12 (1), (P) RADIO 4426 B66 (1)	(P) TMAT192123B68-31 (2)		
B2	PROPOSED	4T4R/DUAL 4T4R	CCI OPA65R-BU8DA	96 x 21 x 7.8	110'	120°	(P) RADIO 4478 B14 (1), (E) RADIO 4415 B25 (1), (E) RRUs 32 B30 (1)	(P) TMAT192123B68-31 (2)		
B4	PROPOSED	B77+B77G DOD	ERICSSON AIR6449 B77D + AIR6419 B77G (STACKED)	30.6 x 15.9 x 10.6 + 31.1 x 16.1 x 7.3	110'	120°	(P) RRU INTEGRATED WITHIN AIR6449 B77D (1), (P) RRU INTEGRATED WITHIN AIR6419 B77G (1)			
C1	PROPOSED	4T4R/4T4R	CCI DMP65R-BU8DA	96 x 20.7 x 7.7	110'	240°	(P) RADIO 4449 B5/B12 (1), (P) RADIO 4426 B66 (1)	(P) TMAT192123B68-31 (2)		
C2	PROPOSED	4T4R/DUAL 4T4R	CCI OPA65R-BU8DA	96 x 21 x 7.8	110'	240°	(P) RADIO 4478 B14 (1), (E) RADIO 4415 B25 (1), (E) RRUs 32 B30 (1)	(P) TMAT192123B68-31 (2)		
C4	PROPOSED	B77+B77G DOD	ERICSSON AIR6449 B77D + AIR6419 B77G (STACKED)	30.6 x 15.9 x 10.6 + 31.1 x 16.1 x 7.3	110'	240°	(P) RRU INTEGRATED WITHIN AIR6449 B77D (1), (P) RRU INTEGRATED WITHIN AIR6419 B77G (1)			

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

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
1	09/29/23	ASC	T.J.R	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION
0	09/06/23	ASC	T.J.R	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION
A	07/07/23	ASC	T.J.R	CONSTRUCTION DRAWINGS - ISSUED FOR CLIENT REVIEW

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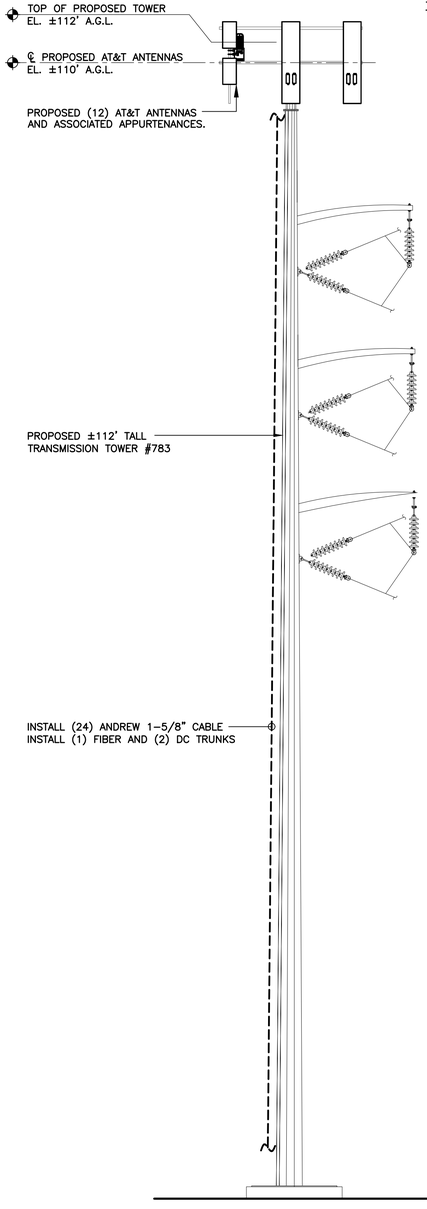
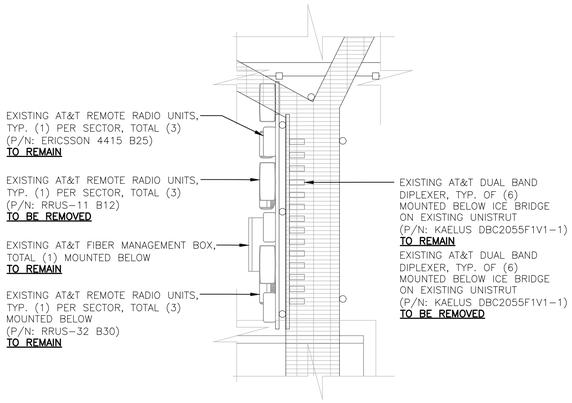
DATE: 07/07/23
SCALE: AS NOTED
JOB NO. 22021.04

GENERAL NOTES AND SPECIFICATIONS

N-1

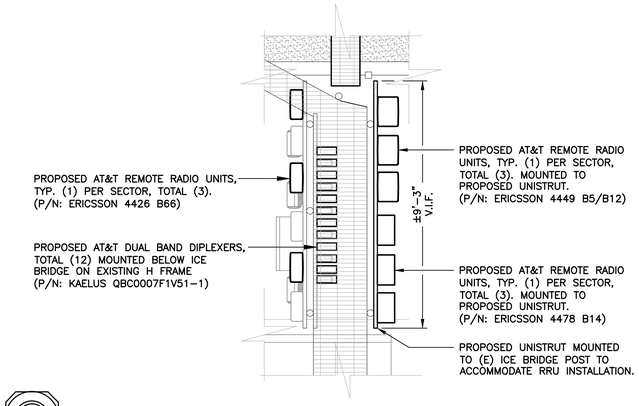


3 C-1 **PROPOSED TOWER ELEVATION**
SCALE: NOT TO SCALE



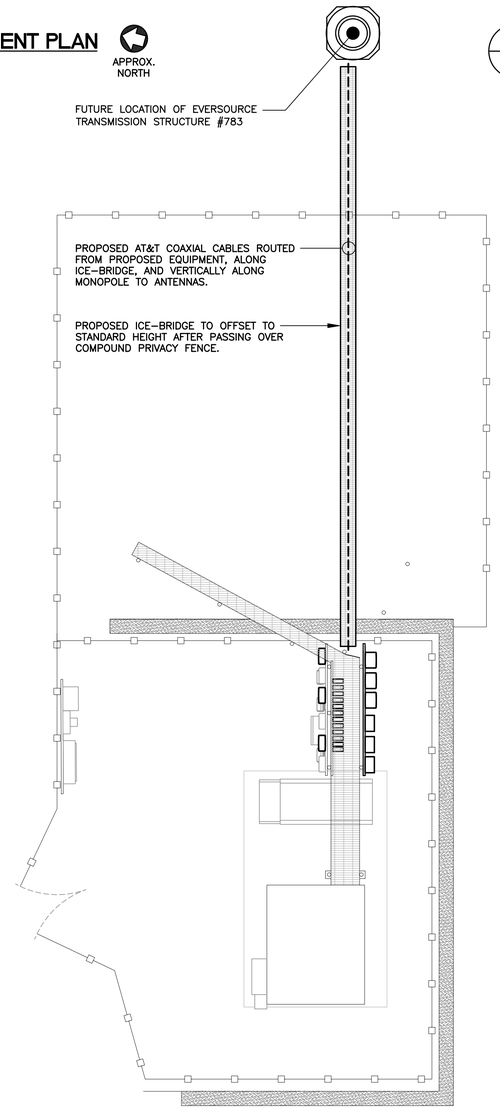
4 C-1 **EXISTING EQUIPMENT PLAN**
SCALE: 3/8" = 1'-0"

APPROX. NORTH



5 C-1 **PROPOSED EQUIPMENT PLAN**
SCALE: 3/8" = 1'-0"

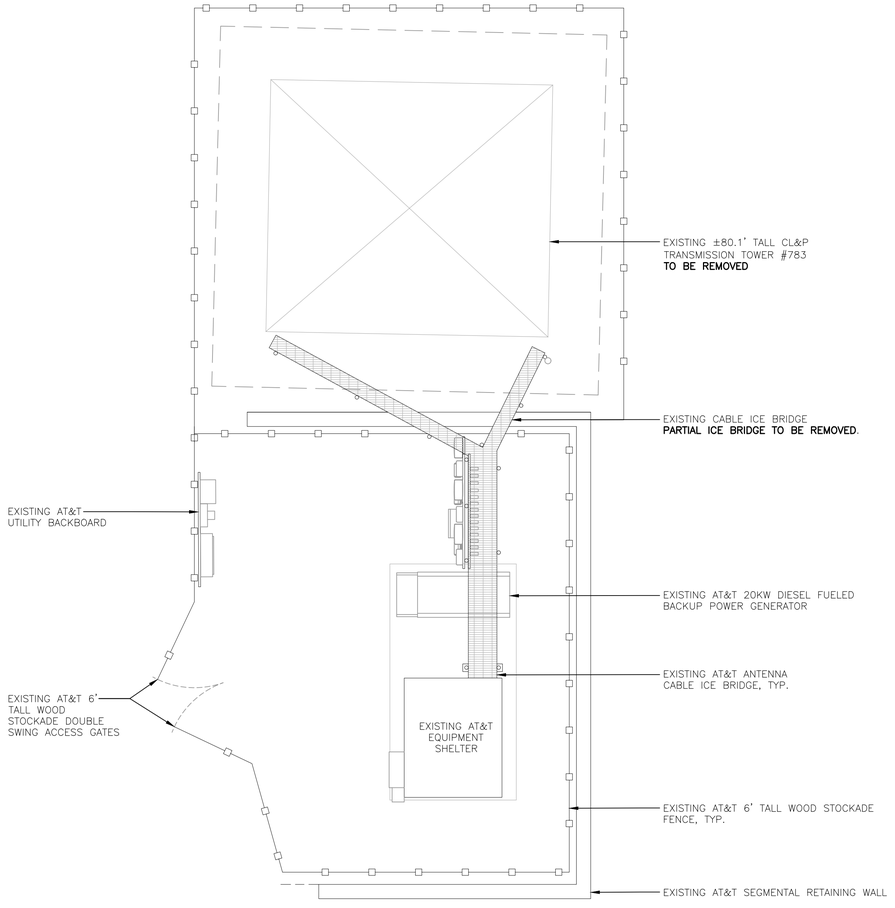
APPROX. NORTH



3 C-1

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

APPROX. NORTH



1 C-1 **EXISTING COMPOUND PLAN**
SCALE: 1" = 5'-0"

APPROX. NORTH

STRUCTURAL COMPLIANCE

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 # 21021.04) DATED 07/18/23 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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0	09/06/23	ASC	TJR	CONSTRUCTION DRAWINGS – ISSUED FOR CONSTRUCTION
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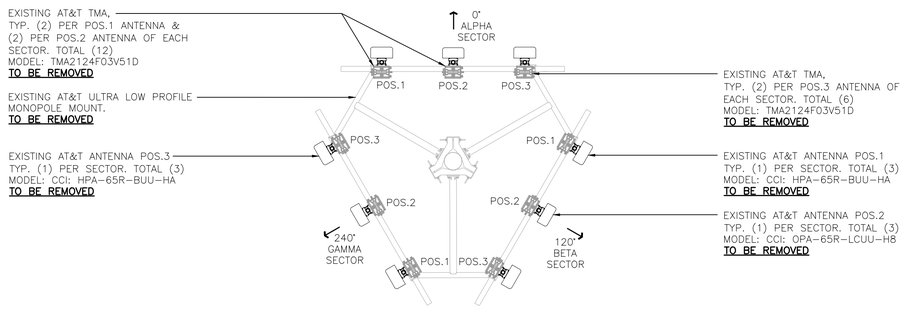
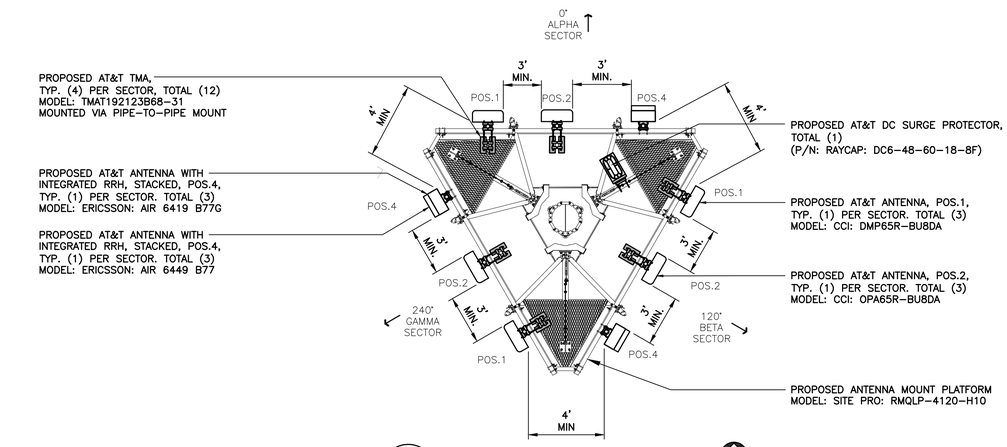
COMPOUND PLAN, ELEVATION, & EQUIPMENT PLAN

C-1



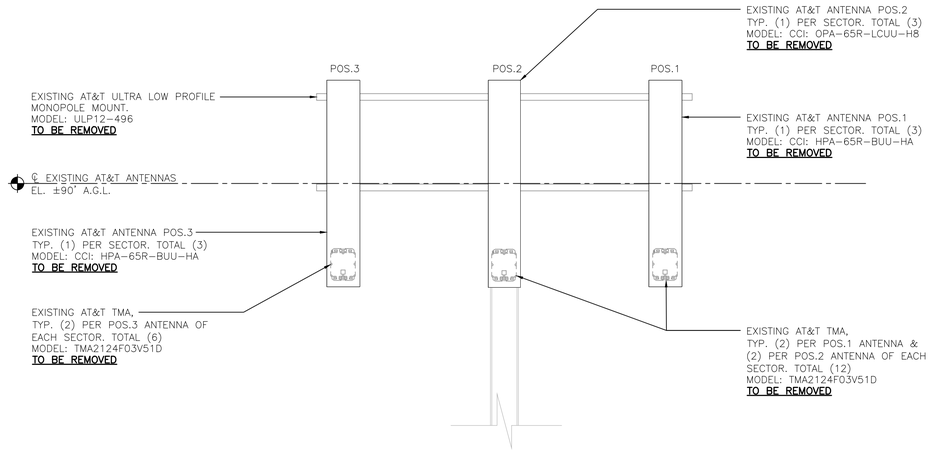
1 C-2 **EXISTING ANTENNA PLAN**
SCALE: 1/4" = 1'-0"

APPROX. NORTH

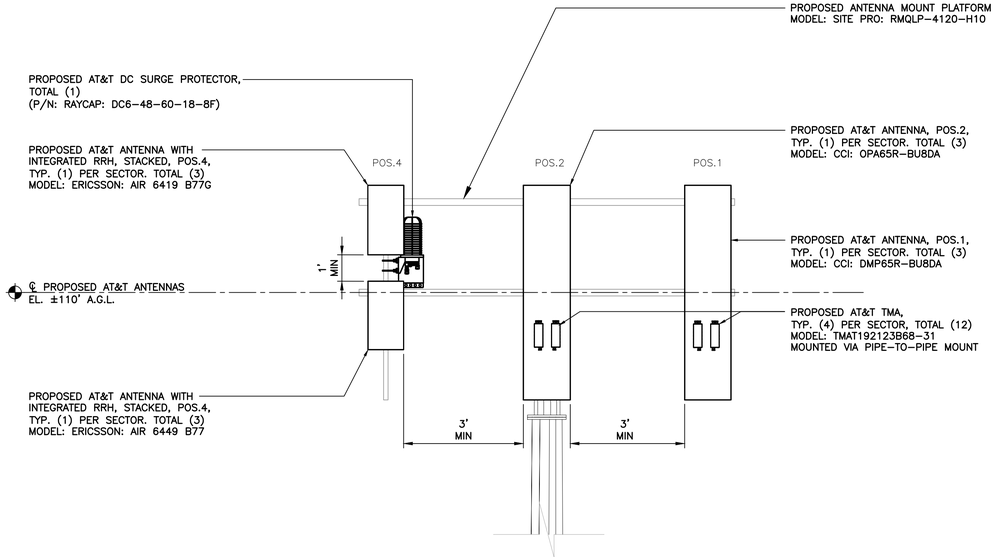


2 C-2 **PROPOSED ANTENNA PLAN**
SCALE: 1/4" = 1'-0"

APPROX. NORTH



3 C-2 **EXISTING ANTENNA ELEVATION**
SCALE: 3/8" = 1'-0"



4 C-2 **PROPOSED ANTENNA ELEVATION**
SCALE: 3/8" = 1'-0"

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
A	07/07/23	ASC	TJR	CONSTRUCTION DRAWINGS – ISSUED FOR CLIENT REVIEW
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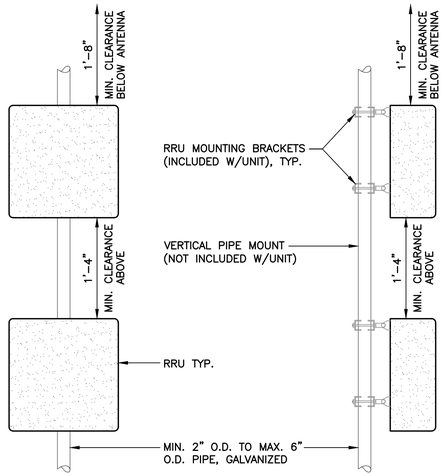
ANTENNA PLANS & ELEVATIONS

C-2

Sheet No. 4 of 9

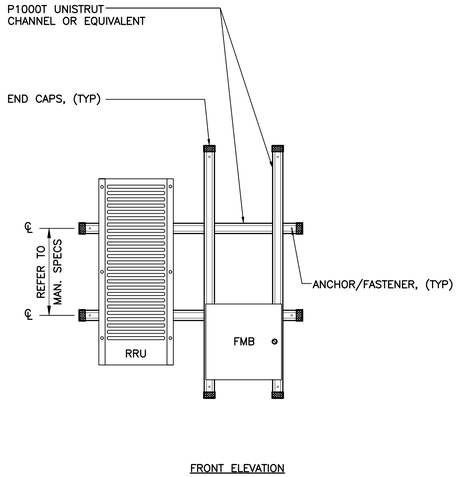


NOTES: (PIPE MOUNTING)

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.

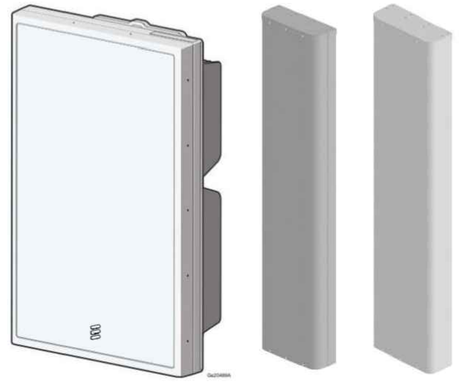
1 C-3 TYPICAL RRU MOUNTING DETAILS

SCALE: NOT TO SCALE



NOTES: (UNISTRUT MOUNTING)

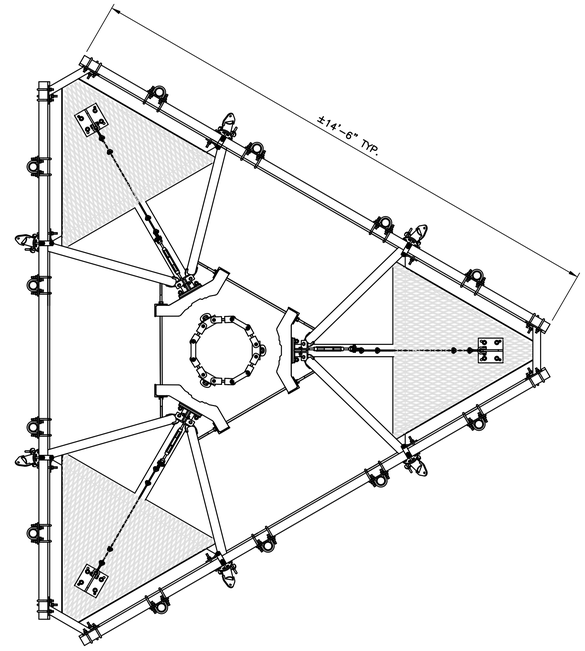
1. INSTALL A MINIMUM OF (2) ANCHORS PER UNISTRUT (± 16"o/c MIN).
2. MOUNT RRU TO UNISTRUT WITH 3/8"ø UNISTRUT BOLTING HARDWARE AND SPRING NUTS. TYPICAL FOUR PER BRACKET.
3. NO PAINTING OF THE RRU OR SOLAR SHIELD IS ALLOWED.



ALPHA/BETA/GAMMA ANTENNAS			
EQUIPMENT		DIMENSIONS	WEIGHT
MAKE: ERICSSON MODEL: AIR6419 B77G		31.1"L x 16.1"W x 7.3"D	44 LBS.
MAKE: ERICSSON MODEL: AIR6449 B77		30.6"L x 15.9"W x 10.6"D	82.5 LBS.
MAKE: CCI MODEL: OPA65R-BU8D		96.0"L x 21.0"W x 7.8"D	76.5 LBS.
MAKE: CCI MODEL: DMP65R-BU8DA		96.0"L x 20.7"W x 7.7"D	95.7 LBS.
NOTES: 1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.			

2 C-3 PROPOSED ANTENNA DETAIL

SCALE: NOT TO SCALE



SITEPRO1:
RMQLP-4120-H10

3 C-3 PLATFORM ANTENNA MOUNT DETAIL

SCALE: NOT SCALE

SURGE PROTECTOR		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: RAYCAP MODEL: DC6-48-60-18-8C-EV	31.4"H x 10.2"W x 18.2"D	26.2 LBS
NOTES: 1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.		

4 C-3 PROPOSED DC SURGE PROTECTOR DETAIL

SCALE: NOT TO SCALE

RADIO 4426 B66

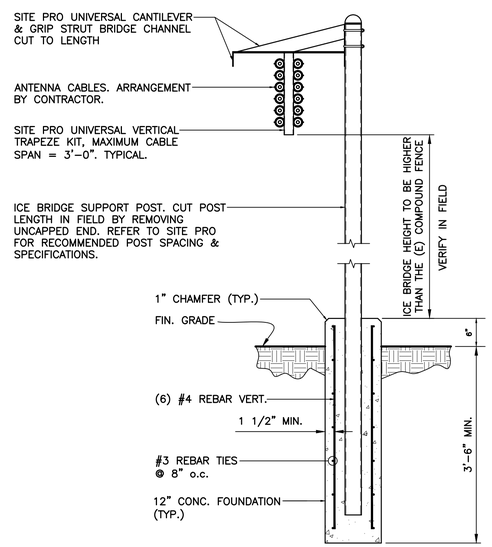
RADIO 4478 B14

RADIO 4449 B5/B12

RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERICSSON MODEL: RADIO 4426 B66	14.9"L x 13.2"W x 5.8"D	±48.5 LBS.	BEHIND ANT.: 8" MIN. BELOW ANT.: 20" MIN. BELOW RRU: 16" MIN.
MAKE: ERICSSON MODEL: RADIO 4449 B5/B12	14.9"L x 13.2"W x 5.4"D	±73 LBS.	BEHIND ANT.: 8" MIN. BELOW ANT.: 20" MIN. BELOW RRU: 16" MIN.
MAKE: ERICSSON MODEL: RADIO 4478 B14	16.5"L x 13.4"W x 5.9"D	±59 LBS.	BEHIND ANT.: 8" MIN. BELOW ANT.: 20" MIN. BELOW RRU: 16" MIN.
NOTES: 1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.			

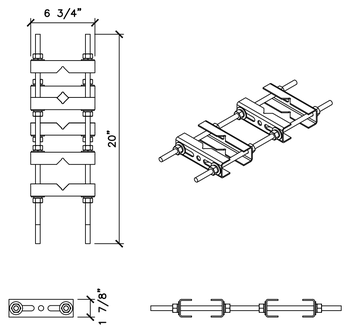
5 C-3 PROPOSED RRU DETAIL

SCALE: NOT TO SCALE



6 C-3 TYPICAL ICE-BRIDGE DETAIL

SCALE: NOT TO SCALE



RRU DUAL SWIVEL MOUNT		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: SITE PRO PART NO.: UPC1	20"L x 6.75"W x 1.875"D	13.45 LBS.

7 C-3 UNIVERSAL PIPE-TO-PIPE CLAMP SET DETAIL

SCALE: NOT TO SCALE

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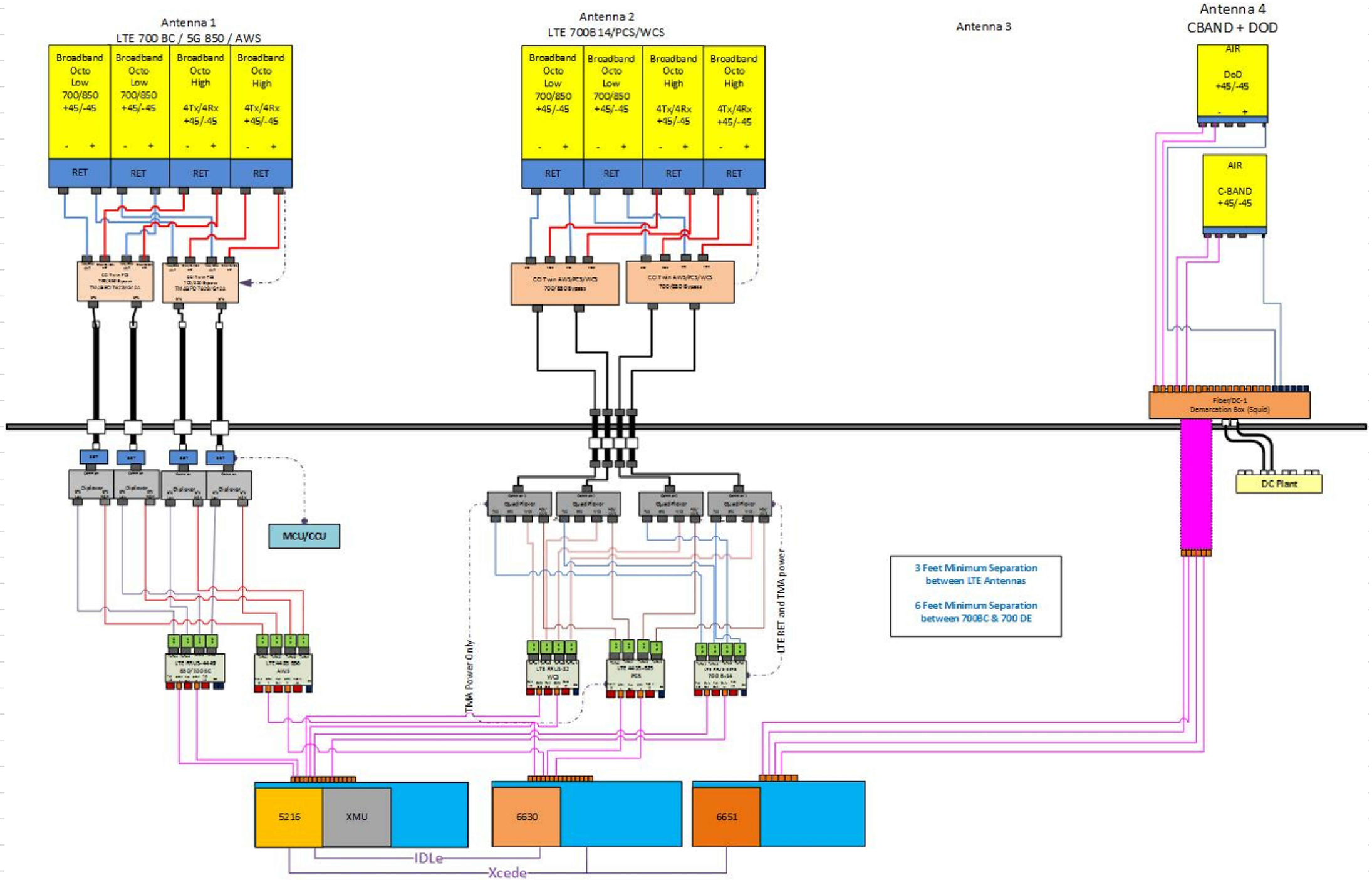
TYPICAL EQUIPMENT DETAILS

C-3

Sheet No. 5 of 9



ALPHA/BETA/GAMMA SECTOR

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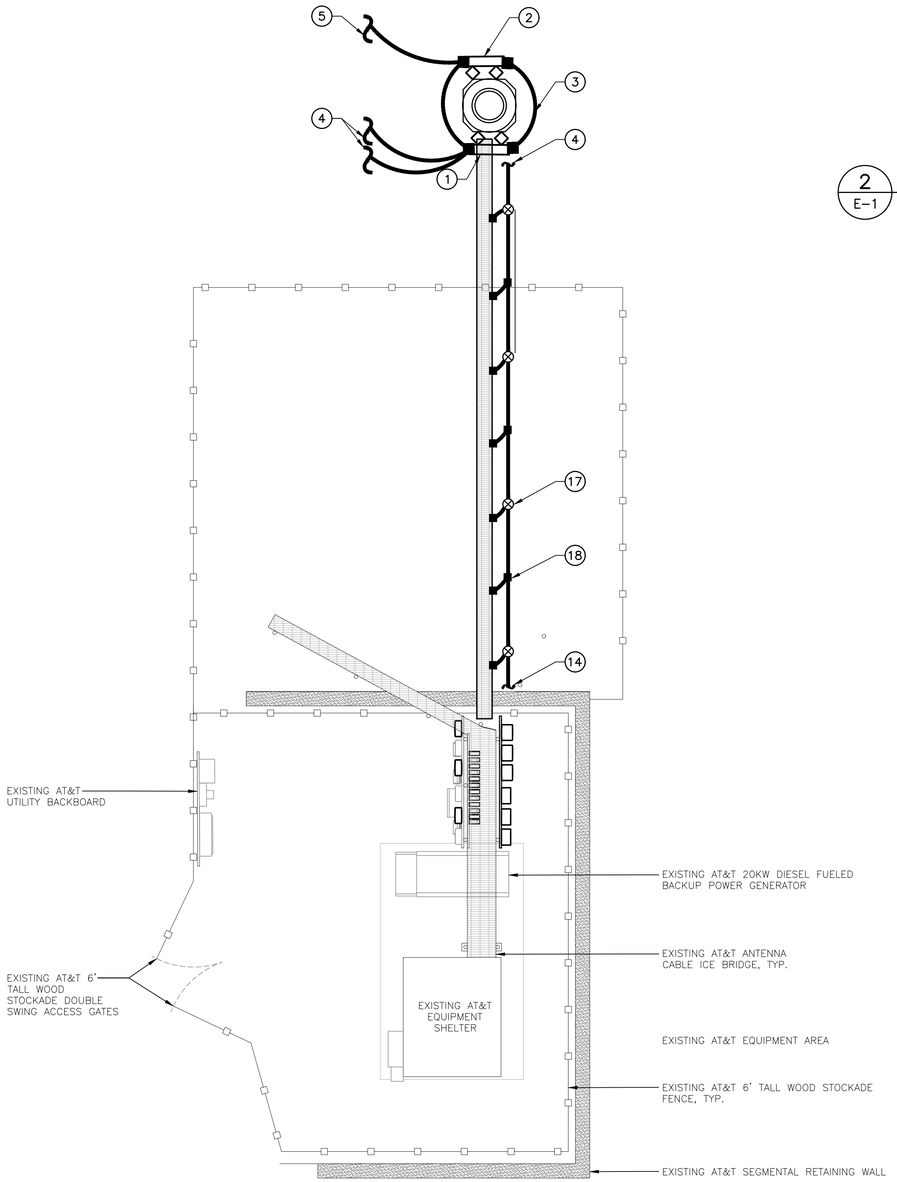
RF PLUMBING DIAGRAM

C-4

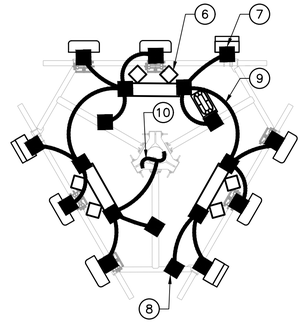
Sheet No. 6 of 9



1 E-1 **PROPOSED COMPOUND PLAN**
SCALE: 1" = 5'-0"

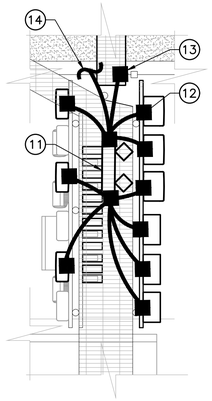
APPROX. NORTH

GRAPHIC SCALE
5 0 2.5 5 10 20
1" = 5'-0"



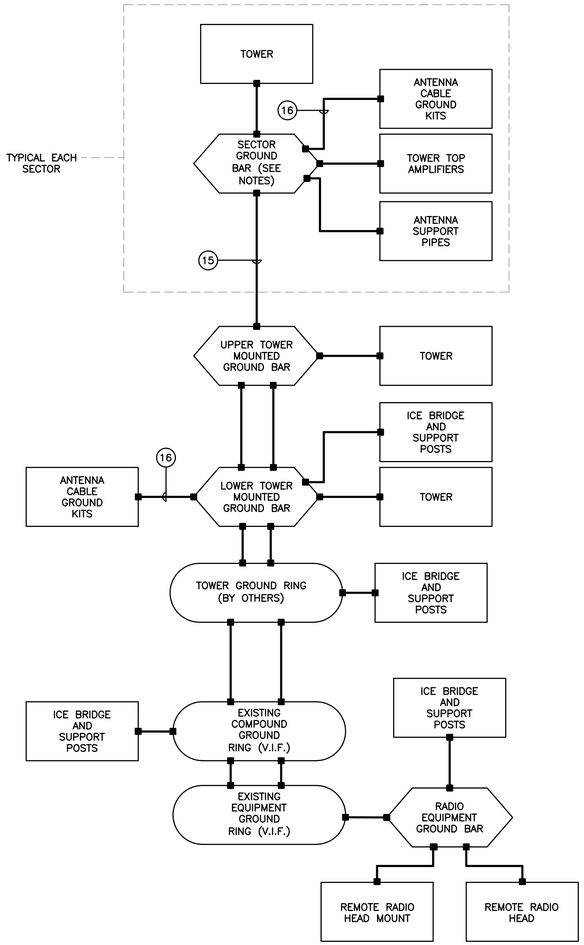
2 E-1 **ANTENNA GROUNDING PLAN**
SCALE: 1/4" = 1'-0"

APPROX. NORTH



3 E-1 **EQUIPMENT GROUNDING PLAN**
SCALE: 3/8" = 1'-0"

APPROX. NORTH



4 E-1 **ELECTRICAL SCHEMATIC DIAGRAM**
SCALE: NOT TO SCALE

GROUNDING PLAN NOTES

1. LOWER TOWER MOUNTED GROUND BAR.
2. UPPER TOWER MOUNTED GROUND BAR.
3. BOND UPPER TOWER MOUNTED GROUND BAR TO LOWER TOWER MOUNTED GROUND BAR (2) # 2/0 GROUND LEADS.
4. BOND TO EXISTING TOWER GROUND RING.
5. BOND UPPER TOWER MOUNTED GROUND BAR TO SECTOR GROUND BAR TYP.
6. SECTOR GROUND BAR TYP.
7. BOND ANTENNA MOUNTING PIPES TO SECTOR GROUND BAR. (TYPICAL)
8. BOND SECTOR GROUND BAR TO TOWER STEEL.
9. ALL SECTOR GROUND BARS SHALL BE BONDED TOGETHER WITH #2 AWG SOLID TINNED BCW.
10. BOND TO UPPER TOWER MOUNTED GROUND BAR.
11. NEW EQUIPMENT GROUND BAR.
12. BOND RADIO EQUIPMENT TO NEW GROUND BAR PER MANUFACTURERS SPECIFICATIONS (TYP).
13. BOND GROUND BAR TO NEW ICE BRIDGE.
14. BOND TO EXISTING PLATFORM GROUND RING.
15. #2/0 AWG GREEN INSULATED
16. #6 AWG
17. GROUND ROD PER DETAILS (TYP)
18. BOND ICE BRIDGE POST TO GROUND PER DETAILS (TYP).

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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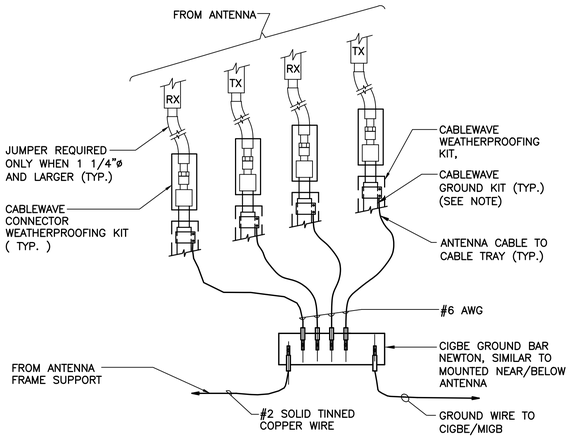
ELECTRICAL GROUNDING PLAN AND SCHEMATIC

E-1

Sheet No. 7 of 9

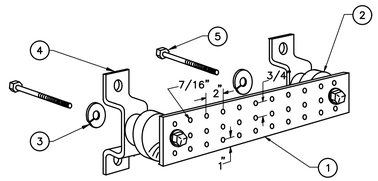


NOTES:

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

1 / E-2 CONNECTION OF GROUND WIRES TO GROUND BAR

SCALE: NOT TO SCALE

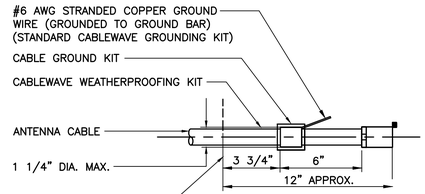


NOTES

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-2 GROUND BAR DETAIL

SCALE: NOT TO SCALE

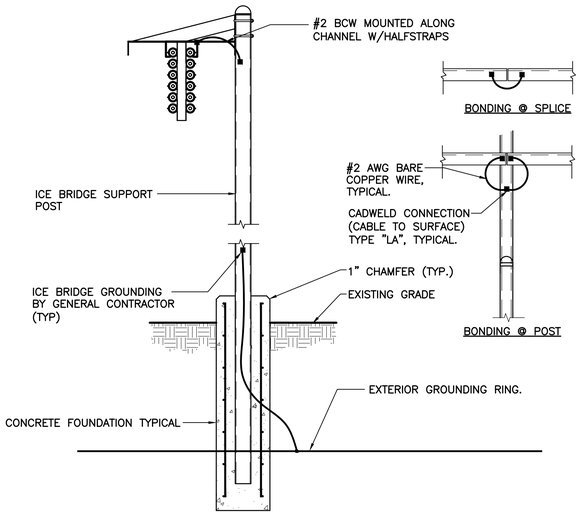


NOTES:

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

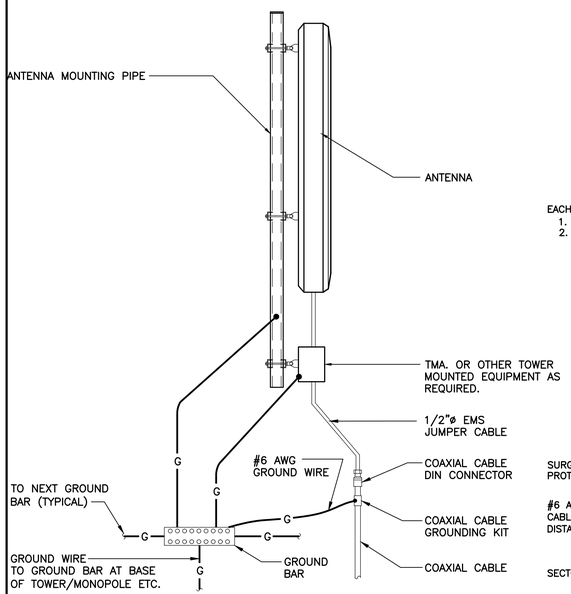
3 / E-2 ANTENNA CABLE GROUNDING DETAIL

SCALE: NOT TO SCALE



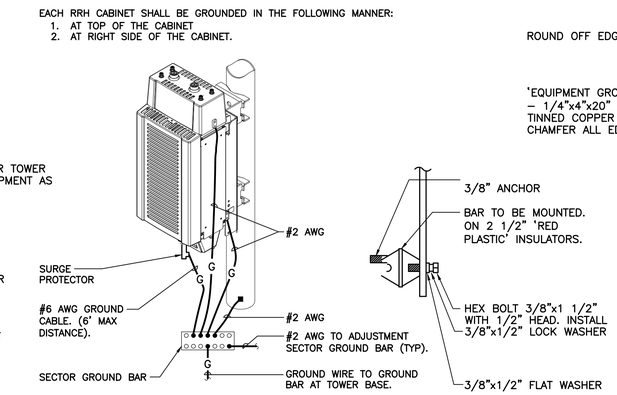
4 / E-2 ICE BRIDGE BONDING DETAIL

SCALE: NOT TO SCALE



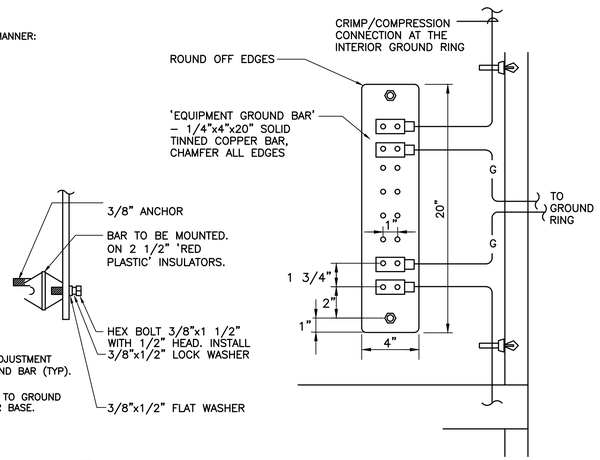
5 / E-2 TYPICAL ANTENNA GROUNDING DETAIL

SCALE: NOT TO SCALE



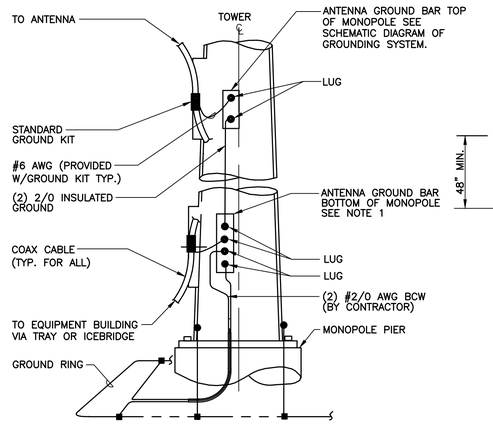
6 / E-2 RRH POLE MOUNT GROUNDING

SCALE: NOT TO SCALE



7 / E-2 EQUIPMENT GROUND BAR DETAIL

SCALE: NOT TO SCALE

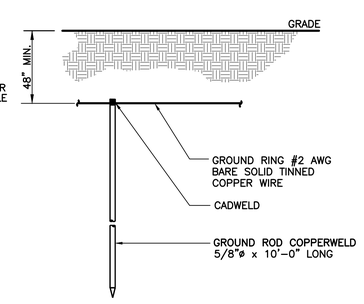


NOTES:

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.

8 / E-2 ANTENNA CABLE GROUNDING

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.

9 / E-2 GROUND ROD DETAIL

SCALE: NOT TO SCALE

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TYPICAL ELECTRICAL DETAILS

E-2

Sheet No. 8 of 9

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 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. 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).

D. 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.

E. 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.

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

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: 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
A	07/07/23	TGK	TJR	CONSTRUCTION DRAWINGS - ISSUED FOR CLIENT REVIEW
0	09/06/23	TGK	TJR	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION
1	09/29/23	TGK	TJR	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER SEAL

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AT&T MOBILITY

CT2117
EDGEMARK ACRES - EVERSOURCE
200 EDGEMARK ACRES
MERIDEN, CT 06451

DATE: 10/28/22
SCALE: AS NOTED
JOB NO. 22021.04

ELECTRICAL SPECIFICATIONS

E-3

Sheet No. 9 of 9

CENTEK engineering

Centered on Solutions℠

Structural Analysis of Utility Pole

AT&T Site Ref: CT2117

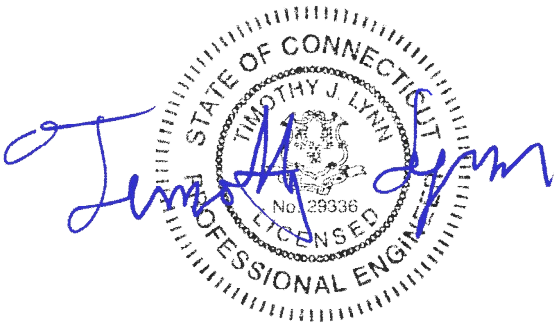
Eversource Structure No. 783
112' Tall Electric Transmission Pole

200 Edgemark Acres
Meriden, CT

CENTEK Project No. 22021.04

~~Date: May 17, 2023~~
Rev 2: July 10, 2023

Max Stress Ratio = 64.9%



Prepared for:
AT&T Mobility
500 Enterprise Drive, Suite 3A
Rocky Hill, CT 06067

Table of Contents

Introduction

The purpose of this report is to analyze the 112' utility pole located in Meriden, 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 DMP65R-BU8D panel antennas, three (3) Ericsson AIR6419 panel antennas, three (3) Ericsson AIR6449 panel antennas, three (3) CCI OPA65R-BU8D panel antennas, twelve (12) Commscope TMAT192123B68-31 TMAs and one (1) DC6-48-60-18-8F surge arrestor mounted on one (1) Platform (SitePro p/n RMQLP-4120-H10) to the utility pole with a RAD center elevation of 110-ft above grade.
  Cables: Twenty-four (24) 1-5/8" ∅ coax cables, one (1) fiber cable and two (2) DC cables mounted on the interior 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 **46.18%** 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 3	0.00' -50.00' (AGL)	46.18%	**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	40.8%	**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	32.9%	**PASS**
Flange Plate	Bending	29.8%	**PASS**

- FOUNDATION AND ANCHORS

The base of the tower is connected to the foundation by means of (20) 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	22.65 kips	84.80 kips	1563.77 ft-kips
NESC Extreme Wind	41.25 kips	47.77 kips	2991.13 ft-kips
NESC Extreme Ice w/ Wind	14.76 kips	70.70 kips	1027.44 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	51.7%	**PASS**

FOUNDATION:

Force	Original Design Loading	Proposed Loading	Result
Moment	6,356 ft-kips	3,290 ft-kips	**PASS**
Shear	69.9 kips	45.4 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.

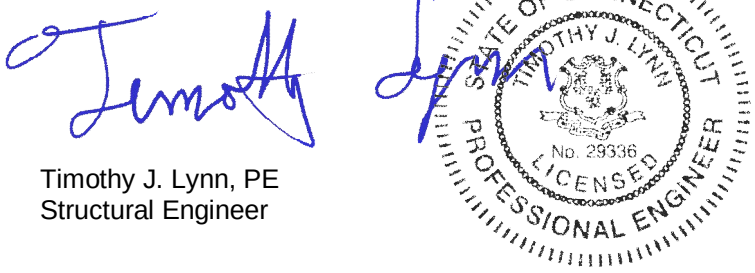
Conclusion

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 covering the design of telecommunications structures specifies a limit state design approach. This approach applies the loads from extreme weather loading conditions, and designs the structure so that the design strength exceeds the required 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 NU 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 50-year recurrence (2% annual probability). 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), Combined Ice and Wind (Rule 250B-Heavy) and Extreme Ice w/ Wind (Rule 250D) 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.

EVERSOURCE

Wire Loads

Project Name	Line 1690 Southington SS to Lucchini Jct
Work Order	40501409
Structure #	Type DE-783: 783
Line #	1690
Prepared By	Bufkin - PJF
Date	6/20/2022
Checked By	
Date	

Structure Data

Structure Height (AGL)	120	Load Zone	Central CT
# of Circuits	1	Insulation Type	Deadend (Column)
Insulator Weight	150	Broken Wire Side	Back
Broken Wire Side	Left	Structure Type	Single Circuit Steel Pole (Vert)

Wire Data

Circuit #	Left	Right
Shield Wire	0.646 OPGW 48	(Select)
Conductor	FALCON/ACSS	(Select)
# of Conductors	1	1

Line Geometry

	Circuit 1			Circuit 2		
	Ahead	Back	Total	Ahead	Back	Total
Wind Span	500	500	1000			0
Weight Span	900	900	1800			0
Minimum Line Angle	0	0	0			0
Maximum Line Angle	2	2	4			0

Wire Tensions

	Left Circuit		Right Circuit		
	Ahead	Back	Ahead	Back	
NESC Rule 250B	12200	12100			Conductor
NESC Rule 250C	11700	11700			
NESC Rule 250D	15100	15600			
60°F, No wind or ice	7400	7100			
NESC Rule 250B	6800	6700			Shield Wire
NESC Rule 250C	5900	5900			
NESC Rule 250D	8700	9100			
60°F, No wind or ice	3200	2700			

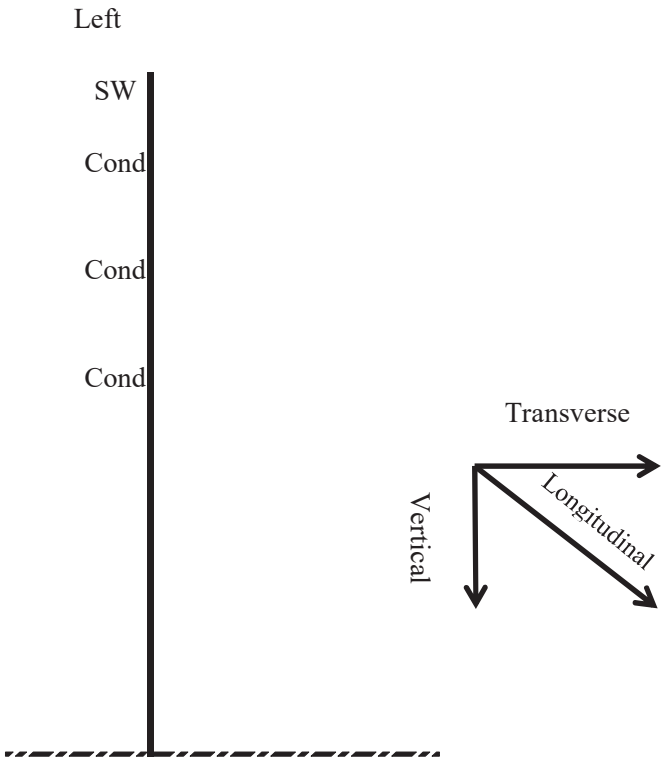
All Loads include Overload Factors but not Pole Shape Factors

Load Case	Description
1	NESC Rule 250B; 0°F, ½" of ice, 4 psf wind
2	NESC Rule 250C; (Extreme Wind Loading)
3	NESC Rule 250C; Extreme Wind Longtitudinal On The Pole Only
4	NESC Rule 250D; 15°F 1" of ice, 4 psf or NU Ice Case; 32°F 1" Ice
5	NESC Rule 250B with no OLFs (Service Load)
6	60°F, No wind or Ice (Deflection)
7a	NESC Rule 250B/261C Broken Wire Case (Broken SW and Borken Conductor)
7b	NESC Rule 250B/261C Broken Wire Case (Broken SW or Broken Phase)

EVERSOURCE

Wire Loads
Load Tree

Project Number
Line 1690 Southington S
Structure Number
Type DE-783: 783
Line Number
1690



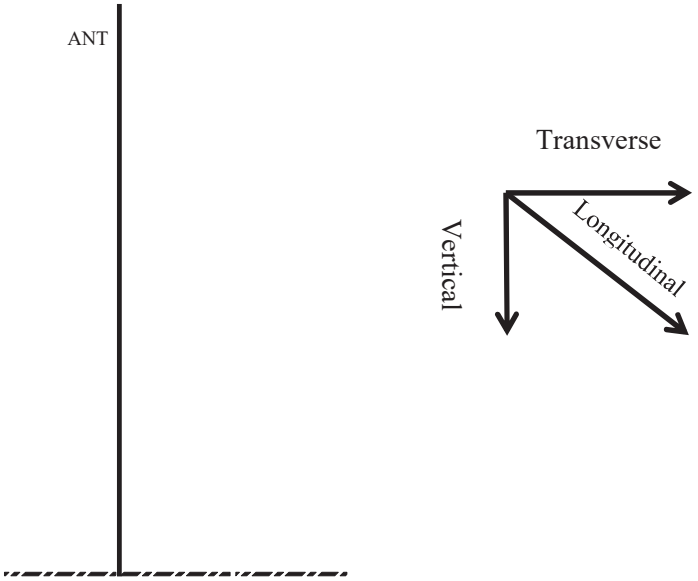
Single Circuit Steel Pole (Vert) Deadend on Column
All wires to be broken simultaneously in each direction

		Back			Ahead		
Conductor	Case	Vertical	Transverse	Longitudinal	Vertical	Transverse	Longitudinal
	1	4698.0765	1807.1851	-19965	4698.0765	1812.9435	20130
	2	1987.26	2628.3241	-11700	1987.26	2628.3241	11700
	3	1987.26	247.78643	-7100	1987.26	258.25628	7400
	4	4836.642	1155.2655	-15600	4836.642	1137.8157	15100
	5	3132.051	866.45058	-12100	3132.051	869.94053	12200
	6	1987.26	247.78643	-7100	1987.26	258.25628	7400
	7a	0	0	0	4698.0765	1812.9435	20130
	7b	0	0	0	4698.0765	1812.9435	20130
		Back			Ahead		
Shield Wire	Case	Vertical	Transverse	Longitudinal	Vertical	Transverse	Longitudinal
	1	1577.8962	1071.6473	-11055	1577.8962	1077.4057	11220
	2	410.4	1067.2404	-5900	410.4	1067.2404	5900
	3	410.4	94.228641	-2700	410.4	111.67839	3200
	4	2253.2616	758.58542	-9100	2253.2616	744.62562	8700
	5	1051.9308	508.15996	-6700	1051.9308	511.64991	6800
	6	410.4	94.228641	-2700	410.4	111.67839	3200
	7a	0	0	0	1577.8962	1071.6473	11220
	7b	0	0	0	1577.8962	1077.4057	11220

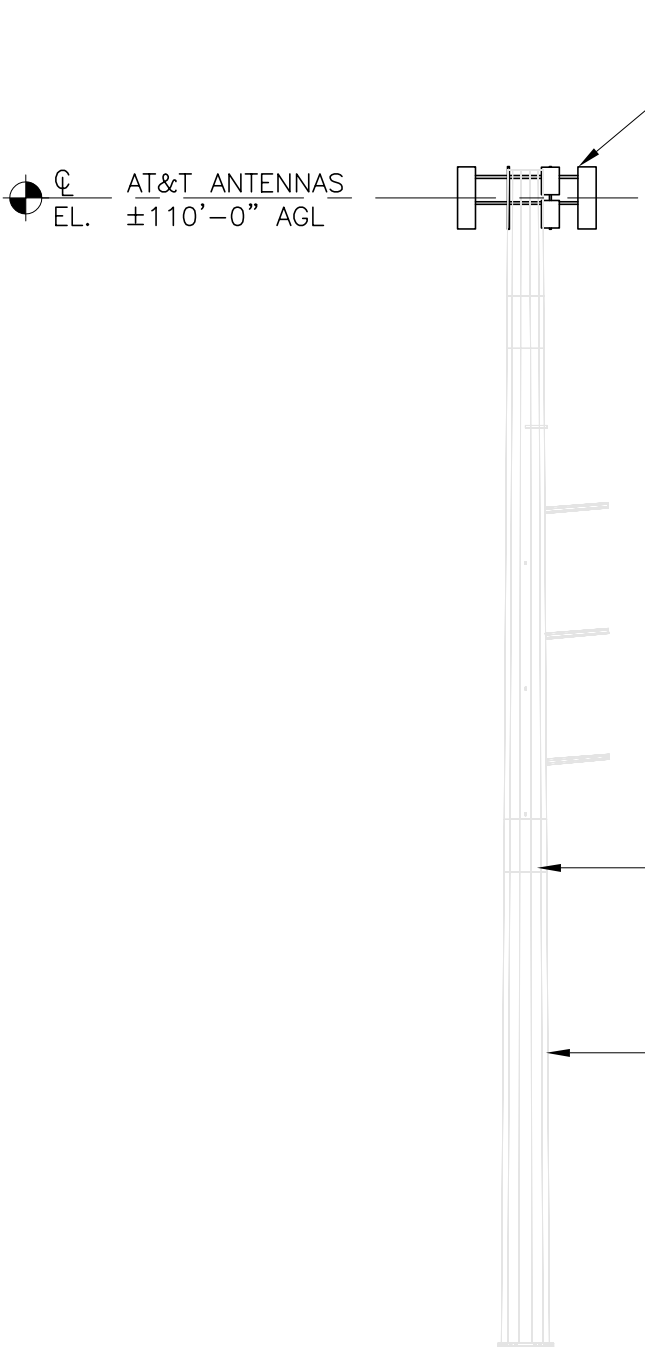
EVERSOURCE

Antenna Equipment Loads Load Tree

Project Number
1355/1610/1690 Rebuild
Structure Number
#783
Line Number
1690



Antenna Equipment Loads Load Tree					
Antena Equipment Loads	Case	Wind	Str #783 (lbs)		
		(psf)	Vertical, Va	Transverse, Ta	Longitudinal, La
	1	10	17575	3941	5
	2	37	7922	14443	0
	3	37	7922	48	14443
	4	6.4	19307	1708	0
	5	4	13614	1576	41
	6	0	7922	39	0
	7a	10	17575	3941	0
	7b	10	17575	3941	0



1
SK-1

TOWER ELEVATION

SCALE: NOT TO SCALE

REVISIONS		
00	5/17/23	ISSUED FOR REVIEW
01	7/10/23	ISSUED FOR REVIEW

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CT2117
STRUCTURE 783

200 EDGEMARK ACRES
MERIDEN, CT

PROJECT NO:	22021.04
DRAWN BY:	TJL
CHECKED BY:	CFC
SCALE:	AS NOTED
DATE:	5/17/23

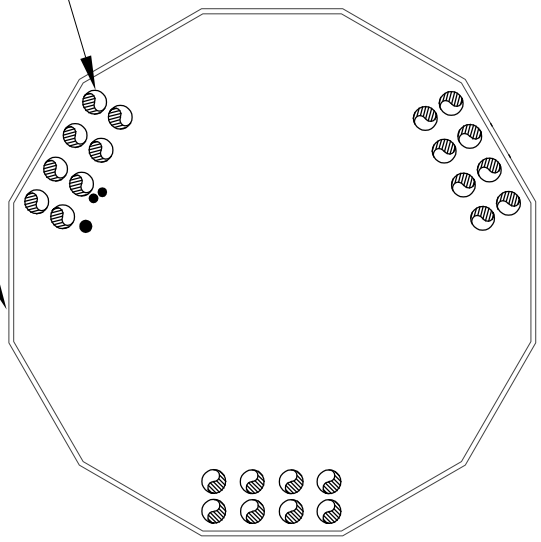
TOWER ELEVATION

SK-1

DWG. 1 OF 2

AT&T (24) 1–5/8" ø COAX CABLES, ONE (1) FIBER CABLE AND TWO (2) DC CABLES MOUNTED ON THE INSIDE OF THE POLE

112' TALL STEEL UTILITY POLE STRUCTURE NO. 783



1 / SK–2 COAX CABLE PLAN

SCALE: NOT TO SCALE

REVISIONS		
00	5/17/23	ISSUED FOR REVIEW
01	7/10/23	ISSUED FOR REVIEW

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CT2117
STRUCTURE 783

200 EDGEMARK ACRES
MERIDEN, CT

PROJECT NO:	22021.04
DRAWN BY:	TJL
CHECKED BY:	CFC
SCALE:	AS NOTED
DATE:	5/17/23

FEELINE PLAN

SK-2

DWG. 2 OF 2

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Subject: Loads - Structure #783

Location: Meriden, CT

Rev. 0: 5/16/23

Prepared by: T.J.L Checked by: C.F.C.
Job No. 22021.04

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 =	$TME := 112$ ft	(User Input)
Multiplier Gust Response Factor =	$m := 1.25$	(User Input - Only for NESC Extreme wind case)
Velocity Pressure Coefficient =	$Kz := 2.01 \cdot \left(\frac{TME}{900}\right)^{\frac{2}{9.5}} = 1.296$	(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 =	$z_s := 0.67 \cdot TME = 75.04$	(NESC 2023 Table 250-3)
Turbulence Intensity =	$I_z := C_{exp} \cdot \left(\frac{33}{z_s}\right)^{\frac{1}{6}} = 0.174$	(NESC 2023 Table 250-3)
Response Term =	$B_t := \left[\frac{1}{\left[1 + \left(0.56 \cdot \frac{z_s}{L_s}\right)\right]}\right]^{0.5} = 0.916$	(NESC 2023 Table 250-3)
Gust Response Factor =	$Grf := \frac{\left[1 + \left(4.61 \cdot I_z \cdot B_t\right)\right]}{\left(1 + 6.1 \cdot I_z\right)} = 0.841$	(NESC 2023 Table 250-3)
Wind Pressure =	$qz := 0.00256 \cdot Kz \cdot V^2 \cdot Grf \cdot psf = 33.8 \cdot psf$	(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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Subject: Loads - Structure #783

Location: Meriden, CT

Rev. 0: 5/16/23

Prepared by: T.J.L Checked by: C.F.C.
Job No. 22021.04

Development of Wind & Ice Load on Antennas

Antenna Data: (AT&T)

Antenna Model =	CCI DMP65-BU8D	
Antenna Shape =	Flat	(User Input)
Antenna Height =	$L_{ant} := 96 \cdot in$	(User Input)
Antenna Width =	$W_{ant} := 20.7 \cdot in$	(User Input)
Antenna Thickness =	$T_{ant} := 7.7 \cdot in$	(User Input)
Antenna Weight =	$WT_{ant} := 105 \cdot lb$	(User Input)
Number of Antennas =	$N_{ant} := 3$	(User Input)

Gravity Load (without ice)

Weight of All Antennas = $Wt_{ant1} := WT_{ant} \cdot N_{ant} = 315 lb$

Gravity Load (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 15301 \cdot in^3$

Volume of Ice on Each Antenna = $V_{ice} := (L_{ant} + 2 \cdot Ir)(W_{ant} + 2 \cdot Ir)(T_{ant} + 2 \cdot Ir) - V_{ant} = 3011 \cdot in^3$

Weight of Ice on Each Antenna = $W_{ICEant} := V_{ice} \cdot Id = 98 lb$

Weight of Ice on All Antennas = $Wt_{ice.ant1} := W_{ICEant} \cdot N_{ant} = 293 lb$

Gravity Load (Extreme ice only)

Volume of Extreme Ice on Each Antenna = $V_{ice.ex} := (L_{ant} + 2 \cdot Ir_{ex})(W_{ant} + 2 \cdot Ir_{ex})(T_{ant} + 2 \cdot Ir_{ex}) - V_{ant} = 4612 \cdot in^3$

Weight of Extreme Ice on Each Antenna = $W_{ICE.exant} := V_{ice.ex} \cdot Id = 149 lb$

Weight of Extreme Ice on All Antennas = $Wt_{ice.ex.ant1} := W_{ICE.exant} \cdot N_{ant} = 448 lb$

Wind Load (NESC Heavy)

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := (L_{ant} + 2 \cdot Ir) \cdot (W_{ant} + 2 \cdot Ir) = 14.6 ft^2$

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 43.9 ft^2$

Total Antenna Wind Force w/ Ice = $Fi_{ant1} := p \cdot Cd_F \cdot A_{ICEant} = 281 lb$

Wind Load (NESC Extreme)

Surface Area for One Antenna = $SA_{ant} := L_{ant} \cdot W_{ant} = 13.8 ft^2$

Antenna Projected Surface Area = $A_{ant} := SA_{ant} \cdot N_{ant} = 41.4 ft^2$

Total Antenna Wind Force = $F_{ant1} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 2797 lb$

Wind Load (NESC Extreme Ice w/ Wind)

Surface Area for One Antenna w/ Extreme Ice = $SA_{ICE.exant} := (L_{ant} + 2 \cdot Ir_{ex}) \cdot (W_{ant} + 2 \cdot Ir_{ex}) = 15 ft^2$

Antenna Projected Surface Area w/ Extreme Ice = $A_{ICE.exant} := SA_{ICE.exant} \cdot N_{ant} = 45.1 ft^2$

Total Antenna Wind Force w/ Extreme Ice = $Fi_{ex.ant1} := p_{ex} \cdot Cd_F \cdot A_{ICE.exant} = 462 lb$

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Subject: Loads - Structure #783

Location: Meriden, CT

Rev. 0: 5/16/23

Prepared by: T.J.L Checked by: C.F.C.
Job No. 22021.04

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 = $F_{ant2} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 705\,lb$

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 = $Fi_{ex.ant2} := p_{ex} \cdot Cd_F \cdot A_{ICE.exant} = 122\,lb$

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 = $F_{ant3} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 685 lb$

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 = $Fi_{ex.ant3} := p_{ex} \cdot Cd_F \cdot A_{ICE.exant} = 119 lb$

Development of Wind & Ice Load on Antennas

Antenna Data: (AT&T)

Antenna Model =	CCI OPA65-BU8D	
Antenna Shape =	Flat	(User Input)
Antenna Height =	$L_{ant} := 96 \cdot in$	(User Input)
Antenna Width =	$W_{ant} := 21 \cdot in$	(User Input)
Antenna Thickness =	$T_{ant} := 7.8 \cdot in$	(User Input)
Antenna Weight =	$WT_{ant} := 80 \cdot lb$	(User Input)
Number of Antennas =	$N_{ant} := 3$	(User Input)

Gravity Load (without ice)

Weight of All Antennas = $Wt_{ant4} := WT_{ant} \cdot N_{ant} = 240 lb$

Gravity Load (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 15725 \cdot in^3$

Volume of Ice on Each Antenna = $V_{ice} := (L_{ant} + 2 \cdot Ir)(W_{ant} + 2 \cdot Ir)(T_{ant} + 2 \cdot Ir) - V_{ant} = 3054 \cdot in^3$

Weight of Ice on Each Antenna = $W_{ICEant} := V_{ice} \cdot Id = 99 lb$

Weight of Ice on All Antennas = $Wt_{ice.ant4} := W_{ICEant} \cdot N_{ant} = 297 lb$

Gravity Load (Extreme ice only)

Volume of Extreme Ice on Each Antenna = $V_{ice.ex} := (L_{ant} + 2 \cdot Ir_{ex})(W_{ant} + 2 \cdot Ir_{ex})(T_{ant} + 2 \cdot Ir_{ex}) - V_{ant} = 4677 \cdot in^3$

Weight of Extreme Ice on Each Antenna = $W_{ICE.exant} := V_{ice.ex} \cdot Id = 152 lb$

Weight of Extreme Ice on All Antennas = $Wt_{ice.ex.ant4} := W_{ICE.exant} \cdot N_{ant} = 455 lb$

Wind Load (NESC Heavy)

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := (L_{ant} + 2 \cdot Ir) \cdot (W_{ant} + 2 \cdot Ir) = 14.8 ft^2$

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 44.5 ft^2$

Total Antenna Wind Force w/ Ice = $Fi_{ant4} := p \cdot Cd_F \cdot A_{ICEant} = 285 lb$

Wind Load (NESC Extreme)

Surface Area for One Antenna = $SA_{ant} := L_{ant} \cdot W_{ant} = 14 ft^2$

Antenna Projected Surface Area = $A_{ant} := SA_{ant} \cdot N_{ant} = 42 ft^2$

Total Antenna Wind Force = $F_{ant4} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 2838 lb$

Wind Load (NESC Extreme Ice w/ Wind)

Surface Area for One Antenna w/ Extreme Ice = $SA_{ICE.exant} := (L_{ant} + 2 \cdot Ir_{ex}) \cdot (W_{ant} + 2 \cdot Ir_{ex}) = 15.2 ft^2$

Antenna Projected Surface Area w/ Extreme Ice = $A_{ICE.exant} := SA_{ICE.exant} \cdot N_{ant} = 45.7 ft^2$

Total Antenna Wind Force w/ Extreme Ice = $Fi_{ex.ant4} := p_{ex} \cdot Cd_F \cdot A_{ICE.exant} = 468 lb$

Development of Wind & Ice Load on Antennas

Antenna Data: (AT&T)

Antenna Model =	Commscope TMAT192123B68-31	
Antenna Shape =	Flat	(User Input)
Antenna Height =	$L_{ant} := 9.37 \cdot in$	(User Input)
Antenna Width =	$W_{ant} := 11.142 \cdot in$	(User Input)
Antenna Thickness =	$T_{ant} := 3.819 \cdot in$	(User Input)
Antenna Weight =	$WT_{ant} := 23 \cdot lb$	(User Input)
Number of Antennas =	$N_{ant} := 12$	(User Input)

Gravity Load (without ice)

Weight of All Antennas = $Wt_{ant5} := WT_{ant} \cdot N_{ant} = 276 lb$

Gravity Load (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 399 \cdot in^3$

Volume of Ice on Each Antenna = $V_{ice} := (L_{ant} + 2 \cdot Ir)(W_{ant} + 2 \cdot Ir)(T_{ant} + 2 \cdot Ir) - V_{ant} = 208 \cdot in^3$

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

Weight of Ice on All Antennas = $Wt_{ice.ant5} := W_{ICEant} \cdot N_{ant} = 81 lb$

Gravity Load (Extreme ice only)

Volume of Extreme Ice on Each Antenna = $V_{ice.ex} := (L_{ant} + 2 \cdot Ir_{ex})(W_{ant} + 2 \cdot Ir_{ex})(T_{ant} + 2 \cdot Ir_{ex}) - V_{ant} = 332 \cdot in^3$

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

Weight of Extreme Ice on All Antennas = $Wt_{ice.ex.ant5} := W_{ICE.exant} \cdot N_{ant} = 129 lb$

Wind Load (NESC Heavy)

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := (L_{ant} + 2 \cdot Ir) \cdot (W_{ant} + 2 \cdot Ir) = 0.9 ft^2$

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 10.5 ft^2$

Total Antenna Wind Force w/ Ice = $Fi_{ant5} := p \cdot Cd_F \cdot A_{ICEant} = 67 lb$

Wind Load (NESC Extreme)

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

Antenna Projected Surface Area = $A_{ant} := SA_{ant} \cdot N_{ant} = 8.7 ft^2$

Total Antenna Wind Force = $F_{ant5} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 588 lb$

Wind Load (NESC Extreme Ice w/ Wind)

Surface Area for One Antenna w/ Extreme Ice = $SA_{ICE.exant} := (L_{ant} + 2 \cdot Ir_{ex}) \cdot (W_{ant} + 2 \cdot Ir_{ex}) = 1 ft^2$

Antenna Projected Surface Area w/ Extreme Ice = $A_{ICE.exant} := SA_{ICE.exant} \cdot N_{ant} = 11.5 ft^2$

Total Antenna Wind Force w/ Extreme Ice = $Fi_{ex.ant5} := p_{ex} \cdot Cd_F \cdot A_{ICE.exant} = 117 lb$

Development of Wind & Ice Load on Antennas

Antenna Data: (AT&T)

Antenna Model =	Raycap DC6-48-60-18-8F		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 23.5 \cdot in$	in	(User Input)
Antenna Width =	$W_{ant} := 9.7 \cdot in$	in	(User Input)
Antenna Thickness =	$T_{ant} := 9.7 \cdot in$	in	(User Input)
Antenna Weight =	$WT_{ant} := 25 \cdot lb$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)

Gravity Load (without ice)

Weight of All Antennas = $Wt_{ant6} := WT_{ant} \cdot N_{ant} = 25\,lb$

Gravity Load (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 2211 \cdot in^3$

Volume of Ice on Each Antenna = $V_{ice} := (L_{ant} + 2 \cdot Ir)(W_{ant} + 2 \cdot Ir)(T_{ant} + 2 \cdot Ir) - V_{ant} = 594 \cdot in^3$

Weight of Ice on Each Antenna = $W_{ICEant} := V_{ice} \cdot Id = 19\,lb$

Weight of Ice on All Antennas = $Wt_{ice.ant6} := W_{ICEant} \cdot N_{ant} = 19\,lb$

Gravity Load (Extreme ice only)

Volume of Extreme Ice on Each Antenna = $V_{ice.ex} := (L_{ant} + 2 \cdot Ir_{ex})(W_{ant} + 2 \cdot Ir_{ex})(T_{ant} + 2 \cdot Ir_{ex}) - V_{ant} = 925 \cdot in^3$

Weight of Extreme Ice on Each Antenna = $W_{ICE.exant} := V_{ice.ex} \cdot Id = 30\,lb$

Weight of Extreme Ice on All Antennas = $Wt_{ice.ex.ant6} := W_{ICE.exant} \cdot N_{ant} = 30\,lb$

Wind Load (NESC Heavy)

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := (L_{ant} + 2 \cdot Ir) \cdot (W_{ant} + 2 \cdot Ir) = 1.8\,ft^2$

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 1.8\,ft^2$

Total Antenna Wind Force w/ Ice = $Fi_{ant6} := p \cdot Cd_F \cdot A_{ICEant} = 12\,lb$

Wind Load (NESC Extreme)

Surface Area for One Antenna = $SA_{ant} := L_{ant} \cdot W_{ant} = 1.6\,ft^2$

Antenna Projected Surface Area = $A_{ant} := SA_{ant} \cdot N_{ant} = 1.6\,ft^2$

Total Antenna Wind Force = $F_{ant6} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 107\,lb$

Wind Load (NESC Extreme Ice w/ Wind)

Surface Area for One Antenna w/ Extreme Ice = $SA_{ICE.exant} := (L_{ant} + 2 \cdot Ir_{ex}) \cdot (W_{ant} + 2 \cdot Ir_{ex}) = 1.9\,ft^2$

Antenna Projected Surface Area w/ Extreme Ice = $A_{ICE.exant} := SA_{ICE.exant} \cdot N_{ant} = 1.9\,ft^2$

Total Antenna Wind Force w/ Extreme Ice = $Fi_{ex.ant6} := p_{ex} \cdot Cd_F \cdot A_{ICE.exant} = 20\,lb$

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 =	$Wap_{ice} := \left[\left[(3.375)^2 - (2.375)^2\right] \cdot 120 \cdot 12\right] \cdot in^3 \cdot \frac{\pi}{4} \cdot (ld) = 211 \cdot lb$	
Weight 0.75" ice on Antenna Pipes =	$Wap_{ice.ex} := \left[\left[(3.875)^2 - (2.375)^2\right] \cdot 120 \cdot 12\right] \cdot in^3 \cdot \frac{\pi}{4} \cdot (ld) = 344 \cdot lb$	
Total Pipe Length =	$TPL := 12 \cdot 10 \cdot ft = 120 ft$	
Total Antenna Length =	$TAL := 96 \cdot in \cdot 6 + 31.1 \cdot in \cdot 3 + 30.6 \cdot in \cdot 3 = 63.425 ft$	
Exposed Pipe Area =	$ExPA := (TPL - TAL) 2.375 \cdot in = 11.197 ft^2$	
Exposed Pipe Area (0.5"Ice) =	$ExPA_{ice} := (TPL - TAL) 3.375 \cdot in = 15.912 ft^2$	
Exposed Pipe Area (0.75' Ice) =	$ExPA_{ice.ex} := (TPL - TAL) 3.875 \cdot in = 18.269 ft^2$	
Mount Projected Surface Area =	$CdAa := 1.3 \cdot ExPA + EPA = 42.7 ft^2$	
Mount Projected Surface Area w/ Ice =	$CdAa_{ice} := 1.3 \cdot ExPA_{ice} + EPA_{ice} = 54.8 ft^2$	
Mount Projected Surface Area w/ Extreme Ice =	$CdAa_{ice.ex} := 1.3 \cdot ExPA_{ice.ex} + EPA_{ice.ex} = 60.8 ft^2$	

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 = $Fi_{mnt1} := p \cdot CdAa_{ice} = 219 lb$

Wind Load (NESC Extreme)

Total Mount Wind Force = $F_{mnt1} := qz \cdot CdAa \cdot m = 1804 lb$

Wind Load (NESC Extreme Ice w/ Wind)

Total Mount Wind Force w/ Extreme Ice = $Fi_{ex.mnt1} := p_{ex} \cdot CdAa_{ice.ex} = 389 lb$

Total Equipment Loads:

AT&T Loads:

NESC Heavy Wind Vertical =

$$Wt_{tot} := \left(Wt_{ant1} + Wt_{ant2} + Wt_{ant3} + Wt_{ant4} + Wt_{ant5} + Wt_{ant6} + Wt_{mnt1}\right) = 4577\,lb$$

$$Wt_{ice.tot} := \left(Wt_{ice.ant1} + Wt_{ice.ant2} + Wt_{ice.ant3} + Wt_{ice.ant4} + Wt_{ice.ant5} + Wt_{ice.ant6} + Wt_{ice.mnt1}\right) = 1481\,lb$$

$$\left(Wt_{tot} + Wt_{ice.tot}\right)\cdot 1.5 = 9087\,lb$$

NESC Heavy Wind Trasnsverse =

$$\left(Fi_{ant1} + Fi_{ant2} + Fi_{ant3} + Fi_{ant4} + Fi_{ant5} + Fi_{ant6} + Fi_{mnt1}\right)\cdot 2.5 = 2519\,lb$$

NESC Extreme Wind Vertical =

$$\left(Wt_{ant1} + Wt_{ant2} + Wt_{ant3} + Wt_{ant4} + Wt_{ant5} + Wt_{ant6} + Wt_{mnt1}\right) = 4577\,lb$$

NESC Extreme Wind Trasnsverse =

$$\left(F_{ant1} + F_{ant2} + F_{ant3} + F_{ant4} + F_{ant5} + F_{ant6} + F_{mnt1}\right) = 9524\,lb$$

NESC Extreme Ice w/ Wind Vertical =

$$Wt_{ice.ex.tot} := \left(Wt_{ice.ex.ant1} + Wt_{ice.ex.ant2} + Wt_{ice.ex.ant3} + Wt_{ice.ex.ant4} + Wt_{ice.ex.ant5} + Wt_{ice.ex.ant6} + Wt_{ice.ex.mnt1}\right) = 2352\,lb$$

$$\left(Wt_{tot} + Wt_{ice.ex.tot}\right) = 6929\,lb$$

NESC Extreme Ice w/ Wind Trasnsverse =

$$\left(Fi_{ex.ant1} + Fi_{ex.ant2} + Fi_{ex.ant3} + Fi_{ex.ant4} + Fi_{ex.ant5} + Fi_{ex.ant6} + Fi_{ex.mnt1}\right) = 1698\,lb$$

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Subject:	Coax Cable on Pole #783
Location:	Meriden, CT
Rev. 1: 7/5/23	Prepared by: T.J.L Checked by: C.F.C. Job No. 22021.04

Coax Cable on CL&P 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 =	$TC := 110$	ft	(User Input)
Multiplier Gust Response Factor =	$m := 1.00$		(User Input - Only for NESC Extreme wind case)
Velocity Pressure Coefficient =	$Kz := 2.01 \cdot \left(\frac{0.67TC}{900}\right)^{\frac{2}{9.5}} = 1.187$		(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 =	$z_s := 0.67 \cdot TC = 73.7$		(NESC 2023 Table 250-3)
Turbulence Intensity =	$I_z := C_{exp} \cdot \left(\frac{33}{z_s}\right)^{\frac{1}{6}} = 0.175$		(NESC 2023 Table 250-3)
Response Term =	$B_t := \left[\frac{1}{\left[1 + \left(0.56 \cdot \frac{z_s}{L_s}\right)\right]}\right]^{0.5} = 0.918$		(NESC 2023 Table 250-3)
Gust Response Factor =	$Grf := \frac{\left[1 + \left(4.61 \cdot I_z \cdot B_t\right)\right]}{\left(1 + 6.1 \cdot I_z\right)} = 0.842$		(NESC 2023 Table 250-3)
Wind Pressure =	$qz := 0.00256 \cdot Kz \cdot V^2 \cdot Grf = 30.9$	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} - Cables located inside the pole
Number of Projected Coax Cables =	$NP_{coax} := 0$	*(User Input)*	

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Subject: Coax Cable on Pole #783

Location: Meriden, CT

Rev. 1: 7/5/23

Prepared by: T.J.L Checked by: C.F.C.
Job No. 22021.04

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)*

Wind Area without Ice = $A := (0) = 0 \cdot in$

Wind Area with Ice = $A_{ice} := (0) = 0 \cdot in$

Wind Area with Extreme Ice = $A_{ice.ex} := (0) = 0 \cdot in$

Ice Area per Liner Ft = $Ai_{coax} := 0 = 0$

Weight of Ice on All Coax Cables = $W_{ice} := Ai_{coax} \cdot ld \cdot N_{coax} = 0 \cdot plf$

Extreme Ice Area per Liner Ft = $Ai_{coax.ex} := 0 = 0$

Weight of Extreme Ice on All Coax Cables = $W_{ice.ex} := Ai_{coax.ex} \cdot ld \cdot N_{coax} = 0 \cdot plf$

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 =

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

$Heavy\_WInd_{Vert} = 421 lb$ $Heavy\_Wind_{Trans} = 0$

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 =

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

$Extreme\_Wind_{Vert} = 281 lb$ $Extreme\_Wind_{Trans} = 0$

Extreme Ice w/ Wind Vertical Load =

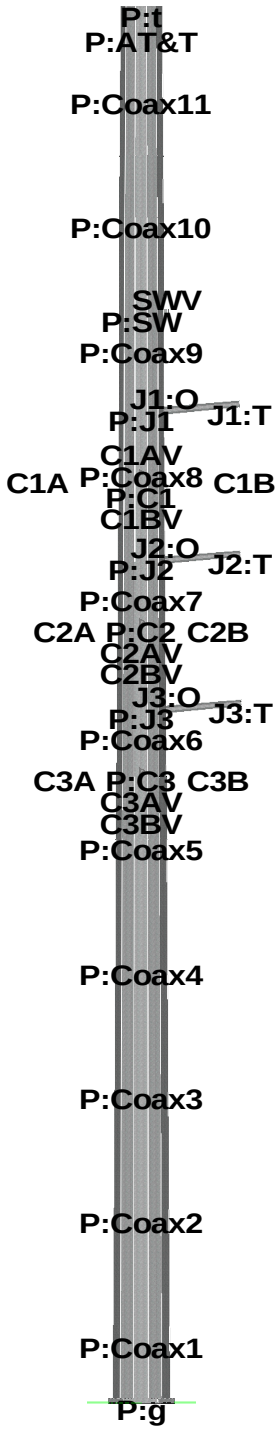
$$Extreme\_Ice_{Vert} := \overrightarrow{\left[\left(N_{coax} \cdot W_{coax} + W_{ice.ex}\right) \cdot Coax_{Span} \cdot OF_{EIV}\right]}$$

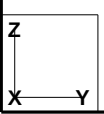
Extreme Ice w/ Wind Transverse Load =

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

$Extreme\_Ice_{Vert} = 281 lb$ $Extreme\_Ice_{Trans} = 0$

Centek Engineering Inc, Project: "115-23-22941-124FT_783"
PLS-POLE Version 17.50, 8:58:28 AM Wednesday, May 17, 2023
Undeformed geometry displayed





10 (ft)

Project Name : 22021.04 - Meriden, CT
Project Notes: Structure #783 / AT&T CT2117
Project File : J:\Jobs\2202100.WI\04_CT2117\05_Structural\Tower Analysis\Backup Documentation\Rev (1) - Cables on interior\Calcs\PLS-Pole\115-23-22941-124FT_783.POL
Date run : 3:34:34 PM Wednesday, July 05, 2023
by : PLS-POLE Version 17.50
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Successfully performed nonlinear analysis

Load case '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\2202100.WI\04_CT2117\05_Structural\Tower Analysis\Backup Documentation\Rev (1) - Cables on interior\Calcs\PLS-Pole\783.lca

*** Analysis Results:

Maximum element usage is 46.18% for Steel Pole "P" in load case "RULE 250C"
Maximum insulator usage is 40.93% for Strain "C1A" in load case "RULE 250D"

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 %
RULE 250B	P:g	84.80	22.65	87.78	1563.77	0.00
RULE 250C	P:g	47.77	41.25	63.12	2991.13	0.00
RULE 250D	P:g	70.70	14.76	72.22	1027.44	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 %
RULE 250B	P:g	-0.66	-22.64	-84.80	22.65	1563.08	-46.33	1563.77	0.30	0.00
RULE 250C	P:g	-0.05	-41.25	-47.77	41.25	2991.13	-2.50	2991.13	0.00	0.00
RULE 250D	P:g	1.90	-14.63	-70.70	14.76	1019.05	131.04	1027.44	-0.72	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)
RULE 250B	P:t	0.32	11.44	-0.09	11.45	0.02	-0.71	-0.00
RULE 250C	P:t	0.02	23.32	-0.26	23.33	0.00	-1.51	0.00
RULE 250D	P:t	-0.88	7.53	-0.05	7.59	-0.05	-0.47	0.00

Tubes Summary:

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

```
-----------------------------------------------
     P     1    1664 RULE 250C     4.89     104.28
     P     2    9164 RULE 250C    30.14    1083.01
     P     3   14045 RULE 250C    46.18    2991.13
```

*** 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	46.18	RULE 250C	1.1	30	26885.6

Summary of Tubular Davit Usages:

Tubular Davit Label	Maximum Usage %	Load Case	Height AGL (ft)	Segment Number	Weight (lbs)
J1	0.89	RULE 250B	78.2	1	80.4
J2	0.89	RULE 250B	66.2	1	80.4
J3	0.89	RULE 250B	54.2	1	80.4

*** Maximum Stress Summary for Each Load Case

Summary of Maximum Usages by Load Case:

Load Case	Maximum Usage %	Element Label	Element Type
RULE 250B	25.33	P	Steel Pole
RULE 250C	46.18	P	Steel Pole
RULE 250D	17.18	P	Steel Pole

Summary of Steel Pole Usages by Load Case:

Load Case	Maximum Usage %	Steel Pole Label	Height AGL (ft)	Segment Number
RULE 250B	25.33	P	1.1	30
RULE 250C	46.18	P	1.1	30
RULE 250D	17.18	P	1.1	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 %
RULE 250B	P	1	14.771	82.792	3294.480	-97.658	38.767	84.004	-2.5	123.071	2.862	0.00
RULE 250C	P	1	14.771	45.755	3295.926	-2.758	37.543	81.350	-2.5	120.011	2.816	0.00
RULE 250D	P	8	14.771	68.687	3269.012	420.352	40.311	87.349	-2.5	125.741	2.918	0.00

Summary of Tubular Davit Usages by Load Case:

Load Case	Maximum Tubular Davit	Height Segment

	Usage %	Label	AGL (ft)	Number
RULE 250B	0.89	J3	54.2	1
RULE 250C	0.59	J3	54.2	1
RULE 250D	0.59	J1	78.2	1

Summary of Insulator Usages:

Insulator Label	Insulator Type	Maximum Usage %	Load Case	Weight (lbs)
SW	Clamp	31.78	RULE 250D	0.0
Clamp1	Clamp	0.28	RULE 250D	0.0
Clamp2	Clamp	0.28	RULE 250D	0.0
Clamp3	Clamp	0.28	RULE 250D	0.0
Clamp4	Clamp	0.28	RULE 250D	0.0
Clamp5	Clamp	0.28	RULE 250D	0.0
Clamp6	Clamp	0.28	RULE 250D	0.0
Clamp7	Clamp	0.28	RULE 250D	0.0
Clamp8	Clamp	0.28	RULE 250D	0.0
Clamp9	Clamp	0.28	RULE 250D	0.0
Clamp10	Clamp	0.28	RULE 250D	0.0
Clamp11	Clamp	0.28	RULE 250D	0.0
Clamp12	Clamp	7.13	RULE 250D	0.0
C1B	Strain	39.74	RULE 250D	180.0
C1A	Strain	40.93	RULE 250D	180.0
C2B	Strain	39.74	RULE 250D	180.0
C2A	Strain	40.93	RULE 250D	180.0
C3B	Strain	39.74	RULE 250D	180.0
C3A	Strain	40.93	RULE 250D	180.0

*** Weight of structure (lbs):

Weight of Tubular Davit Arms:	241.1
Weight of Steel Poles:	26885.6
Weight of Strains:	1080.0
Total:	28206.6

*** End of Report

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

Project Name : 22021.04 - Meriden, CT
Project Notes: Structure #783 / AT&T CT2117
Project File : J:\Jobs\2202100.WI\04_CT2117\05_Structural\Tower Analysis\Backup Documentation\Rev (1) - Cables on interior\Calcs\PLS-Pole\115-23-
22941-124FT_783.POL
Date run     : 3:34:33 PM Wednesday, July 05, 2023
by           : PLS-POLE Version 17.50
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Successfully performed nonlinear analysis

Load case '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

SWV	P:SW	SWV	0	0.25	Face
C1AV	P:C1	C1AV	270	0.25	Face
C1BV	P:C1	C1BV	90	0.25	Face
C2AV	P:C2	C2AV	270	0.25	Face
C2BV	P:C2	C2BV	90	0.25	Face
C3AV	P:C3	C3AV	270	0.25	Face
C3BV	P:C3	C3BV	90	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 Trans. Load	Ultimate Texture Long. Load
		(ft)	(ft)			(in)	(in)	(in/ft)			(ksi)	(lbs/ft^3)			(ft)	(kips)	(kips)
115-23-22941-124FT		112.00	0	Yes	12F	40.07	55.13	0	1.6	3 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)
115-23-22941-124FT	1	12	0.3125	0.000	0.000	0.000	65.000	0.000	1664	6.04	0.13107	40.07	41.64	5.127	0.000
115-23-22941-124FT	2	50	0.375	0.000	0.000	0.000	65.000	0.000	9164	25.61	0.13107	41.77	48.32	5.946	0.000
115-23-22941-124FT	3	50	0.5	0.000	0.000	0.000	65.000	0.000	14045	25.53	0.13107	48.57	55.12	0.000	0.000

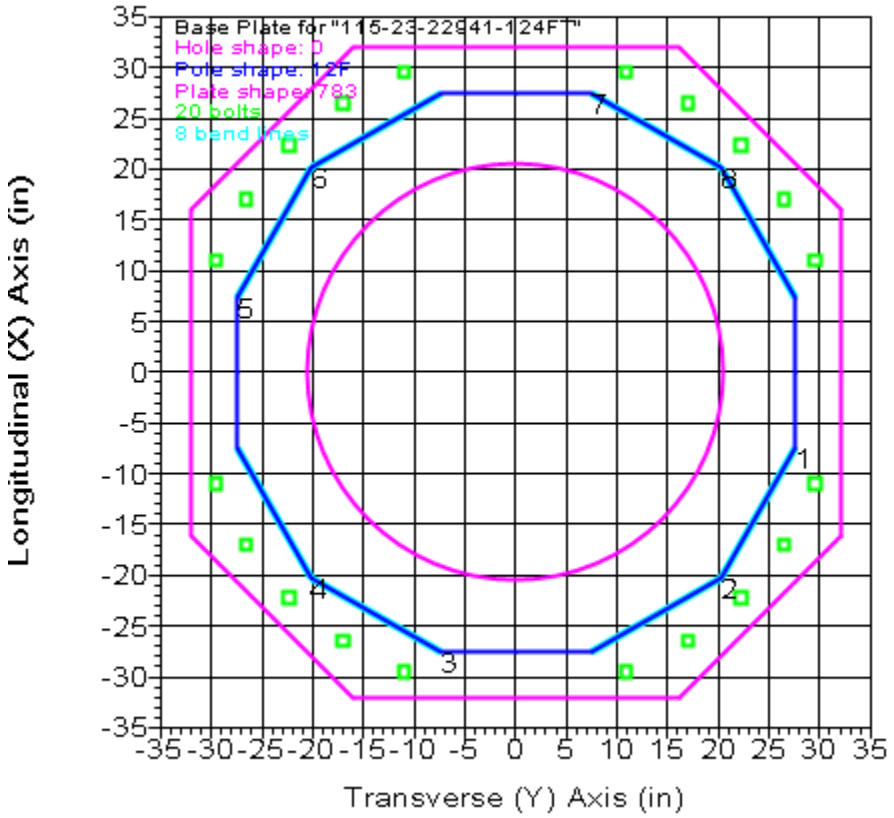
Base Plate Properties:

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)
115-23-22941-124FT	64.125	783	3.250	2013	0.000	41.250	0	490.00	50.000	2.250	63.000	20	39452.64	39452.64

Base Plate Bolt Coordinates for Property "115-23-22941-124FT":

Bolt X Coord.	Bolt Y Coord.	Bolt Angle (deg)

```
---------------------
      0      0 20.3967
      0      0 32.6984
      0      0      45
      0      0 57.3016
      0      0 69.6033
```



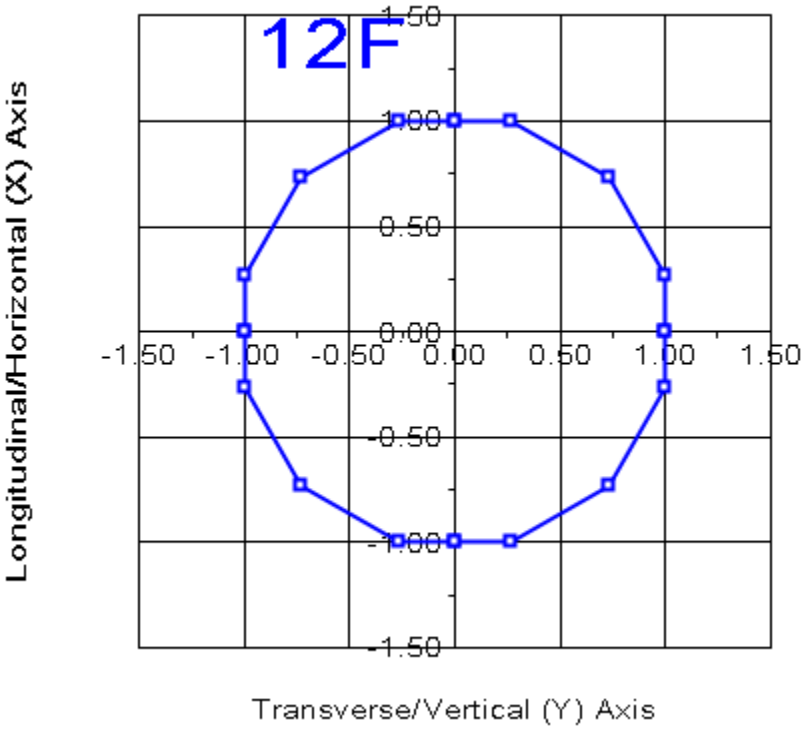
Steel Pole Connectivity:

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	115-23-22941-124FT	19 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:SW	24.50	0.00
P:J1	32.50	0.00
P:C1	37.50	0.00
P:J2	44.50	0.00
P:C2	49.50	0.00
P:J3	56.50	0.00
P:C3	61.50	0.00
P:AT&T	2.00	0.00
P:Coax1	0.00	5.00
P:Coax2	0.00	15.00
P:Coax3	0.00	25.00
P:Coax4	0.00	35.00
P:Coax5	0.00	45.00
P:Coax6	0.00	55.00
P:Coax7	0.00	65.00
P:Coax8	0.00	75.00
P:Coax9	0.00	85.00
P:Coax10	0.00	95.00
P:Coax11	0.00	105.00



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	40.07	39.95	8082.55	8082.55	0.00	31.7	65.00	63.15	2123.10	2123.10
P	P:AT&T	P:AT&T End	2.00	40.33	40.21	8243.48	8243.48	0.00	31.9	65.00	62.93	2143.78	2143.78
P	P:AT&T	P:AT&T Ori	2.00	40.33	40.21	8243.48	8243.48	0.00	31.9	65.00	62.93	2143.78	2143.78
P	P:Coax11	P:Coax11 End	7.00	40.99	40.87	8655.11	8655.11	0.00	32.5	65.00	62.38	2195.42	2195.42
P	P:Coax11	P:Coax11 Ori	7.00	40.99	40.87	8655.11	8655.11	0.00	32.5	65.00	62.38	2195.42	2195.42
P	#P:0	SpliceT End	12.00	41.64	41.53	9080.23	9080.23	0.00	33.0	65.00	61.83	2246.96	2246.96
P	#P:0	SpliceT Ori	12.00	41.77	49.91	10946.05	10946.05	0.00	27.2	65.00	65.00	2839.07	2839.07
P	P:Coax10	P:Coax10 End	17.00	42.42	50.70	11474.20	11474.20	0.00	27.6	65.00	65.00	2930.09	2930.09
P	P:Coax10	P:Coax10 Ori	17.00	42.42	50.70	11474.21	11474.21	0.00	27.6	65.00	65.00	2930.09	2930.09
P	#P:1	Tube 2 End	20.75	42.91	51.29	11881.28	11881.28	0.00	28.0	65.00	65.00	2999.29	2999.29
P	#P:1	Tube 2 Ori	20.75	42.91	51.29	11881.29	11881.29	0.00	28.0	65.00	65.00	2999.29	2999.29
P	P:SW	P:SW End	24.50	43.41	51.89	12297.88	12297.88	0.00	28.3	65.00	65.00	3069.30	3069.30
P	P:SW	P:SW Ori	24.50	43.41	51.89	12297.88	12297.88	0.00	28.3	65.00	65.00	3069.30	3069.30
P	P:Coax9	P:Coax9 End	27.00	43.73	52.28	12580.95	12580.95	0.00	28.6	65.00	65.00	3116.42	3116.42
P	P:Coax9	P:Coax9 Ori	27.00	43.73	52.28	12580.95	12580.95	0.00	28.6	65.00	65.00	3116.42	3116.42
P	#P:2	Tube 2 End	29.75	44.09	52.72	12897.31	12897.31	0.00	28.8	65.00	65.00	3168.67	3168.67
P	#P:2	Tube 2 Ori	29.75	44.09	52.72	12897.31	12897.31	0.00	28.8	65.00	65.00	3168.67	3168.67
P	P:J1	P:J1 End	32.50	44.45	53.15	13218.93	13218.93	0.00	29.1	65.00	65.00	3221.36	3221.36
P	P:J1	P:J1 Ori	32.50	44.45	53.15	13218.93	13218.93	0.00	29.1	65.00	65.00	3221.36	3221.36
P	P:Coax8	P:Coax8 End	37.00	45.04	53.86	13756.68	13756.68	0.00	29.5	65.00	65.00	3308.51	3308.51
P	P:Coax8	P:Coax8 Ori	37.00	45.04	53.86	13756.68	13756.68	0.00	29.5	65.00	65.00	3308.51	3308.51
P	P:C1	P:C1 End	37.50	45.11	53.94	13817.31	13817.31	0.00	29.6	65.00	65.00	3318.26	3318.26
P	P:C1	P:C1 Ori	37.50	45.11	53.94	13817.31	13817.31	0.00	29.6	65.00	65.00	3318.26	3318.26
P	#P:3	Tube 2 End	41.00	45.57	54.49	14246.75	14246.75	0.00	29.9	65.00	64.92	3382.62	3382.62
P	#P:3	Tube 2 Ori	41.00	45.57	54.49	14246.75	14246.75	0.00	29.9	65.00	64.92	3382.62	3382.62
P	P:J2	P:J2 End	44.50	46.03	55.05	14684.99	14684.99	0.00	30.2	65.00	64.60	3434.81	3434.81
P	P:J2	P:J2 Ori	44.50	46.03	55.05	14684.99	14684.99	0.00	30.2	65.00	64.60	3434.81	3434.81
P	P:Coax7	P:Coax7 End	47.00	46.36	55.44	15003.46	15003.46	0.00	30.4	65.00	64.37	3472.10	3472.10
P	P:Coax7	P:Coax7 Ori	47.00	46.36	55.44	15003.46	15003.46	0.00	30.4	65.00	64.37	3472.10	3472.10
P	P:C2	P:C2 End	49.50	46.68	55.84	15326.50	15326.50	0.00	30.7	65.00	64.14	3509.38	3509.38
P	P:C2	P:C2 Ori	49.50	46.68	55.84	15326.50	15326.50	0.00	30.7	65.00	64.14	3509.38	3509.38
P	#P:4	Tube 2 End	53.00	47.14	56.39	15786.51	15786.51	0.00	31.0	65.00	63.81	3561.58	3561.58
P	#P:4	Tube 2 Ori	53.00	47.14	56.39	15786.51	15786.51	0.00	31.0	65.00	63.81	3561.58	3561.58
P	P:J3	P:J3 End	56.50	47.60	56.94	16255.62	16255.62	0.00	31.3	65.00	63.49	3613.75	3613.75
P	P:J3	P:J3 Ori	56.50	47.60	56.94	16255.62	16255.62	0.00	31.3	65.00	63.49	3613.75	3613.75
P	P:Coax6	P:Coax6 End	57.00	47.67	57.02	16323.39	16323.39	0.00	31.4	65.00	63.45	3621.20	3621.20
P	P:Coax6	P:Coax6 Ori	57.00	47.67	57.02	16323.39	16323.39	0.00	31.4	65.00	63.45	3621.20	3621.20
P	P:C3	P:C3 End	61.50	48.26	57.73	16941.77	16941.77	0.00	31.8	65.00	63.03	3688.24	3688.24
P	P:C3	P:C3 Ori	61.50	48.26	57.73	16941.78	16941.78	0.00	31.8	65.00	63.03	3688.24	3688.24
P	#P:5	SpliceT End	62.00	48.32	57.81	17011.43	17011.43	0.00	31.8	65.00	62.99	3695.69	3695.69
P	#P:5	SpliceT Ori	62.00	48.57	77.28	22860.83	22860.83	0.00	23.3	65.00	65.00	5098.85	5098.85
P	P:Coax5	P:Coax5 End	67.00	49.23	78.34	23808.55	23808.55	0.00	23.7	65.00	65.00	5239.54	5239.54
P	P:Coax5	P:Coax5 Ori	67.00	49.23	78.34	23808.55	23808.55	0.00	23.7	65.00	65.00	5239.54	5239.54
P	#P:6	Tube 3 End	72.00	49.88	79.39	24782.11	24782.11	0.00	24.1	65.00	65.00	5382.13	5382.13
P	#P:6	Tube 3 Ori	72.00	49.88	79.39	24782.11	24782.11	0.00	24.1	65.00	65.00	5382.13	5382.13
P	P:Coax4	P:Coax4 End	77.00	50.54	80.45	25781.85	25781.85	0.00	24.4	65.00	65.00	5526.65	5526.65
P	P:Coax4	P:Coax4 Ori	77.00	50.54	80.45	25781.85	25781.85	0.00	24.4	65.00	65.00	5526.65	5526.65
P	#P:7	Tube 3 End	82.00	51.19	81.50	26808.13	26808.13	0.00	24.8	65.00	65.00	5673.08	5673.08
P	#P:7	Tube 3 Ori	82.00	51.19	81.50	26808.13	26808.13	0.00	24.8	65.00	65.00	5673.08	5673.08
P	P:Coax3	P:Coax3 End	87.00	51.85	82.55	27861.29	27861.29	0.00	25.1	65.00	65.00	5821.42	5821.42
P	P:Coax3	P:Coax3 Ori	87.00	51.85	82.55	27861.29	27861.29	0.00	25.1	65.00	65.00	5821.42	5821.42
P	#P:8	Tube 3 End	92.00	52.50	83.61	28941.67	28941.67	0.00	25.5	65.00	65.00	5971.68	5971.68
P	#P:8	Tube 3 Ori	92.00	52.50	83.61	28941.68	28941.68	0.00	25.5	65.00	65.00	5971.68	5971.68
P	P:Coax2	P:Coax2 End	97.00	53.16	84.66	30049.64	30049.64	0.00	25.8	65.00	65.00	6123.85	6123.85
P	P:Coax2	P:Coax2 Ori	97.00	53.16	84.66	30049.64	30049.64	0.00	25.8	65.00	65.00	6123.85	6123.85
P	#P:9	Tube 3 End	102.00	53.81	85.71	31185.52	31185.52	0.00	26.2	65.00	65.00	6277.94	6277.94

P	#P:9	Tube 3 Ori	102.00	53.81	85.71	31185.52	31185.52	0.00	26.2	65.00	65.00	6277.94	6277.94
P	P:Coax1	P:Coax1 End	107.00	54.47	86.77	32349.68	32349.68	0.00	26.5	65.00	65.00	6433.94	6433.94
P	P:Coax1	P:Coax1 Ori	107.00	54.47	86.77	32349.68	32349.68	0.00	26.5	65.00	65.00	6433.94	6433.94
P	P:g	P:g End	112.00	55.12	87.82	33542.45	33542.45	0.00	26.9	65.00	65.00	6591.86	6591.86

Tubular Davit Properties:

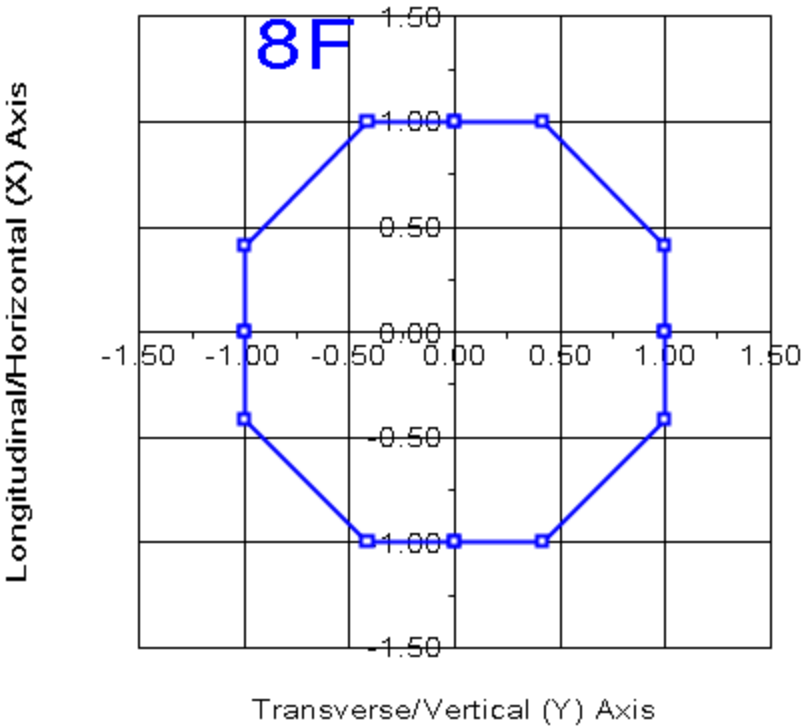
Davit Property Label	Stock Number	Steel Shape	Thickness (in)	Base Diameter or Depth (in)	Tip Diameter or Depth (in)	Taper (in/ft)	Drag Coef.	Modulus of Elasticity (ksi)	Geometry Check Type	Strength Vertical Capacity (lbs)	Tension Capacity (lbs)	Compres. Capacity (lbs)	Long. Capacity (lbs)	Yield Stress (ksi)	Steel Texture Weight Density (lbs/ft^3)	Override At End Shape
6FT ARM-115		8F	0.1875	7	6	0	1.3	29000	1 point	Calculated	0	0	0	0	65	0

Intermediate Joints for Davit Property "6FT ARM-115":

Joint Label	Horz. Offset (ft)	Vert. Offset (ft)
T	6	-0.5

Tubular Davit Arm Connectivity:

Davit Label	Attach Label	Davit Property Set	Azimuth (deg)
J1	P:J1	6FT ARM-115	0
J2	P:J2	6FT ARM-115	0
J3	P:J3	6FT ARM-115	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)
J1	J1:O	Origin	0.00	7.00	4.23	25.98	25.98	0.00	11.3	65.00	65.00	40.21	40.21
J1	#J1:0	End	3.01	6.50	3.92	20.67	20.67	0.00	10.2	65.00	65.00	34.45	34.45
J1	#J1:0	Origin	3.01	6.50	3.92	20.67	20.67	0.00	10.2	65.00	65.00	34.45	34.45
J1	J1:T	End	6.02	6.00	3.61	16.14	16.14	0.00	9.1	65.00	65.00	29.14	29.14
J2	J2:O	Origin	0.00	7.00	4.23	25.98	25.98	0.00	11.3	65.00	65.00	40.21	40.21
J2	#J2:0	End	3.01	6.50	3.92	20.67	20.67	0.00	10.2	65.00	65.00	34.45	34.45
J2	#J2:0	Origin	3.01	6.50	3.92	20.67	20.67	0.00	10.2	65.00	65.00	34.45	34.45
J2	J2:T	End	6.02	6.00	3.61	16.14	16.14	0.00	9.1	65.00	65.00	29.14	29.14
J3	J3:O	Origin	0.00	7.00	4.23	25.98	25.98	0.00	11.3	65.00	65.00	40.21	40.21
J3	#J3:0	End	3.01	6.50	3.92	20.67	20.67	0.00	10.2	65.00	65.00	34.45	34.45
J3	#J3:0	Origin	3.01	6.50	3.92	20.67	20.67	0.00	10.2	65.00	65.00	34.45	34.45
J3	J3:T	End	6.02	6.00	3.61	16.14	16.14	0.00	9.1	65.00	65.00	29.14	29.14

*** Insulator Data

Clamp Properties:

Label	Stock Number	Holding Capacity (lbs)	Hardware Capacity (lbs)	Notes
CLAMP		1e+05	1e+05	
19 #10 AW Clamp	435103	1.5e+04	0	

Clamp Insulator Connectivity:

Clamp Label	Structure And Tip Attach	Property Set	Min. Required Vertical Load (uplift) (lbs)
SW	SWV	19 #10 AW Clamp	No Limit
Clamp1	P:Coax1	CLAMP	No Limit
Clamp2	P:Coax2	CLAMP	No Limit
Clamp3	P:Coax3	CLAMP	No Limit
Clamp4	P:Coax4	CLAMP	No Limit
Clamp5	P:Coax5	CLAMP	No Limit
Clamp6	P:Coax6	CLAMP	No Limit
Clamp7	P:Coax7	CLAMP	No Limit
Clamp8	P:Coax8	CLAMP	No Limit
Clamp9	P:Coax9	CLAMP	No Limit
Clamp10	P:Coax10	CLAMP	No Limit
Clamp11	P:Coax11	CLAMP	No Limit
Clamp12	P:AT&T	CLAMP	No Limit

Strain Properties:

Label	Stock Number	Length (ft)	Weight (lbs)	Wind Area (ft^2)	Tension Capacity (lbs)	Energized Length (ft)	Energized Diameter (ft)	Hardware Notes Capacity (lbs)	Draw
115-kV Deadend Bittern	115-DE-BITTERN	7	180	3	4e+04	0	0	0	Sheds

Strain Insulator Connectivity:

Strain Label	Structure Attach	Tip Label	Property Set	Azimuth (deg)	Min. Required Vertical Load (uplift) (lbs)
C1B	C1BV	C1B 115-kV Deadend Bittern		90	No Limit
C1A	C1AV	C1A 115-kV Deadend Bittern		270	No Limit
C2B	C2BV	C2B 115-kV Deadend Bittern		90	No Limit
C2A	C2AV	C2A 115-kV Deadend Bittern		270	No Limit
C3B	C3BV	C3B 115-kV Deadend Bittern		90	No Limit
C3A	C3AV	C3A 115-kV Deadend Bittern		270	No Limit

PLS-CADD Link Cable Sets:

Insulator Label	Conductor Attach Label	Insulator Type	Set Number	Phase Number	Set Description	Dead End	Framing Source

C1B	C1B	Strain	12	1	Yes
C1A	C1A	Strain	2	1	Yes
C2B	C2B	Strain	13	1	Yes
C2A	C2A	Strain	3	1	Yes
C3B	C3B	Strain	14	1	Yes
C3A	C3A	Strain	4	1	Yes
SW	SWV	Clamp	20	1	Yes
Clamp1	P:Coax1	Clamp	0	0	No
Clamp2	P:Coax2	Clamp	0	0	No
Clamp3	P:Coax3	Clamp	0	0	No
Clamp4	P:Coax4	Clamp	0	0	No
Clamp5	P:Coax5	Clamp	0	0	No
Clamp6	P:Coax6	Clamp	0	0	No
Clamp7	P:Coax7	Clamp	0	0	No
Clamp8	P:Coax8	Clamp	0	0	No
Clamp9	P:Coax9	Clamp	0	0	No
Clamp10	P:Coax10	Clamp	0	0	No
Clamp11	P:Coax11	Clamp	0	0	No
Clamp12	P:AT&T	Clamp	0	0	No

Material List Options:
Show Parts: YES
Decompose Assemblies: NO
Show Assemblies: YES

Material List

Stock Number	Item Description	Quantity	Unit of Measure
435103	Clamp property: 19 #10 AW Clamp	1.00	Each
115-DE-BITTERN	Strain property: 115-kV Deadend Bittern	6.00	Each

*** Loads Data

Loads from file: J:\Jobs\2202100.WI\04_CT2117\05_Structural\Tower Analysis\Backup Documentation\Rev (1) - Cables on interior\Calcs\PLS-Pole\783.lca

Insulator dead and wind loads are already 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 1.38 (ft)
  Z of ground with shift -1.38 (ft)
  Z of structure top (highest joint) 112.00 (ft)
  Structure height 112.00 (ft)
  Structure height above ground 113.38 (ft)

Vector Load Cases:

Load Case Description	Dead Load	Wind Area	SF for Steel Poles	SF for Wood Poles	SF for Conc. Poles	SF for Conc. Poles	SF for Guys and Tubular Arms	SF for Non Tubular Arms	SF for Braces	SF for Insuls.	SF For Hardware	Point Loads	Wind/Ice Model	Trans. Longit. Wind Pressure	Ice Thick. (in)	Ice Density (lbs/ft^3)	Ice Temperature Factor (deg F)	Pole Deflection Factor Tubular Towers	Pole Deflection Factor Arms	Pole Check %	Pole Ult. Limit	First Crack	Zero Tens. Cables	Found.					
RULE 250B	1.5000	2.5000	1.00000	0.6500	1.0000	0.0000	0.0000	0.9000	0.6500	0.6500	0.0000	0.0000	1.0000	20 loads	Wind on All	4	0.500	0.000	0.0	No Limit	0							
RULE 250C	1.0000	1.0000	1.00000	0.7500	1.0000	0.0000	0.0000	0.9000	0.7500	0.7500	0.0000	0.0000	1.0000	20 loads	NESC 2023	31	0.000	0.000	60.0	No Limit	0							
RULE 250D	1.0000	1.0000	1.00000	1.0000	1.0000	0.0000	0.0000	1.0000	1.0000	1.0000	1.0000	0.0000	1.0000	20 loads	Wind on All	6.4	0.750	0.000	15.0	No Limit	0							

Point Loads for Load Case "RULE 250B":

Joint Label	Vertical Load (lbs)	Transverse Load (lbs)	Longitudinal Load (lbs)	Load Comment
SWV	1578	1072	-11055	Shield Wire
SWV	1578	1077	11220	Shield Wire
C1A	4698	1807	-19965	Conductor
C1B	4698	1813	20130	Conductor
C2A	4698	1807	-19965	Conductor
C2B	4698	1813	20130	Conductor
C3A	4698	1807	-19965	Conductor
C3B	4698	1813	20130	Conductor
P:AT&T	9087	2519	0	AT&T
P:Coax1	421	0	0	Coax
P:Coax2	421	0	0	Coax
P:Coax3	421	0	0	Coax
P:Coax4	421	0	0	Coax
P:Coax5	421	0	0	Coax

P:Coax6	421	0	0	Coax
P:Coax7	421	0	0	Coax
P:Coax8	421	0	0	Coax
P:Coax9	421	0	0	Coax
P:Coax10	421	0	0	Coax
P:Coax11	421	0	0	Coax

Point Loads for Load Case "RULE 250C":

Joint Label	Vertical Load (lbs)	Transverse Load (lbs)	Longitudinal Load (lbs)	Load Comment
SWV	410	1067	-5900	Shield Wire
SWV	410	1067	5900	Shield Wire
C1A	1987	2628	-11700	Conductor
C1B	1987	2628	11700	Conductor
C2A	1987	2628	-11700	Conductor
C2B	1987	2628	11700	Conductor
C3A	1987	2628	-11700	Conductor
C3B	1987	2628	11700	Conductor
P:AT&T	4577	9524	0	AT&T
P:Coax1	281	0	0	Coax
P:Coax2	281	0	0	Coax
P:Coax3	281	0	0	Coax
P:Coax4	281	0	0	Coax
P:Coax5	281	0	0	Coax
P:Coax6	281	0	0	Coax
P:Coax7	281	0	0	Coax
P:Coax8	281	0	0	Coax
P:Coax9	281	0	0	Coax
P:Coax10	281	0	0	Coax
P:Coax11	281	0	0	Coax

Detailed Pole Loading Data for Load Case "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:AT&T	112.00	110.00	112.38	40.201	3.36e+06	1.000	31.12	0.00	272.77	208.49	0.00	0.00	208.49	0.00
P	P:AT&T	P:Coax11	110.00	105.00	108.88	40.660	3.4e+06	1.000	31.12	0.00	689.77	527.17	0.00	0.00	527.17	0.00
P	P:Coax11		105.00	100.00	103.88	41.315	3.45e+06	1.000	31.12	0.00	700.97	535.67	0.00	0.00	535.67	0.00
P		P:Coax10	100.00	95.00	98.88	42.096	3.52e+06	1.000	31.12	0.00	855.87	545.78	0.00	0.00	545.78	0.00
P	P:Coax10		95.00	91.25	94.51	42.669	3.56e+06	1.000	31.12	0.00	650.74	414.91	0.00	0.00	414.91	0.00
P		P:SW	91.25	87.50	90.76	43.160	3.6e+06	1.000	31.12	0.00	658.30	419.69	0.00	0.00	419.69	0.00
P	P:SW	P:Coax9	87.50	85.00	87.63	43.570	3.64e+06	1.000	31.12	0.00	443.07	282.45	0.00	0.00	282.45	0.00
P	P:Coax9		85.00	82.25	85.01	43.914	3.67e+06	1.000	31.12	0.00	491.26	313.15	0.00	0.00	313.15	0.00
P		P:J1	82.25	79.50	82.26	44.275	3.7e+06	1.000	31.12	0.00	495.33	315.72	0.00	0.00	315.72	0.00
P	P:J1	P:Coax8	79.50	75.00	78.63	44.750	3.74e+06	1.000	31.12	0.00	819.31	522.18	0.00	0.00	522.18	0.00
P	P:Coax8	P:C1	75.00	74.50	76.13	45.077	3.76e+06	1.000	31.12	0.00	91.71	58.44	0.00	0.00	58.44	0.00
P	P:C1		74.50	71.00	74.13	45.340	3.79e+06	1.000	31.12	0.00	645.71	411.49	0.00	0.00	411.49	0.00
P		P:J2	71.00	67.50	70.63	45.798	3.82e+06	1.000	31.12	0.00	652.30	415.65	0.00	0.00	415.65	0.00
P	P:J2	P:Coax7	67.50	65.00	67.63	46.192	3.86e+06	1.000	31.12	0.00	469.96	299.44	0.00	0.00	299.44	0.00
P	P:Coax7	P:C2	65.00	62.50	65.13	46.519	3.89e+06	1.000	31.12	0.00	473.32	301.57	0.00	0.00	301.57	0.00

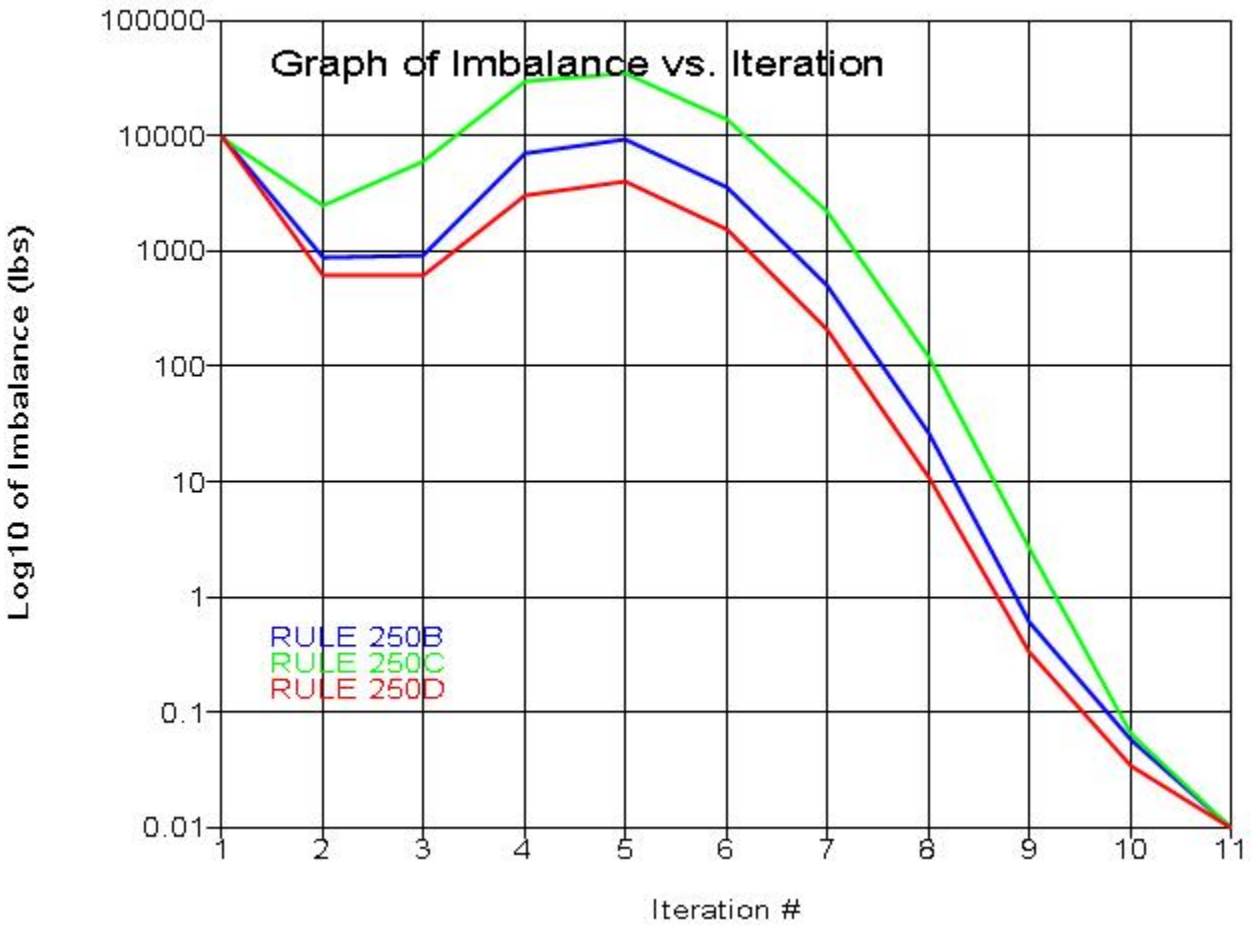
P	P:C2		62.50	59.00	62.13	46.912	3.92e+06	1.000	31.12	0.00	668.30	425.76	0.00	0.00	425.76	0.00
P		P:J3	59.00	55.50	58.63	47.371	3.96e+06	1.000	31.12	0.00	674.88	429.93	0.00	0.00	429.93	0.00
P	P:J3	P:Coax6	55.50	55.00	56.63	47.633	3.98e+06	1.000	31.12	0.00	96.95	61.76	0.00	0.00	61.76	0.00
P	P:Coax6	P:C3	55.00	50.50	54.13	47.961	4.01e+06	1.000	31.12	0.00	878.60	559.65	0.00	0.00	559.65	0.00
P	P:C3		50.50	50.00	51.63	48.289	4.03e+06	1.000	31.12	0.00	98.29	62.61	0.00	0.00	62.61	0.00
P		P:Coax5	50.00	45.00	48.88	48.899	4.08e+06	1.000	31.12	0.00	1323.82	633.99	0.00	0.00	633.99	0.00
P	P:Coax5		45.00	40.00	43.88	49.554	4.14e+06	1.000	31.12	0.00	1341.79	642.49	0.00	0.00	642.49	0.00
P		P:Coax4	40.00	35.00	38.88	50.210	4.19e+06	1.000	31.12	0.00	1359.72	650.99	0.00	0.00	650.99	0.00
P	P:Coax4		35.00	30.00	33.88	50.865	4.25e+06	1.000	31.12	0.00	1377.65	659.48	0.00	0.00	659.48	0.00
P		P:Coax3	30.00	25.00	28.88	51.521	4.3e+06	1.000	31.12	0.00	1395.57	667.98	0.00	0.00	667.98	0.00
P	P:Coax3		25.00	20.00	23.88	52.176	4.36e+06	1.000	31.12	0.00	1413.50	676.48	0.00	0.00	676.48	0.00
P		P:Coax2	20.00	15.00	18.88	52.831	4.41e+06	1.000	31.12	0.00	1431.42	684.98	0.00	0.00	684.98	0.00
P	P:Coax2		15.00	10.00	13.88	53.487	4.47e+06	1.000	31.12	0.00	1449.35	693.47	0.00	0.00	693.47	0.00
P		P:Coax1	10.00	5.00	8.88	54.142	4.52e+06	1.000	31.12	0.00	1467.28	701.97	0.00	0.00	701.97	0.00
P	P:Coax1	P:g	5.00	0.00	3.88	54.797	4.58e+06	1.000	31.12	0.00	1485.20	710.47	0.00	0.00	710.47	0.00

Point Loads for Load Case "RULE 250D":

Joint Label	Vertical Load (lbs)	Transverse Load (lbs)	Longitudinal Load (lbs)	Load Comment
SWV	2253	759	-9100	Shield Wire
SWV	2253	745	8700	Shield Wire
C1A	4837	1155	-15600	Conductor
C1B	4837	1138	15100	Conductor
C2A	4837	1155	-15600	Conductor
C2B	4837	1138	15100	Conductor
C3A	4837	1155	-15600	Conductor
C3B	4837	1138	15100	Conductor
P:AT&T	6929	1698	0	AT&T
P:Coax1	281	0	0	Coax
P:Coax2	281	0	0	Coax
P:Coax3	281	0	0	Coax
P:Coax4	281	0	0	Coax
P:Coax5	281	0	0	Coax
P:Coax6	281	0	0	Coax
P:Coax7	281	0	0	Coax
P:Coax8	281	0	0	Coax
P:Coax9	281	0	0	Coax
P:Coax10	281	0	0	Coax
P:Coax11	281	0	0	Coax

*** Analysis Results:

Maximum element usage is 46.18% for Steel Pole "P" in load case "RULE 250C"
Maximum insulator usage is 40.93% for Strain "C1A" in load case "RULE 250D"



*** Analysis Results for Load Case No. 1 "RULE 250B" - Number of iterations in SAPS 11

Equilibrium Joint Positions and Rotations for Load Case "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	0.02631	0.9534	-0.007314	-0.7079	0.0182	-0.0005	0.02631	0.9534	112
P:AT&T	0.02567	0.9287	-0.007161	-0.7079	0.0182	-0.0005	0.02567	0.9287	110

P:Coax11	0.02408	0.8669	-0.006736	-0.7067	0.0182	-0.0005	0.02408	0.8669	105
P:Coax10	0.02091	0.7442	-0.005891	-0.6981	0.0182	-0.0005	0.02091	0.7442	94.99
P:SW	0.01853	0.6534	-0.005268	-0.6870	0.0182	-0.0005	0.01853	0.6534	87.49
P:Coax9	0.01773	0.6235	-0.005057	-0.6818	0.0182	-0.0005	0.01773	0.6235	84.99
P:J1	0.01599	0.5586	-0.004601	-0.6677	0.0180	-0.0004	0.01599	0.5586	79.5
P:Coax8	0.01458	0.5067	-0.004237	-0.6533	0.0179	-0.0004	0.01458	0.5067	75
P:C1	0.01442	0.501	-0.004197	-0.6516	0.0178	-0.0004	0.01442	0.501	74.5
P:J2	0.01227	0.423	-0.003612	-0.6225	0.0173	-0.0003	0.01227	0.423	67.5
P:Coax7	0.01151	0.396	-0.003413	-0.6099	0.0171	-0.0003	0.01151	0.396	65
P:C2	0.01077	0.3697	-0.003217	-0.5963	0.0168	-0.0003	0.01077	0.3697	62.5
P:J3	0.008771	0.2993	-0.002662	-0.5511	0.0158	-0.0002	0.008771	0.2993	55.5
P:Coax6	0.008633	0.2945	-0.002625	-0.5474	0.0157	-0.0002	0.008633	0.2945	55
P:C3	0.007429	0.2527	-0.002298	-0.5123	0.0148	-0.0002	0.007429	0.2527	50.5
P:Coax5	0.006049	0.2052	-0.001941	-0.4744	0.0138	-0.0002	0.006049	0.2052	45
P:Coax4	0.003814	0.129	-0.001372	-0.3938	0.0116	-0.0001	0.003814	0.129	35
P:Coax3	0.00202	0.06816	-0.0008963	-0.2974	0.0088	-0.0001	0.00202	0.06816	25
P:Coax2	0.0007541	0.02543	-0.0005022	-0.1872	0.0055	-0.0001	0.0007541	0.02543	15
P:Coax1	8.861e-05	0.00299	-0.0001622	-0.0651	0.0019	-0.0000	8.861e-05	0.00299	5
SWV	0.01854	0.6533	-0.02995	-0.6870	0.0182	-0.0005	0.01854	2.712	87.47
C1AV	0.01442	0.501	-0.003534	-0.6516	0.0178	-0.0004	-2.115	0.501	74.5
C1BV	0.01442	0.501	-0.004859	-0.6516	0.0178	-0.0004	2.144	0.501	74.5
C2AV	0.01077	0.3697	-0.002573	-0.5963	0.0168	-0.0003	-2.184	0.3697	62.5
C2BV	0.01077	0.3696	-0.003862	-0.5963	0.0168	-0.0003	2.206	0.3696	62.5
C3AV	0.007429	0.2527	-0.001713	-0.5123	0.0148	-0.0002	-2.253	0.2527	50.5
C3BV	0.007429	0.2527	-0.002882	-0.5123	0.0148	-0.0002	2.268	0.2527	50.5
J1:O	0.016	0.5585	-0.02618	-0.6677	0.0180	-0.0004	0.016	2.411	79.47
J1:T	0.01618	0.564	-0.0969	-0.6778	0.0180	-0.0004	0.01618	8.416	79.9
J2:O	0.01227	0.4228	-0.02445	-0.6225	0.0173	-0.0003	0.01227	2.341	67.48
J2:T	0.01244	0.428	-0.09042	-0.6326	0.0173	-0.0003	0.01244	8.346	67.91
J3:O	0.008774	0.2992	-0.02174	-0.5511	0.0158	-0.0002	0.008774	2.283	55.48
J3:T	0.00892	0.3038	-0.08023	-0.5612	0.0158	-0.0002	0.00892	8.287	55.92

Joint Support Reactions for Load Case "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	-0.66	0.0	-22.64	0.0	0.0	-84.80	0.0	0.0	87.78	0.0	1563.08	0.0	-46.3	0.0	0.0	0.30	0.0	0.0

Detailed Steel Pole Usages for Load Case "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	11.44	0.32	-0.09	-0.00	-0.00	-0.0	-0.20	0.06	-0.00	-0.01	0.00	0.00	0.00	0.01	0.0	5
P	P:AT&T	End	2.00	11.14	0.31	-0.09	0.11	-0.00	-0.0	-0.20	0.06	-0.00	-0.01	0.00	0.00	0.00	0.01	0.0	2
P	P:AT&T	Origin	2.00	11.14	0.31	-0.09	0.11	-0.00	-0.0	-9.98	2.89	-0.00	-0.25	0.00	0.15	0.00	0.35	0.6	5
P	P:Coax11	End	7.00	10.40	0.29	-0.08	14.54	-0.02	-0.0	-9.98	2.89	-0.00	-0.24	0.41	0.04	0.00	0.66	1.1	2
P	P:Coax11	Origin	7.00	10.40	0.29	-0.08	14.54	-0.02	-0.0	-11.45	3.18	-0.00	-0.28	0.41	0.04	0.00	0.70	1.1	2
P	SpliceT	End	12.00	9.66	0.27	-0.08	30.42	-0.03	-0.0	-11.45	3.18	-0.00	-0.28	0.84	0.04	0.00	1.12	1.8	2
P	SpliceT	Origin	12.00	9.66	0.27	-0.08	30.42	-0.03	-0.0	-12.61	3.47	-0.00	-0.25	0.70	0.04	0.00	0.95	1.5	2
P	P:Coax10	End	17.00	8.93	0.25	-0.07	47.76	-0.05	-0.0	-12.61	3.47	-0.00	-0.25	1.06	0.04	0.00	1.31	2.0	2
P	P:Coax10	Origin	17.00	8.93	0.25	-0.07	47.76	-0.05	-0.0	-14.16	3.73	-0.00	-0.28	1.06	0.04	0.00	1.34	2.1	2
P	Tube 2	End	20.75	8.38	0.24	-0.07	61.75	-0.07	-0.0	-14.16	3.73	-0.00	-0.28	1.34	0.04	0.00	1.62	2.5	2
P	Tube 2	Origin	20.75	8.38	0.24	-0.07	61.75	-0.07	-0.0	-15.15	3.96	-0.00	-0.30	1.34	0.04	0.00	1.64	2.5	2
P	P:SW	End	24.50	7.84	0.22	-0.06	76.59	-0.09	-0.0	-15.15	3.96	-0.00	-0.29	1.62	0.04	0.00	1.92	2.9	2

P	P:SW	Origin	24.50	7.84	0.22	-0.06	83.09	-0.09	-0.3	-19.10	6.33	-0.17	-0.37	1.76	0.06	0.00	2.13	3.3	2
P	P:Coax9	End	27.00	7.48	0.21	-0.06	98.92	-0.52	-0.3	-19.10	6.33	-0.17	-0.37	2.07	0.06	0.00	2.43	3.7	2
P	P:Coax9	Origin	27.00	7.48	0.21	-0.06	98.92	-0.52	-0.3	-20.23	6.50	-0.17	-0.39	2.07	0.07	0.00	2.46	3.8	2
P	Tube 2	End	29.75	7.09	0.20	-0.06	116.78	-0.99	-0.3	-20.23	6.50	-0.17	-0.38	2.40	0.07	0.00	2.79	4.3	2
P	Tube 2	Origin	29.75	7.09	0.20	-0.06	116.78	-0.99	-0.3	-20.97	6.66	-0.17	-0.40	2.40	0.07	0.00	2.80	4.3	2
P	P:J1	End	32.50	6.70	0.19	-0.06	135.11	-1.46	-0.3	-20.97	6.66	-0.17	-0.39	2.73	0.07	0.00	3.13	4.8	2
P	P:J1	Origin	32.50	6.70	0.19	-0.06	135.69	-1.46	-0.3	-22.07	6.89	-0.17	-0.42	2.75	0.07	0.00	3.16	4.9	2
P	P:Coax8	End	37.00	6.08	0.17	-0.05	166.69	-2.24	-0.3	-22.07	6.89	-0.17	-0.41	3.29	0.07	0.00	3.70	5.7	2
P	P:Coax8	Origin	37.00	6.08	0.17	-0.05	166.69	-2.24	-0.3	-23.18	7.05	-0.17	-0.43	3.29	0.07	0.00	3.72	5.7	2
P	P:C1	End	37.50	6.01	0.17	-0.05	170.22	-2.32	-0.3	-23.18	7.05	-0.17	-0.43	3.35	0.07	0.00	3.78	5.8	2
P	P:C1	Origin	37.50	6.01	0.17	-0.05	170.22	-2.32	-0.3	-33.09	10.90	-0.34	-0.61	3.35	0.11	0.00	3.96	6.1	2
P	Tube 2	End	41.00	5.54	0.16	-0.05	208.36	-3.51	-0.3	-33.09	10.90	-0.34	-0.61	4.02	0.11	0.00	4.63	7.1	2
P	Tube 2	Origin	41.00	5.54	0.16	-0.05	208.36	-3.51	-0.3	-34.06	11.11	-0.34	-0.63	4.02	0.11	0.00	4.65	7.2	2
P	P:J2	End	44.50	5.08	0.15	-0.04	247.25	-4.71	-0.3	-34.06	11.11	-0.34	-0.62	4.67	0.11	0.00	5.30	8.2	2
P	P:J2	Origin	44.50	5.08	0.15	-0.04	247.84	-4.70	-0.3	-35.03	11.30	-0.34	-0.64	4.68	0.11	0.00	5.32	8.2	2
P	P:Coax7	End	47.00	4.75	0.14	-0.04	276.08	-5.56	-0.3	-35.03	11.30	-0.34	-0.63	5.15	0.11	0.00	5.78	9.0	2
P	P:Coax7	Origin	47.00	4.75	0.14	-0.04	276.08	-5.56	-0.3	-36.16	11.46	-0.34	-0.65	5.15	0.11	0.00	5.80	9.0	2
P	P:C2	End	49.50	4.44	0.13	-0.04	304.73	-6.41	-0.3	-36.16	11.46	-0.34	-0.65	5.60	0.11	0.00	6.25	9.7	2
P	P:C2	Origin	49.50	4.44	0.13	-0.04	304.73	-6.41	-0.3	-46.38	15.36	-0.51	-0.83	5.60	0.15	0.00	6.44	10.0	2
P	Tube 2	End	53.00	4.01	0.12	-0.04	358.48	-8.19	-0.3	-46.38	15.36	-0.51	-0.82	6.46	0.14	0.00	7.29	11.4	2
P	Tube 2	Origin	53.00	4.01	0.12	-0.04	358.48	-8.19	-0.3	-47.39	15.57	-0.51	-0.84	6.46	0.15	0.00	7.31	11.5	2
P	P:J3	End	56.50	3.59	0.11	-0.03	412.97	-9.97	-0.3	-47.39	15.57	-0.51	-0.83	7.30	0.15	0.00	8.14	12.8	2
P	P:J3	Origin	56.50	3.59	0.11	-0.03	413.56	-9.97	-0.3	-48.09	15.69	-0.51	-0.84	7.31	0.15	0.00	8.16	12.9	2
P	P:Coax6	End	57.00	3.53	0.10	-0.03	421.41	-10.22	-0.3	-48.09	15.69	-0.51	-0.84	7.43	0.15	0.00	8.28	13.0	2
P	P:Coax6	Origin	57.00	3.53	0.10	-0.03	421.41	-10.22	-0.3	-49.25	15.85	-0.51	-0.86	7.43	0.15	0.00	8.30	13.1	2
P	P:C3	End	61.50	3.03	0.09	-0.03	492.71	-12.51	-0.3	-49.25	15.85	-0.51	-0.85	8.48	0.15	0.00	9.33	14.8	2
P	P:C3	Origin	61.50	3.03	0.09	-0.03	492.71	-12.51	-0.3	-59.35	19.70	-0.68	-1.03	8.48	0.18	0.00	9.51	15.1	2
P	SpliceT	End	62.00	2.98	0.09	-0.03	502.56	-12.84	-0.3	-59.35	19.70	-0.68	-1.03	8.62	0.18	0.00	9.66	15.3	2
P	SpliceT	Origin	62.00	2.98	0.09	-0.03	502.56	-12.84	-0.3	-60.43	19.87	-0.68	-0.78	6.45	0.14	0.00	7.24	11.1	2
P	P:Coax5	End	67.00	2.46	0.07	-0.02	601.90	-16.22	-0.3	-60.43	19.87	-0.68	-0.77	7.52	0.14	0.00	8.30	12.8	2
P	P:Coax5	Origin	67.00	2.46	0.07	-0.02	601.90	-16.22	-0.3	-62.86	20.18	-0.67	-0.80	7.52	0.14	0.00	8.33	12.8	2
P	Tube 3	End	72.00	1.98	0.06	-0.02	702.78	-19.59	-0.3	-62.86	20.18	-0.67	-0.79	8.55	0.14	0.00	9.35	14.4	2
P	Tube 3	Origin	72.00	1.98	0.06	-0.02	702.78	-19.59	-0.3	-64.90	20.48	-0.67	-0.82	8.55	0.14	0.00	9.37	14.4	2
P	P:Coax4	End	77.00	1.55	0.05	-0.02	805.18	-22.96	-0.3	-64.90	20.48	-0.67	-0.81	9.54	0.14	0.00	10.35	15.9	2
P	P:Coax4	Origin	77.00	1.55	0.05	-0.02	805.18	-22.96	-0.3	-67.39	20.78	-0.67	-0.84	9.54	0.14	0.00	10.38	16.0	2
P	Tube 3	End	82.00	1.16	0.03	-0.01	909.09	-26.33	-0.3	-67.39	20.78	-0.67	-0.83	10.50	0.14	0.00	11.33	17.4	2
P	Tube 3	Origin	82.00	1.16	0.03	-0.01	909.09	-26.33	-0.3	-69.49	21.08	-0.67	-0.85	10.50	0.14	0.00	11.35	17.5	2
P	P:Coax3	End	87.00	0.82	0.02	-0.01	1014.49	-29.68	-0.3	-69.49	21.08	-0.67	-0.84	11.42	0.14	0.00	12.26	18.9	2
P	P:Coax3	Origin	87.00	0.82	0.02	-0.01	1014.49	-29.68	-0.3	-72.03	21.37	-0.67	-0.87	11.42	0.14	0.00	12.29	18.9	2
P	Tube 3	End	92.00	0.53	0.02	-0.01	1121.35	-33.03	-0.3	-72.03	21.37	-0.67	-0.86	12.30	0.14	0.00	13.17	20.3	2
P	Tube 3	Origin	92.00	0.53	0.02	-0.01	1121.35	-33.03	-0.3	-74.19	21.66	-0.67	-0.89	12.30	0.14	0.00	13.19	20.3	2
P	P:Coax2	End	97.00	0.31	0.01	-0.01	1229.67	-36.38	-0.3	-74.19	21.66	-0.67	-0.88	13.16	0.14	0.00	14.03	21.6	2
P	P:Coax2	Origin	97.00	0.31	0.01	-0.01	1229.67	-36.38	-0.3	-76.79	21.95	-0.67	-0.91	13.16	0.14	0.00	14.06	21.6	2
P	Tube 3	End	102.00	0.14	0.00	-0.00	1339.41	-39.71	-0.3	-76.79	21.95	-0.67	-0.90	13.98	0.14	0.00	14.88	22.9	2
P	Tube 3	Origin	102.00	0.14	0.00	-0.00	1339.41	-39.71	-0.3	-79.00	22.23	-0.66	-0.92	13.98	0.14	0.00	14.90	22.9	2
P	P:Coax1	End	107.00	0.04	0.00	-0.00	1450.55	-43.03	-0.3	-79.00	22.23	-0.66	-0.91	14.77	0.14	0.00	15.68	24.1	2
P	P:Coax1	Origin	107.00	0.04	0.00	-0.00	1450.55	-43.03	-0.3	-81.66	22.51	-0.66	-0.94	14.77	0.14	0.00	15.71	24.2	2
P	P:g	End	112.00	0.00	0.00	0.00	1563.08	-46.33	-0.3	-81.66	22.51	-0.66	-0.93	15.54	0.14	0.00	16.47	25.3	2

Detailed Tubular Davit Arm Usages for Load Case "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.
J1	J1:O	Origin	0.00	6.70	0.19	-0.31	-0.36	-0.00	-0.0	-0.01	0.09	0.00	-0.00	0.57	0.02	0.00	0.58	0.9	2
J1	#J1:0	End	3.01	6.73	0.19	-0.74	-0.09	-0.00	-0.0	-0.01	0.09	0.00	-0.00	0.16	0.02	0.00	0.17	0.3	2
J1	#J1:0	Origin	3.01	6.73	0.19	-0.74	-0.09	-0.00	-0.0	-0.00	0.03	0.00	-0.00	0.16	0.01	0.00	0.17	0.3	2

J1	J1:T	End	6.02	6.77	0.19	-1.16	0.00	0.00	-0.0	-0.00	0.03	0.00	-0.00	0.00	0.02	0.00	0.03	0.0	4
J2	J2:O	Origin	0.00	5.07	0.15	-0.29	-0.36	-0.00	-0.0	-0.01	0.09	0.00	-0.00	0.57	0.02	0.00	0.58	0.9	2
J2	#J2:0	End	3.01	5.10	0.15	-0.69	-0.09	-0.00	-0.0	-0.01	0.09	0.00	-0.00	0.16	0.02	0.00	0.17	0.3	2
J2	#J2:0	Origin	3.01	5.10	0.15	-0.69	-0.09	-0.00	-0.0	-0.00	0.03	0.00	-0.00	0.16	0.01	0.00	0.17	0.3	2
J2	J2:T	End	6.02	5.14	0.15	-1.09	0.00	0.00	-0.0	-0.00	0.03	0.00	-0.00	0.00	0.02	0.00	0.03	0.0	4
J3	J3:O	Origin	0.00	3.59	0.11	-0.26	-0.36	-0.00	-0.0	-0.01	0.09	0.00	-0.00	0.57	0.02	0.00	0.58	0.9	2
J3	#J3:0	End	3.01	3.62	0.11	-0.61	-0.09	-0.00	-0.0	-0.01	0.09	0.00	-0.00	0.16	0.02	0.00	0.17	0.3	2
J3	#J3:0	Origin	3.01	3.62	0.11	-0.61	-0.09	-0.00	-0.0	-0.00	0.03	0.00	-0.00	0.16	0.01	0.00	0.17	0.3	2
J3	J3:T	End	6.02	3.65	0.11	-0.96	0.00	0.00	-0.0	-0.00	0.03	0.00	-0.00	0.00	0.02	0.00	0.03	0.0	4

Summary of Clamp Capacities and Usages for Load Case "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 %
SW	3.822	15.00	0.00	0.00	0.00	0.00	0.00	0.00
Clamp1	0.421	100.00	0.00	0.00	100.00	0.00	0.00	0.00
Clamp2	0.421	100.00	0.00	0.00	100.00	0.00	0.00	0.00
Clamp3	0.421	100.00	0.00	0.00	100.00	0.00	0.00	0.00
Clamp4	0.421	100.00	0.00	0.00	100.00	0.00	0.00	0.00
Clamp5	0.421	100.00	0.00	0.00	100.00	0.00	0.00	0.00
Clamp6	0.421	100.00	0.00	0.00	100.00	0.00	0.00	0.00
Clamp7	0.421	100.00	0.00	0.00	100.00	0.00	0.00	0.00
Clamp8	0.421	100.00	0.00	0.00	100.00	0.00	0.00	0.00
Clamp9	0.421	100.00	0.00	0.00	100.00	0.00	0.00	0.00
Clamp10	0.421	100.00	0.00	0.00	100.00	0.00	0.00	0.00
Clamp11	0.421	100.00	0.00	0.00	100.00	0.00	0.00	0.00
Clamp12	9.430	100.00	0.00	0.00	100.00	0.00	0.00	0.00

Summary of Strain Capacities and Usages for Load Case "RULE 250B":

Strain 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 %
C1B	20.750	40.00	0.00	0.00	0.00	0.00	0.00	0.00
C1A	20.590	40.00	0.00	0.00	0.00	0.00	0.00	0.00
C2B	20.750	40.00	0.00	0.00	0.00	0.00	0.00	0.00
C2A	20.590	40.00	0.00	0.00	0.00	0.00	0.00	0.00
C3B	20.750	40.00	0.00	0.00	0.00	0.00	0.00	0.00
C3A	20.590	40.00	0.00	0.00	0.00	0.00	0.00	0.00

*** Analysis Results for Load Case No. 2 "RULE 250C" - Number of iterations in SAPS 11

Equilibrium Joint Positions and Rotations for Load Case "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	0.001424	1.944	-0.02168	-1.5068	0.0010	0.0000	0.001424	1.944	112
P:AT&T	0.001388	1.891	-0.02099	-1.5067	0.0010	0.0000	0.001388	1.891	110
P:Coax11	0.001296	1.76	-0.01924	-1.5024	0.0010	0.0000	0.001296	1.76	105
P:Coax10	0.001115	1.499	-0.01581	-1.4732	0.0010	0.0000	0.001115	1.499	94.98
P:SW	0.0009798	1.309	-0.01334	-1.4365	0.0010	0.0000	0.0009798	1.309	87.49
P:Coax9	0.0009354	1.246	-0.01255	-1.4210	0.0010	0.0000	0.0009354	1.246	84.99
P:J1	0.0008388	1.112	-0.01086	-1.3810	0.0010	0.0000	0.0008388	1.112	79.49
P:Coax8	0.0007614	1.005	-0.009552	-1.3423	0.0010	0.0000	0.0007614	1.005	74.99
P:C1	0.0007529	0.9928	-0.009411	-1.3376	0.0010	0.0000	0.0007529	0.9928	74.49
P:J2	0.0006366	0.8335	-0.007521	-1.2640	0.0009	0.0000	0.0006366	0.8335	67.49
P:Coax7	0.0005965	0.7789	-0.006897	-1.2336	0.0009	0.0000	0.0005965	0.7789	64.99
P:C2	0.0005573	0.7257	-0.006302	-1.2013	0.0009	0.0000	0.0005573	0.7257	62.49
P:J3	0.0004526	0.5847	-0.00478	-1.0982	0.0008	0.0000	0.0004526	0.5847	55.5
P:Coax6	0.0004455	0.5751	-0.004681	-1.0902	0.0008	0.0000	0.0004455	0.5751	55
P:C3	0.0003833	0.4922	-0.00385	-1.0132	0.0008	0.0000	0.0003833	0.4922	50.5
P:Coax5	0.0003125	0.3986	-0.002977	-0.9328	0.0007	0.0000	0.0003125	0.3986	45
P:Coax4	0.0001982	0.2494	-0.001718	-0.7676	0.0006	0.0000	0.0001982	0.2494	35
P:Coax3	0.0001059	0.1313	-0.0008662	-0.5757	0.0005	-0.0000	0.0001059	0.1313	25
P:Coax2	4.006e-05	0.04882	-0.0003606	-0.3605	0.0003	-0.0000	4.006e-05	0.04882	15
P:Coax1	4.806e-06	0.005717	-9.208e-05	-0.1247	0.0001	-0.0000	4.806e-06	0.005717	5
SWV	0.0009789	1.308	-0.06495	-1.4365	0.0010	0.0000	0.0009789	3.367	87.44
C1AV	0.0007529	0.9928	-0.009375	-1.3376	0.0010	0.0000	-2.129	0.9928	74.49
C1BV	0.0007529	0.9928	-0.009447	-1.3376	0.0010	0.0000	2.13	0.9928	74.49
C2AV	0.0005573	0.7257	-0.006268	-1.2013	0.0009	0.0000	-2.195	0.7257	62.49
C2BV	0.0005573	0.7257	-0.006335	-1.2013	0.0009	0.0000	2.196	0.7257	62.49
C3AV	0.0003833	0.4922	-0.00382	-1.0132	0.0008	0.0000	-2.26	0.4922	50.5
C3BV	0.0003833	0.4922	-0.00388	-1.0132	0.0008	0.0000	2.261	0.4922	50.5
J1:O	0.000838	1.111	-0.0555	-1.3810	0.0010	0.0000	0.000838	2.963	79.44
J1:T	0.0008442	1.121	-0.2008	-1.3878	0.0010	-0.0000	0.0008442	8.974	79.8
J2:O	0.0006359	0.833	-0.04983	-1.2640	0.0009	0.0000	0.0006359	2.751	67.45
J2:T	0.000642	0.8426	-0.1828	-1.2708	0.0009	-0.0000	0.000642	8.76	67.82
J3:O	0.0004521	0.5843	-0.04279	-1.0982	0.0008	0.0000	0.0004521	2.568	55.46
J3:T	0.0004577	0.5928	-0.1584	-1.1050	0.0008	-0.0000	0.0004577	8.576	55.84

Joint Support Reactions for Load Case "RULE 250C":

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	H-Shear Usage %	Z Force (kips)	Comp. Uplift Usage %	Result. 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	-41.25	0.0	0.0	-47.77	0.0	0.0	63.12	0.0	2991.13	0.0	-2.5	0.0	0.0	0.00	0.0	0.0

Detailed Steel Pole Usages for Load Case "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	23.32	0.02	-0.26	-0.00	-0.00	0.0	-0.14	0.11	-0.00	-0.00	0.00	0.01	0.00	0.01	0.0	5
P	P:AT&T	End	2.00	22.69	0.02	-0.25	0.22	-0.00	0.0	-0.14	0.11	-0.00	-0.00	0.00	0.00	0.00	0.01	0.0	3
P	P:AT&T	Origin	2.00	22.69	0.02	-0.25	0.22	-0.00	-0.0	-4.94	10.13	-0.00	-0.12	0.00	0.51	0.00	0.89	1.4	5
P	P:Coax11	End	7.00	21.12	0.02	-0.23	50.86	-0.01	-0.0	-4.94	10.13	-0.00	-0.12	1.45	0.13	0.00	1.58	2.5	2
P	P:Coax11	Origin	7.00	21.12	0.02	-0.23	50.86	-0.01	-0.0	-5.92	10.68	-0.00	-0.14	1.45	0.14	0.00	1.61	2.6	2
P	SpliceT	End	12.00	19.55	0.01	-0.21	104.28	-0.03	-0.0	-5.92	10.68	-0.00	-0.14	2.87	0.14	0.00	3.02	4.9	2
P	SpliceT	Origin	12.00	19.55	0.01	-0.21	104.28	-0.03	-0.0	-6.70	11.24	-0.01	-0.13	2.39	0.12	0.00	2.53	3.9	2
P	P:Coax10	End	17.00	17.99	0.01	-0.19	160.50	-0.05	-0.0	-6.70	11.24	-0.01	-0.13	3.56	0.12	0.00	3.70	5.7	2
P	P:Coax10	Origin	17.00	17.99	0.01	-0.19	160.50	-0.05	-0.0	-7.74	11.75	-0.01	-0.15	3.56	0.12	0.00	3.72	5.7	2
P	Tube 2	End	20.75	16.84	0.01	-0.17	204.56	-0.08	-0.0	-7.74	11.75	-0.01	-0.15	4.43	0.12	0.00	4.59	7.1	2
P	Tube 2	Origin	20.75	16.84	0.01	-0.17	204.56	-0.08	-0.0	-8.40	12.18	-0.01	-0.16	4.43	0.13	0.00	4.60	7.1	2
P	P:SW	End	24.50	15.70	0.01	-0.16	250.23	-0.11	-0.0	-8.40	12.18	-0.01	-0.16	5.30	0.12	0.00	5.47	8.4	2
P	P:SW	Origin	24.50	15.70	0.01	-0.16	251.92	-0.11	-0.0	-9.72	14.70	-0.01	-0.19	5.34	0.15	0.00	5.53	8.5	2
P	P:Coax9	End	27.00	14.96	0.01	-0.15	288.66	-0.13	-0.0	-9.72	14.70	-0.01	-0.19	6.02	0.15	0.00	6.21	9.6	2
P	P:Coax9	Origin	27.00	14.96	0.01	-0.15	288.66	-0.13	-0.0	-10.47	15.01	-0.01	-0.20	6.02	0.15	0.00	6.23	9.6	2
P	Tube 2	End	29.75	14.14	0.01	-0.14	329.93	-0.16	-0.0	-10.47	15.01	-0.01	-0.20	6.77	0.15	0.00	6.97	10.7	2
P	Tube 2	Origin	29.75	14.14	0.01	-0.14	329.93	-0.16	-0.0	-10.97	15.33	-0.01	-0.21	6.77	0.15	0.00	6.98	10.7	2
P	P:J1	End	32.50	13.34	0.01	-0.13	372.09	-0.20	-0.0	-10.97	15.33	-0.01	-0.21	7.51	0.15	0.00	7.72	11.9	2
P	P:J1	Origin	32.50	13.34	0.01	-0.13	372.48	-0.20	-0.0	-11.71	15.76	-0.01	-0.22	7.52	0.16	0.00	7.74	11.9	2
P	P:Coax8	End	37.00	12.05	0.01	-0.11	443.41	-0.25	-0.0	-11.71	15.76	-0.01	-0.22	8.71	0.15	0.00	8.93	13.7	2
P	P:Coax8	Origin	37.00	12.05	0.01	-0.11	443.41	-0.25	-0.0	-12.46	16.06	-0.01	-0.23	8.71	0.16	0.00	8.95	13.8	2
P	P:C1	End	37.50	11.91	0.01	-0.11	451.44	-0.26	-0.0	-12.46	16.06	-0.01	-0.23	8.84	0.16	0.00	9.08	14.0	2
P	P:C1	Origin	37.50	11.91	0.01	-0.11	451.44	-0.26	-0.0	-16.68	21.65	-0.01	-0.31	8.84	0.21	0.00	9.16	14.1	2
P	Tube 2	End	41.00	10.94	0.01	-0.10	527.21	-0.31	-0.0	-16.68	21.65	-0.01	-0.31	10.12	0.21	0.00	10.43	16.1	2
P	Tube 2	Origin	41.00	10.94	0.01	-0.10	527.21	-0.31	-0.0	-17.34	22.07	-0.02	-0.32	10.12	0.21	0.00	10.44	16.1	2
P	P:J2	End	44.50	10.00	0.01	-0.09	604.45	-0.37	-0.0	-17.34	22.07	-0.02	-0.32	11.37	0.21	0.00	11.69	18.1	2
P	P:J2	Origin	44.50	10.00	0.01	-0.09	604.84	-0.37	-0.0	-18.00	22.43	-0.02	-0.33	11.38	0.21	0.00	11.71	18.1	2
P	P:Coax7	End	47.00	9.35	0.01	-0.08	660.91	-0.42	-0.0	-18.00	22.43	-0.02	-0.32	12.25	0.21	0.00	12.58	19.6	2
P	P:Coax7	Origin	47.00	9.35	0.01	-0.08	660.91	-0.42	-0.0	-18.77	22.73	-0.02	-0.34	12.25	0.22	0.00	12.60	19.6	2
P	P:C2	End	49.50	8.71	0.01	-0.08	717.75	-0.46	-0.0	-18.77	22.73	-0.02	-0.34	13.12	0.21	0.00	13.46	21.0	2
P	P:C2	Origin	49.50	8.71	0.01	-0.08	717.75	-0.46	-0.0	-23.22	28.43	-0.02	-0.42	13.12	0.27	0.00	13.54	21.1	2
P	Tube 2	End	53.00	7.84	0.01	-0.07	817.26	-0.53	-0.0	-23.22	28.43	-0.02	-0.41	14.65	0.27	0.00	15.06	23.6	2
P	Tube 2	Origin	53.00	7.84	0.01	-0.07	817.26	-0.53	-0.0	-23.91	28.85	-0.02	-0.42	14.65	0.27	0.00	15.08	23.6	2
P	P:J3	End	56.50	7.02	0.01	-0.06	918.25	-0.61	-0.0	-23.91	28.85	-0.02	-0.42	16.14	0.27	0.00	16.56	26.1	2
P	P:J3	Origin	56.50	7.02	0.01	-0.06	918.65	-0.61	-0.0	-24.40	29.10	-0.02	-0.43	16.14	0.27	0.00	16.58	26.1	2
P	P:Coax6	End	57.00	6.90	0.01	-0.06	933.19	-0.62	-0.0	-24.40	29.10	-0.02	-0.43	16.35	0.27	0.00	16.79	26.5	2
P	P:Coax6	Origin	57.00	6.90	0.01	-0.06	933.19	-0.62	-0.0	-25.19	29.40	-0.02	-0.44	16.35	0.27	0.00	16.80	26.5	2
P	P:C3	End	61.50	5.91	0.00	-0.05	1065.50	-0.72	-0.0	-25.19	29.40	-0.02	-0.44	18.21	0.27	0.00	18.65	29.6	2
P	P:C3	Origin	61.50	5.91	0.00	-0.05	1065.50	-0.72	-0.0	-29.58	35.03	-0.02	-0.51	18.21	0.32	0.00	18.73	29.7	2
P	SpliceT	End	62.00	5.80	0.00	-0.05	1083.01	-0.73	-0.0	-29.58	35.03	-0.02	-0.51	18.46	0.32	0.00	18.98	30.1	2
P	SpliceT	Origin	62.00	5.80	0.00	-0.05	1083.01	-0.73	-0.0	-30.31	35.37	-0.03	-0.39	13.81	0.24	0.00	14.21	21.9	2
P	P:Coax5	End	67.00	4.78	0.00	-0.04	1259.85	-0.86	-0.0	-30.31	35.37	-0.03	-0.39	15.63	0.24	0.00	16.02	24.7	2
P	P:Coax5	Origin	67.00	4.78	0.00	-0.04	1259.85	-0.86	-0.0	-31.97	35.99	-0.03	-0.41	15.63	0.24	0.00	16.05	24.7	2
P	Tube 3	End	72.00	3.84	0.00	-0.03	1439.80	-1.00	-0.0	-31.97	35.99	-0.03	-0.40	17.39	0.24	0.00	17.80	27.4	2
P	Tube 3	Origin	72.00	3.84	0.00	-0.03	1439.80	-1.00	-0.0	-33.38	36.61	-0.03	-0.42	17.39	0.24	0.00	17.82	27.4	2
P	P:Coax4	End	77.00	2.99	0.00	-0.02	1622.85	-1.15	-0.0	-33.38	36.61	-0.03	-0.41	19.09	0.24	0.00	19.51	30.0	2
P	P:Coax4	Origin	77.00	2.99	0.00	-0.02	1622.85	-1.15	-0.0	-35.08	37.23	-0.03	-0.44	19.09	0.24	0.00	19.53	30.0	2
P	Tube 3	End	82.00	2.23	0.00	-0.01	1809.02	-1.31	-0.0	-35.08	37.23	-0.03	-0.43	20.73	0.24	0.00	21.17	32.6	2
P	Tube 3	Origin	82.00	2.23	0.00	-0.01	1809.02	-1.31	-0.0	-36.53	37.85	-0.03	-0.45	20.73	0.25	0.00	21.18	32.6	2
P	P:Coax3	End	87.00	1.58	0.00	-0.01	1998.29	-1.48	-0.0	-36.53	37.85	-0.03	-0.44	22.32	0.24	0.00	22.76	35.0	2
P	P:Coax3	Origin	87.00	1.58	0.00	-0.01	1998.29	-1.48	-0.0	-38.29	38.48	-0.04	-0.46	22.32	0.25	0.00	22.78	35.1	2
P	Tube 3	End	92.00	1.02	0.00	-0.01	2190.68	-1.66	-0.0	-38.29	38.48	-0.04	-0.46	23.85	0.24	0.00	24.31	37.4	2
P	Tube 3	Origin	92.00	1.02	0.00	-0.01	2190.68	-1.66	-0.0	-39.78	39.10	-0.04	-0.48	23.85	0.25	0.00	24.33	37.4	2
P	P:Coax2	End	97.00	0.59	0.00	-0.00	2386.15	-1.85	-0.0	-39.78	39.10	-0.04	-0.47	25.33	0.24	0.00	25.81	39.7	2
P	P:Coax2	Origin	97.00	0.59	0.00	-0.00	2386.15	-1.85	-0.0	-41.58	39.72	-0.04	-0.49	25.33	0.25	0.00	25.83	39.7	2
P	Tube 3	End	102.00	0.27	0.00	-0.00	2584.73	-2.06	-0.0	-41.58	39.72	-0.04	-0.49	26.77	0.24	0.00	27.26	41.9	2
P	Tube 3	Origin	102.00	0.27	0.00	-0.00	2584.73	-2.06	-0.0	-43.12	40.33	-0.04	-0.50	26.77	0.25	0.00	27.27	42.0	2
P	P:Coax1	End	107.00	0.07	0.00	-0.00	2786.39	-2.28	-0.0	-43.12	40.33	-0.04	-0.50	28.16	0.25	0.00	28.66	44.1	2
P	P:Coax1	Origin	107.00	0.07	0.00	-0.00	2786.39	-2.28	-0.0	-44.97	40.95	-0.05	-0.52	28.16	0.25	0.00	28.68	44.1	2

P	P:g	End	112.00	0.00	0.00	0.00	2991.13		-2.50	-0.0	-44.97	40.95	-0.05	-0.51	29.50	0.25	0.00	30.02	46.2	2

Detailed Tubular Davit Arm Usages for Load Case "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.
J1	J1:O	Origin	0.00	13.33	0.01	-0.67	-0.24	-0.00	-0.0	-0.00	0.06	0.00	-0.00	0.38	0.01	0.00	0.39	0.6	2
J1	#J1:0	End	3.01	13.39	0.01	-1.54	-0.06	-0.00	-0.0	-0.00	0.06	0.00	-0.00	0.11	0.01	0.00	0.11	0.2	2
J1	#J1:0	Origin	3.01	13.39	0.01	-1.54	-0.06	-0.00	-0.0	-0.00	0.02	0.00	-0.00	0.11	0.00	0.00	0.11	0.2	2
J1	J1:T	End	6.02	13.46	0.01	-2.41	0.00	0.00	-0.0	-0.00	0.02	0.00	-0.00	0.00	0.01	0.00	0.02	0.0	4
J2	J2:O	Origin	0.00	10.00	0.01	-0.60	-0.24	-0.00	-0.0	-0.00	0.06	0.00	-0.00	0.39	0.01	0.00	0.39	0.6	2
J2	#J2:0	End	3.01	10.05	0.01	-1.39	-0.06	-0.00	-0.0	-0.00	0.06	0.00	-0.00	0.11	0.01	0.00	0.11	0.2	2
J2	#J2:0	Origin	3.01	10.05	0.01	-1.39	-0.06	-0.00	-0.0	-0.00	0.02	0.00	-0.00	0.11	0.00	0.00	0.11	0.2	2
J2	J2:T	End	6.02	10.11	0.01	-2.19	0.00	0.00	-0.0	-0.00	0.02	0.00	-0.00	0.00	0.01	0.00	0.02	0.0	4
J3	J3:O	Origin	0.00	7.01	0.01	-0.51	-0.24	-0.00	-0.0	-0.00	0.06	0.00	-0.00	0.39	0.01	0.00	0.39	0.6	2
J3	#J3:0	End	3.01	7.06	0.01	-1.21	-0.06	-0.00	-0.0	-0.00	0.06	0.00	-0.00	0.11	0.01	0.00	0.11	0.2	2
J3	#J3:0	Origin	3.01	7.06	0.01	-1.21	-0.06	-0.00	-0.0	-0.00	0.02	0.00	-0.00	0.11	0.00	0.00	0.11	0.2	2
J3	J3:T	End	6.02	7.11	0.01	-1.90	0.00	0.00	-0.0	-0.00	0.02	0.00	-0.00	0.00	0.01	0.00	0.02	0.0	4

Summary of Clamp Capacities and Usages for Load Case "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 %
SW	2.286	15.00	0.00	0.00	0.00	0.00	0.00	0.00
Clamp1	0.281	100.00	0.00	0.00	100.00	0.00	0.00	0.00
Clamp2	0.281	100.00	0.00	0.00	100.00	0.00	0.00	0.00
Clamp3	0.281	100.00	0.00	0.00	100.00	0.00	0.00	0.00
Clamp4	0.281	100.00	0.00	0.00	100.00	0.00	0.00	0.00
Clamp5	0.281	100.00	0.00	0.00	100.00	0.00	0.00	0.00
Clamp6	0.281	100.00	0.00	0.00	100.00	0.00	0.00	0.00
Clamp7	0.281	100.00	0.00	0.00	100.00	0.00	0.00	0.00
Clamp8	0.281	100.00	0.00	0.00	100.00	0.00	0.00	0.00
Clamp9	0.281	100.00	0.00	0.00	100.00	0.00	0.00	0.00
Clamp10	0.281	100.00	0.00	0.00	100.00	0.00	0.00	0.00
Clamp11	0.281	100.00	0.00	0.00	100.00	0.00	0.00	0.00
Clamp12	10.567	100.00	0.00	0.00	100.00	0.00	0.00	0.00

Summary of Strain Capacities and Usages for Load Case "RULE 250C":

Strain 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 %
C1B	12.155	40.00	0.00	0.00	0.00	0.00	0.00	0.00
C1A	12.155	40.00	0.00	0.00	0.00	0.00	0.00	0.00
C2B	12.155	40.00	0.00	0.00	0.00	0.00	0.00	0.00
C2A	12.155	40.00	0.00	0.00	0.00	0.00	0.00	0.00
C3B	12.155	40.00	0.00	0.00	0.00	0.00	0.00	0.00
C3A	12.155	40.00	0.00	0.00	0.00	0.00	0.00	0.00

*** Analysis Results for Load Case No. 3 "RULE 250D" - Number of iterations in SAPS 11

Equilibrium Joint Positions and Rotations for Load Case "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	-0.07319	0.6279	-0.004237	-0.4686	-0.0503	0.0012	-0.07319	0.6279	112
P:AT&T	-0.07144	0.6115	-0.004169	-0.4686	-0.0503	0.0012	-0.07144	0.6115	110
P:Coax11	-0.06705	0.5706	-0.003968	-0.4678	-0.0503	0.0012	-0.06705	0.5706	105
P:Coax10	-0.05828	0.4894	-0.003566	-0.4621	-0.0502	0.0012	-0.05828	0.4894	95
P:SW	-0.0517	0.4293	-0.003269	-0.4548	-0.0502	0.0012	-0.0517	0.4293	87.5
P:Coax9	-0.04951	0.4095	-0.003163	-0.4511	-0.0502	0.0011	-0.04951	0.4095	85
P:J1	-0.0447	0.3666	-0.002933	-0.4411	-0.0499	0.0010	-0.0447	0.3666	79.5
P:Coax8	-0.04079	0.3323	-0.002748	-0.4311	-0.0495	0.0009	-0.04079	0.3323	75
P:C1	-0.04036	0.3286	-0.002728	-0.4299	-0.0494	0.0009	-0.04036	0.3286	74.5
P:J2	-0.03438	0.2771	-0.002407	-0.4099	-0.0482	0.0008	-0.03438	0.2771	67.5
P:Coax7	-0.03229	0.2594	-0.002297	-0.4014	-0.0475	0.0007	-0.03229	0.2594	65
P:C2	-0.03022	0.2421	-0.002188	-0.3922	-0.0468	0.0007	-0.03022	0.2421	62.5
P:J3	-0.02464	0.1958	-0.001856	-0.3618	-0.0441	0.0006	-0.02464	0.1958	55.5
P:Coax6	-0.02426	0.1927	-0.001833	-0.3593	-0.0438	0.0006	-0.02426	0.1927	55
P:C3	-0.02089	0.1653	-0.001632	-0.3359	-0.0415	0.0005	-0.02089	0.1653	50.5
P:Coax5	-0.01702	0.1341	-0.001408	-0.3108	-0.0388	0.0004	-0.01702	0.1341	45
P:Coax4	-0.01075	0.08423	-0.001037	-0.2576	-0.0326	0.0003	-0.01075	0.08423	35
P:Coax3	-0.005699	0.04449	-0.0007062	-0.1943	-0.0248	0.0002	-0.005699	0.04449	25
P:Coax2	-0.00213	0.01659	-0.0004093	-0.1222	-0.0157	0.0001	-0.00213	0.01659	15
P:Coax1	-0.0002507	0.001949	-0.0001346	-0.0424	-0.0055	0.0000	-0.0002507	0.001949	5
SWV	-0.05173	0.4292	-0.01961	-0.4548	-0.0502	0.0012	-0.05173	2.488	87.48
C1AV	-0.04036	0.3286	-0.004564	-0.4299	-0.0494	0.0009	-2.17	0.3286	74.5
C1BV	-0.04036	0.3286	-0.0008914	-0.4299	-0.0494	0.0009	2.089	0.3286	74.5
C2AV	-0.03022	0.242	-0.003982	-0.3922	-0.0468	0.0007	-2.225	0.242	62.5
C2BV	-0.03022	0.2421	-0.0003943	-0.3922	-0.0468	0.0007	2.165	0.2421	62.5
C3AV	-0.02089	0.1653	-0.003269	-0.3359	-0.0415	0.0005	-2.282	0.1653	50.5
C3BV	-0.02089	0.1653	4.872e-06	-0.3359	-0.0415	0.0005	2.24	0.1653	50.5
J1:O	-0.04472	0.3666	-0.01719	-0.4411	-0.0499	0.0010	-0.04472	2.219	79.48
J1:T	-0.04522	0.3703	-0.06391	-0.4479	-0.0499	0.0010	-0.04522	8.223	79.94
J2:O	-0.03439	0.2771	-0.01613	-0.4099	-0.0482	0.0008	-0.03439	2.195	67.48
J2:T	-0.03486	0.2806	-0.05957	-0.4167	-0.0482	0.0008	-0.03486	8.198	67.94
J3:O	-0.02465	0.1958	-0.01438	-0.3618	-0.0441	0.0006	-0.02465	2.179	55.49
J3:T	-0.02507	0.1989	-0.05278	-0.3686	-0.0441	0.0006	-0.02507	8.182	55.95

Joint Support Reactions for Load Case "RULE 250D":

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	H-Shear Usage %	Z Force (kips)	Comp. Uplift Usage %	Result. 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	1.90	0.0	-14.63	0.0	0.0	-70.70	0.0	0.0	72.22	0.0	1019.05	0.0	131.0	0.0	0.0	-0.72	0.0	0.0

Detailed Steel Pole Usages for Load Case "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	7.53	-0.88	-0.05	-0.00	0.00	0.0	-0.14	0.04	0.00	-0.00	0.00	0.00	0.00	0.00	0.0	5
P	P:AT&T	End	2.00	7.34	-0.86	-0.05	0.07	0.00	0.0	-0.14	0.04	0.00	-0.00	0.00	0.00	0.00	0.01	0.0	2
P	P:AT&T	Origin	2.00	7.34	-0.86	-0.05	0.07	0.00	0.0	-7.53	1.91	0.01	-0.19	0.00	0.10	0.00	0.25	0.4	5
P	P:Coax11	End	7.00	6.85	-0.80	-0.05	9.65	0.03	0.0	-7.53	1.91	0.01	-0.18	0.27	0.02	0.00	0.46	0.7	2
P	P:Coax11	Origin	7.00	6.85	-0.80	-0.05	9.65	0.03	0.0	-8.51	2.10	0.01	-0.21	0.27	0.03	0.00	0.48	0.8	2
P	SpliceT	End	12.00	6.36	-0.75	-0.05	20.13	0.07	0.0	-8.51	2.10	0.01	-0.20	0.55	0.03	0.00	0.76	1.2	2
P	SpliceT	Origin	12.00	6.36	-0.75	-0.05	20.13	0.07	0.0	-9.29	2.28	0.01	-0.19	0.46	0.02	0.00	0.65	1.0	2
P	P:Coax10	End	17.00	5.87	-0.70	-0.04	31.54	0.11	0.0	-9.29	2.28	0.01	-0.18	0.70	0.02	0.00	0.88	1.4	2
P	P:Coax10	Origin	17.00	5.87	-0.70	-0.04	31.54	0.11	0.0	-10.32	2.45	0.01	-0.20	0.70	0.03	0.00	0.91	1.4	2
P	Tube 2	End	20.75	5.51	-0.66	-0.04	40.72	0.14	0.0	-10.32	2.45	0.01	-0.20	0.88	0.03	0.00	1.09	1.7	2
P	Tube 2	Origin	20.75	5.51	-0.66	-0.04	40.72	0.14	0.0	-10.98	2.59	0.01	-0.21	0.88	0.03	0.00	1.10	1.7	2
P	P:SW	End	24.50	5.15	-0.62	-0.04	50.43	0.18	0.0	-10.98	2.59	0.01	-0.21	1.07	0.03	0.00	1.28	2.0	2
P	P:SW	Origin	24.50	5.15	-0.62	-0.04	59.70	0.19	0.8	-16.02	4.25	0.41	-0.31	1.27	0.05	0.01	1.58	2.4	2
P	P:Coax9	End	27.00	4.91	-0.59	-0.04	70.32	1.22	0.8	-16.02	4.25	0.41	-0.31	1.47	0.05	0.01	1.78	2.7	2
P	P:Coax9	Origin	27.00	4.91	-0.59	-0.04	70.32	1.22	0.8	-16.77	4.35	0.41	-0.32	1.47	0.05	0.01	1.80	2.8	2
P	Tube 2	End	29.75	4.66	-0.57	-0.04	82.29	2.36	0.8	-16.77	4.35	0.41	-0.32	1.70	0.05	0.01	2.02	3.1	2
P	Tube 2	Origin	29.75	4.66	-0.57	-0.04	82.29	2.36	0.8	-17.26	4.46	0.42	-0.33	1.70	0.05	0.01	2.03	3.1	2
P	P:J1	End	32.50	4.40	-0.54	-0.04	94.54	3.50	0.8	-17.26	4.46	0.42	-0.32	1.93	0.05	0.01	2.25	3.5	2
P	P:J1	Origin	32.50	4.40	-0.54	-0.04	94.93	3.50	0.8	-18.00	4.60	0.42	-0.34	1.93	0.05	0.01	2.28	3.5	2
P	P:Coax8	End	37.00	3.99	-0.49	-0.03	115.62	5.37	0.8	-18.00	4.60	0.42	-0.33	2.30	0.05	0.01	2.64	4.1	2
P	P:Coax8	Origin	37.00	3.99	-0.49	-0.03	115.62	5.37	0.8	-18.74	4.70	0.42	-0.35	2.30	0.05	0.01	2.65	4.1	2
P	P:C1	End	37.50	3.94	-0.48	-0.03	117.97	5.58	0.8	-18.74	4.70	0.42	-0.35	2.34	0.05	0.01	2.69	4.1	2
P	P:C1	Origin	37.50	3.94	-0.48	-0.03	117.97	5.58	0.8	-28.76	7.14	0.92	-0.53	2.34	0.08	0.01	2.88	4.4	2
P	Tube 2	End	41.00	3.63	-0.45	-0.03	142.96	8.82	0.8	-28.76	7.14	0.92	-0.53	2.79	0.08	0.01	3.32	5.1	2
P	Tube 2	Origin	41.00	3.63	-0.45	-0.03	142.96	8.82	0.8	-29.41	7.28	0.92	-0.54	2.79	0.08	0.01	3.33	5.1	2
P	P:J2	End	44.50	3.33	-0.41	-0.03	168.42	12.05	0.8	-29.41	7.28	0.92	-0.53	3.23	0.08	0.01	3.77	5.8	2
P	P:J2	Origin	44.50	3.33	-0.41	-0.03	168.81	12.05	0.8	-30.06	7.39	0.93	-0.55	3.24	0.08	0.01	3.78	5.9	2
P	P:Coax7	End	47.00	3.11	-0.39	-0.03	187.30	14.37	0.8	-30.06	7.39	0.93	-0.54	3.54	0.08	0.01	4.09	6.4	2
P	P:Coax7	Origin	47.00	3.11	-0.39	-0.03	187.30	14.37	0.8	-30.81	7.49	0.93	-0.56	3.54	0.08	0.01	4.10	6.4	2
P	P:C2	End	49.50	2.90	-0.36	-0.03	206.03	16.68	0.8	-30.81	7.49	0.93	-0.55	3.85	0.08	0.01	4.40	6.9	2
P	P:C2	Origin	49.50	2.90	-0.36	-0.03	206.03	16.68	0.8	-41.04	9.97	1.43	-0.74	3.85	0.11	0.01	4.59	7.2	2
P	Tube 2	End	53.00	2.62	-0.33	-0.02	240.92	21.70	0.8	-41.04	9.97	1.43	-0.73	4.42	0.11	0.01	5.15	8.1	2
P	Tube 2	Origin	53.00	2.62	-0.33	-0.02	240.92	21.70	0.8	-41.72	10.10	1.43	-0.74	4.42	0.11	0.01	5.16	8.1	2
P	P:J3	End	56.50	2.35	-0.30	-0.02	276.27	26.71	0.8	-41.72	10.10	1.43	-0.73	4.98	0.11	0.01	5.72	9.0	2
P	P:J3	Origin	56.50	2.35	-0.30	-0.02	276.67	26.71	0.8	-42.18	10.18	1.43	-0.74	4.99	0.11	0.01	5.73	9.0	2
P	P:Coax6	End	57.00	2.31	-0.29	-0.02	281.76	27.43	0.8	-42.18	10.18	1.43	-0.74	5.07	0.11	0.01	5.81	9.2	2
P	P:Coax6	Origin	57.00	2.31	-0.29	-0.02	281.76	27.43	0.8	-42.95	10.28	1.43	-0.75	5.07	0.11	0.01	5.82	9.2	2
P	P:C3	End	61.50	1.98	-0.25	-0.02	328.01	33.87	0.8	-42.95	10.28	1.43	-0.74	5.76	0.11	0.01	6.51	10.3	2
P	P:C3	Origin	61.50	1.98	-0.25	-0.02	328.01	33.87	0.7	-53.11	12.72	1.94	-0.92	5.76	0.13	0.01	6.68	10.6	2
P	SpliceT	End	62.00	1.95	-0.25	-0.02	334.37	34.84	0.7	-53.11	12.72	1.94	-0.92	5.86	0.13	0.01	6.78	10.8	2
P	SpliceT	Origin	62.00	1.95	-0.25	-0.02	334.37	34.84	0.7	-53.82	12.83	1.94	-0.70	4.38	0.10	0.00	5.08	7.8	2
P	P:Coax5	End	67.00	1.61	-0.20	-0.02	398.51	44.53	0.7	-53.82	12.83	1.94	-0.69	5.09	0.10	0.00	5.78	8.9	2
P	P:Coax5	Origin	67.00	1.61	-0.20	-0.02	398.51	44.53	0.7	-55.44	13.03	1.94	-0.71	5.09	0.10	0.00	5.80	8.9	2
P	Tube 3	End	72.00	1.30	-0.17	-0.01	463.64	54.21	0.7	-55.44	13.03	1.94	-0.70	5.77	0.10	0.00	6.48	10.0	2
P	Tube 3	Origin	72.00	1.30	-0.17	-0.01	463.64	54.21	0.7	-56.80	13.22	1.93	-0.72	5.77	0.10	0.00	6.49	10.0	2
P	P:Coax4	End	77.00	1.01	-0.13	-0.01	529.73	63.88	0.7	-56.80	13.22	1.93	-0.71	6.43	0.10	0.00	7.14	11.0	2
P	P:Coax4	Origin	77.00	1.01	-0.13	-0.01	529.73	63.88	0.7	-58.45	13.41	1.93	-0.73	6.43	0.10	0.00	7.16	11.0	2
P	Tube 3	End	82.00	0.76	-0.10	-0.01	596.79	73.54	0.7	-58.45	13.41	1.93	-0.72	7.06	0.10	0.00	7.78	12.0	2
P	Tube 3	Origin	82.00	0.76	-0.10	-0.01	596.79	73.54	0.7	-59.85	13.60	1.93	-0.73	7.06	0.10	0.00	7.80	12.0	2
P	P:Coax3	End	87.00	0.53	-0.07	-0.01	664.80	83.18	0.7	-59.85	13.60	1.93	-0.72	7.67	0.10	0.00	8.40	12.9	2
P	P:Coax3	Origin	87.00	0.53	-0.07	-0.01	664.80	83.18	0.7	-61.54	13.79	1.92	-0.75	7.67	0.10	0.00	8.42	13.0	2
P	Tube 3	End	92.00	0.35	-0.04	-0.01	733.78	92.80	0.7	-61.54	13.79	1.92	-0.74	8.26	0.10	0.00	9.00	13.8	2
P	Tube 3	Origin	92.00	0.35	-0.04	-0.01	733.78	92.80	0.7	-62.97	13.98	1.92	-0.75	8.26	0.10	0.00	9.01	13.9	2
P	P:Coax2	End	97.00	0.20	-0.03	-0.00	803.69	102.40	0.7	-62.97	13.98	1.92	-0.74	8.82	0.10	0.00	9.57	14.7	2
P	P:Coax2	Origin	97.00	0.20	-0.03	-0.00	803.69	102.40	0.7	-64.70	14.17	1.91	-0.76	8.82	0.10	0.00	9.59	14.8	2
P	Tube 3	End	102.00	0.09	-0.01	-0.00	874.55	111.97	0.7	-64.70	14.17	1.91	-0.75	9.37	0.10	0.00	10.12	15.6	2
P	Tube 3	Origin	102.00	0.09	-0.01	-0.00	874.55	111.97	0.7	-66.17	14.36	1.91	-0.77	9.37	0.10	0.00	10.14	15.6	2
P	P:Coax1	End	107.00	0.02	-0.00	-0.00	946.33	121.52	0.7	-66.17	14.36	1.91	-0.76	9.89	0.10	0.00	10.65	16.4	2
P	P:Coax1	Origin	107.00	0.02	-0.00	-0.00	946.33	121.52	0.7	-67.94	14.54	1.90	-0.78	9.89	0.10	0.00	10.67	16.4	2

P	P:g	End	112.00	0.00	0.00	0.00	1019.05	131.04	0.7	-67.94	14.54	1.90	-0.77	10.39	0.10	0.00	11.17	17.2	2

Detailed Tubular Davit Arm Usages for Load Case "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.
J1	J1:O	Origin	0.00	4.40	-0.54	-0.21	-0.24	0.00	0.0	-0.00	0.06	-0.00	-0.00	0.38	0.01	0.00	0.38	0.6	2
J1	#J1:0	End	3.01	4.42	-0.54	-0.49	-0.06	0.00	0.0	-0.00	0.06	-0.00	-0.00	0.11	0.01	0.00	0.11	0.2	2
J1	#J1:0	Origin	3.01	4.42	-0.54	-0.49	-0.06	0.00	0.0	-0.00	0.02	-0.00	-0.00	0.11	0.00	0.00	0.11	0.2	2
J1	J1:T	End	6.02	4.44	-0.54	-0.77	0.00	-0.00	0.0	-0.00	0.02	-0.00	-0.00	0.00	0.01	0.00	0.02	0.0	4
J2	J2:O	Origin	0.00	3.33	-0.41	-0.19	-0.24	0.00	0.0	-0.00	0.06	-0.00	-0.00	0.38	0.01	0.00	0.38	0.6	2
J2	#J2:0	End	3.01	3.35	-0.42	-0.45	-0.06	0.00	0.0	-0.00	0.06	-0.00	-0.00	0.11	0.01	0.00	0.11	0.2	2
J2	#J2:0	Origin	3.01	3.35	-0.42	-0.45	-0.06	0.00	0.0	-0.00	0.02	-0.00	-0.00	0.11	0.00	0.00	0.11	0.2	2
J2	J2:T	End	6.02	3.37	-0.42	-0.71	0.00	-0.00	0.0	-0.00	0.02	-0.00	-0.00	0.00	0.01	0.00	0.02	0.0	4
J3	J3:O	Origin	0.00	2.35	-0.30	-0.17	-0.24	0.00	0.0	-0.00	0.06	-0.00	-0.00	0.38	0.01	0.00	0.38	0.6	2
J3	#J3:0	End	3.01	2.37	-0.30	-0.40	-0.06	0.00	0.0	-0.00	0.06	-0.00	-0.00	0.11	0.01	0.00	0.11	0.2	2
J3	#J3:0	Origin	3.01	2.37	-0.30	-0.40	-0.06	0.00	0.0	-0.00	0.02	-0.00	-0.00	0.11	0.00	0.00	0.11	0.2	2
J3	J3:T	End	6.02	2.39	-0.30	-0.63	0.00	-0.00	0.0	-0.00	0.02	-0.00	-0.00	0.00	0.01	0.00	0.02	0.0	4

Summary of Clamp Capacities and Usages for Load Case "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 %
SW	4.767	15.00	15.00	31.78	0.00	0.00	0.00	31.78
Clamp1	0.281	100.00	100.00	0.28	100.00	0.00	0.00	0.28
Clamp2	0.281	100.00	100.00	0.28	100.00	0.00	0.00	0.28
Clamp3	0.281	100.00	100.00	0.28	100.00	0.00	0.00	0.28
Clamp4	0.281	100.00	100.00	0.28	100.00	0.00	0.00	0.28
Clamp5	0.281	100.00	100.00	0.28	100.00	0.00	0.00	0.28
Clamp6	0.281	100.00	100.00	0.28	100.00	0.00	0.00	0.28
Clamp7	0.281	100.00	100.00	0.28	100.00	0.00	0.00	0.28
Clamp8	0.281	100.00	100.00	0.28	100.00	0.00	0.00	0.28
Clamp9	0.281	100.00	100.00	0.28	100.00	0.00	0.00	0.28
Clamp10	0.281	100.00	100.00	0.28	100.00	0.00	0.00	0.28
Clamp11	0.281	100.00	100.00	0.28	100.00	0.00	0.00	0.28
Clamp12	7.134	100.00	100.00	7.13	100.00	0.00	0.00	7.13

Summary of Strain Capacities and Usages for Load Case "RULE 250D":

Strain 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 %
C1B	15.897	40.00	40.00	39.74	0.00	0.00	0.00	39.74
C1A	16.373	40.00	40.00	40.93	0.00	0.00	0.00	40.93
C2B	15.897	40.00	40.00	39.74	0.00	0.00	0.00	39.74
C2A	16.373	40.00	40.00	40.93	0.00	0.00	0.00	40.93
C3B	15.897	40.00	40.00	39.74	0.00	0.00	0.00	39.74
C3A	16.373	40.00	40.00	40.93	0.00	0.00	0.00	40.93

*** 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	46.18	RULE 250C	1.1	30	26885.6

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	RULE 250B	1	-0.615	2.297	-1.681	1.681	14.771	38.767	84.004	-2.5	123.071	2.862	3.250	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	RULE 250B	2	-1.681	1.681	-2.297	0.615	14.771	23.619	51.180	-2.5	95.515	2.234	3.250	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	RULE 250B	3	-2.297	-0.615	-1.681	-1.681	14.771	18.614	40.334	-2.5	-81.975	1.983	3.250	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	RULE 250B	4	-1.681	-1.681	-0.615	-2.297	14.771	34.688	75.164	-2.5	-112.199	2.707	3.250	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	RULE 250B	5	0.615	-2.297	1.681	-1.681	14.771	35.940	77.876	-2.5	-114.792	2.755	3.250	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	RULE 250B	6	1.681	-1.681	2.297	-0.615	14.771	20.792	45.053	-2.5	-87.236	2.096	3.250	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	RULE 250B	7	2.297	0.615	1.681	1.681	14.771	21.442	46.462	-2.5	90.254	2.128	3.250	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	RULE 250B	8	1.681	1.681	0.615	2.297	14.771	37.515	81.291	-2.5	120.478	2.815	3.250	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	RULE 250C	1	-0.615	2.297	-1.681	1.681	14.771	37.543	81.350	-2.5	120.011	2.816	3.250	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	RULE 250C	2	-1.681	1.681	-2.297	0.615	14.771	21.938	47.537	-2.5	91.146	2.153	3.250	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	RULE 250C	3	-2.297	-0.615	-1.681	-1.681	14.771	20.314	44.017	-2.5	-86.422	2.072	3.250	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	RULE 250C	4	-1.681	-1.681	-0.615	-2.297	14.771	35.945	77.887	-2.5	-115.362	2.756	3.250	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	RULE 250C	5	0.615	-2.297	1.681	-1.681	14.771	35.980	77.964	-2.5	-115.436	2.757	3.250	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	RULE 250C	6	1.681	-1.681	2.297	-0.615	14.771	20.375	44.151	-2.5	-86.570	2.075	3.250	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	RULE 250C	7	2.297	0.615	1.681	1.681	14.771	21.877	47.404	-2.5	90.997	2.150	3.250	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	RULE 250C	8	1.681	1.681	0.615	2.297	14.771	37.507	81.274	-2.5	119.938	2.815	3.250	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	RULE 250D	1	-0.615	2.297	-1.681	1.681	14.771	34.922	75.672	-2.5	114.579	2.716	3.250	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	RULE 250D	2	-1.681	1.681	-2.297	0.615	14.771	17.440	37.791	-2.5	80.170	1.919	3.250	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	RULE 250D	3	-2.297	-0.615	-1.681	-1.681	14.771	24.467	53.016	-2.5	-95.948	2.273	3.250	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	RULE 250D	4	-1.681	-1.681	-0.615	-2.297	14.771	37.965	82.265	-2.5	-118.872	2.832	3.250	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 RULE 250D    5  0.615 -2.297  1.681 -1.681 14.771  32.576   70.589    -2.5 -107.710     2.623     3.250     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 RULE 250D    6  1.681 -1.681  2.297 -0.615 14.771  15.094   32.707    -2.5  -73.301     1.786     3.250     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 RULE 250D    7  2.297  0.615  1.681  1.681 14.771  26.813   58.100    -2.5  102.816     2.380     3.250     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 RULE 250D    8  1.681  1.681  0.615  2.297 14.771  40.311   87.349    -2.5  125.741     2.918     3.250     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)
J1	0.89	RULE 250B	78.2	1	80.4
J2	0.89	RULE 250B	66.2	1	80.4
J3	0.89	RULE 250B	54.2	1	80.4

*** Maximum Stress Summary for Each Load Case

Summary of Maximum Usages by Load Case:

Load Case	Maximum Usage %	Element Label	Element Type
RULE 250B	25.33	P	Steel Pole
RULE 250C	46.18	P	Steel Pole
RULE 250D	17.18	P	Steel Pole

Summary of Steel Pole Usages by Load Case:

Load Case	Maximum Usage %	Steel Pole Label	Height AGL (ft)	Segment Number
RULE 250B	25.33	P	1.1	30
RULE 250C	46.18	P	1.1	30
RULE 250D	17.18	P	1.1	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 %
RULE 250B	P	1	14.771	82.792	3294.480	-97.658	38.767	84.004	-2.5	123.071	2.862	0.00
RULE 250C	P	1	14.771	45.755	3295.926	-2.758	37.543	81.350	-2.5	120.011	2.816	0.00
RULE 250D	P	8	14.771	68.687	3269.012	420.352	40.311	87.349	-2.5	125.741	2.918	0.00

Summary of Tubular Davit Usages by Load Case:

Load Case	Maximum Usage %	Tubular Davit Label	Height AGL (ft)	Segment Number
RULE 250B	0.89	J3	54.2	1
RULE 250C	0.59	J3	54.2	1
RULE 250D	0.59	J1	78.2	1

Summary of Insulator Usages:

Insulator Label	Insulator Type	Maximum Usage %	Load Case	Weight (lbs)
SW	Clamp	31.78	RULE 250D	0.0
Clamp1	Clamp	0.28	RULE 250D	0.0
Clamp2	Clamp	0.28	RULE 250D	0.0
Clamp3	Clamp	0.28	RULE 250D	0.0
Clamp4	Clamp	0.28	RULE 250D	0.0
Clamp5	Clamp	0.28	RULE 250D	0.0
Clamp6	Clamp	0.28	RULE 250D	0.0
Clamp7	Clamp	0.28	RULE 250D	0.0
Clamp8	Clamp	0.28	RULE 250D	0.0
Clamp9	Clamp	0.28	RULE 250D	0.0
Clamp10	Clamp	0.28	RULE 250D	0.0
Clamp11	Clamp	0.28	RULE 250D	0.0
Clamp12	Clamp	7.13	RULE 250D	0.0
C1B	Strain	39.74	RULE 250D	180.0
C1A	Strain	40.93	RULE 250D	180.0
C2B	Strain	39.74	RULE 250D	180.0
C2A	Strain	40.93	RULE 250D	180.0
C3B	Strain	39.74	RULE 250D	180.0
C3A	Strain	40.93	RULE 250D	180.0

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)
RULE 250B	SW	Clamp	SWV	0.165	2.149	3.156	3.822
RULE 250B	Clamp1	Clamp	P:Coax1	0.000	0.000	0.421	0.421
RULE 250B	Clamp2	Clamp	P:Coax2	0.000	0.000	0.421	0.421
RULE 250B	Clamp3	Clamp	P:Coax3	0.000	0.000	0.421	0.421
RULE 250B	Clamp4	Clamp	P:Coax4	0.000	0.000	0.421	0.421
RULE 250B	Clamp5	Clamp	P:Coax5	0.000	0.000	0.421	0.421
RULE 250B	Clamp6	Clamp	P:Coax6	0.000	0.000	0.421	0.421
RULE 250B	Clamp7	Clamp	P:Coax7	0.000	0.000	0.421	0.421
RULE 250B	Clamp8	Clamp	P:Coax8	0.000	0.000	0.421	0.421
RULE 250B	Clamp9	Clamp	P:Coax9	0.000	0.000	0.421	0.421
RULE 250B	Clamp10	Clamp	P:Coax10	0.000	0.000	0.421	0.421
RULE 250B	Clamp11	Clamp	P:Coax11	0.000	0.000	0.421	0.421
RULE 250B	Clamp12	Clamp	P:AT&T	0.000	2.519	9.087	9.430
RULE 250B	C1B	Strain	C1BV	20.130	1.813	4.698	20.750
RULE 250B	C1A	Strain	C1AV	-19.965	1.807	4.698	20.590
RULE 250B	C2B	Strain	C2BV	20.130	1.813	4.698	20.750
RULE 250B	C2A	Strain	C2AV	-19.965	1.807	4.698	20.590
RULE 250B	C3B	Strain	C3BV	20.130	1.813	4.698	20.750
RULE 250B	C3A	Strain	C3AV	-19.965	1.807	4.698	20.590
RULE 250C	SW	Clamp	SWV	0.000	2.134	0.820	2.286
RULE 250C	Clamp1	Clamp	P:Coax1	0.000	0.000	0.281	0.281
RULE 250C	Clamp2	Clamp	P:Coax2	0.000	0.000	0.281	0.281
RULE 250C	Clamp3	Clamp	P:Coax3	0.000	0.000	0.281	0.281
RULE 250C	Clamp4	Clamp	P:Coax4	0.000	0.000	0.281	0.281
RULE 250C	Clamp5	Clamp	P:Coax5	0.000	0.000	0.281	0.281

RULE 250C	Clamp6	Clamp	P:Coax6	0.000	0.000	0.281	0.281
RULE 250C	Clamp7	Clamp	P:Coax7	0.000	0.000	0.281	0.281
RULE 250C	Clamp8	Clamp	P:Coax8	0.000	0.000	0.281	0.281
RULE 250C	Clamp9	Clamp	P:Coax9	0.000	0.000	0.281	0.281
RULE 250C	Clamp10	Clamp	P:Coax10	0.000	0.000	0.281	0.281
RULE 250C	Clamp11	Clamp	P:Coax11	0.000	0.000	0.281	0.281
RULE 250C	Clamp12	Clamp	P:AT&T	0.000	9.524	4.577	10.567
RULE 250C	C1B	Strain	C1BV	11.700	2.628	1.987	12.155
RULE 250C	C1A	Strain	C1AV	-11.700	2.628	1.987	12.155
RULE 250C	C2B	Strain	C2BV	11.700	2.628	1.987	12.155
RULE 250C	C2A	Strain	C2AV	-11.700	2.628	1.987	12.155
RULE 250C	C3B	Strain	C3BV	11.700	2.628	1.987	12.155
RULE 250C	C3A	Strain	C3AV	-11.700	2.628	1.987	12.155
RULE 250D	SW	Clamp	SWV	-0.400	1.504	4.506	4.767
RULE 250D	Clamp1	Clamp	P:Coax1	0.000	0.000	0.281	0.281
RULE 250D	Clamp2	Clamp	P:Coax2	0.000	0.000	0.281	0.281
RULE 250D	Clamp3	Clamp	P:Coax3	0.000	0.000	0.281	0.281
RULE 250D	Clamp4	Clamp	P:Coax4	0.000	0.000	0.281	0.281
RULE 250D	Clamp5	Clamp	P:Coax5	0.000	0.000	0.281	0.281
RULE 250D	Clamp6	Clamp	P:Coax6	0.000	0.000	0.281	0.281
RULE 250D	Clamp7	Clamp	P:Coax7	0.000	0.000	0.281	0.281
RULE 250D	Clamp8	Clamp	P:Coax8	0.000	0.000	0.281	0.281
RULE 250D	Clamp9	Clamp	P:Coax9	0.000	0.000	0.281	0.281
RULE 250D	Clamp10	Clamp	P:Coax10	0.000	0.000	0.281	0.281
RULE 250D	Clamp11	Clamp	P:Coax11	0.000	0.000	0.281	0.281
RULE 250D	Clamp12	Clamp	P:AT&T	0.000	1.698	6.929	7.134
RULE 250D	C1B	Strain	C1BV	15.100	1.138	4.837	15.897
RULE 250D	C1A	Strain	C1AV	-15.600	1.155	4.837	16.373
RULE 250D	C2B	Strain	C2BV	15.100	1.138	4.837	15.897
RULE 250D	C2A	Strain	C2AV	-15.600	1.155	4.837	16.373
RULE 250D	C3B	Strain	C3BV	15.100	1.138	4.837	15.897
RULE 250D	C3A	Strain	C3AV	-15.600	1.155	4.837	16.373

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)
RULE 250B	15.528	0.660	45.062	1150.374	-45.375	0.300
RULE 250C	27.426	0.000	20.410	2221.553	0.000	0.000
RULE 250D	10.081	-1.900	43.548	757.594	128.750	-0.711

*** Weight of structure (lbs):
    Weight of Tubular Davit Arms: 241.1
    Weight of Steel Poles: 26885.6
    Weight of Strains: 1080.0
    Total: 28206.6

*** End of Report

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63-2 North Branford Road P: (203) 488-0580
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Subject: Anchor Bolt Analysis Pole #783

Location: Meriden, CT

Rev. 1: 7/5/23

Prepared by: T.J.L. Checked by: C.F.C.
Job No. 22021.04

Anchor Bolt Analysis:

Input Data:

Bolt Force:

Maximum Tensile Force =	$T_{Max} := 126 \cdot kips$	(User Input from PLS-Pole)
Maximum Shear Force at Base =	$V_{base} := 41 \cdot kips$	(User Input from PLS-Pole)

Anchor Bolt Data:

Use AST MA615 Grade 75

Number of Anchor Bolts =	$N := 20$	(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 = $V_{Max} := \frac{V_{base}}{N} = 2.1 \times 10^3 lbf$

Shear Stress per Bolt = $f_v := \frac{V_{Max}}{A_s} = 631.2 psi$

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 = $F_{tv} := F_t \cdot \sqrt{1 - \left(\frac{f_v}{F_v}\right)^2} = 74.99 \cdot ksi$

Bolt Tension % of Capacity = $\frac{T_{Max}}{F_{tv} \cdot A_s} = 51.74 \cdot \%$

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 Structure 783
Location:	Meriden, CT
Rev. 0: 5/17/23	Prepared by: T.J.L. Checked by: C.F.C. Job No. 22021.04

Flange Bolt and Flange Plate Analysis:

Input Data:

Flange @ 100-ft

Tower Reactions:

Overturning Moment =	OM := 104·ft·kips	(User Input)
Shear Force =	Shear := 11·kips	(User Input)
Axial Force =	Axial := 7·kips	(User Input)

Flange Bolt Data:

Use AST MA325

Number of Flange Bolts =	N := 24	(User Input)
Diameter of Bolt Circle =	D_{bc} := 46.5·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} := 1.5·in	(User Input)
Flange Plate Diameter =	D_{bp} := 49.25·in	(User Input)
Outer Pole Diameter =	D_{pole} := 41.65·in	(User Input)

Geometric Layout Data:

Distance from Bolts to Centroid of Pole:

Radius of Bolt Circle =: $R_{bc} := \frac{D_{bc}}{2} = 23.25 \cdot in$

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

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

$d_1 = 6.02 \cdot in$ $d_7 = 22.46 \cdot in$

$d_2 = 11.62 \cdot in$ $d_8 = 20.14 \cdot in$

$d_3 = 16.44 \cdot in$ $d_9 = 16.44 \cdot in$

$d_4 = 20.14 \cdot in$ $d_{10} = 11.62 \cdot in$

$d_5 = 22.46 \cdot in$ $d_{11} = 6.02 \cdot in$

$d_6 = 23.25 \cdot in$ $d_{12} = 0.00 \cdot in$

Critical Distances For Bending in Plate:

Outer Pole Radius = $R_{pole} := \frac{D_{pole}}{2} = 20.825 \cdot in$

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

$MA_1 = 0.00 \cdot in$ $MA_7 = 1.63 \cdot in$

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

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

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

$MA_5 = 1.63 \cdot in$ $MA_{11} = 0.00 \cdot in$

$MA_6 = 2.43 \cdot in$ $MA_{12} = 0.00 \cdot in$

Effective Width of Flangeplate for Bending = $B_{eff} := .8 \cdot 2 \cdot \sqrt{\left(\frac{D_{bp}}{2}\right)^2 - \left(\frac{D_{pole}}{2}\right)^2} = 21 \cdot in$

Flange Bolt Analysis:

Calculated Flange Bolt Properties:

Polar Moment of Inertia = $I_p := \sum_i \left(d_i\right)^2 = 6.487 \times 10^3 \cdot in^2$

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 = $Condition1 := if\left(V_{Max} \le F_v, "OK", "Overstressed"\right)$ $\frac{V_{Max}}{F_v} = 1.39 \cdot \%$

Condition1 = "OK"

Maximum Tensile Stress = $T_{Max} := \frac{\left(OM \cdot \frac{R_{bc}}{I_p} - \frac{Axial}{N}\right)}{A_n} = 6.9 \cdot ksi$

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

Condition2 = $Condition2 := if\left(\frac{T_{Max}}{F_t} \le 1.00, "OK", "Overstressed"\right)$ $\frac{T_{Max}}{F_t} = 7.67 \cdot \%$

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 = $Condition3 := if\left(\frac{T_{Max}}{F_{t.v}} \le 1.00, "OK", "Overstressed"\right)$ $\frac{T_{Max}}{F_{t.v}} = 7.67 \cdot \%$

Condition3 = "OK"

Flange Plate Analysis:

Force from Bolts =

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

$C_1 = 1.4 \cdot kips$ $C_7 = 4.6 \cdot kips$

$C_2 = 2.5 \cdot kips$ $C_8 = 4.2 \cdot kips$

$C_3 = 3.5 \cdot kips$ $C_9 = 3.5 \cdot kips$

$C_4 = 4.2 \cdot kips$ $C_{10} = 2.5 \cdot kips$

$C_5 = 4.6 \cdot kips$ $C_{11} = 1.4 \cdot kips$

$C_6 = 4.8 \cdot kips$ $C_{12} = 0.3 \cdot kips$

Maximum Bending Stress in Plate =

$$f_{bp} := \sum_i \frac{6 \cdot C_i \cdot MA_i}{\left(B_{eff} \, t_{bp}^{\,2}\right)} = 3.4 \cdot ksi$$

Allowable Bending Stress in Plate =

$$F_{bp} := 0.9 \cdot Fy_{bp} = 45 \cdot ksi$$

Plate Bending Stress % of Capacity =

$$\frac{f_{bp}}{F_{bp}} = 7.5 \cdot \%$$

Condition1 =

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

Condition1 = "Ok"

Flange Bolt and Flange Plate Analysis:

Input Data:

Flange @ 50-ft

Tower Reactions:

Overturning Moment =	OM := 1083·ft·kips	(User Input)
Shear Force =	Shear := 35·kips	(User Input)
Axial Force =	Axial := 30·kips	(User Input)

Flange Bolt Data:

Use AST MA325

Number of Flange Bolts =	N := 52	(User Input)
Diameter of Bolt Circle =	D_{bc} := 54·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} := 2.25·in	(User Input)
Flange Plate Diameter =	D_{bp} := 56.75·in	(User Input)
Outer Pole Diameter =	D_{pole} := 48.32·in	(User Input)

Geometric Layout Data:

Distance from Bolts to Centroid of Pole:

Radius of Bolt Circle =: $R_{bc} := \frac{D_{bc}}{2} = 27 \cdot in$

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

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

$d_1 = 3.25 \cdot in$	$d_7 = 20.21 \cdot in$	$d_{13} = 27.00 \cdot in$	$d_{19} = 20.21 \cdot in$	$d_{25} = 3.25 \cdot in$
$d_2 = 6.46 \cdot in$	$d_8 = 22.22 \cdot in$	$d_{14} = 26.80 \cdot in$	$d_{20} = 17.90 \cdot in$	$d_{26} = 0.00 \cdot in$
$d_3 = 9.57 \cdot in$	$d_9 = 23.91 \cdot in$	$d_{15} = 26.22 \cdot in$	$d_{21} = 15.34 \cdot in$	
$d_4 = 12.55 \cdot in$	$d_{10} = 25.25 \cdot in$	$d_{16} = 25.25 \cdot in$	$d_{22} = 12.55 \cdot in$	
$d_5 = 15.34 \cdot in$	$d_{11} = 26.22 \cdot in$	$d_{17} = 23.91 \cdot in$	$d_{23} = 9.57 \cdot in$	
$d_6 = 17.90 \cdot in$	$d_{12} = 26.80 \cdot in$	$d_{18} = 22.22 \cdot in$	$d_{24} = 6.46 \cdot in$	

Critical Distances For Bending in Plate:

Outer Pole Radius = $R_{pole} := \frac{D_{pole}}{2} = 24.16 \cdot in$

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

$MA_1 = 0.00 \cdot in$	$MA_7 = 0.00 \cdot in$	$MA_{13} = 2.84 \cdot in$	$MA_{19} = 0.00 \cdot in$	$MA_{25} = 0.00 \cdot in$
$MA_2 = 0.00 \cdot in$	$MA_8 = 0.00 \cdot in$	$MA_{14} = 2.64 \cdot in$	$MA_{20} = 0.00 \cdot in$	$MA_{26} = 0.00 \cdot in$
$MA_3 = 0.00 \cdot in$	$MA_9 = 0.00 \cdot in$	$MA_{15} = 2.06 \cdot in$	$MA_{21} = 0.00 \cdot in$	
$MA_4 = 0.00 \cdot in$	$MA_{10} = 1.09 \cdot in$	$MA_{16} = 1.09 \cdot in$	$MA_{22} = 0.00 \cdot in$	
$MA_5 = 0.00 \cdot in$	$MA_{11} = 2.06 \cdot in$	$MA_{17} = 0.00 \cdot in$	$MA_{23} = 0.00 \cdot in$	
$MA_6 = 0.00 \cdot in$	$MA_{12} = 2.64 \cdot in$	$MA_{18} = 0.00 \cdot in$	$MA_{24} = 0.00 \cdot in$	

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

Flange Bolt Analysis:

Calculated Flange Bolt Properties:

Polar Moment of Inertia = $I_p := \sum_i \left(d_i\right)^2 = 1.895 \times 10^4 \cdot in^2$

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 = $V_{Max} := \frac{Shear}{N \cdot A_g} = 0.9 \cdot ksi$

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

Condition1 = $Condition1 := if\left(V_{Max} \le F_v, "OK", "Overstressed"\right)$ $\frac{V_{Max}}{F_v} = 2.04 \cdot \%$

Condition1 = "OK"

Maximum Tensile Stress = $T_{Max} := \frac{\left(OM \cdot \frac{R_{bc}}{I_p} - \frac{Axial}{N}\right)}{A_n} = 29.6 \cdot ksi$

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

Condition2 = $Condition2 := if\left(\frac{T_{Max}}{F_t} \le 1.00, "OK", "Overstressed"\right)$ $\frac{T_{Max}}{F_t} = 32.90 \cdot \%$

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 = $Condition3 := if\left(\frac{T_{Max}}{F_{t.v}} \le 1.00, "OK", "Overstressed"\right)$ $\frac{T_{Max}}{F_{t.v}} = 32.91 \cdot \%$

Condition3 = "OK"

Flange Plate Analysis:

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

$C_1 = 2.8 \cdot kips$	$C_7 = 14.4 \cdot kips$	$C_{13} = 19.1 \cdot kips$	$C_{19} = 14.4 \cdot kips$	$C_{25} = 2.8 \cdot kips$
$C_2 = 5.0 \cdot kips$	$C_8 = 15.8 \cdot kips$	$C_{14} = 19.0 \cdot kips$	$C_{20} = 12.9 \cdot kips$	$C_{26} = 0.6 \cdot kips$
$C_3 = 7.1 \cdot kips$	$C_9 = 17.0 \cdot kips$	$C_{15} = 18.6 \cdot kips$	$C_{21} = 11.1 \cdot kips$	
$C_4 = 9.2 \cdot kips$	$C_{10} = 17.9 \cdot kips$	$C_{16} = 17.9 \cdot kips$	$C_{22} = 9.2 \cdot kips$	
$C_5 = 11.1 \cdot kips$	$C_{11} = 18.6 \cdot kips$	$C_{17} = 17.0 \cdot kips$	$C_{23} = 7.1 \cdot kips$	
$C_6 = 12.9 \cdot kips$	$C_{12} = 19.0 \cdot kips$	$C_{18} = 15.8 \cdot kips$	$C_{24} = 5.0 \cdot kips$	

Maximum Bending Stress in Plate =

$$f_{bp} := \sum_i \frac{6 \cdot C_i \cdot MA_i}{\left(B_{eff} \cdot t_{bp}^2\right)} = 13.4 \cdot ksi$$

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

Plate Bending Stress % of Capacity = $\frac{f_{bp}}{F_{bp}} = 29.8 \cdot \%$

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

Condition1 = "Ok"

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Subject:	Anchor Bolt and Baseplate Analysis
Location:	Meriden, CT
Rev. 0: 7/5/23	Prepared by: T.J.L. Checked by: C.F.C. Job No. 22021.04

Base Plate Analysis:

Input Data:

Tower Reactions:

Overturning Moment =	OM := 2991·ft·kips	(Input From tnxTower)
Shear Force =	Shear := 41·kips	(Input From tnxTower)
Axial Force =	Axial := 48·kips	(Input From tnxTower)

Anchor Bolt Data:

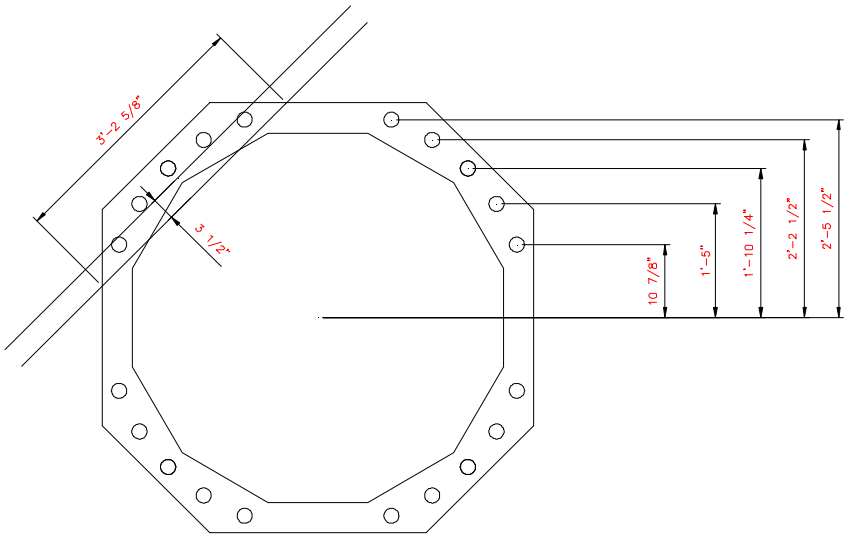
ASTMA615 Grade 75

Number of Anchor Bolts =	N := 20	(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} := 3.25·in	(User Input)
Base Plate Diameter =	D_{bp} := 64.125·in	(User Input)
Outer Pole Diameter =	D_{pole} := 55.12·in	(User Input)



Geometric Layout Data:

Distance from Bolts to Centroid of Pole:

$d_1 := 29.5in$ $d_2 := 26.5in$ $d_3 := 22.25in$ $d_4 := 17in$ $d_5 := 10.875in$ (User Input)

Critical Distances For Bending in Plate: (User Input)

$ma_1 := 3.5in$

Effective Width of Baseplate for Bending = $B_{eff} := 38.625in$ (User Input)

Polar Moment of Inertia = $I_p := \left[(d_1)^2 \cdot 4 + (d_2)^2 \cdot 4 + (d_3)^2 \cdot 4 + (d_4)^2 \cdot 4 + (d_5)^2 \cdot 4\right] = 9899.3 \cdot in^2$

Base Plate Analysis:

Force from Bolts =

$$C_1 := \frac{OM \cdot d_1}{I_p} + \frac{Axial}{N} = 109.358 \cdot kips$$

$$C_2 := \frac{OM \cdot d_2}{I_p} + \frac{Axial}{N} = 98.481 \cdot kips$$

$$C_3 := \frac{OM \cdot d_3}{I_p} + \frac{Axial}{N} = 83.072 \cdot kips$$

$$C_4 := \frac{OM \cdot d_4}{I_p} + \frac{Axial}{N} = 64.037 \cdot kips$$

$$C_5 := \frac{OM \cdot d_5}{I_p} + \frac{Axial}{N} = 41.83 \cdot kips$$

Applied Bending Stress in Plate =

$$f_{bp} := \frac{6 \cdot \left(C_1 \cdot ma_1 + C_2 \cdot ma_1 + C_3 \cdot ma_1 + C_4 \cdot ma_1 + C_5 \cdot ma_1\right)}{B_{eff} \, t_{bp}^2} = 20.42 \cdot ksi$$

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

Plate Bending Stress % of Capacity = $\frac{f_{bp}}{F_{bp}} = 40.8 \cdot \%$

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

Condition1 = "Ok"

Section 1 - RFDS GENERAL INFORMATION

RFDS NAME:	CT2117	DATE:	11/8/2021	RF DESIGN ENG:	Prashanth Simha	RF PERF ENG:		RFDS PROGRAM TYPE:	2021 5G NR Radio
ISSUE:	Bronze Standard	Approved? (Y/N):	Yes	RF DESIGN PHONE:	2016285071	RF PERF PHONE:		RFDS TECHNOLOGY:	5G NR 1SR CBAND
REVISION:	Final	RF MANAGER:	John Benedetto	RF DESIGN EMAIL:	pn5165@att.com	RF PERF EMAIL:		STATE/STATUS:	Final/Approved
						ADDITIONAL WORKFLOW NOTIFICATIONS:		RFDS ID:	4849769
						RFDS VERSION:	3.00	Created By:	pn5165 / Updated By: mh705r
						UMTS FREQUENCY:		Created:	11/8/2021 / Updated: 5/8/2023
						LTE FREQUENCY:	700,1900,WCS	Estimated SQIN:	17.848 / Expiration:
						5G FREQUENCY:		RER Initiative:	/ Calculation ID: 20230508105033434 0
INITIATIVE PROJECT	700 UPPER D, AWS J, 850 B[U],700 B-C, C-Band , 3.45 GHz DoD					IPLAN JOB # 1:	ER_-RCTB-21-02610	PRD || SUB GRP #1	LTE Next Carrier || LTE 4C
						IPLAN JOB # 2:	ER_-RCTB-21-06197	PRD || SUB GRP #2	5G NR Radio || 5G NR 1SR CBand
						IPLAN JOB # 3:	ER_-RCTB-21-06195	PRD || SUB GRP #3	5G NR Radio || 5G NR 1SR CBand
						IPLAN JOB # 4:	ER_-RCTB-21-04344	PRD || SUB GRP #4	5G NR Radio || 5G NR 1DR-1
						IPLAN JOB # 5:	ER_-RCTB-21-04656	PRD || SUB GRP #5	Antenna Modifications || 4TX4RX Software Retrofit
						IPLAN JOB # 6:	ER_-RCTB-21-03367	PRD || SUB GRP #6	5G NR Radio || 5G NR 1SR
						IPLAN JOB # 7:	ER_-RCTB-21-06196	PRD || SUB GRP #7	5G NR Software Radio || 5G NR Activation
						IPLAN JOB # 8:		PRD || SUB GRP #8	
						IPLAN JOB # 9:		PRD || SUB GRP #9	
						IPLAN JOB #10:		PRD || SUB GRP #10	
						IPLAN JOB # 11:		PRD || SUB GRP #11	
						IPLAN JOB # 12:		PRD || SUB GRP #12	
						IPLAN JOB # 13:		PRD || SUB GRP #13	
						IPLAN JOB # 14:		PRD || SUB GRP #14	
						IPLAN JOB # 15:		PRD || SUB GRP #15	
						IPLAN JOB # 16:		PRD || SUB GRP #16	

Section 2 - LOCATION INFORMATION

USID:	97774	FA LOCATION CODE:	10126684	LOCATION NAME:	MARTORELLI CLANDP STR 783	ORACLE PRJT # 1:	2051A11PAG	PACE JOB #1:	MRCTB054333
REGION:	NORTHEAST	MARKET CLUSTER:	NEW ENGLAND	MARKET:	CONNECTICUT	ORACLE PRJT # 2:	2051A11NFJ	PACE JOB #2:	MRCTB056570
ADDRESS:	200 EDGEMARK ACRES	CITY:	MERIDEN	STATE:	CT	ORACLE PRJT # 3:	2051A11NFH	PACE JOB #3:	MRCTB056567
ZIP CODE:	06451	COUNTY:	NEW HAVEN	LONG (DEC. DEG.):	-72.8426780	ORACLE PRJT # 4:	2051A11LND	PACE JOB #4:	MRCTB055369
LATITUDE (D-M-S):	41d 31m51.74s	LONGITUDE (D-M-S):	-72d -50m-33.64s	LAT (DEC. DEG.):	41.5310390	ORACLE PRJT # 5:	2051A11M45	PACE JOB #5:	MRCTB056301
						ORACLE PRJT # 6:	2051A11LLG	PACE JOB #6:	MRCTB054893
						ORACLE PRJT # 7:		PACE JOB #7:	MRCTB053462
						ORACLE PRJT # 8:		PACE JOB #8:	
						ORACLE PRJT # 9:		PACE JOB #9:	
						ORACLE PRJT # 10:		PACE JOB #10:	
						ORACLE PRJT # 11:		PACE JOB #11:	
						ORACLE PRJT # 12:		PACE JOB #12:	
						ORACLE PRJT # 13:		PACE JOB #13:	
						ORACLE PRJT # 14:		PACE JOB #14:	
						ORACLE PRJT # 15:		PACE JOB #15:	
						ORACLE PRJT # 16:		PACE JOB #16:	
						BORDER CELL WITH CONTOUR COORD:		SEARCH RING NAME:	MERIDEN CARIATI BOULEVARD
						AM STUDY REQ'D (Y/N):	No	SEARCH RING ID:	S2117
						FREQ COORD:		BTA: / MSA / RSA:	
								LAC(UMTS):	
						RF DISTRICT:			
						RF ZONE:		RNC(UMTS):	
								MME POOL ID(LTE):	FF01
						PARENT NAME(UMTS):			

DIRECTIONS, ACCESS AND EQUIPMENT LOCATION:

1. START OUT GOING WEST ON COCHITUATE RD/MA-30 TOWARD BURR ST. THEN 0.03 MILES 0.03 TOTAL MILES
2. MAKE A U-TURN AT BURR ST ONTO COCHITUATE RD/MA-30. THEN 0.05 MILES0.07 TOTAL MILES
3. MERGE ONTO I-90 W/MASSACHUSETTS TPKE W TOWARD SPRINGFIELD/BOSTON(PORTIONS TOLL). THEN 38.83 MILES38.90 TOTAL MILES
4. MERGE ONTO I-84 W/WILBUR CROSS HWY S VIA EXIT 9 TOWARD US-20/HARTFORD/NEW YORK CITY (PORTIONS TOLL) (CROSSING INTO CONNECTICUT). THEN 41.73 MILES80.63 TOTAL MILES
5. KEEP LEFT TO TAKE CT-15 S/WILBUR CROSS HWY S VIA EXIT 57 TOWARD I-91 S/CHARTER OAK BR/NY CITY. THEN 1.99 MILES82.62 TOTAL MILES
6. MERGE ONTO I-91 S VIA EXIT 86 TOWARD NEW HAVEN/NY CITY. THEN 16.54 MILES99.16 TOTAL MILES
7. MERGE ONTO I-691 W VIA EXIT 18 TOWARD MERIDEN/WATERBURY. THEN 2.45 MILES101.61 TOTAL MILES
8. TAKE THE LEWIS AVE EXIT, EXIT 6, TOWARD CT-71. THEN 0.23 MILES101.84 TOTAL MILES
9. MERGE ONTO LEWIS AVE TOWARD FORENSIC SCENCE LAB. THEN 0.76 MILES102.61 TOTAL MILES
10. TURN RIGHT ONTO W MAIN ST/CT-71. CONTINUE TO FOLLOW W MAIN ST. THEN 0.85 MILES103.46 TOTAL MILES
11. TURN LEFT ONTO JOHNSON AVE. THEN 0.08 MILES103.53 TOTAL MILES
12. TAKE THE 1ST LEFT ONTO ALLEN AVE. THEN 0.87 MILES104.41 TOTAL MILES
13. TURN LEFT ONTO EDGEMARK ACRES. THEN 0.38 MILES104.79 TOTAL MILES
14. 200 EDGEMARK ACRES, MERIDEN, CT 06451-3655, 200 EDGEMARK ACRES IS ON THE LEFT.

Section 3 - LICENSE COVERAGE/FILING INFORMATION

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

Section 4 - TOWER/REGULATORY INFORMATION

STRUCTURE AT&T OWNED?:	No	GROUND ELEVATION (ft):		STRUCTURE TYPE:	UTILITY	MARKET LOCATION 700 MHz Band:	
ADDITIONAL REGULATORY?:	No	HEIGHT OVERALL (ft):	89.00	FCC ASR NUMBER:	0	MARKET LOCATION 850 MHz Band:	
SUB-LEASE RIGHTS?:	No	STRUCTURE HEIGHT (ft):	80.00			MARKET LOCATION 1900 MHz Band:	
LIGHTING TYPE:	NOT REQUIRED					MARKET LOCATION AWS Band:	
						MARKET LOCATION WCS Band:	
						MARKET LOCATION Future Band:	

Section 5 - E-911 INFORMATION - existing

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

Section 6/7 - BBU INFORMATION - existing

	BBU 1
BBU ID:	576040
TECHNOLOGY:	LTE
BBU NAME:	CTL02117
BBU USID:	97774
CELL ID / BCF:	CTL02117
BTA/TID:	318L
4-9 DIGIT SITE ID:	2117
COW OR TOY?:	No
CELL SITE TYPE:	SECTORIZED
SITE TYPE:	MACRO-CONVENTIONAL
BTS LOCATION ID:	
BASE STATION TYPE:	BASE
EQUIPMENT NAME:	MERIDEN CARIATI BOULEVARD
DISASTER PRIORITY:	0
EQUIPMENT VENDOR:	ERICSSON
EQUIPMENT TYPE (Model):	6601 INDOOR MU
BASEBAND CONFIGURATION :	
MARKET STATE CODE:	CT
NODE B NUMBER:	2117
SIDEHAUL SWITCH VENDOR:	
SIDEHAUL SWITCH MODEL:	
SIDEHAUL SWITCH NAME:	
SIDEHAUL SWITCH ADDITIONAL CARDS:	
UL-CoMP:	
CSS - CTS COMMON ID:	CTL02117
CSS - SECONDARY FUNCTION ID:	

Section 6/7 - BBU INFORMATION - final

	BBU 1	BBU 2	BBU 3
BBU ID:	576040	0	0
TECHNOLOGY:	LTE	5G	LTE,5G
BBU NAME:	CTL02117	CTCN032117	CTL08117R,CTCN002117
BBU USID:	97774	97774	97774
CELL ID / BCF:	CTL02117	CTCN032117	CTCN002117
BTA/TID:	318L		
4-9 DIGIT SITE ID:	2117	14032117	14002117
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
BASE STATION TYPE:	BASE	OVERLAY	OVERLAY
EQUIPMENT NAME:	MERIDEN CARIATI BOULEVARD	CTCN032117	CTCN002117
DISASTER PRIORITY:	0	0	0
EQUIPMENT VENDOR:	ERICSSON	ERICSSON	ERICSSON
EQUIPMENT TYPE (Model):	6601 INDOOR MU	BASEBAND 6648	BASEBAND 6630
BASEBAND CONFIGURATION :	1x6601 / 1x5216 / 1xXMU	xxxxx / 1x6648 / xxxxx	xxxxx / 1x6630 / xxxxx + IDLe
MARKET STATE CODE:	CT	CTC	CT,CTC
NODE B NUMBER:	2117	32117	8117,2117
SIDEHAUL SWITCH VENDOR:			
SIDEHAUL SWITCH MODEL:			
SIDEHAUL SWITCH NAME:			
SIDEHAUL SWITCH ADDITIONAL CARDS:			
UL-CoMP:			
CSS - CTS COMMON ID:	CTL02117		
CSS - SECONDARY FUNCTION ID:			

Section 7b - Radio INFORMATION - existing

Section 7b - Radio INFORMATION - final

Section 8 - RBS/SECTOR ASSOCIATION - existing

	BBU 1
CTS Common ID	CTL02117
Soft Sector IDs	CTL02117_3A_1
	CTL02117_3B_1
	CTL02117_3C_1
	CTL02117_7A_1
	CTL02117_7B_1
	CTL02117_7C_1
	CTL02117_9A_1
	CTL02117_9A_2
	CTL02117_9B_1
	CTL02117_9B_2
	CTL02117_9C_1
	CTL02117_9C_2

Section 8 - RBS/SECTOR ASSOCIATION - final

	BBU 1	BBU 2	BBU 3
CTS Common ID	CTL02117	CTCN032117	CTL08117R,CTCN002117
Soft Sector IDs	CTL02117_3A_1	CTCN032117_N077A_1	CTCN002117_N002A_1
	CTL02117_3B_1	CTCN032117_N077A_2	CTCN002117_N002B_1
	CTL02117_3C_1	CTCN032117_N077B_1	CTCN002117_N002C_1
	CTL02117_7A_1	CTCN032117_N077B_2	CTCN002117_N005A_1
	CTL02117_7A_3_F	CTCN032117_N077C_1	CTCN002117_N005B_1
	CTL02117_7B_1	CTCN032117_N077C_2	CTCN002117_N005C_1
	CTL02117_7B_3_F		CTCN002117_N066A_1
	CTL02117_7C_1		CTCN002117_N066B_1
	CTL02117_7C_3_F		CTCN002117_N066C_1
			CTL08117_2A_2
			CTL08117_2B_2
			CTL08117_2C_2
			CTL08117_9A_1
			CTL08117_9A_2
			CTL08117_9B_1
			CTL08117_9B_2
			CTL08117_9C_1
			CTL08117_9C_2

Section 9 - SOFT SECTOR ID - existing

	LTE 1ST 700	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 1900	LTE 3RD 700	5G 1ST 850	5G 1ST 1900	5G 1ST AWS	5G 1ST CBAND	5G 2ND CBAND
USEID (excluding Hard Sector)											
SECTOR A SOFT SECTOR ID	CTL02117_7A_1	CTL02117_9A_1		CTL02117_3A_1	CTL02117_9A_2						
SECTOR B	CTL02117_7B_1	CTL02117_9B_1		CTL02117_3B_1	CTL02117_9B_2						
SECTOR C	CTL02117_7C_1	CTL02117_9C_1		CTL02117_3C_1	CTL02117_9C_2						
SECTOR D											
SECTOR E											
SECTOR F											
OMNI											

Section 9 - SOFT SECTOR ID - final

	LTE 1ST 700	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 1900	LTE 3RD 700	5G 1ST 850	5G 1ST 1900	5G 1ST AWS	5G 1ST CBAND	5G 2ND CBAND
USEID (excluding Hard Sector)											
SECTOR A SOFT SECTOR ID	CTL02117_7A_1	CTL08117_9A_1	CTL08117_2A_2	CTL02117_3A_1	CTL08117_9A_2	CTL02117_7A_3_F	CTCN002117_N005A	CTCN002117_N002A	CTCN002117_N066A	CTCN032117_N077A	CTCN032117_N077A_2
SECTOR B	CTL02117_7B_1	CTL08117_9B_1	CTL08117_2B_2	CTL02117_3B_1	CTL08117_9B_2	CTL02117_7B_3_F	CTCN002117_N005B	CTCN002117_N002B	CTCN002117_N066B	CTCN032117_N077B	CTCN032117_N077B_2
SECTOR C	CTL02117_7C_1	CTL08117_9C_1	CTL08117_2C_2	CTL02117_3C_1	CTL08117_9C_2	CTL02117_7C_3_F	CTCN002117_N005C	CTCN002117_N002C	CTCN002117_N066C	CTCN032117_N077C	CTCN032117_N077C_2
SECTOR D											
SECTOR E											
SECTOR F											
OMNI											

Section 9 - Cell Number - existing

	LTE 1ST 700	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 1900	LTE 3RD 700	5G 1ST 850	5G 1ST 1900	5G 1ST AWS	5G 1ST CBAND	5G 2ND CBAND
USEID (excluding Hard Sector)											
SECTOR A CELL NUMBER	15	8		149	178						
SECTOR B	16	9		150	179						
SECTOR C	17	10		151	180						
SECTOR D											
SECTOR E											
SECTOR F											
OMNI											

Section 9 - Cell Number - final

	LTE 1ST 700	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 1900	LTE 3RD 700	5G 1ST 850	5G 1ST 1900	5G 1ST AWS	5G 1ST CBAND	5G 2ND CBAND
USEID (excluding Hard Sector)											
SECTOR A CELL NUMBER	15	8	192	149	178	171	25	26	27	36	37
SECTOR B	16	9	193	150	179	172	49	50	51	60	61
SECTOR C	17	10	194	151	180	173	73	74	75	84	85
SECTOR D											
SECTOR E											
SECTOR F											
OMNI											

Section 10 - CID/SAC - existing

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

Section 10 - CID/SAC - final

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

Section 11 - CURRENT RADIO COUNTS existing

	UMTS 1ST 850	UMTS 2ND 850	LTE 1ST 700	LTE 1ST 1900	LTE 1ST WCS
SECTOR A RADIO COUNTS			1	2	1
SECTOR B			1	2	1
SECTOR C			1	2	1
SECTOR D					
SECTOR E					
SECTOR F					
OMNI					

Section 12 - CURRENT T1 COUNTS existing

	LTE 1ST Cabinet
# T1s	1
LINK PROFILE	
RF COMBINING	
FIBER or ETHERNET?	ETHERNET
Tx Board Model	
Tx Board QTY	
RAX/ECU Board Model	
RAX/ECU Board QTY	
BBU Board Model	
BBU Board QTY	
RRU - location	Top
FIBER JUMPER	FIBER
DC CABLE	DC
DC/Fiber Dem. Box	RAYCAP
Bundled Fiber Cable	YES
Bundled DC Cable	YES

Section 13 - NEW/PROPOSED RADIO COUNTS

	UMTS 1ST 850	UMTS 2ND 850	LTE 1ST 700	LTE 1ST 1900	LTE 1ST WCS
SECTOR A RADIO COUNTS			1	2	1
SECTOR B			1	2	1
SECTOR C			1	2	1
SECTOR D					
SECTOR E					
SECTOR F					
OMNI					

Section 14 - NEW/PROPOSED T1 COUNTS

	LTE 1ST Cabinet
# T1s	1
LINK PROFILE	
RF COMBINING	
FIBER or ETHERNET?	ETHERNET
Tx Board Model	
Tx Board QTY	
RAX/ECU Board Model	
RAX/ECU Board QTY	
BBU Board Model	
BBU Board QTY	
RRU - location	Top
FIBER JUMPER	FIBER
DC CABLE	DC
DC/Fiber Dem. Box	RAYCAP
Bundled Fiber Cable	YES
Bundled DC Cable	YES

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	HPA-65R-BUU-H8		OPA-65R-LCUU-H8		HPA-65R-BUU-H8									
ANTENNA VENDOR	CCI Products		CCI Products		CCI Products									
ANTENNA SIZE (H x W x D)	92.4X14.8X7.4		92.7X14.4X7		92.4X14.8X7.4									
ANTENNA WEIGHT	68		88		68									
AZIMUTH	0		0		0									
MAGNETIC DECLINATION														
RADIATION CENTER (feet)	90		90		90									
ANTENNA TIP HEIGHT	94		94		94									
MECHANICAL DOWNTILT	0		0		0									
FEEDER AMOUNT	4		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)														
SURGE ARRESTOR (QTY/MODEL)			4	APTD-BDFDM-DBW	6	APTD-BDFDM-DBW								
DIPLEXER (QTY/MODEL)			2	DBC2055F1V1-1	2	DBC2055F1V1-1								
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)			1	860-10006										
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)	2	TMABPD7823VG12A	2	TMABPD7823VG12A	2	TMABPD7823VG12A								
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	RRUS-11 B12								
RRH - 850 band (QTY/MODEL)														
RRH - 1900 band (QTY/MODEL)					1	4415 B25								
RRH - AWS band (QTY/MODEL)														
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)														
Additional Component 2 (QTY/MODEL)														
Additional Component 3 (QTY/MODEL)														
Local Market Note 1	12 feeders 1 5/8" per sector													
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)	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 1	PORT 1					TxRxTxRx		HPA-65R-BUU-H8	15.4	0	2	BOTTOM	1-5/8" COAX	120	0			No					
ANTENNA POSITION 2	PORT 5	97774.A.WCS.4G.1		CTL02117_3A_1	CTL02117_3A_1	TxRxTxRx	LTE WCS	H8_2350MHz_03DT	17.2	0	3	BOTTOM	1-5/8" COAX	120	0			No					
ANTENNA POSITION 3	PORT 1	97774.A.700.4G.1		CTL02117_7A_1	CTL02117_7A_1	TxRxTxRx	LTE 700	H8_719MHz_02DT	15.3	0	2	BOTTOM	1-5/8" COAX	120	0			No					
	PORT 3			CTL02117_9A_2	CTL02117_9A_2	TxRxTxRx	LTE 1900	H8_1930MHz_02DT	17.4	0	2	BOTTOM	1-5/8" COAX	120	0			No					

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	HPA-65R-BUU-H8		OPA-65R-LCUU-H8		HPA-65R-BUU-H8									
ANTENNA VENDOR	CCI Products		CCI Products		CCI Products									
ANTENNA SIZE (H x W x D)	92.4X14.8X7.4		92.7X14.4X7		92.4X14.8X7.4									
ANTENNA WEIGHT	68		88		68									
AZIMUTH	120		120		120									
MAGNETIC DECLINATION														
RADIATION CENTER (feet)	90		90		90									
ANTENNA TIP HEIGHT	94		94		94									
MECHANICAL DOWNTILT	0		0		0									
FEEDER AMOUNT	4		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)														
SURGE ARRESTOR (QTY/MODEL)			4	APTD-BDFDM-DBW	6	APTD-BDFDM-DBW								
DIPLEXER (QTY/MODEL)			2	DBC2055F1V1-1	2	DBC2055F1V1-1								
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)														
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)	2	TMABPD7823VG12A	2	TMABPD7823VG12A	2	TMABPD7823VG12A								
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	RRUS-11 B12								
RRH - 850 band (QTY/MODEL)														
RRH - 1900 band (QTY/MODEL)					1	4415 B25								
RRH - AWS band (QTY/MODEL)														
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)														
Additional Component 2 (QTY/MODEL)														
Additional Component 3 (QTY/MODEL)														
Local Market Note 1	12 feeders 1 5/8" per sector													
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)	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 1	PORT 1					TxRxTxRx		HPA-65R-BUU-H8	15.4	120	2	BOTTOM	1-5/8" COAX	120	0			No					
ANTENNA POSITION 2	PORT 5	97774.B.WCS.4G.1		CTL02117_3B_1	CTL02117_3B_1	TxRxTxRx	LTE WCS	H8_2350MHz_03DT	17.2	120	3	BOTTOM	1-5/8" COAX	120	0			No					
ANTENNA POSITION 3	PORT 1	97774.B.700.4G.1		CTL02117_7B_1	CTL02117_7B_1	TxRxTxRx	LTE 700	H8_719MHz_02DT	15.3	120	2	BOTTOM	1-5/8" COAX	120	0			No					
	PORT 3			CTL02117_9B_2	CTL02117_9B_2	TxRxTxRx	LTE 1900	H8_1930MHz_02DT	17.4	120	2	BOTTOM	1-5/8" COAX	120	0			No					

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	HPA-65R-BUU-H8		OPA-65R-LCUU-H8		HPA-65R-BUU-H8									
ANTENNA VENDOR	CCI Products		CCI Products		CCI Products									
ANTENNA SIZE (H x W x D)	92.4X14.8X7.4		92.7X14.4X7		92.4X14.8X7.4									
ANTENNA WEIGHT	68		88		68									
AZIMUTH	240		240		240									
MAGNETIC DECLINATION														
RADIATION CENTER (feet)	90		90		90									
ANTENNA TIP HEIGHT	94		94		94									
MECHANICAL DOWNTILT	0		0		0									
FEEDER AMOUNT	4		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)														
SURGE ARRESTOR (QTY/MODEL)			4	APTD-BDFDM-DBW	6	APTD-BDFDM-DBW								
DIPLEXER (QTY/MODEL)			2	DBC2055F1V1-1	2	DBC2055F1V1-1								
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)														
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)	2	TMABPD7823VG12A	2	TMABPD7823VG12A	2	TMABPD7823VG12A								
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	RRUS-11 B12								
RRH - 850 band (QTY/MODEL)														
RRH - 1900 band (QTY/MODEL)					1	4415 B25								
RRH - AWS band (QTY/MODEL)														
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)														
Additional Component 2 (QTY/MODEL)														
Additional Component 3 (QTY/MODEL)														
Local Market Note 1	12 feeders 1 5/8" per sector													
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)	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 1	PORT 1					TxRx/TxRx		HPA-65R-BUU-H8	15.4	240	2	BOTTOM	1-5/8" COAX	120	0			No					
ANTENNA POSITION 2	PORT 5	97774.C.WCS.4G.1		CTL02117_3C_1	CTL02117_3C_1	TxRx/TxRx	LTE WCS	H8_2350MHz_03DT	17.2	240	3	BOTTOM	1-5/8" COAX	120	0			No					
ANTENNA POSITION 3	PORT 1	97774.C.700.4G.1		CTL02117_7C_1	CTL02117_7C_1	TxRx/TxRx	LTE 700	H8_719MHz_02DT	15.3	240	2	BOTTOM	1-5/8" COAX	120	0			No					
	PORT 3			1,CTL02117_9C_2	1,CTL02117_9C_2	TxRx/TxRx	LTE 1900	H8_1930MHz_02DT	17.4	240	2	BOTTOM	1-5/8" COAX	120	0			No					

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	DMP65R-BU8DA		OPA65R-BU8DA				AIR6449 B77D+AIR6419 B77G STACKED							
ANTENNA VENDOR	CCI		CCI				Ericsson							
ANTENNA SIZE (H x W x D)	96X20.7X7.7		96X21X7.8				30.4X15.9X8.1							
ANTENNA WEIGHT	95.7		76.5				72.8							
AZIMUTH														
MAGNETIC DECLINATION														
RADIATION CENTER (feet)														
ANTENNA TIP HEIGHT														
MECHANICAL DOWNTILT														
FEEDER AMOUNT														
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)														
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)														
Antenna RET Motor (QTY/MODEL)														
SURGE ARRESTOR (QTY/MODEL)	8	TSXDC-4310FM	12	TSXDC-4310FM										
DIPLEXER (QTY/MODEL)			4	QBC0007F1V51-1										
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)														
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)	2	TMAT192123B68-31	2	TMAT192123B68-31										
CURRENT INJECTORS FOR TMA (QTY/MODEL)														
PDU FOR TMAS (QTY/MODEL)														
FILTER (QTY/MODEL)														
SQUID (QTY/MODEL)							1	DC6-48-60-18-8F						
FIBER TRUNK (QTY/MODEL)														
DC TRUNK (QTY/MODEL)														
REPEATER (QTY/MODEL)														
RRH - 700 band (QTY/MODEL)		with another band	1	4478 B14										
RRH - 850 band (QTY/MODEL)	1	4449 B5/B12												
RRH - 1900 band (QTY/MODEL)														
RRH - AWS band (QTY/MODEL)	1	4426 B66												
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)														
Additional Component 2 (QTY/MODEL)														
Additional Component 3 (QTY/MODEL)														
Local Market Note 1	Arrange antenna and radio postions as per PD. Swap and add antennas. Swap and add LTE radios. Add C-band and DoD antenna/radio. Add Quadplexers Add IDLe. Add 6648+Xcede Cable. Decomm UMTS.Add DC6 Fiber Squid.													
Local Market Note 2														
Local Market Note 3	5216+XMU / 6630+IDLe / 6648+Xcede													

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 1	PORT 2			CTCN002117_N005A_1	CTCN002117_N005A_1		5G 850	BU8DA_850MHz_02DT		0	0	BOTTOM	Andrew 1-1/4	120.03						1000			
	PORT 3			CTL08117_2A_2	CTL08117_2A_2		LTE AWS	BU8DA_2170MHz_02DT		0	0	BOTTOM	Andrew 1-1/4	120.03						3837.0724			
	PORT 4			CTCN002117_N066A_1	CTCN002117_N066A_1		5G AWS	BU8DA_2170MHz_02DT		0	0	BOTTOM	Andrew 1-1/4	120.03									
ANTENNA POSITION 2	PORT 1			CTL02117_7A_3_F	CTL02117_7A_3_F		LTE 700	BU8DA_770MHz_02DT		0	0	BOTTOM	Andrew 1-1/4	120.03						1475.7065			
	PORT 8			CTCN002117_N002A_1	CTCN002117_N002A_1		5G 1900	BU8DA_2355MHz_03DT		0	0	BOTTOM	Andrew 1-1/4	120.03									
ANTENNA POSITION 4	PORT 1			CTCN032117_N077A_1	CTCN032117_N077A_1		5G CBAND			0	0												
	PORT 2			CTCN032117_N077A_2	CTCN032117_N077A_2		5G DoD			0	0												

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	DMP65R-BU8DA		OPA65R-BU8DA				AIR6449 B77D+AIR6419 B77G STACKED							
ANTENNA VENDOR	CCI		CCI				Ericsson							
ANTENNA SIZE (H x W x D)	96X20.7X7.7		96X21X7.8				30.4X15.9X8.1							
ANTENNA WEIGHT	95.7		76.5				72.8							
AZIMUTH														
MAGNETIC DECLINATION														
RADIATION CENTER (feet)														
ANTENNA TIP HEIGHT														
MECHANICAL DOWNTILT														
FEEDER AMOUNT														
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)														
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)														
Antenna RET Motor (QTY/MODEL)														
SURGE ARRESTOR (QTY/MODEL)	8	TSXDC-4310FM	12	TSXDC-4310FM										
DIPLEXER (QTY/MODEL)			4	QBC0007F1V51-1										
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)														
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)	2	TMAT192123B6831	2	TMAT192123B6831										
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)		with another band	1	4478 B14										
RRH - 850 band (QTY/MODEL)	1	4449 B5/B12												
RRH - 1900 band (QTY/MODEL)														
RRH - AWS band (QTY/MODEL)	1	4426 B66												
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)														
Additional Component 2 (QTY/MODEL)														
Additional Component 3 (QTY/MODEL)														
Local Market Note 1	Arrange antenna and radio postions as per PD. Swap and add antennas. Swap and add LTE radios. Add C-band and DoD antenna/radio. Add Quadplexers Add IDLe. Add 6648+Xcede Cable. Decomm UMTS.Add DC6 Fiber Squid.													
Local Market Note 2														
Local Market Note 3	5216+XMU / 6630+IDLe / 6648+Xcede													

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 1	PORT 2			CTCN002117_N005B_1	CTCN002117_N005B_1		5G 850	BU8DA_850MHz_02DT		120	0	BOTTOM	Andrew 1-1/4	120.03						1000			
	PORT 3			CTL08117_2B_2	CTL08117_2B_2		LTE AWS	BU8DA_2170MHz_02DT		120	0	BOTTOM	Andrew 1-1/4	120.03						3837.0724			
	PORT 4			CTCN002117_N066B_1	CTCN002117_N066B_1		5G AWS	BU8DA_2170MHz_02DT		120	0	BOTTOM	Andrew 1-1/4	120.03									
ANTENNA POSITION 2	PORT 1			CTL02117_7B_3_F	CTL02117_7B_3_F		LTE 700	BU8DA_770MHz_02DT		120	0	BOTTOM	Andrew 1-1/4	120.03						1475.7065			
	PORT 8			CTCN002117_N002B_1	CTCN002117_N002B_1		5G 1900	BU8DA_2355MHz_03DT		120	0	BOTTOM	Andrew 1-1/4	120.03									
ANTENNA POSITION 4	PORT 1			CTCN032117_N077B_1	CTCN032117_N077B_1		5G CBAND			120	0												
	PORT 2			CTCN032117_N077B_2	CTCN032117_N077B_2		5G DoD			120	0												

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	DMP65R-BU8DA	OPA65R-BU8DA		AIR6449 B77D+AIR6419 B77G STACKED			
ANTENNA VENDOR	CCI	CCI		Ericsson			
ANTENNA SIZE (H x W x D)	96X20.7X7.7	96X21X7.8		30.4X15.9X8.1			
ANTENNA WEIGHT	95.7	76.5		72.8			
AZIMUTH							
MAGNETIC DECLINATION							
RADIATION CENTER (feet)							
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT							
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)							
SURGE ARRESTOR (QTY/MODEL)	8 TSXDC-4310FM	12 TSXDC-4310FM					
DIPLEXER (QTY/MODEL)		4 QBC0007F1V51-1					
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)	2 TMAT192123B6831	2 TMAT192123B6831					
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)	with another band	1 4478 B14					
RRH - 850 band (QTY/MODEL)	1 4449 B5/B12						
RRH - 1900 band (QTY/MODEL)							
RRH - AWS band (QTY/MODEL)	1 4426 B66						
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)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	Arrange antenna and radio postions as per PD. Swap and add antennas. Swap and add LTE radios. Add C-band and DoD antenna/radio. Add Quadplexers Add IDLe. Add 6648+Xcede Cable. Decomm UMTS.Add DC6 Fiber Squid.						
Local Market Note 2							
Local Market Note 3	5216+XMU / 6630+IDLe / 6648+Xcede						

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 1	PORT 2			CTCN002117_N005C_1	CTCN002117_N005C_1		5G 850	BU8DA_850MHz_02DT		240	0	BOTTOM	Andrew 1-1/4	120.03						1000			
	PORT 3			CTL08117_2C_2	CTL08117_2C_2		LTE AWS	BU8DA_2170MHz_02DT		240	0	BOTTOM	Andrew 1-1/4	120.03						3837.0724			
	PORT 4			CTCN002117_N066C_1	CTCN002117_N066C_1		5G AWS	BU8DA_2170MHz_02DT		240	0	BOTTOM	Andrew 1-1/4	120.03									
ANTENNA POSITION 2	PORT 1			CTL02117_7C_3_F	CTL02117_7C_3_F		LTE 700	BU8DA_770MHz_02DT		240	0	BOTTOM	Andrew 1-1/4	120.03						1475.7065			
	PORT 8			CTCN002117_N002C_1	CTCN002117_N002C_1		5G 1900	BU8DA_2355MHz_03DT		240	0	BOTTOM	Andrew 1-1/4	120.03									
ANTENNA POSITION 4	PORT 1			CTCN032117_N077C_1	CTCN032117_N077C_1		5G CBAND			240	0												
	PORT 2			CTCN032117_N077C_2	CTCN032117_N077C_2		5G DoD			240	0												

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	DMP65R-BU8DA	OPA65R-BU8DA		AIR6449 B77D+AIR6419 B77G STACKED			
ANTENNA VENDOR	CCI	CCI		Ericsson			
ANTENNA SIZE (H x W x D)	96X20.7X7.7	96X21X7.8		30.4X15.9X8.1			
ANTENNA WEIGHT	95.7	76.5		72.8			
AZIMUTH	0	0		0			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)	90	90		90			
ANTENNA TIP HEIGHT	94	94		94			
MECHANICAL DOWNTILT	0	0		0			
FEEDER AMOUNT	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)	Built-in	Built-in		Built-in			
SURGE ARRESTOR (QTY/MODEL)	8 TSXDC-4310FM	12 TSXDC-4310FM					
DIPLEXER (QTY/MODEL)	2 DBC2055F1V1-2	4 QBC0007F1V51-1					
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)	RRH CONTROLLED	RRH CONTROLLED					
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)	2 TMAT192123B68-31	2 TMAT192123B68-31					
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)				1 DC6-48-60-18-8F			
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)	with another band	1 4478 B14					
RRH - 850 band (QTY/MODEL)	1 4449 B5/B12						
RRH - 1900 band (QTY/MODEL)		1 4415 B25					
RRH - AWS band (QTY/MODEL)	1 4426 B66						
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)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	Arrange antenna and radio postions as per PD. Swap and add antennas. Swap and add LTE radios. Add C-band and DoD antenna/radio. Add Quadplexers Add IDLe. Add 6648+Xcede Cable. Decomm UMTS.Add DC6 Fiber Squid.						
Local Market Note 2							
Local Market Note 3	5216+XMU / 6630+IDLe / 6648+Xcede						

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 1	PORT 1	97774.A.700.4G.1		CTL02117_7A_1	CTL02117_7A_1		LTE 700	BU8DA_725MHz_02DT		0	0	BOTTOM	Andrew 1-1/4	120.03						1475.7065			
	PORT 2	97774.A.850.5G.tmp1		CTCN002117_N005A_1	CTCN002117_N005A_1		5G 850	BU8DA_850MHz_02DT		0	0	BOTTOM	Andrew 1-1/4	120.03						1000			
	PORT 3	97774.A.AWS.4G.tmp1		CTL08117_2A_2	CTL08117_2A_2		LTE AWS	BU8DA_2170MHz_02DT		0	0	BOTTOM	Andrew 1-1/4	120.03						3837.0724			
	PORT 4	97774.A.AWS.5G.tmp1		CTCN002117_N066A_1	CTCN002117_N066A_1		5G AWS	BU8DA_2170MHz_02DT		0	0	BOTTOM	Andrew 1-1/4	120.03									
ANTENNA POSITION 2	PORT 1	97774.A.700.4G.tmp3		CTL02117_7A_3_F	CTL02117_7A_3_F		LTE 700	BU8DA_770MHz_02DT		0	0	BOTTOM	Andrew 1-1/4	120.03						1475.7065			
	PORT 3	97774.A.WCS.4G.1		CTL02117_3A_1	CTL02117_3A_1		LTE WCS	BU8DA_2355MHz_03DT		0	0	BOTTOM	Andrew 1-1/4	120.03						1285.2866			
	PORT 4	97774.A.1900.4G.tmp1		CTL08117_9A_1	CTL08117_9A_1		LTE 1900	BU8DA_1930MHz_02DT		0	0	BOTTOM	Andrew 1-1/4	120.03						3664.3757			
	PORT 7	97774.A.1900.4G.tmp2		CTL08117_9A_2	CTL08117_9A_2		LTE 1900	BU8DA_1930MHz_02DT		0	0	BOTTOM	Andrew 1-1/4	120.03						3664.3757			
	PORT 8	97774.A.1900.5G.tmp1		CTCN002117_N002A_1	CTCN002117_N002A_1		5G 1900	BU8DA_2355MHz_03DT		0	0	BOTTOM	Andrew 1-1/4	120.03									
ANTENNA POSITION 4	PORT 1	97774.A.CBAND.5G.tmp1		CTCN032117_N077A_1	CTCN032117_N077A_1		5G CBAND			0	0												
	PORT 2	97774.A.CBAND.5G.tmp2		CTCN032117_N077A_2	CTCN032117_N077A_2		5G DoD			0	0												

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	DMP65R-BU8DA		OPA65R-BU8DA				AIR6449 B77D+AIR6419 B77G STACKED							
ANTENNA VENDOR	CCI		CCI				Ericsson							
ANTENNA SIZE (H x W x D)	96X20.7X7.7		96X21X7.8				30.4X15.9X8.1							
ANTENNA WEIGHT	95.7		76.5				72.8							
AZIMUTH	120		120				120							
MAGNETIC DECLINATION														
RADIATION CENTER (feet)	90		90				90							
ANTENNA TIP HEIGHT	94		94				94							
MECHANICAL DOWNTILT	0		0				0							
FEEDER AMOUNT	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)		Built-in		Built-in				Built-in						
SURGE ARRESTOR (QTY/MODEL)	8	TSXDC-4310FM	12	TSXDC-4310FM										
DIPLEXER (QTY/MODEL)	2	DBC2055F1V1-2	4	QBC0007F1V51-1										
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)		RRH CONTROLLED		RRH CONTROLLED										
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)	2	TMAT192123B68-31	2	TMAT192123B68-31										
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)		with another band	1	4478 B14										
RRH - 850 band (QTY/MODEL)	1	4449 B5/B12												
RRH - 1900 band (QTY/MODEL)			1	4415 B25										
RRH - AWS band (QTY/MODEL)	1	4426 B66												
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)														
Additional Component 2 (QTY/MODEL)														
Additional Component 3 (QTY/MODEL)														
Local Market Note 1	Arrange antenna and radio postions as per PD. Swap and add antennas. Swap and add LTE radios. Add C-band and DoD antenna/radio. Add Quadplexers Add IDLe. Add 6648+Xcede Cable. Decomm UMTS.Add DC6 Fiber Squid.													
Local Market Note 2														
Local Market Note 3	5216+XMU / 6630+IDLe / 6648+Xcede													

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	97774.B.700.4G.1		CTL02117_7B_1	CTL02117_7B_1		LTE 700	BU8DA_725MHz_02DT		120	0	BOTTOM	Andrew 1-1/4	120.03						1475.7065			
	PORT 2	97774.B.850.5G.tmp1		CTCN002117_N005B_1	CTCN002117_N005B_1		5G 850	BU8DA_850MHz_02DT		120	0	BOTTOM	Andrew 1-1/4	120.03						1000			
	PORT 3	97774.B.AWS.4G.tmp1		CTL08117_2B_2	CTL08117_2B_2		LTE AWS	BU8DA_2170MHz_02DT		120	0	BOTTOM	Andrew 1-1/4	120.03						3837.0724			
	PORT 4	97774.B.AWS.5G.tmp1		CTCN002117_N066B_1	CTCN002117_N066B_1		5G AWS	BU8DA_2170MHz_02DT		120	0	BOTTOM	Andrew 1-1/4	120.03									
ANTENNA POSITION 2	PORT 1	97774.B.700.4G.tmp3		CTL02117_7B_3_F	CTL02117_7B_3_F		LTE 700	BU8DA_770MHz_02DT		120	0	BOTTOM	Andrew 1-1/4	120.03						1475.7065			
	PORT 3	97774.B.WCS.4G.1		CTL02117_3B_1	CTL02117_3B_1		LTE WCS	BU8DA_2355MHz_03DT		120	0	BOTTOM	Andrew 1-1/4	120.03						1285.2866			
	PORT 4	97774.B.1900.4G.tmp1		CTL08117_9B_1	CTL08117_9B_1		LTE 1900	BU8DA_1930MHz_02DT		120	0	BOTTOM	Andrew 1-1/4	120.03						3664.3757			
	PORT 7	97774.B.1900.4G.tmp2		CTL08117_9B_2	CTL08117_9B_2		LTE 1900	BU8DA_1930MHz_02DT		120	0	BOTTOM	Andrew 1-1/4	120.03						3664.3757			
	PORT 8	97774.B.1900.5G.tmp1		CTCN002117_N002B_1	CTCN002117_N002B_1		5G 1900	BU8DA_2355MHz_03DT		120	0	BOTTOM	Andrew 1-1/4	120.03									
ANTENNA POSITION 4	PORT 1	97774.B.C.BAND.5G.tmp1		CTCN032117_N077B_1	CTCN032117_N077B_1		5G CBAND			120	0												
	PORT 2	97774.B.C.BAND.5G.tmp2		CTCN032117_N077B_2	CTCN032117_N077B_2		5G DoD			120	0												

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	DMP65R-BU8DA		OPA65R-BU8DA				AIR6449 B77D+AIR6419 B77G STACKED							
ANTENNA VENDOR	CCI		CCI				Ericsson							
ANTENNA SIZE (H x W x D)	96X20.7X7.7		96X21X7.8				30.4X15.9X8.1							
ANTENNA WEIGHT	95.7		76.5				72.8							
AZIMUTH	240		240				240							
MAGNETIC DECLINATION														
RADIATION CENTER (feet)	90		90				90							
ANTENNA TIP HEIGHT	94		94				94							
MECHANICAL DOWNTILT	0		0				0							
FEEDER AMOUNT	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)		Built-in		Built-in				Built-in						
SURGE ARRESTOR (QTY/MODEL)	8	TSXDC-4310FM	12	TSXDC-4310FM										
DIPLEXER (QTY/MODEL)	2	DBC2055F1V1-2	4	QBC0007F1V51-1										
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)		RRH CONTROLLED		RRH CONTROLLED										
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)	2	TMAT192123B68-31	2	TMAT192123B68-31										
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)		with another band	1	4478 B14										
RRH - 850 band (QTY/MODEL)	1	4449 B5/B12												
RRH - 1900 band (QTY/MODEL)			1	4415 B25										
RRH - AWS band (QTY/MODEL)	1	4426 B66												
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)														
Additional Component 2 (QTY/MODEL)														
Additional Component 3 (QTY/MODEL)														
Local Market Note 1	Arrange antenna and radio postions as per PD. Swap and add antennas. Swap and add LTE radios. Add C-band and DoD antenna/radio. Add Quadplexers Add IDLe. Add 6648+Xcede Cable. Decomm UMTS.Add DC6 Fiber Squid.													
Local Market Note 2														
Local Market Note 3	5216+XMU / 6630+IDLe / 6648+Xcede													

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	97774.C.700.4G.1		CTL02117_7C_1	CTL02117_7C_1		LTE 700	BU8DA_725MHz_02DT		240	0	BOTTOM	Andrew 1-1/4	120.03						1475.7065			
	PORT 2	97774.C.850.5G.tmp1		CTCN002117_N005C_1	CTCN002117_N005C_1		5G 850	BU8DA_850MHz_02DT		240	0	BOTTOM	Andrew 1-1/4	120.03						1000			
	PORT 3	97774.C.AWS.4G.tmp1		CTL08117_2C_2	CTL08117_2C_2		LTE AWS	BU8DA_2170MHz_02DT		240	0	BOTTOM	Andrew 1-1/4	120.03						3837.0724			
	PORT 4	97774.C.AWS.5G.tmp1		CTCN002117_N066C_1	CTCN002117_N066C_1		5G AWS	BU8DA_2170MHz_02DT		240	0	BOTTOM	Andrew 1-1/4	120.03									
ANTENNA POSITION 2	PORT 1	97774.C.700.4G.tmp3		CTL02117_7C_3_F	CTL02117_7C_3_F		LTE 700	BU8DA_770MHz_02DT		240	0	BOTTOM	Andrew 1-1/4	120.03						1475.7065			
	PORT 3	97774.C.WCS.4G.1		CTL02117_3C_1	CTL02117_3C_1		LTE WCS	BU8DA_2355MHz_03DT		240	0	BOTTOM	Andrew 1-1/4	120.03						1285.2866			
	PORT 4	97774.C.1900.4G.tmp1		CTL08117_9C_1	CTL08117_9C_1		LTE 1900	BU8DA_1930MHz_02DT		240	0	BOTTOM	Andrew 1-1/4	120.03						3664.3757			
	PORT 7	97774.C.1900.4G.tmp2		CTL08117_9C_2	CTL08117_9C_2		LTE 1900	BU8DA_1930MHz_02DT		240	0	BOTTOM	Andrew 1-1/4	120.03						3664.3757			
	PORT 8	97774.C.1900.5G.tmp1		CTCN002117_N002C_1	CTCN002117_N002C_1		5G 1900	BU8DA_2355MHz_03DT		240	0	BOTTOM	Andrew 1-1/4	120.03									
ANTENNA POSITION 4	PORT 1	97774.C.CBAND.5G.tmp1		CTCN032117_N077C_1	CTCN032117_N077C_1		5G CBAND			240	0												
	PORT 2	97774.C.CBAND.5G.tmp2		CTCN032117_N077C_2	CTCN032117_N077C_2		5G DoD			240	0												

Antennas

MultiPort Series

DATA SHEET

Diplexed Multi-Band Antenna

DMP65R-BU8D

- Eight foot (2.4 m) internally multiplexed MultiBand antenna, including eight external RF ports (12 RF ports internal), with a 65° azimuth beamwidth covering 698-896 MHz and 1695-2400 MHz frequencies
- Four wide high band ports covering 1695-2400 MHz and four wide low band ports covering 698-896 MHz in a single antenna enclosure
- Innovative Multiplexed/RET Control configuration, supporting Dual Band Radio Configurations (B12/B5 and B29/B5). The antenna provides Dual 4T4R (4x4 MIMO) capability, while providing independent RET control, an Industry First
- Innovative Low and High Band Array configuration allows for 4T4R (4x4 MIMO) on Low Band and 4T4R (4x4 MIMO) High Band Arrays, using full length arrays (non stacked), all in a 20.7" (525 mm) width enclosure, an Industry First
- Industry leading antenna topology and RET shielding techniques drastically mitigate PIM propagation from B12/B14/B29 operations, allowing for superior Network performance
- Full Spectrum Compliance for PCS, AWS-3 and WCS frequencies and 700/850 MHz Dual Band Radio Configurations
-
- 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 internally multiplexed MultiBand array is an eight port (12 RF ports internal) 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 4T4R (4x4 MIMO) in the high band, with separate RET control. The antenna also provides the capability to provide independent RET control for 700/850 MHz Dual Band Radio Configurations, while maintaining 4T4R (4x4 MIMO) across the low band ports.

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

Diplexed Multi-Band Antenna

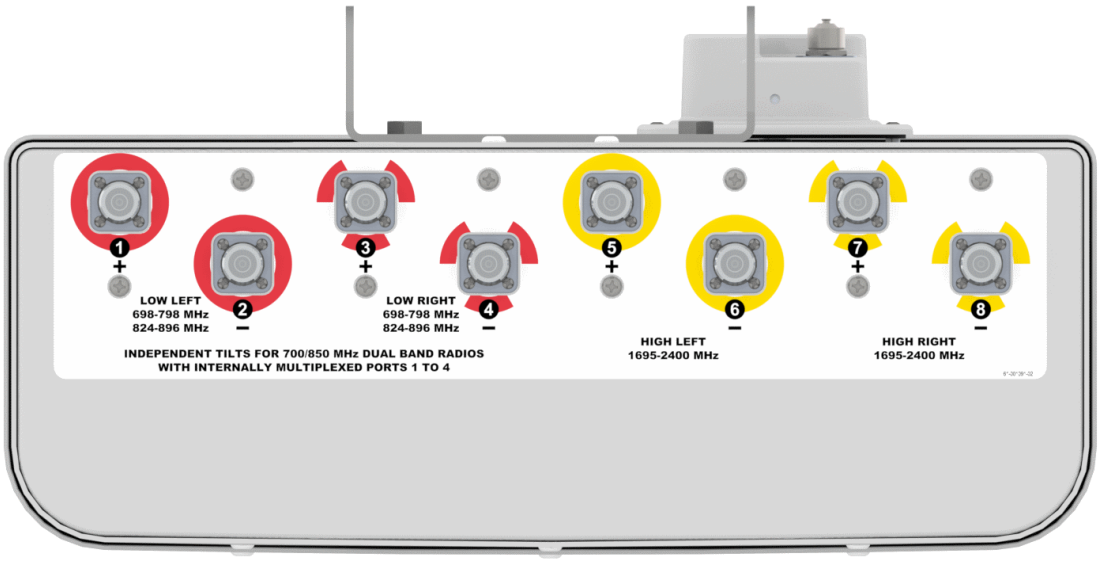
DMP65R-BU8D

Mechanical

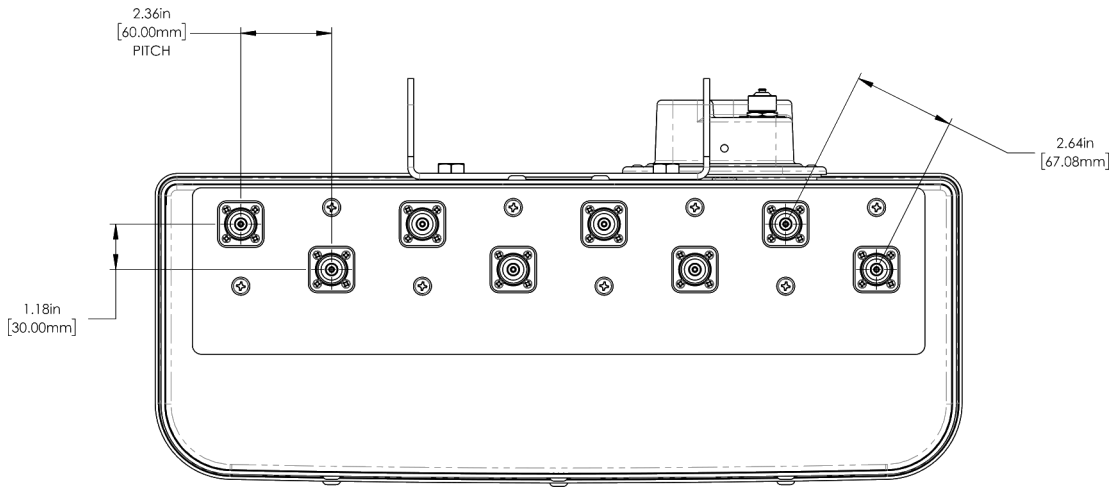
Dimensions (LxWxD)	96.0x20.7x7.7 in (2438x525x197 mm)
Survival Wind Speed	> 150 mph (> 241 kph)
Front Wind Load	457 lbs (2033 N) @ 100 mph (161 kph)
Side Wind Load	209 lbs (929 N) @ 100 mph (161 kph)
Equivalent Flat Plate Area	17.9 ft^2 (1.7 m^2)
Weight *	95.7 lbs (43.4 kg)
Connector	8 x 4.3-10 female
Mounting Pole	2 to 5 in (5 to 12 cm)

** Weight excludes mounting*

Bottom View



Connector Spacing



Antennas

MultiPort Series

DATA SHEET

Multi-Band Eight-Port Antenna

OPA65R-BU8D

- Eight foot (2.4 m) multiband, eight 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.

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

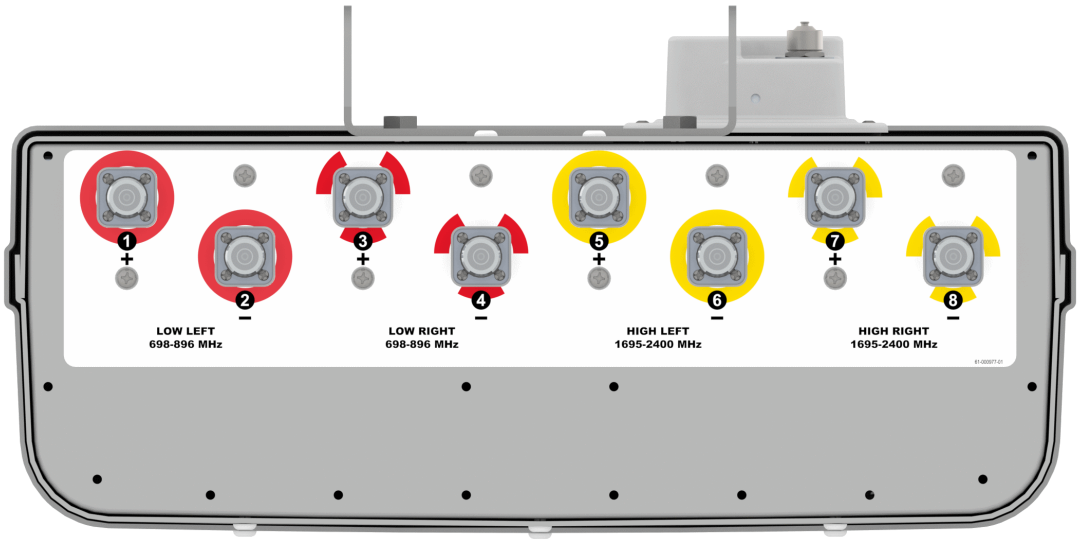
OPA65R-BU8D

Mechanical

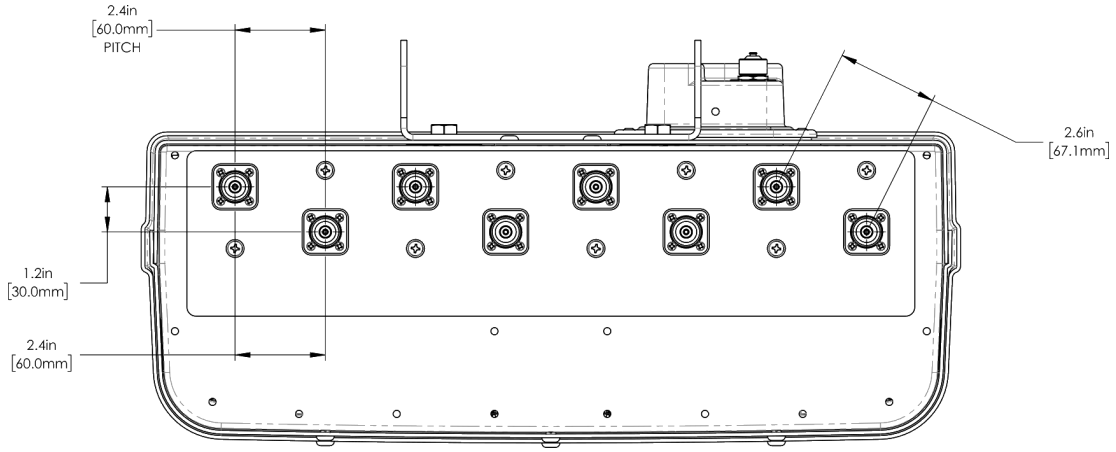
Dimensions (LxWxD)	96.0x21.0x7.8 in (2438x534x198 mm)
Survival Wind Speed	> 150 mph (> 241 kph)
Front Wind Load	463 lbs (2061 N) @ 100 mph (161 kph)
Side Wind Load	210 lbs (933 N) @ 100 mph (161 kph)
Equivalent Flat Plate Area	18.1 ft^2 (1.7 m^2)
Weight *	76.5 lbs (34.7 kg)
RET Weight	3.3 lbs (1.5 kg)
Connector	8 x 4.3-10 female
Mounting Pole	2 to 5 in (5 to 12 cm)

** Weight excludes mounting and RET*

Bottom View

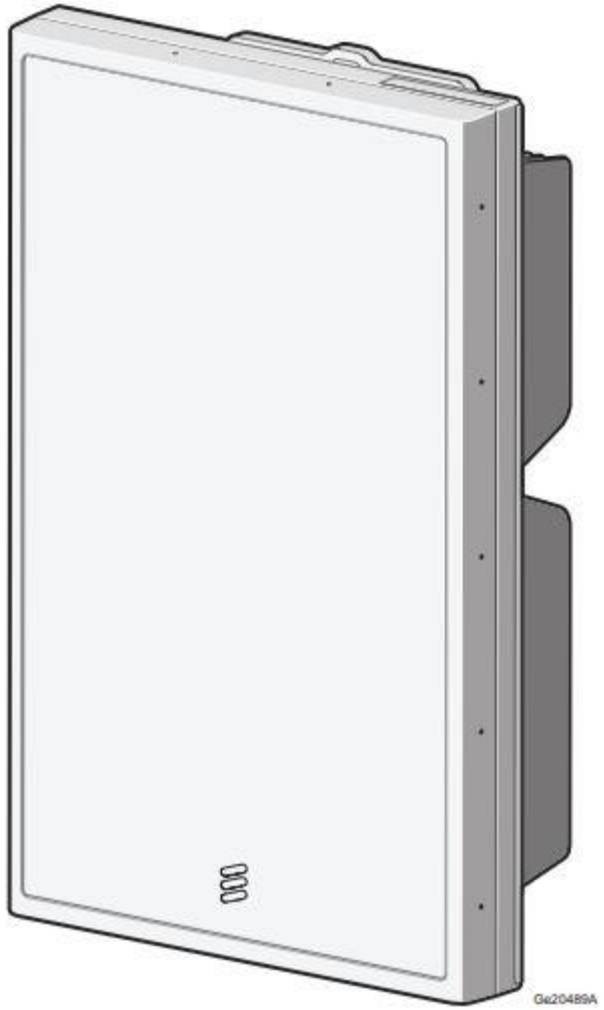


Connector Spacing



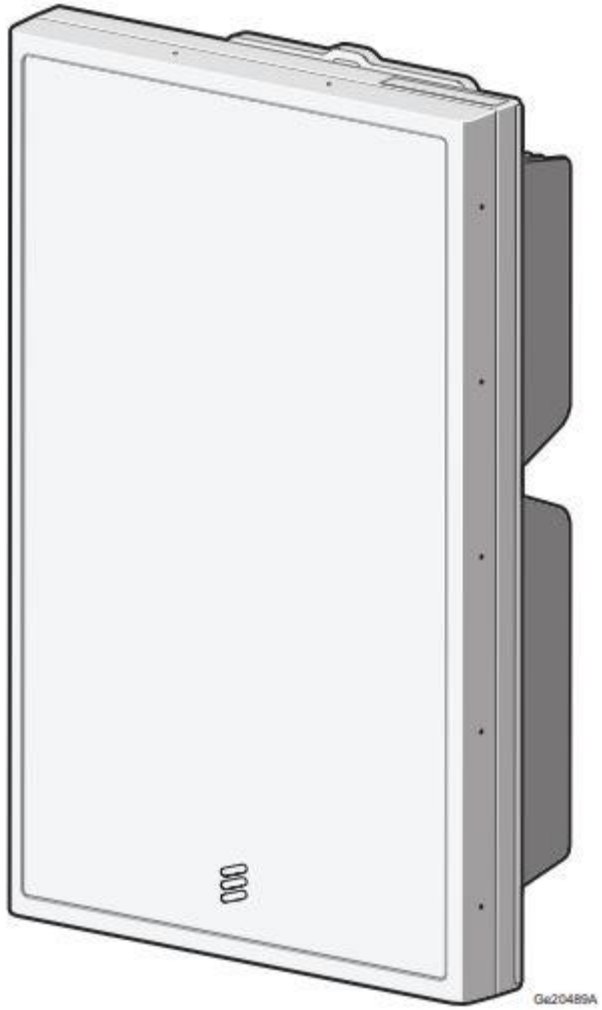
ERICSSON AIR 6419 B77G

- 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.



TMAT192123B68-31 | E14R00P33

Tower Mounted Amplifier,Twin Configuration PCS/AWS 1–4 WCS, 617–894 MHz bypass 4.3-10

- New Triple-band TMA for PCS, AWS 1-4 and WCS in a compact twin form factor
- Low frequency bypass of 617-894 MHz covers Band 14 public safety operating frequencies
- Significantly reduces complexity of tower top architectures
- Also available in a quad configuration to support 4 x 4 requirements
- New 4.3-10 connectors for improved PIM performance and size reduction
- Support DC/AISG antenna Auto-forward

Product Classification

Product Type	1-BTS:3-ANT (Triplex) | Tower mounted amplifier

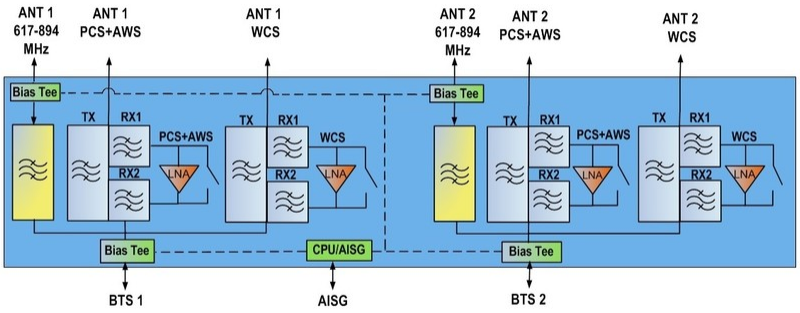
General Specifications

Color	Gray
Modularity	2-Twin
Mounting	Pole | Wall
Mounting Pipe Hardware	Band clamps (2)
RF Connector Interface	4.3-10 Female

Dimensions

Height	238 mm | 9.37 in
Width	283 mm | 11.142 in
Depth	97 mm | 3.819 in
Ground Screw Diameter	6 mm | 0.236 in
Mounting Pipe Diameter Range	40–160 mm

Block Diagram



Material Specifications

Finish	Painted

Environmental Specifications

Operating Temperature	-40 °C to +65 °C (-40 °F to +149 °F)
Relative Humidity	Up to 100%
Corrosion Test Method	IEC 60068-2-11, 30 days
Ingress Protection Test Method	IEC 60529:2001, IP67

Packaging and Weights

Included	Mounting hardware
Mounting Hardware Weight	1 kg | 2.205 lb
Weight, without mounting hardware	9.4 kg | 20.723 lb

* Footnotes

License Band, Band Pass	License Bands that are to be passed through with no amplification
License Band, LNA	License Bands that have RxUplink amplification

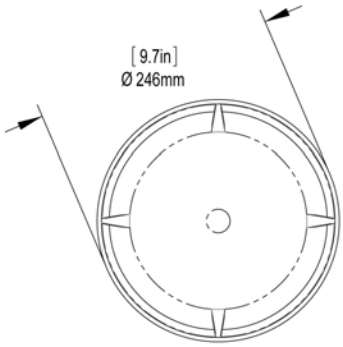
DC6-48-60-18-8F

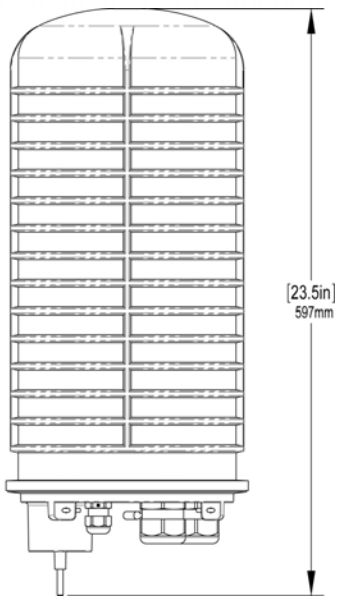
DC Surge Suppression Solution

The DC6-48-60-18 is a dual chambered, DC surge suppression system for use in multi-circuit, Distributed Antenna Systems. The system will protect up to 6 Remote Radio Heads from voltage surges and lightning, and connect up to 18 fiber pairs. The system is enclosed in a NEMA 4 rated, waterproof enclosure.

FEATURES

- Protects up to 6 Remote Radio Heads, each with its own protection circuit.
- Flexible design allows for installation at the top of a tower for Remote Radio Head protection.
- Includes fiber connections for up to 18 pairs of fiber.
- LED indicators on individual circuits provide visual indication of suppressor status.
- Form 'C' relays allow for remote monitoring of the suppressor status.
- Patented Strikesorb technology provides over 60 kA of surge current capacity per circuit.
- Strikesorb suppression modules are fully recognized to UL 1449-3rd Edition Safety Standard, meeting all intermediate and high current fault requirements to facilitate use in OEM applications.
- Raycap recommends that DC protection system be installed within 2 meters or 6 feet of the radio.
- Dome design is lightweight and aerodynamic providing maximum flexibility for installation on top of towers.





Raycap

Phone 208.777.1166 Toll Free 800.890.2569 Fax 208.777.4466 www.raycapsurgeprotection.com

DC6-48-60-18-8F

DC Power Surge Protection

Electrical Specifications	
Model Number	DC6-48-60-18-8F
Nominal Operating Voltage	48 VDC
Nominal Discharge Current (I_n)	20 kA 8/20 µs
Maximum Discharge Current (I_{max}) per NEMA LS-1	60 kA 8/20 µs
Maximum Continuous Operating Voltage (U_c)	75 VDC
Voltage Protection Rating	400 V

Mechanical Specifications	
Suppression Connection Method	Compression lug, #2-#14 AWG Copper, #2-#12 Aluminum
Fiber Connection Method	LC-LC Single mode duplex
Environmental Rating	IP 68, 7m 72hrs
Operating Temperature	-40° C to + 80° C
Storage Temperature	-70° C to + 80° C
Cold Temperature Cycling	IEC 61300-2-22e -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
Weight	20 lbs without Mounting Bracket

STANDARDS

Strikesorb modules are compliant to the following Surge Protection Device (SPD) Standards:

- ANSI/UL 1449 – 3rd Edition
- IEEE C62.41
- NEMA LS-1, IEC 61643-1:2005 2nd Edition:2005
- IEC 61643-12
- EN 61643-11:2002 (including A11:2007)

GS-07F-0435V

Certified to ISO 9001:2000

TÜV Rheinland of North America

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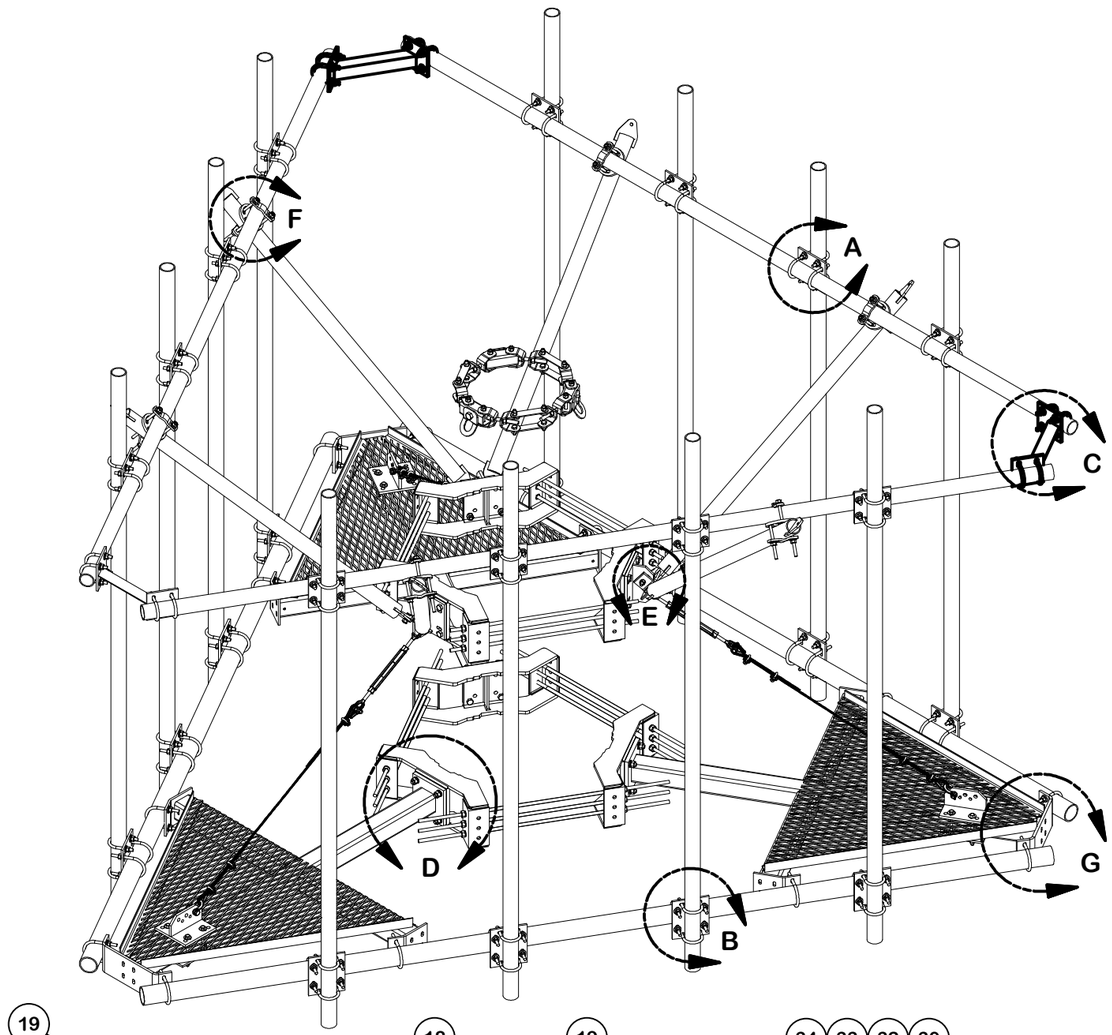
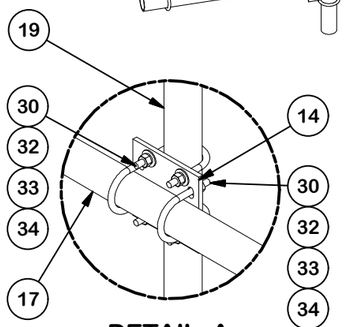
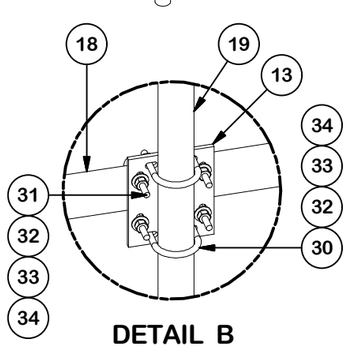


PARTS LIST

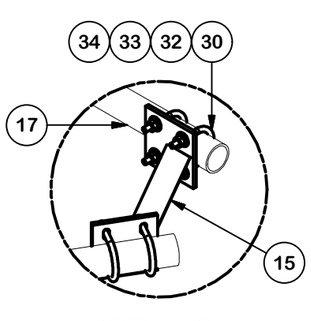
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	6	X-LWRM	RING MOUNT WELDMENT		68.81	412.85
2	3	X-SV196L	LONG PLATFORM WELDMENT		230.94	692.81
3	6	X-TBW	T-BRACKET WELDMENT		13.60	81.60
4	6	SHCM-T	CHAIN MOUNT TIGHTENER BRACKET	3 in	1.86	11.15
5	6	X-VSKL	LONG SUPPORT WELDMENT FOR VSK REINFORCEMENTS		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



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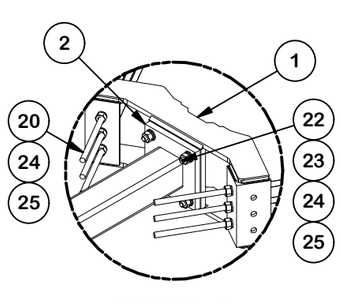
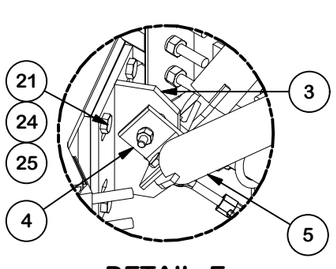
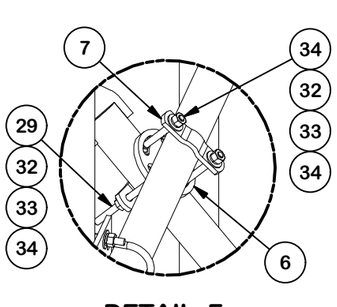


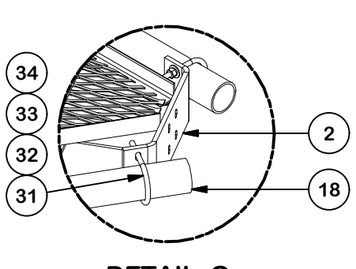
DETAIL D



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

March 25, 2022
May 23, 2023 (Rev.1)

SAI Communications
12 Industrial Way
Salem NH, 03079

RE:	AT&T Site Number:	CT2117 (C-BAND)
	FA Number:	10126684
	PACE Number:	MRCTB056567
	PT Number:	2051A11NFH
	TEP Project Number:	317796.853656
	AT&T Site Name:	MARTORELLI CLANDP STR 783
	Site Address:	200 Edgemark Acres Meriden, CT 06451

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/RRH mount to determine its capability of supporting the following loading:

- **(3) DMP65R-BU8DA Antennas (96.0"x20.7"x7.7" – Wt. = 119 lbs. /each)**
- **(3) OPA65R-BU8DA Antennas (96.0"x21.0"x7.8" – Wt. = 77 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)**
- **(12) TMAT192123B68-31 TMA's (11.1"x9.4"x3.8" – Wt. = 21 lbs. /each)**
- **(1) DC6-48-60-18-8C Surge Arrestors (31.4"x10.2" Ø – Wt. = 29 lbs.) (Standoff)**

*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 December 16, 2021.

Mount Analysis Methods:

- This analysis was conducted in accordance with EIA/TIA-222-H, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, the International Building Code 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 1.13 in was used for this analysis.
- TEP NE considers this site to be exposure category B; tower is located in an urban/suburban or wooded area with numerous closely spaced obstructions.
- 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 0.055.
- 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 1.
- 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 will 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	60%	**PASS**

Reference Documents:

- Fabrication drawings prepared by SitePro1 P/N RMQLP-4120-H10 dated October 18, 2019

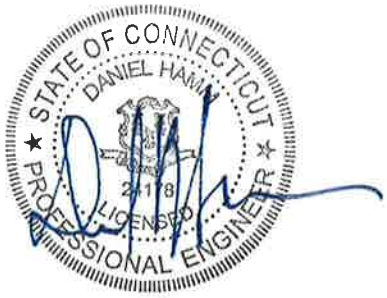
This determination was based on the following limitations and assumptions:

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 to be removed.

FIELD PHOTOS (CONT.):
*Note: Existing mount to be removed.

Wind & Ice
Calculations

Date: 5/22/2023
Project Name: MARTORELLI CLANDP STR 783
Project No.: CT2117
Designed By: KSBM **Checked By:** MSC

2.6.5.2 Velocity Pressure Coeff:

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

z=	110.0	(ft)
z_g=	1200	(ft)
α=	7	

K_z= 1.016

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

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

Category= **1**

K_h=	1	
K_c=	0.9	(from Table 2-4)
K_t=	0	(from Table 2-5)
f=	0	(from Table 2-5)
z=	110.0	
z_s=	351	(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)

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} =	1.13	(from Sec. 2.6.10)

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

t_{iz} = 1.13 in

Date: 5/22/2023
Project Name: MARTORELLI CLANDP STR 783
Project No.: CT2117
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=	105.0	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=	1.016	(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=	**31.42**	K_e=	0.99	(from 2.6.8)
$q_{z\ (ice)}$=	**5.45**	K_d=	0.85	(from Table 2-2)
$q_{z\ (30)}$=	**1.96**	V_{max}=	120	mph (Ultimate Wind Speed)
		$V_{max\ (ice)}$=	50	mph
		V_{30}=	30	mph

Table 2-2

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

Date: 5/22/2023
Project Name: MARTORELLI CLANDP STR 783
Project No.: CT2117
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 = **1.13** **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)
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	4.64	1.30	**561**	**111**	**35**
OPA65R-BU8DA Antenna	96.0	20.7	7.7	13.80	4.64	1.30	**561**	**111**	**35**
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.93	1.20	**131**	**28**	**8**
AIR6449 Antenna	30.6	15.9	10.6	3.38	1.92	1.20	**127**	**27**	**8**
TMAT192123B68-31 TMA	11.1	3.8	9.4	0.29	2.92	1.22	**11**	**4**	**1**
DC6-48-60-18-8C Surge Arrestor	31.4	10.2	10.2	2.22	3.08	0.70	**49**	**11**	**3**
Plate 6x3/8	6.0	12.0		0.50	0.50	2.00	**31**		
2x2 Angle	2.0	12.0		0.17	0.17	2.00	**10**		
2-1/2x2-1/2	2.5	12.0		0.21	0.21	2.00	**13**		
2" Pipe	2.4	12.0		0.20	0.20	1.20	**7**		
2-1/2" Pipe	2.9	12.0		0.24	0.24	1.20	**9**		
3" Pipe	3.5	12.0		0.29	0.29	1.20	**11**		
HSS 4x4	4.0	12.0		0.33	0.33	1.25	**13**		

Date: 5/22/2023
Project Name: MARTORELLI CLANDP STR 783
Project No.: CT2117
Designed By: KSBM Checked By: MSC

WIND LOADS

Angle =	30	(deg)	Ice Thickness =	1.13	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)
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	561	255	485
OPA65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	561	255	485
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	131	63	114
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	127	86	117
TMAT192123B68-31 TMA	11.1	3.8	9.4	0.29	0.72	2.92	1.18	1.22	1.20	11	27	15

WIND LOADS WITH ICE:

DMP65R-BU8DA Antenna	98.3	23.0	10.0	15.66	6.79	4.28	9.87	1.28	1.50	109	55	96
OPA65R-BU8DA Antenna	98.3	23.0	10.0	15.66	6.79	4.28	9.87	1.28	1.50	109	55	96
AIR6419 Antenna	33.3	18.4	9.6	4.24	2.21	1.81	3.48	1.20	1.24	28	15	25
AIR6449 Antenna	32.9	18.2	12.9	4.14	2.93	1.81	2.56	1.20	1.20	27	19	25
TMAT192123B68-31 TMA	13.4	6.1	11.7	0.56	1.08	2.21	1.15	1.20	1.20	4	7	5

WIND LOADS AT 30 MPH:

DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	35	16	30
OPA65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	35	16	30
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	8	4	7
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	8	5	7
TMAT192123B68-31 TMA	11.1	3.8	9.4	0.29	0.72	2.92	1.18	1.22	1.20	1	2	1

Date: 5/22/2023
Project Name: MARTORELLI CLANDP STR 783
Project No.: CT2117
Designed By: KSBM Checked By: MSC

TEP NORTHEAST

WIND LOADS

Angle =	60	(deg)	Ice Thickness =	1.13	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)
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	561	255	332
OPA65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	561	255	332
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	131	63	80
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	127	86	96
TMAT192123B68-31 TMA	11.1	3.8	9.4	0.29	0.72	2.92	1.18	1.22	1.20	11	27	23

WIND LOADS WITH ICE:

DMP65R-BU8DA Antenna	98.3	23.0	10.0	15.66	6.79	4.28	9.87	1.28	1.50	109	55	69
OPA65R-BU8DA Antenna	98.3	23.0	10.0	15.66	6.79	4.28	9.87	1.28	1.50	109	55	69
AIR6419 Antenna	33.3	18.4	9.6	4.24	2.21	1.81	3.48	1.20	1.24	28	15	18
AIR6449 Antenna	32.9	18.2	12.9	4.14	2.93	1.81	2.56	1.20	1.20	27	19	21
TMAT192123B68-31 TMA	13.4	6.1	11.7	0.56	1.08	2.21	1.15	1.20	1.20	4	7	6

WIND LOADS AT 30 MPH:

DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	35	16	21
OPA65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	35	16	21
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	8	4	5
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	8	5	6
TMAT192123B68-31 TMA	11.1	3.8	9.4	0.29	0.72	2.92	1.18	1.22	1.20	1	2	1

Date: 5/22/2023
Project Name: MARTORELLI CLANDP STR 783
Project No.: CT2117
Designed By: KSBM Checked By: MSC

WIND LOADS

Angle =	90	(deg)	Ice Thickness =	1.13	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)
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	561	255	255
OPA65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	561	255	255
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	131	63	63
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	127	86	86
TMAT192123B68-31 TMA	11.1	3.8	9.4	0.29	0.72	2.92	1.18	1.22	1.20	11	27	27

WIND LOADS WITH ICE:

DMP65R-BU8DA Antenna	98.3	23.0	10.0	15.66	6.79	4.28	9.87	1.28	1.50	109	55	55
OPA65R-BU8DA Antenna	98.3	23.0	10.0	15.66	6.79	4.28	9.87	1.28	1.50	109	55	55
AIR6419 Antenna	33.3	18.4	9.6	4.24	2.21	1.81	3.48	1.20	1.24	28	15	15
AIR6449 Antenna	32.9	18.2	12.9	4.14	2.93	1.81	2.56	1.20	1.20	27	19	19
TMAT192123B68-31 TMA	13.4	6.1	11.7	0.56	1.08	2.21	1.15	1.20	1.20	4	7	7

WIND LOADS AT 30 MPH:

DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	35	16	16
OPA65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	35	16	16
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	8	4	4
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	8	5	5
TMAT192123B68-31 TMA	11.1	3.8	9.4	0.29	0.72	2.92	1.18	1.22	1.20	1	2	2

Date: 5/22/2023
Project Name: MARTORELLI CLANDP STR 783
Project No.: CT2117
Designed By: KSBM Checked By: MSC

WIND LOADS

Angle = 120 (deg) | Ice Thickness = 1.13 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)
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	561	255	332
OPA65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	561	255	332
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	131	63	80
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	127	86	96
TMAT192123B68-31 TMA	11.1	3.8	9.4	0.29	0.72	2.92	1.18	1.22	1.20	11	27	23

WIND LOADS WITH ICE:

DMP65R-BU8DA Antenna	98.3	23.0	10.0	15.66	6.79	4.28	9.87	1.28	1.50	109	55	69
OPA65R-BU8DA Antenna	98.3	23.0	10.0	15.66	6.79	4.28	9.87	1.28	1.50	109	55	69
AIR6419 Antenna	33.3	18.4	9.6	4.24	2.21	1.81	3.48	1.20	1.24	28	15	18
AIR6449 Antenna	32.9	18.2	12.9	4.14	2.93	1.81	2.56	1.20	1.20	27	19	21
TMAT192123B68-31 TMA	13.4	6.1	11.7	0.56	1.08	2.21	1.15	1.20	1.20	4	7	6

WIND LOADS AT 30 MPH:

DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	35	16	21
OPA65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	35	16	21
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	8	4	5
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	8	5	6
TMAT192123B68-31 TMA	11.1	3.8	9.4	0.29	0.72	2.92	1.18	1.22	1.20	1	2	1

Date: 5/22/2023
Project Name: MARTORELLI CLANDP STR 783
Project No.: CT2117
Designed By: KSBM Checked By: MSC

WIND LOADS

Angle =	150	(deg)	Ice Thickness =	1.13	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)
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	561	255	485
OPA65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	561	255	485
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	131	63	114
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	127	86	117
TMAT192123B68-31 TMA	11.1	3.8	9.4	0.29	0.72	2.92	1.18	1.22	1.20	11	27	15

WIND LOADS WITH ICE:

DMP65R-BU8DA Antenna	98.3	23.0	10.0	15.66	6.79	4.28	9.87	1.28	1.50	109	55	96
OPA65R-BU8DA Antenna	98.3	23.0	10.0	15.66	6.79	4.28	9.87	1.28	1.50	109	55	96
AIR6419 Antenna	33.3	18.4	9.6	4.24	2.21	1.81	3.48	1.20	1.24	28	15	25
AIR6449 Antenna	32.9	18.2	12.9	4.14	2.93	1.81	2.56	1.20	1.20	27	19	25
TMAT192123B68-31 TMA	13.4	6.1	11.7	0.56	1.08	2.21	1.15	1.20	1.20	4	7	5

WIND LOADS AT 30 MPH:

DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	35	16	30
OPA65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	35	16	30
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	8	4	7
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	8	5	7
TMAT192123B68-31 TMA	11.1	3.8	9.4	0.29	0.72	2.92	1.18	1.22	1.20	1	2	1

Date: 5/22/2023
Project Name: MARTORELLI CLANDP STR 783
Project No.: CT2117
Designed By: KSBM **Checked By:** MSC

ICE WEIGHT CALCULATIONS

Thickness of ice: 1.13 in.
Density of ice: 56 pcf

DMP65R-BU8DA Antenna

Weight of ice based on total radial SF area:

Height (in):	96.0	
Width (in):	20.7	
Depth (in):	7.7	
Total weight of ice on object:		256 lbs
Weight of object:	119.0 lbs	
Combined weight of ice and object:		375 lbs

OPA65R-BU8DA Antenna

Weight of ice based on total radial SF area:

Height (in):	96.0	
Width (in):	20.7	
Depth (in):	7.7	
Total weight of ice on object:		256 lbs
Weight of object:	79.0 lbs	
Combined weight of ice and object:		335 lbs

AIR6419 Antenna

Weight of ice based on total radial SF area:

Height (in):	31.0	
Width (in):	16.1	
Depth (in):	7.3	
Total weight of ice on object:		67 lbs
Weight of object:	66.0 lbs	
Combined weight of ice and object:		133 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:		71 lbs
Weight of object:	82.0 lbs	
Combined weight of ice and object:		153 lbs

TMAT192123B68-31 TMA

Weight of ice based on total radial SF area:

Height (in):	11.1	
Width (in):	3.8	
Depth (in):	9.4	
Total weight of ice on object:		14 lbs
Weight of object:	21.0 lbs	
Combined weight of ice and object:		35 lbs

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

Weight of ice based on total radial SF area:

Height (in):	31.4	
Diameter(in):	10.2	
Total weight of ice on object:		41 lbs
Weight of object:	29.0 lbs	
Combined weight of ice and object:		70 lbs

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

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

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:		6 plf

L 2-1/2x2-1/2 Angles

Weight of ice based on total radial SF area:

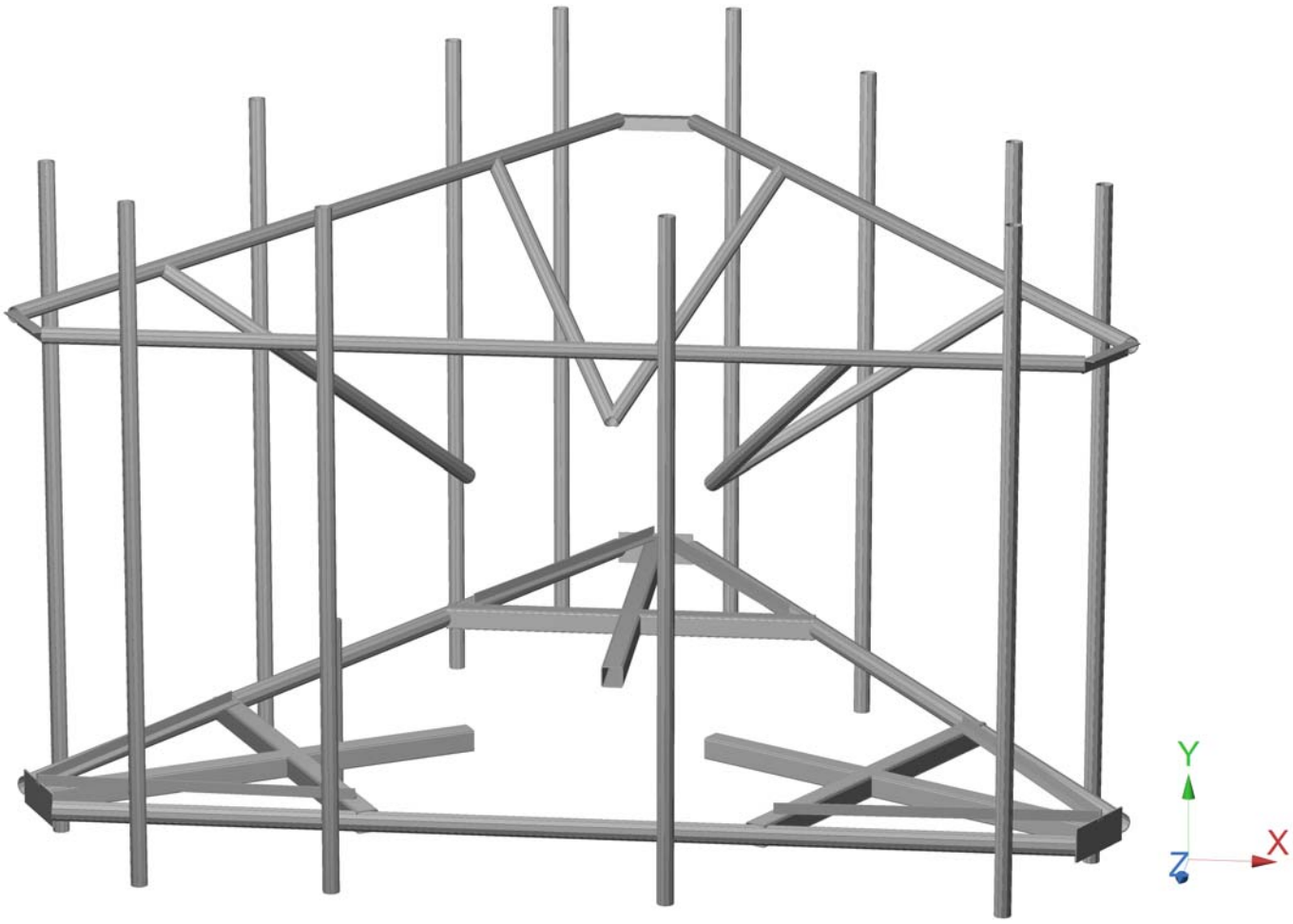
Height (in):	2.5	
Width (in):	2.5	
Per foot weight of ice on object:		6 plf

3" Pipe

Per foot weight of ice:

diameter (in):	3.5	
Per foot weight of ice on object:		6 plf

Mount Calculations
(Proposed Conditions)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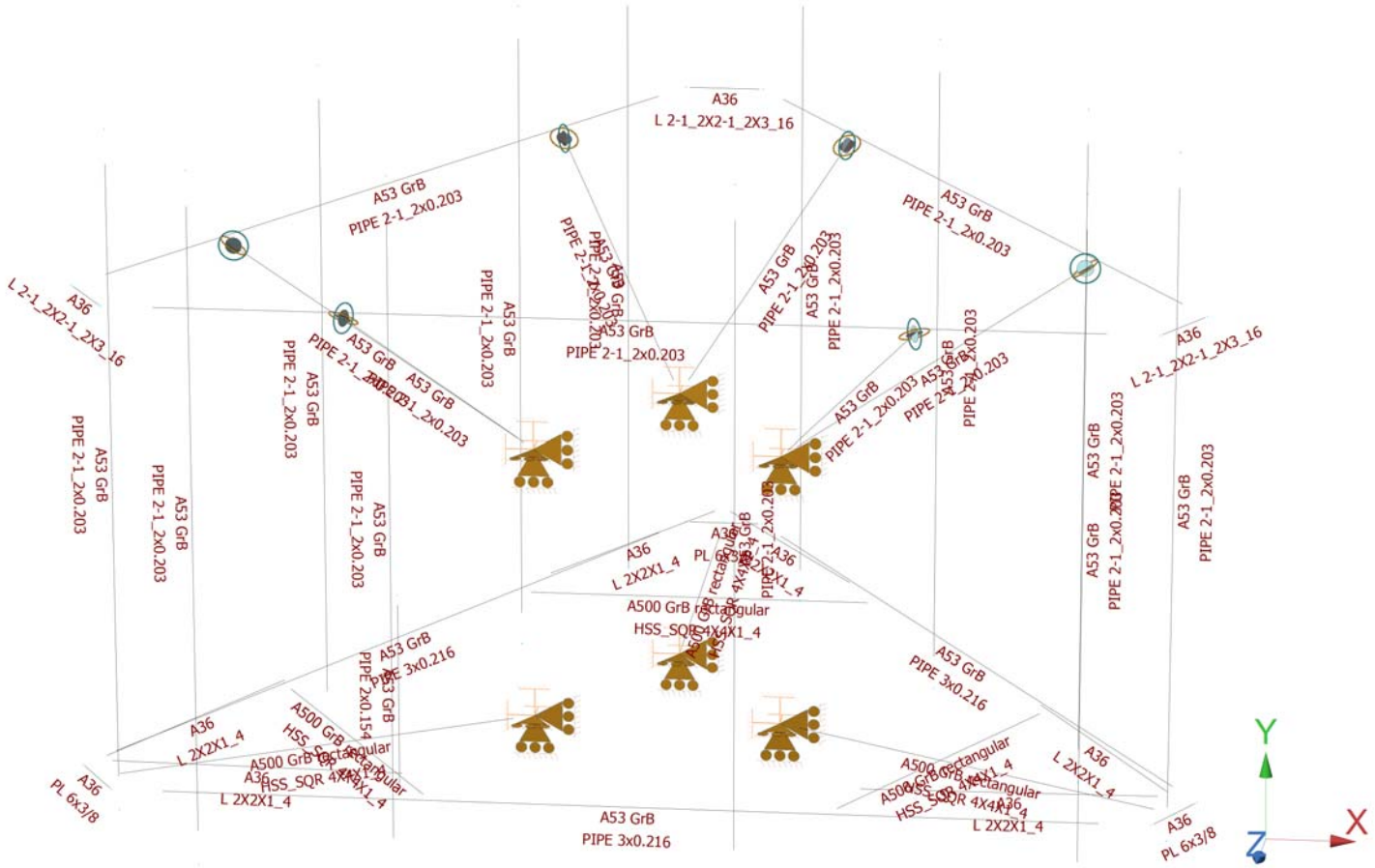
X
Z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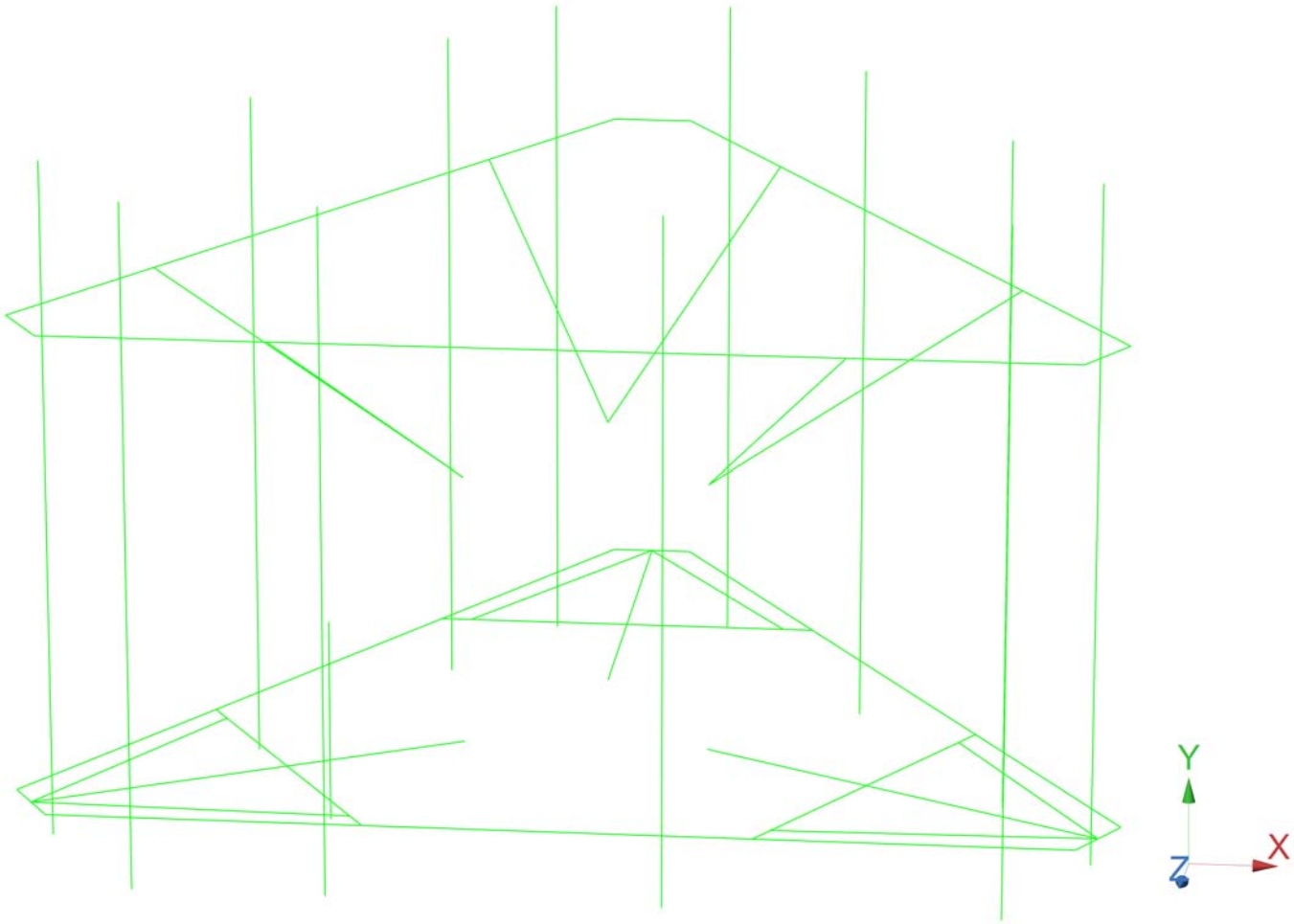
L 2-1_2X2-1_2X3_16
A53 GrB
PIPE 2-1_2x0.203
A36
L 2X2X1_4
A500 GrB rectangular
HSS_SQR 4X4X1_4
A53 GrB
PIPE 3x0.216
A36
PL 6x3/8
Y
X
Z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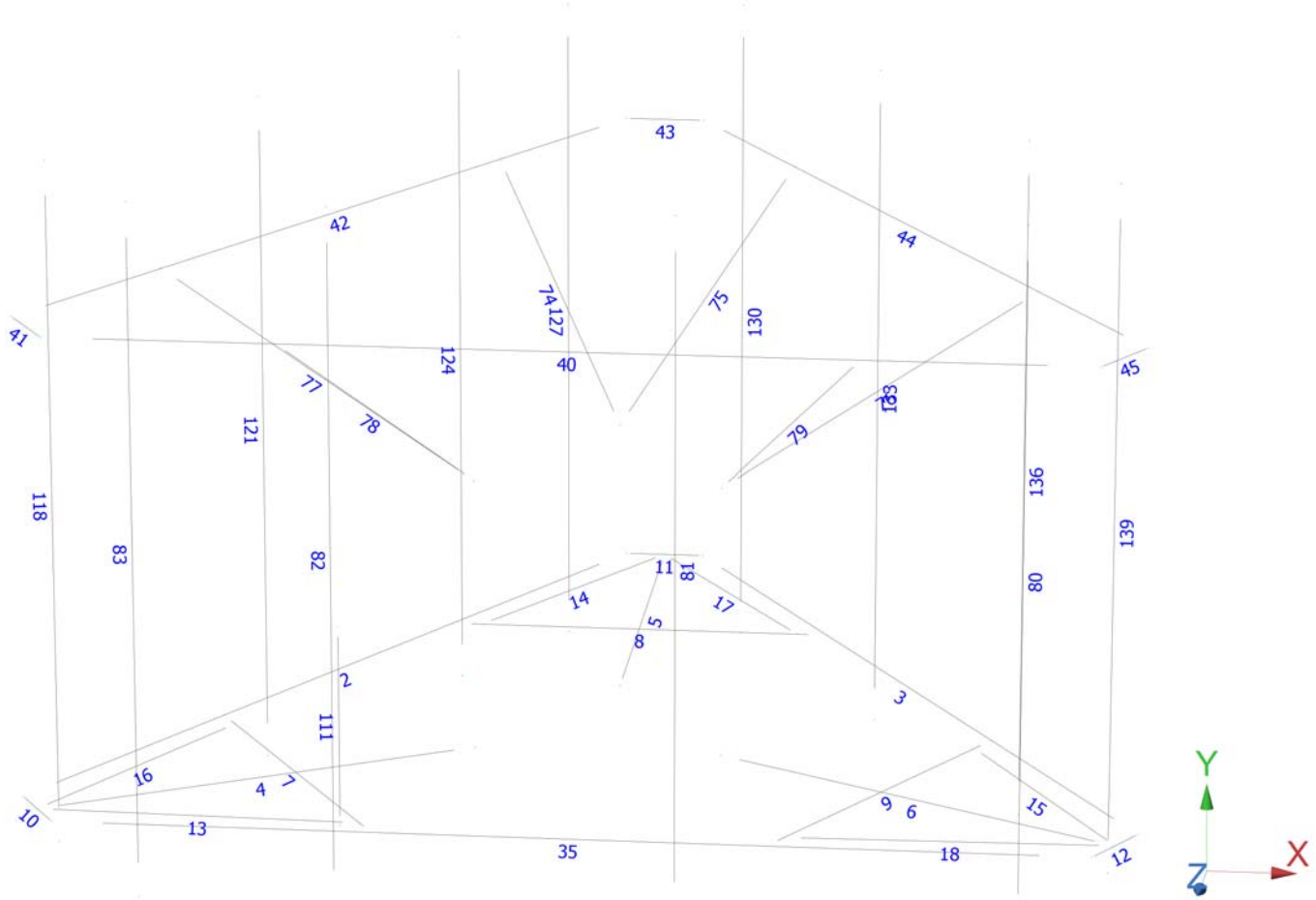
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111
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18
12
Y
X
Z

RAM® Elements
CONNECT Edition

Current Date: 5/22/2023 5:17 PM
Units system: English

Load data

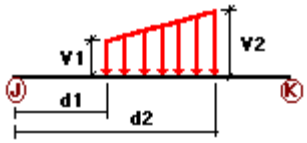
GLOSSARY

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 on Antenna 1	No	LL
LLa2	500 lb Live Load on Antenna 2	No	LL
LLa3	500 lb Live Load on Antenna 3	No	LL
LLa4	500 lb Live Load on Antenna 4	No	LL

Distributed force on members



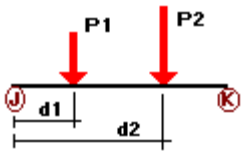
Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
DL	4	y	-0.01	-0.01	0.00	No	3.90	No
	5	y	-0.01	-0.01	0.00	No	3.90	No
	6	y	-0.01	-0.01	0.00	No	3.90	No
	7	y	-0.01	0.00	0.00	No	0.00	No
	8	y	-0.01	0.00	0.00	No	0.00	No
	9	y	-0.01	0.00	0.00	No	0.00	No
	13	y	-0.01	0.00	0.00	No	0.00	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	-0.011	0.00	0.00	No	0.00	No
	3	z	-0.011	0.00	0.00	No	0.00	No
	4	z	-0.013	0.00	0.00	No	0.00	No

	5	z	-0.013	0.00	0.00	No	0.00	No
	6	z	-0.013	0.00	0.00	No	0.00	No
	7	z	-0.013	0.00	0.00	No	0.00	No
	8	z	-0.013	0.00	0.00	No	0.00	No
	9	z	-0.013	0.00	0.00	No	0.00	No
	10	z	-0.031	0.00	0.00	No	0.00	No
	11	z	-0.031	0.00	0.00	No	0.00	No
	12	z	-0.031	0.00	0.00	No	0.00	No
	13	z	-0.01	0.00	0.00	No	0.00	No
	14	z	-0.01	0.00	0.00	No	0.00	No
	15	z	-0.01	0.00	0.00	No	0.00	No
	16	z	-0.01	0.00	0.00	No	0.00	No
	17	z	-0.01	0.00	0.00	No	0.00	No
	18	z	-0.01	0.00	0.00	No	0.00	No
	35	z	-0.011	0.00	0.00	No	0.00	No
	40	z	-0.009	0.00	0.00	No	0.00	No
	41	z	-0.013	0.00	0.00	No	0.00	No
	42	z	-0.009	0.00	0.00	No	0.00	No
	43	z	-0.013	0.00	0.00	No	0.00	No
	44	z	-0.009	0.00	0.00	No	0.00	No
	45	z	-0.013	0.00	0.00	No	0.00	No
	74	z	-0.009	0.00	0.00	No	0.00	No
	75	z	-0.009	0.00	0.00	No	0.00	No
	76	z	-0.009	0.00	0.00	No	0.00	No
	77	z	-0.009	0.00	0.00	No	0.00	No
	78	z	-0.009	0.00	0.00	No	0.00	No
	79	z	-0.009	0.00	0.00	No	0.00	No
	82	z	-0.009	0.00	0.00	No	0.00	No
	111	z	-0.007	0.00	0.00	No	0.00	No
	118	z	-0.009	0.00	0.00	No	0.00	No
	121	z	-0.009	0.00	0.00	No	0.00	No
	124	z	-0.009	0.00	0.00	No	0.00	No
	127	z	-0.009	0.00	0.00	No	0.00	No
	130	z	-0.009	0.00	0.00	No	0.00	No
	133	z	-0.009	0.00	0.00	No	0.00	No
	136	z	-0.009	0.00	0.00	No	0.00	No
	139	z	-0.009	0.00	0.00	No	0.00	No
W30	2	x	-0.011	0.00	0.00	No	0.00	No
	3	x	-0.011	0.00	0.00	No	0.00	No
	4	x	-0.013	0.00	0.00	No	0.00	No
	5	x	-0.013	0.00	0.00	No	0.00	No
	6	x	-0.013	0.00	0.00	No	0.00	No
	7	x	-0.013	0.00	0.00	No	0.00	No
	8	x	-0.013	0.00	0.00	No	0.00	No
	9	x	-0.013	0.00	0.00	No	0.00	No
	10	x	-0.031	0.00	0.00	No	0.00	No
	11	x	-0.031	0.00	0.00	No	0.00	No
	12	x	-0.031	0.00	0.00	No	0.00	No
	13	x	-0.01	0.00	0.00	No	0.00	No
	14	x	-0.01	0.00	0.00	No	0.00	No
	15	x	-0.01	0.00	0.00	No	0.00	No
	16	x	-0.01	0.00	0.00	No	0.00	No
	17	x	-0.01	0.00	0.00	No	0.00	No
	18	x	-0.01	0.00	0.00	No	0.00	No
	41	x	-0.013	0.00	0.00	No	0.00	No
	42	x	-0.009	0.00	0.00	No	0.00	No
	43	x	-0.013	0.00	0.00	No	0.00	No
	44	x	-0.009	0.00	0.00	No	0.00	No
	45	x	-0.013	0.00	0.00	No	0.00	No
	74	x	-0.009	0.00	0.00	No	0.00	No

	75	x	-0.009	0.00	0.00	No	0.00	No
	76	x	-0.009	0.00	0.00	No	0.00	No
	77	x	-0.009	0.00	0.00	No	0.00	No
	78	x	-0.009	0.00	0.00	No	0.00	No
	79	x	-0.009	0.00	0.00	No	0.00	No
	80	x	-0.009	0.00	0.00	No	0.00	No
	81	x	-0.009	0.00	0.00	No	0.00	No
	82	x	-0.009	0.00	0.00	No	0.00	No
	83	x	-0.009	0.00	0.00	No	0.00	No
	111	x	-0.007	0.00	0.00	No	0.00	No
	118	x	-0.009	0.00	0.00	No	0.00	No
	121	x	-0.009	0.00	0.00	No	0.00	No
	124	x	-0.009	0.00	0.00	No	0.00	No
	127	x	-0.009	0.00	0.00	No	0.00	No
	130	x	-0.009	0.00	0.00	No	0.00	No
	133	x	-0.009	0.00	0.00	No	0.00	No
	136	x	-0.009	0.00	0.00	No	0.00	No
	139	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	-0.006	0.00	0.00	No	0.00	No
	41	y	-0.006	0.00	0.00	No	0.00	No
	42	y	-0.006	0.00	0.00	No	0.00	No
	43	y	-0.006	0.00	0.00	No	0.00	No
	44	y	-0.006	0.00	0.00	No	0.00	No
	45	y	-0.006	0.00	0.00	No	0.00	No
	74	y	-0.006	0.00	0.00	No	0.00	No
	75	y	-0.006	0.00	0.00	No	0.00	No
	76	y	-0.006	0.00	0.00	No	0.00	No
	77	y	-0.006	0.00	0.00	No	0.00	No
	78	y	-0.006	0.00	0.00	No	0.00	No
	79	y	-0.006	0.00	0.00	No	0.00	No
	80	y	-0.006	0.00	0.00	No	0.00	No
	81	y	-0.006	0.00	0.00	No	0.00	No
	82	y	-0.006	0.00	0.00	No	0.00	No
	83	y	-0.006	0.00	0.00	No	0.00	No
	111	y	-0.005	0.00	0.00	No	0.00	No
	118	y	-0.006	0.00	0.00	No	0.00	No
	121	y	-0.006	0.00	0.00	No	0.00	No
	124	y	-0.006	0.00	0.00	No	0.00	No
	127	y	-0.006	0.00	0.00	No	0.00	No
	130	y	-0.006	0.00	0.00	No	0.00	No
	133	y	-0.006	0.00	0.00	No	0.00	No
	136	y	-0.006	0.00	0.00	No	0.00	No

	139	y	-0.006	0.00	0.00	No	0.00	No

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	80	y	-0.06	1.50	No
		y	-0.06	8.50	No
		y	-0.021	5.00	No
		y	-0.021	7.00	No
	81	y	-0.04	1.50	No
		y	-0.04	8.50	No
		y	-0.021	5.00	No
		y	-0.021	7.00	No
	83	y	-0.033	2.25	No
		y	-0.033	4.00	No
		y	-0.041	6.00	No
		y	-0.041	7.75	No
	111	y	-0.029	0.50	No
	118	y	-0.06	1.50	No
		y	-0.06	8.50	No
		y	-0.021	5.00	No
		y	-0.021	7.00	No
	121	y	-0.04	1.50	No
		y	-0.04	8.50	No
		y	-0.021	5.00	No
		y	-0.021	7.00	No
	127	y	-0.033	2.25	No
		y	-0.033	4.00	No
		y	-0.041	6.00	No
		y	-0.041	7.75	No
	130	y	-0.06	1.50	No
		y	-0.06	8.50	No
		y	-0.021	5.00	No
		y	-0.021	7.00	No
	133	y	-0.04	1.50	No
		y	-0.04	8.50	No
		y	-0.021	5.00	No
		y	-0.021	7.00	No
	139	y	-0.033	2.25	No
		y	-0.033	4.00	No
		y	-0.041	6.00	No
		y	-0.041	7.75	No
W0	80	z	-0.281	1.50	No
		z	-0.281	8.50	No
	81	z	-0.281	1.50	No
		z	-0.281	8.50	No
	83	z	-0.066	2.25	No
		z	-0.066	4.00	No
		z	-0.064	6.00	No

		z	-0.064	7.75	No
	111	z	-0.049	0.50	No
	118	z	-0.166	1.50	No
		z	-0.166	8.50	No
		z	-0.023	5.00	No
		z	-0.023	7.00	No
	121	z	-0.166	1.50	No
		z	-0.166	8.50	No
		z	-0.023	5.00	No
		z	-0.023	7.00	No
	127	z	-0.04	2.25	No
		z	-0.04	4.00	No
		z	-0.05	6.00	No
		z	-0.049	7.75	No
	130	z	-0.166	1.50	No
		z	-0.166	8.50	No
		z	-0.023	5.00	No
		z	-0.023	7.00	No
	133	z	-0.166	1.50	No
		z	-0.166	8.50	No
		z	-0.023	5.00	No
		z	-0.023	7.00	No
	139	z	-0.04	2.25	No
		z	-0.04	4.00	No
		z	-0.05	6.00	No
		z	-0.049	7.75	No
W30	80	x	-0.128	1.50	No
		x	-0.128	8.50	No
		x	-0.027	5.00	No
		x	-0.027	7.00	No
	81	x	-0.128	1.50	No
		x	-0.128	8.50	No
		x	-0.027	5.00	No
		x	-0.027	7.00	No
	83	x	-0.032	2.25	No
		x	-0.032	4.00	No
		x	-0.044	6.00	No
		x	-0.044	7.75	No
	111	x	-0.049	0.50	No
	118	x	-0.243	1.50	No
		x	-0.243	8.50	No
		x	-0.015	5.00	No
		x	-0.015	7.00	No
	121	x	-0.243	1.50	No
		x	-0.243	8.50	No
		x	-0.015	5.00	No
		x	-0.015	7.00	No
	127	x	-0.059	2.25	No
		x	-0.059	4.00	No
		x	-0.06	6.00	No
		x	-0.06	7.75	No
	130	x	-0.243	1.50	No
		x	-0.243	8.50	No
		x	-0.015	5.00	No
		x	-0.015	7.00	No
	133	x	-0.243	1.50	No
		x	-0.243	8.50	No
		x	-0.015	5.00	No
		x	-0.015	7.00	No
	139	x	-0.059	2.25	No

		x	-0.059	4.00	No
		x	-0.06	6.00	No
		x	-0.06	7.75	No
Di	80	y	-0.129	1.50	No
		y	-0.129	8.50	No
		y	-0.014	5.00	No
		y	-0.014	7.00	No
	81	y	-0.129	1.50	No
		y	-0.129	8.50	No
		y	-0.014	5.00	No
		y	-0.014	7.00	No
	83	y	-0.034	2.25	No
		y	-0.034	4.00	No
		y	-0.036	6.00	No
		y	-0.036	7.75	No
	111	y	-0.04	0.50	No
	118	y	-0.129	1.50	No
		y	-0.129	8.50	No
		y	-0.014	5.00	No
		y	-0.014	7.00	No
	121	y	-0.129	1.50	No
		y	-0.129	8.50	No
		y	-0.014	5.00	No
		y	-0.014	7.00	No
	127	y	-0.034	2.25	No
		y	-0.034	4.00	No
		y	-0.036	6.00	No
		y	-0.036	7.75	No
	130	y	-0.129	1.50	No
		y	-0.129	8.50	No
		y	-0.014	5.00	No
		y	-0.014	7.00	No
	133	y	-0.129	1.50	No
		y	-0.129	8.50	No
		y	-0.014	5.00	No
		y	-0.014	7.00	No
	139	y	-0.034	2.25	No
		y	-0.034	4.00	No
		y	-0.036	6.00	No
		y	-0.036	7.75	No
Wi0	80	z	-0.056	1.50	No
		z	-0.056	8.50	No
	81	z	-0.056	1.50	No
		z	-0.056	8.50	No
	83	z	-0.014	2.25	No
		z	-0.014	4.00	No
		z	-0.014	6.00	No
		z	-0.014	7.75	No
	111	z	-0.011	0.50	No
	118	z	-0.035	1.50	No
		z	-0.035	8.50	No
		z	-0.006	5.00	No
		z	-0.006	7.00	No
	121	z	-0.035	1.50	No
		z	-0.035	8.50	No
		z	-0.006	5.00	No
		z	-0.006	7.00	No
	127	z	-0.01	2.25	No
		z	-0.01	4.00	No
		z	-0.011	6.00	No

		z	-0.011	7.75	No
	130	z	-0.035	1.50	No
		z	-0.035	8.50	No
		z	-0.006	5.00	No
		z	-0.006	7.00	No
	133	z	-0.035	1.50	No
		z	-0.035	8.50	No
		z	-0.006	5.00	No
		z	-0.006	7.00	No
	139	z	-0.01	2.25	No
		z	-0.01	4.00	No
		z	-0.011	6.00	No
		z	-0.011	7.75	No
Wi30	80	x	-0.028	1.50	No
		x	-0.028	8.50	No
		x	-0.007	5.00	No
		x	-0.007	7.00	No
	81	x	-0.028	1.50	No
		x	-0.028	8.50	No
		x	-0.007	5.00	No
		x	-0.007	7.00	No
	83	x	-0.008	2.25	No
		x	-0.008	4.00	No
		x	-0.01	6.00	No
		x	-0.01	7.75	No
	111	x	-0.011	0.50	No
	118	x	-0.048	1.50	No
		x	-0.048	8.50	No
		x	-0.005	5.00	No
		x	-0.005	7.00	No
	121	x	-0.048	1.50	No
		x	-0.048	8.50	No
		x	-0.005	5.00	No
		x	-0.005	7.00	No
	127	x	-0.013	2.25	No
		x	-0.013	4.00	No
		x	-0.013	6.00	No
		x	-0.013	7.75	No
	130	x	-0.048	1.50	No
		x	-0.048	8.50	No
		x	-0.005	5.00	No
		x	-0.005	7.00	No
	133	x	-0.048	1.50	No
		x	-0.048	8.50	No
		x	-0.005	5.00	No
		x	-0.005	7.00	No
	139	x	-0.013	2.25	No
		x	-0.013	4.00	No
		x	-0.013	6.00	No
		x	-0.013	7.75	No
WL0	80	z	-0.018	1.50	No
		z	-0.018	8.50	No
	81	z	-0.018	1.50	No
		z	-0.018	8.50	No
	83	z	-0.005	2.25	No
		z	-0.005	4.00	No
		z	-0.004	6.00	No
		z	-0.004	7.75	No
	111	z	-0.003	0.50	No
	118	z	-0.011	1.50	No

		z	-0.011	8.50	No
		z	-0.001	5.00	No
		z	-0.001	7.00	No
	121	z	-0.011	1.50	No
		z	-0.011	8.50	No
		z	-0.001	5.00	No
		z	-0.001	7.00	No
	127	z	-0.003	2.25	No
		z	-0.003	4.00	No
		z	-0.004	6.00	No
		z	-0.004	7.75	No
	130	z	-0.011	1.50	No
		z	-0.011	8.50	No
		z	-0.001	5.00	No
		z	-0.001	7.00	No
	133	z	-0.011	1.50	No
		z	-0.011	8.50	No
		z	-0.001	5.00	No
		z	-0.001	7.00	No
	139	z	-0.003	2.25	No
		z	-0.003	4.00	No
		z	-0.004	6.00	No
		z	-0.004	7.75	No
WL30	80	x	-0.008	1.50	No
		x	-0.008	8.50	No
		x	-0.002	5.00	No
		x	-0.002	7.00	No
	81	x	-0.008	1.50	No
		x	-0.008	8.50	No
		x	-0.002	5.00	No
		x	-0.002	7.00	No
	83	x	-0.002	2.25	No
		x	-0.002	4.00	No
		x	-0.003	6.00	No
		x	-0.003	7.75	No
	111	x	-0.003	0.50	No
	118	x	-0.016	1.50	No
		x	-0.016	8.50	No
		x	-0.001	5.00	No
		x	-0.001	7.00	No
	121	x	-0.016	1.50	No
		x	-0.016	8.50	No
		x	-0.001	5.00	No
		x	-0.001	7.00	No
	127	x	-0.004	2.25	No
		x	-0.004	4.00	No
		x	-0.004	6.00	No
		x	-0.004	7.75	No
	130	x	-0.016	1.50	No
		x	-0.016	8.50	No
		x	-0.001	5.00	No
		x	-0.001	7.00	No
	133	x	-0.016	1.50	No
		x	-0.016	8.50	No
		x	-0.001	5.00	No
		x	-0.001	7.00	No
	139	x	-0.004	2.25	No
		x	-0.004	4.00	No
		x	-0.004	6.00	No
		x	-0.004	7.75	No

LL1	40	y	-0.25	50.00	Yes
LL2	40	y	-0.25	0.00	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 on Antenna 1	No	0.00	0.00	0.00
LLa2	500 lb Live Load on Antenna 2	No	0.00	0.00	0.00
LLa3	500 lb Live Load on Antenna 3	No	0.00	0.00	0.00
LLa4	500 lb Live Load on 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

Current Date: 5/22/2023 5:18 PM
Units system: English

Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

LC1=1.2DL+1.6W0
LC2=1.2DL+1.6W30
LC3=1.2DL-1.6W0
LC4=1.2DL-1.6W30
LC6=0.9DL+1.6W30
LC7=0.9DL-1.6W0
LC8=0.9DL-1.6W30
LC9=1.2DL+Di+Wi0
LC10=1.2DL+Di+Wi30
LC11=1.2DL+Di-Wi0
LC12=1.2DL+Di-Wi30
LC13=1.2DL
LC14=0.9DL
LC15=1.2DL+1.6LL1
LC16=1.2DL+1.6LL2
LC17=1.2DL+WL0+LLa1
LC18=1.2DL+WL30+LLa1
LC19=1.2DL-WL0+LLa1
LC20=1.2DL-WL30+LLa1
LC21=1.2DL+WL0+LLa2
LC22=1.2DL+WL30+LLa2
LC23=1.2DL-WL0+LLa2
LC24=1.2DL-WL30+LLa2
LC25=1.2DL+WL0+LLa3
LC26=1.2DL+WL30+LLa3
LC27=1.2DL-WL0+LLa3
LC28=1.2DL-WL30+LLa3
LC29=1.2DL+WL0+LLa4
LC30=1.2DL+WL30+LLa4
LC31=1.2DL-WL0+LLa4
LC32=1.2DL-WL30+LLa4

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	HSS_SQR 4X4X1_4	**4**	LC3 at 100.00%	0.14	OK	
		5	LC2 at 100.00%	**0.19**	**OK**	
		6	LC3 at 100.00%	0.15	OK	
		7	LC2 at 50.00%	0.17	OK	
		8	LC1 at 50.00%	0.15	OK	
		9	LC4 at 48.44%	0.16	OK	
	L 2-1_2X2-1_2X3_16	**41**	LC4 at 100.00%	0.59	OK	
		43	LC3 at 100.00%	0.58	OK	
		45	LC2 at 100.00%	**0.60**	**OK**	
	L 2X2X1_4	**13**	LC3 at 100.00%	0.17	OK	
		14	LC1 at 100.00%	0.19	OK	
		15	LC4 at 100.00%	0.20	OK	
		16	LC8 at 100.00%	**0.20**	**OK**	
		17	LC1 at 0.00%	0.17	OK	
		18	LC1 at 100.00%	0.19	OK	

PIPE 2-1_2x0.203	**40**	LC1 at 22.32%	0.37	OK
	42	LC4 at 22.32%	**0.45**	**OK**
	44	LC3 at 22.32%	0.40	OK
	74	LC2 at 0.00%	0.26	OK
	75	LC4 at 0.00%	0.30	OK
	76	LC1 at 0.00%	0.23	OK
	77	LC2 at 0.00%	0.23	OK
	78	LC4 at 0.00%	0.15	OK
	79	LC3 at 0.00%	0.19	OK
	80	LC4 at 89.58%	0.13	OK
	81	LC4 at 89.58%	0.13	OK
	82	LC2 at 89.58%	0.10	OK
	83	LC2 at 89.58%	0.13	OK
	118	LC2 at 89.58%	0.18	OK
	121	LC2 at 83.33%	0.12	OK
	124	LC1 at 89.58%	0.13	OK
	127	LC1 at 89.58%	0.16	OK
	130	LC1 at 89.58%	0.17	OK
	133	LC1 at 89.58%	0.16	OK
	136	LC4 at 89.58%	0.11	OK
	139	LC4 at 89.58%	0.19	OK
PIPE 2x0.154	**111**	LC3 at 65.63%	**0.07**	**OK**
PIPE 3x0.216	**2**	LC2 at 39.29%	**0.19**	**OK**
	3	LC1 at 39.29%	0.12	OK
	35	LC3 at 39.29%	0.15	OK
PL 6x3/8	**10**	LC2 at 50.00%	0.20	OK
	11	LC1 at 50.00%	**0.21**	**OK**
	12	LC4 at 50.00%	0.18	OK

RAM® Elements
CONNECT Edition

Current Date: 5/22/2023 5:18 PM
Units system: English

Geometry data

GLOSSARY

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

Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
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	6.25	5.00	5.074	0
183	6.25	-5.00	5.074	0
184	1.50	5.00	5.074	0
185	1.50	-5.00	5.074	0
186	-3.25	5.00	5.074	0
187	-3.25	-5.00	5.074	0
188	-6.00	5.00	5.074	0
189	-6.00	-5.00	5.074	0
246	-3.6366	-2.00	1.7926	0
247	-3.6366	-5.00	1.7926	0
264	-7.5192	5.00	2.8757	0
265	1.2692	5.00	-7.9497	0
266	-7.5192	-5.00	2.8757	0
267	1.2692	-5.00	-7.9497	0
276	-5.1442	5.00	-1.238	0
277	3.6442	5.00	-3.836	0
278	-5.1442	-5.00	-1.238	0
279	3.6442	-5.00	-3.836	0
288	-2.7692	5.00	-5.3516	0
289	6.0192	5.00	0.2776	0
290	-2.7692	-5.00	-5.3516	0
291	6.0192	-5.00	0.2776	0
300	-1.3942	5.00	-7.7332	0
301	7.3942	5.00	2.6592	0
302	-1.3942	-5.00	-7.7332	0
303	7.3942	-5.00	2.6592	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
111	246	247		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
118	264	266		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
121	276	278		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
124	288	290		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
127	300	302		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
130	265	267		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
133	277	279		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
136	289	291		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
139	301	303		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00

Orientation of local axes

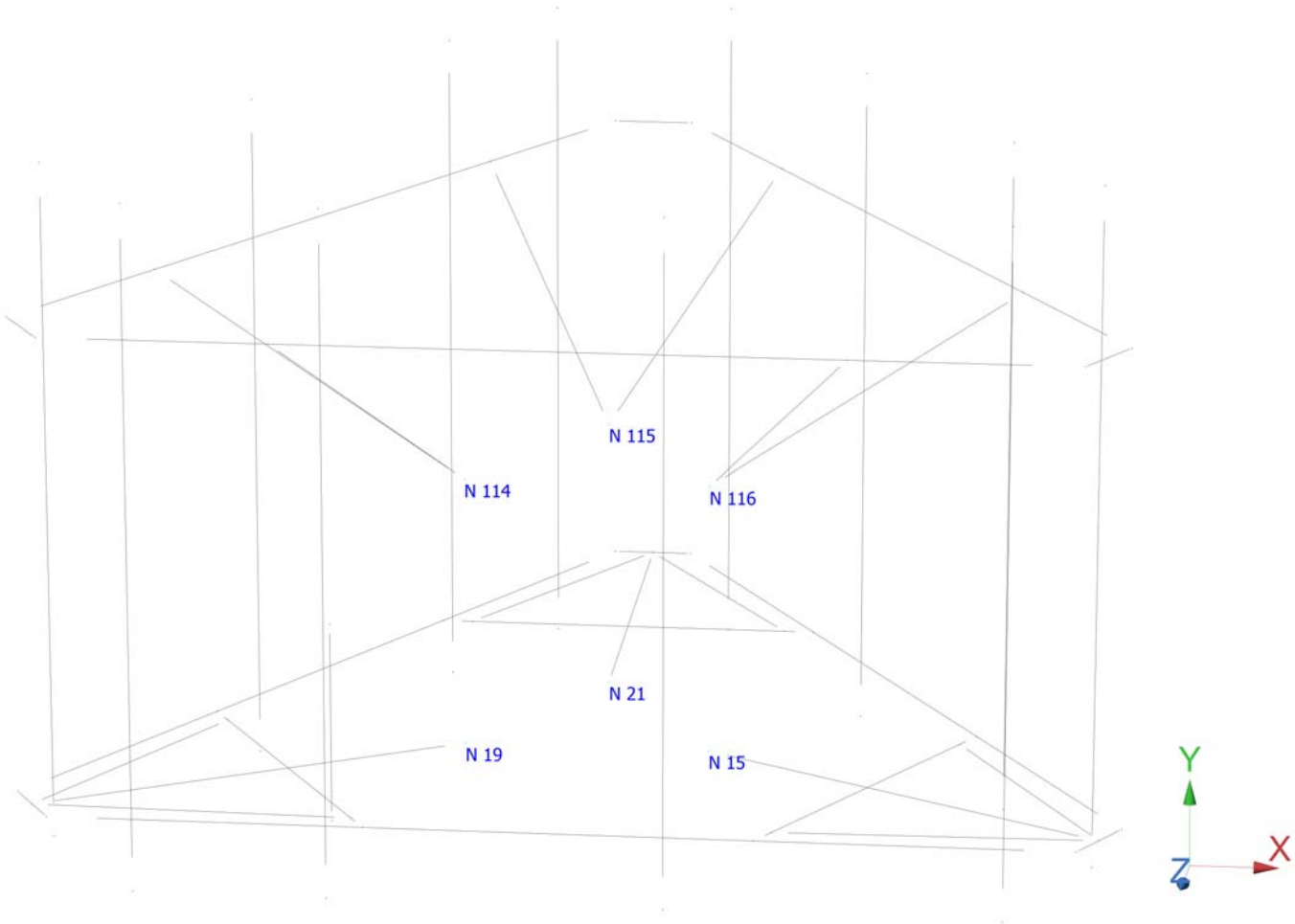
Member	Rotation [Deg]	Axes23	NX	NY	NZ
41	180.00	0	0.00	0.00	0.00
43	180.00	0	0.00	0.00	0.00
45	90.00	0	0.00	0.00	0.00

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

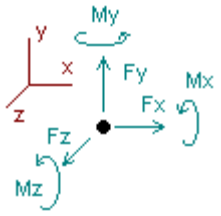
RAM® Elements
CONNECT Edition

Current Date: 5/22/2023 5:19 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+1.6W0
LC2=1.2DL+1.6W30
LC3=1.2DL-1.6W0
LC4=1.2DL-1.6W30
LC6=0.9DL+1.6W30
LC7=0.9DL-1.6W0
LC8=0.9DL-1.6W30
LC9=1.2DL+Di+Wi0
LC10=1.2DL+Di+Wi30
LC11=1.2DL+Di-Wi0
LC12=1.2DL+Di-Wi30
LC13=1.2DL
LC14=0.9DL
LC15=1.2DL+1.6LL1
LC16=1.2DL+1.6LL2
LC17=1.2DL+WL0+LLa1
LC18=1.2DL+WL30+LLa1
LC19=1.2DL-WL0+LLa1
LC20=1.2DL-WL30+LLa1
LC21=1.2DL+WL0+LLa2
LC22=1.2DL+WL30+LLa2
LC23=1.2DL-WL0+LLa2
LC24=1.2DL-WL30+LLa2
LC25=1.2DL+WL0+LLa3
LC26=1.2DL+WL30+LLa3
LC27=1.2DL-WL0+LLa3
LC28=1.2DL-WL30+LLa3
LC29=1.2DL+WL0+LLa4
LC30=1.2DL+WL30+LLa4
LC31=1.2DL-WL0+LLa4
LC32=1.2DL-WL30+LLa4

		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	1.786	LC2	0.872	LC4	1.466	LC1	0.30959	LC1	1.38807	LC3	1.18786	LC4
	Min	-1.624	LC8	-0.078	LC6	-1.372	LC7	-1.00837	LC3	-1.38965	LC1	-0.21857	LC6
19	Max	1.975	LC6	0.886	LC10	1.257	LC1	0.38639	LC1	1.06194	LC1	0.16851	LC8
	Min	-2.138	LC4	0.019	LC8	-1.166	LC7	-1.03113	LC3	-1.05898	LC7	-1.25857	LC2

21	Max	1.278	LC6	0.857	LC1	2.156	LC1	1.18742	LC9	2.24220	LC4	0.79808	LC4
	Min	-1.278	LC8	-0.061	LC7	-2.370	LC3	-0.02549	LC7	-2.23967	LC6	-0.75548	LC6
114	Max	1.723	LC6	1.354	LC4	0.967	LC1	0.49811	LC1	0.49543	LC1	0.51590	LC8
	Min	-1.802	LC4	-1.159	LC6	-0.923	LC7	-0.58825	LC3	-0.49219	LC7	-0.68831	LC2
115	Max	0.828	LC2	1.392	LC3	1.835	LC1	0.69282	LC1	1.04452	LC4	0.86041	LC4
	Min	-0.827	LC8	-1.172	LC1	-1.933	LC3	-0.50440	LC7	-1.03845	LC6	-0.84378	LC6
116	Max	1.641	LC2	1.276	LC2	1.169	LC1	0.64398	LC1	0.65415	LC3	0.56754	LC4
	Min	-1.563	LC8	-1.082	LC8	-1.125	LC7	-0.76827	LC3	-0.64531	LC1	-0.41385	LC6

Connection Check

Date: 5/23/2023
Project Name: MARTORELLI CLANDP STR 783
Project No.: CT2117
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 =** 1257 lbs. (See Bentley Output)

SHEAR FORCES

Reactions in X direction: 2138 lbs. (See Bentley Output)
Reactions in Y direction: 886 lbs. (See Bentley Output)

Resultant: 2314 lbs.

No. of Supports = 1
No. of Bolts / Support = 3

Tension Design Load /Bolts =

f_t = 419.00 lbs. < 6673 lbs. **Therefore, OK !**

Shear Design Load / Bolts=

f_v = 771.44 lbs. < 4004 lbs. **Therefore, OK !**

CHECK COMBINED TENSION AND SHEAR

f_t / F_T	+	f_v / F_V	≤	1.0			
0.063	+	0.193	=	0.255	<	1.0	**Therefore, OK !**

Print Card

CITY OF MERIDEN
GIS Services

PROPERTY INFORMATION

Location: **200 EDGEMARK ACRES** Map/Lot: 0627-0225-004L-0043

OWNER INFORMATION

Owner(s):
MARTORELLI REALTY CO

Owner Address:
234 MIDDLE ST
MIDDLETOWN, CT 06457

BUILDING INFORMATION

Building Area Summary

No Sub Area data found

Outbuildings & Special Features

BuildingID	Description	Quantity	Area	Length	Width	YearBuilt	Quality
0	CELL TOWER	1	1			2021	Average

Grand List Year: 2022

Land Appraised	Building Appraised	Outbuilding Appraised	Total Appraised Value	Land Assessed	Building Assessed	Outbuilding Assessed	Special Land Value	Total Assessed Value
$64,500	$0	$200,000	$264,500	$45,150	$0	$140,000	$0	$185,150

Previous Year: 2021

Land Appraised	Building Appraised	Outbuilding Appraised	Appraised Value	Land Assesed	Building Assessed	Outbuilding Assessed	Assessed Value
$86,000	$0	$200,000	$286,000	$60,200	$0	$140,000	**$200,200**

LAND INFORMATION

Land Use	Zoning	Land Area	Code	Neighborhood Description
Vacant Res	R-R	0.83000	W6	W OF OREGON RD E OF FINICH AV

*Confirm zoning with Planning Office.
Zoning map is the official document to determine zone.

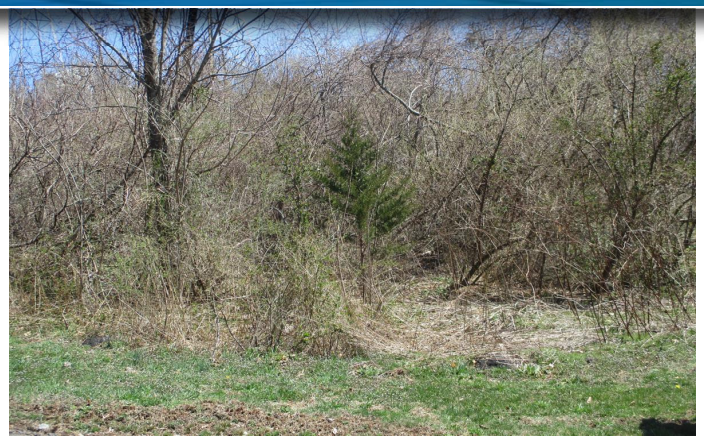
SALES INFORMATION

Sale Date	Sale Price	Book	Page	Grantor	Grantee	Deed Type
1/2/1991	$0	1756	113		MARTORELLI REALTY CO	

ASSESSOR'S PERMIT HISTORY

This feature has been removed from the Assessor Property Card. To search building permits, Go to Building Permit Search
The new building permit search app is part of our new GIS Portal.

PROPERTY IMAGES



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11058
0627-0225-004L-0043
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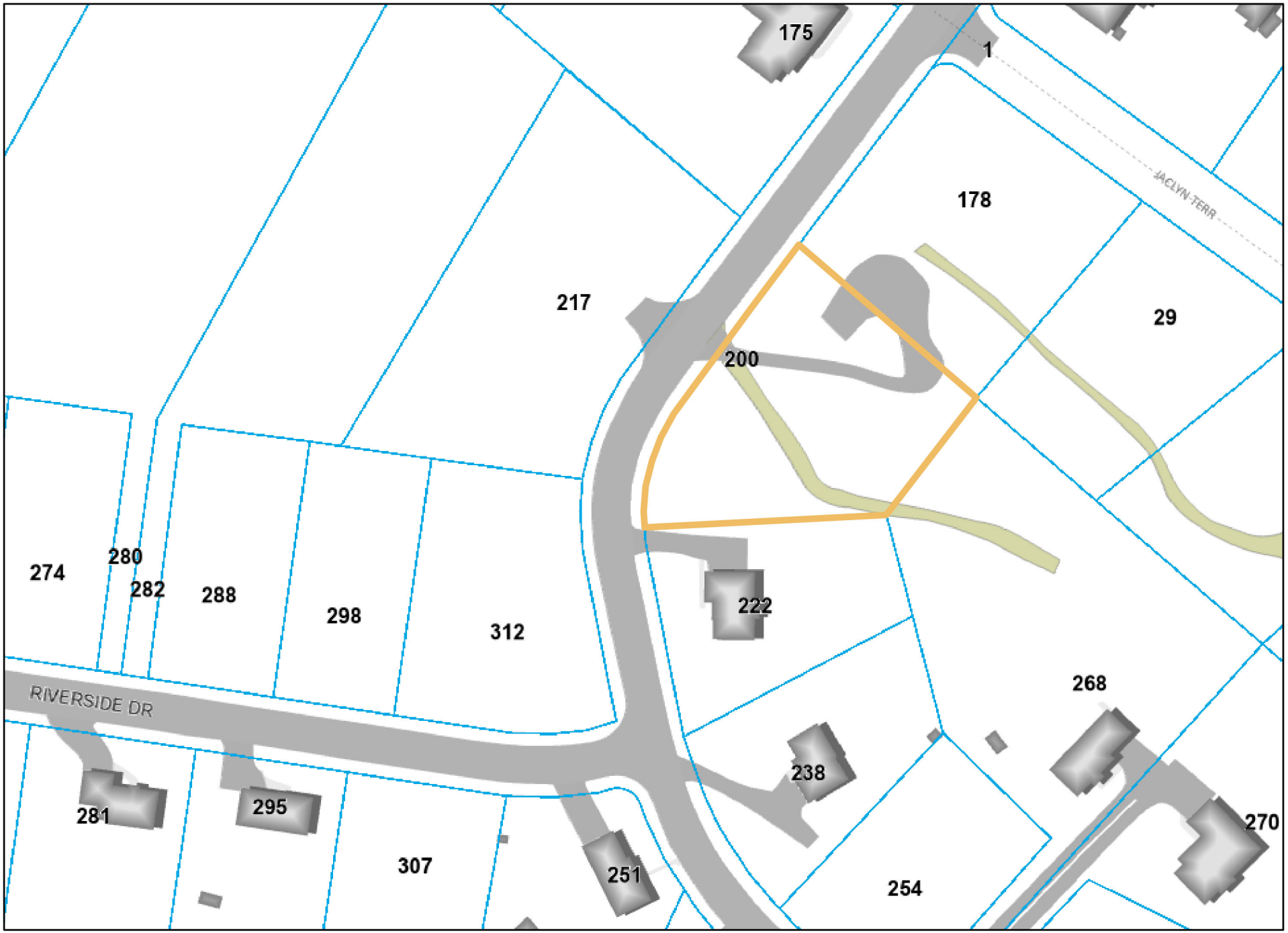

CITY OF MERIDEN
GIS Services, MIS Department
142 East Main St, Meriden, CT
203-630-4148

Date: 6/28/2023

CITY OF MERIDEN, CT GIS

200 EDGEMARK ACRES

Absolute Scale: 1:1,200

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
www.ct.gov/csc

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

January 12, 2015

Daniel M. Laub, Esq.
Cuddy & Feder LLP
445 Hamilton Avenue, 14th Floor
White Plains, NY 10601

RE: **PETITION NO. 1122 -** New Cingular Wireless PCS, LLC petition for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for the proposed installation of a wireless telecommunications facility on an existing Connecticut Light and Power Company transmission structure located at 200 Edgemark Acres, Meriden, Connecticut. Decision.

Dear Attorney Laub:

At a public meeting held on January 8, 2015, 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:

- That AT&T install erosion control measures at the outlet(s) of the retaining wall drainage system;
- Within 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;
- Any nonfunctioning antenna and associated antenna mounting equipment on this facility owned and operated by the Petitioner shall be removed within 60 days of the date the antenna ceased to function;
- 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;
- This Declaratory Ruling may be transferred, provided the facility owner/operator/transferor is current with payments to the Council for annual assessments and invoices under Conn. Gen. Stat. §16-50v and the transferee provides written confirmation that the transferee agrees to comply with the terms, limitations and conditions contained in the Declaratory Ruling, including timely payments to the Council for annual assessments and invoices under Conn. Gen. Stat. §16-50v; and
- If the facility owner/operator is a wholly owned subsidiary of a corporation or other entity and is sold/transferred to another corporation or other entity, 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.

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 November 25, 2014. Enclosed for your information is a copy of the staff report on this project.

Very truly yours,

Robert Stein MAB

Robert Stein
Chairman

RS/CDM/lm

Enclosure: Staff Report dated January 8, 2015

c: The Honorable Manny Santos, Mayor, City of Meriden
Lawrence Kendzior, City Manager, City of Meriden
Dominick Caruso, City Planner, City of Meriden
Thomas Skoglund, Asst. Planner, Meriden
Michael Green, NUSCO, Sr. Real Estate Analyst

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

August 18, 2023

Deborah Denfeld
Team Lead – Transmission Siting
Eversource Energy
P.O. Box 270
Hartford, CT 06141
deborah.denfeld@eversource.com

RE: **PETITION NO. 1574** - 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 Southington Substation to Cook Hill Junction Rebuild Project consisting of the replacement and reconductoring of electric transmission line structures along approximately 11.2 miles of its existing electric transmission line right-of-way shared by its existing 115-kilovolt (kV) 1690, 1208, 1355 and 1610 Lines between Southington Substation in Southington and Cook Hill Junction in Wallingford including the installation of approximately 650 feet of the 1690 Line underground at Lucchini Junction in Meriden, traversing the municipalities of Southington, Cheshire, Wallingford, and Meriden, Connecticut, and related electric transmission line and substation improvements.

Dear Deborah Denfeld:

At a public meeting held on August 17, 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. Identification of staging areas and provisions for erosion and sedimentation (E&S) controls, if necessary, at the staging area locations prior to the commencement of construction;

3. Submit a copy of the DEEP Stormwater Permit prior to commencement of construction;

4. Submit a copy of any SHPO-recommended cultural resource protection measures, if applicable, prior to commencement of construction;

5. Submit a copy of FAA obstruction evaluations for Structures 3663-1, 3666-1, 4066-1, and 4069-1 and any required marking/lighting plans;

6. Incorporate pollinator habitat in the restoration of disturbed areas consistent with CGS §16-50hh, where feasible;

7. Submit a wetland and vernal pool protection plan prior to commencement of construction;

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 Towns of Southington, Cheshire, Wallingford, and the City of Meriden.

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 May 17, 2023, and additional information dated July 13, 2023.

Enclosed for your information is a copy of the staff report on this project.

Sincerely,

Melanie A. Bachman
Executive Director

MAB/MP/dll

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HON KEVIN SCARPATI, MAYOR MS. MONICA
CITY OF MERIDEN
142 E MAIN ST
MERIDEN CT 06450-5605

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SALEM NH 03079-2837

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MARTORELLI REALTY CO
234 MIDDLE ST
MIDDLETOWN CT 06457-7517

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C015

CHRIS GELINAS
EVERSOURCE
107 SELDEN ST
BERLIN CT 06037-1616

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C006

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

USPS TRACKING #

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Subject: USPS® Expected Delivery by Wednesday, October 11, 2023 arriving by 9:00pm 940550369930061328038 6

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To: Hollis Redding
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