November 12, 2021

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 CT1104
45 Maple Ridge Drive, Farmington, CT 06032 (the "Property")
Latitude: 41-43-04.7 N Longitude: 72-46-09.5 W

Dear Ms. Bachman:

AT&T currently maintains (6) antennas at the 88' level on the existing 102' laminated wood utility structure pole # 8012 ("Tower") at 45 Maple Ridge Drive, in Farmington, CT. The Tower and property are owned by Connecticut Light & Power ("Eversource"). Eversource received CT Siting Council ("Council") approval on September 20, 2021 under Sub-Petition 1293-FA-02 to replace the existing Tower with a 95' weathering steel transmission structure ("Structure'). AT&T intends to modify its facility by removing all its equipment on the existing Tower by replacing the (6) existing antennas with (3) DMP65R-BU6DA antennas, & (3) TPA65R-BU6DA-K antennas and adding (6) TMABPD7823VG12A & (6) TMA2124F03V5-1D TMAs on the new Structure. The height of AT&T's proposed antennas is 92' on the new Structure.

This modification includes B2, B5, and B12 hardware that is both 4G (LTE) and 5GNR capable through remote software configuration and either or both services may be turned on or off at various times.

AT&T's original facility received Council approval in Petition 644 on October 29, 2003. The new Eversource Structure approval contained no conditions that could feasibly be violated by AT&T proposed modifications, including facility height or mounting restrictions. AT&T's modification complies with the Council's approval of the new Structure.

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 Ms. Kathleen A. Blonski, Town Manager, Town of Farmington, Ms. Shannon Rutherford. P.E., Town Planner, Town of Farmington, and Eversource as structure and property owner.

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

1. The proposed modifications will not result in an increase in the height of the new 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 new 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
SAI Communications, LLC
12 Industrial Way
Salem, NH 03079
Mobile: 860-834-6964
hredding@saigrp.com

Enclosures

Cc:
Ms. Kathleen A. Blonski, Town Manager, Town of Farmington
Ms. Shannon Rutherford P.E., Town Planner, Town of Farmington
Eversource as structure & property owner

Power Density

Existing Loading on Tower

Carrier	# of Channels	ERP/Ch (W)	Antenna Centerline Height (ft)	Power Density (mW/cm^2)	Freq. Band (MHz**)	Limit S (mW /cm^2)	%MPE
Other Carriers*							2.75%
AT&T	2	1791	88	0.1916	2300	1.0000	1.92%
AT&T	2	1104	88	0.1181	734	0.4893	2.41%
AT&T	2	2203	88	0.2356	1900	1.0000	2.36%
AT&T	2	492	88	0.0526	880	0.5867	0.90%
AT&T	2	419	88	0.0448	880	0.5867	0.76%
AT&T	2	817	88	0.0874	1900	1.0000	0.87%
Site Total							11.97%

*Per CSC Records (available upon request, includes calculation formulas)

** If a range of frequencies are used, such as 880-894, enter the lowest value, i.e. 880

Proposed Loading on new Structure

Carrier	# of Channels	ERP/Ch (W)	Antenna Centerline Height (ft)	Power Density (mW/cm^2)	Freq. Band (MHz**)	Limit S (mW /cm^2)	%MPE
Other Carriers*							2.75%
AT&T	1	1476	92	0.0789	700	0.4667	1.54%
AT&T	1	1000	92	0.0535	850	0.5667	0.86%
AT&T	1	5070	92	0.2712	2300	1.0000	2.47%
AT&T	1	1000	92	0.0535	850	0.5667	0.86%
AT&T	1	2951	92	0.1578	700	0.4667	3.07%
AT&T	1	1000	92	0.0535	850	0.5667	0.86%
AT&T	1	1285	92	0.0687	2100	1.0000	0.62%
AT&T	3	4842	92	0.7769	1900	1.0000	7.06%
Site Total							20.09%

*Per CSC Records (available upon request, includes calculation formulas)

** If a range of frequencies are used, such as 880-894, enter the lowest value, i.e. 880

CTL01104 - LTE 6C, 4TX4RX, 5G NR, BWE
EVERSOURCE STRUCT. NO. 8012
FARMINGTON NU MAPLE RIDGE DRIVE
45 MAPLE RIDGE DRIVE
FARMINGTON, CT 06032

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2015 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2018 CONNECTICUT SUPPLEMENT, INCLUDING THE TIA/EIA-222 REVISION "G" "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES." 2017 CONNECTICUT FIRE SAFETY CODE, NATIONAL ELECTRICAL CODE AND LOCAL CODES.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.
7. 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.
8. 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.
9. 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.
10. ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
11. 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.
12. 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.
13. 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.
14. 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.
15. 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.
16. 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.
17. 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.
18. 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.
19. 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.

SITE DIRECTIONS

FROM: 500 ENTERPRISE DRIVE
ROCKY HILL, CONNECTICUT

TO: 45 MAPLE RIDGE DRIVE
FARMINGTON, CT 06032

1.	TAKE RAMP LEFT FOR I-91	1.7 MI.
2.	AT EXIT 22N, TAKE RAMP RIGHT FOR CT-9 NORTH TOWARD NEW BRITAIN	10.0 MI.
3.	AT EXIT 30, TAKE RAMP RIGHT FOR CT-71 TOWARD CORBINS CORNER	0.3 MI.
4.	TURN RIGHT ONTO CT-71/ HARTFORD	0.9 MI.
5.	TURN LEFT ONTO SOUTH RD.	0.6 MI.
6.	TURN LEFT ONTO MAPLE RIDGE RD.	0.2 MI.
7.	ARRIVE AT 45 MAPLE RIDGE DR, FARMINGTON, CT 06032	

SITE COORDINATES: LATITUDE: 41°-43'-04.7" N
LONGITUDE: 72°-46'-09.5" W
GROUND ELEVATION: ±235' AMSL

COORDINATES AND GROUND ELEVATION ARE REFERENCED FROM GOOGLE EARTH

VICINITY MAP

NORTH

PROJECT SUMMARY

1. THE PROPOSED SCOPE OF WORK CONSISTS OF A MODIFICATION TO THE EXISTING UNMANNED TELECOMMUNICATIONS FACILITY INCLUDING THE FOLLOWING:
   - A. EXISTING TRANSMISSION TOWER TO BE REMOVED AND REPLACED. (BY OTHERS)
   - B. REMOVE ALL EXISTING AT&T EQUIPMENT FROM EXISTING TRANSMISSION TOWER.
   - C. REMOVE (9) RRUs WITHIN THE EXISTING AT&T EQUIPMENT SHELTER. INSTALL (9) RRUs WITHIN THE EXISTING AT&T EQUIPMENT SHELTER.
   - D. INSTALL (12) PENTAPLEXER WITHIN THE EXISTING AT&T EQUIPMENT SHELTER.
   - E. INSTALL (6) POLYPHASER WITHIN THE EXISTING AT&T EQUIPMENT SHELTER.
   - F. INSTALL (6) S-BIAS T WITHIN THE EXISTING AT&T EQUIPMENT SHELTER.
   - G. INSTALL NEW ANTENNA MOUNT ON NEW TRANSMISSION TOWER AT 92' RAD CENTER.
   - H. INSTALL (24) 1-5/8" COAX CABLES
   - I. INSTALL (6) NEW ANTENNAS AND (12) TMA ON NEW TRANSMISSION TOWER AT 92' RAD CENTER
   - J. INSTALL NEW CABLE ICE-BRIDGE FOR THE NEW TRANSMISSION TOWER LOCATION.

PROJECT INFORMATION

AT&T SITE NUMBER:	CTL01104
AT&T SITE NAME:	FARMINGTON NU MAPLE RIDGE DR.
SITE ADDRESS:	EVERSOURCE STRUCT. NO. 8012 45 MAPLE RIDGE DRIVE FARMINGTON, CT 06032
AT&T PACE JOB	PACE JOB 1 - MRCTB046571 PACE JOB 2 - MRCTB047034 PACE JOB 3 - MRCTB047029 PACE JOB 4 - MRCTB047537
LESSEE/APPLICANT:	AT&T MOBILITY 84 DEERFIELD LANE, MERIDEN, CT 06450
CONTACT PERSON:	TIM BURKS SAI COMMUNICATIONS (860) 989-0001
ENGINEER:	CENTEK ENGINEERING, INC. 63-2 NORTH BRANFORD RD. BRANFORD, CT. 06405
PROJECT COORDINATES:	LATITUDE: 41°-43'-04.7"N LONGITUDE: 72°-46'-09.5"W GROUND ELEVATION: ±235' AMSL

SHEET INDEX

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	11/09/21	ASC	TJR	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER SEAL

CENTEK engineering
Centered on Solutions℠
(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

AT&T MOBILITY

CTL01104 - LTE6C, 4TX4RX, 5G NR, BWE
EVERSOURCE STRUCT. NO. 8012
FARMINGTON NU MAPLE RIDGE DRIVE
45 MAPLE RIDGE DRIVE FARMINGTON, CT 06032

DATE: 10/20/21
SCALE: AS NOTED
JOB NO. 21122.00

TITLE SHEET

T-1

Sheet No. 1 of 12

NOTES AND SPECIFICATIONS

DESIGN BASIS:

GOVERNING CODE: 2015 INTERNATIONAL BUILDING (IBC) AS MODIFIED BY THE 2018 CONNECTICUT STATE BUILDING CODE.

1. DESIGN CRITERIA:

- RISK CATEGORY II (BASED ON IBC TABLE 1604.5)
- NOMINAL/ULTIMATE DESIGN SPEED: 97 MPH (Vasd) (EXPOSURE C/ IMPORTANCE FACTOR 1.0 BASED ON ASCE 7-10).

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.

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19. THE COUNTY/CITY/TOWN WILL MAKE PERIODIC FIELD OBSERVATION AND INSPECTIONS TO MONITOR THE INSTALLATION, MATERIALS, WORKMANSHIP AND EQUIPMENT INCORPORATED INTO THE PROJECT TO ENSURE COMPLIANCE WITH THE DESIGN PLANS, SPECIFICATIONS, CONTRACT DOCUMENTS AND APPROVED SHOP DRAWINGS.
20. 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.

STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL IS DESIGNED BY ALLOWABLE STRESS DESIGN (ASD)

   A. STRUCTURAL STEEL (W SHAPES)---ASTM A992 (FY = 50 KSI)
   B. STRUCTURAL STEEL (OTHER SHAPES)----ASTM A36 (FY = 36 KSI)
   C. STRUCTURAL HSS (RECTANGULAR SHAPES)---ASTM A500 GRADE B, (FY = 46 KSI)
   D. STRUCTURAL HSS (ROUND SHAPES)---ASTM A500 GRADE B, (FY = 42 KSI)
   E. PIPE---ASTM A53 (FY = 35 KSI)
   F. CONNECTION BOLTS---ASTM A325-N
   G. U-BOLTS---ASTM A36
   H. ANCHOR RODS---ASTM F 1554
   I. WELDING ELECTRODE---ASTM E 70XX

2. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE ENGINEER FOR REVIEW. SHOP DRAWINGS SHALL INCLUDE THE FOLLOWING: SECTION PROFILES, SIZES, CONNECTION ATTACHMENTS, REINFORCING, ANCHORAGE, SIZE AND TYPE OF FASTENERS AND ACCESSORIES. INCLUDE ERECTION DRAWINGS, ELEVATIONS AND DETAILS.
3. STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST PROVISIONS OF AISC MANUAL OF STEEL CONSTRUCTION.
4. PROVIDE ALL PLATES, CLIP ANGLES, CLOSURE PIECES, STRAP ANCHORS, MISCELLANEOUS PIECES AND HOLES REQUIRED TO COMPLETE THE STRUCTURE.
5. FIT AND SHOP ASSEMBLE FABRICATIONS IN THE LARGEST PRACTICAL SECTIONS FOR DELIVERY TO SITE.
6. INSTALL FABRICATIONS PLUMB AND LEVEL, ACCURATELY FITTED, AND FREE FROM DISTORTIONS OR DEFECTS.
7. AFTER ERECTION OF STRUCTURES, TOUCHUP ALL WELDS, ABRASIONS AND NON-GALVANIZED SURFACES WITH A 95% ORGANIC ZINC RICH PAINT IN ACCORDANCE WITH ASTM 780.
8. ALL STEEL MATERIAL (EXPOSED TO WEATHER) SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT DIPPED GALVANIZED) COATINGS" ON IRONS AND STEEL PRODUCTS.
9. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE".
10. THE ENGINEER SHALL BE NOTIFIED OF ANY INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON CONFORMING MATERIALS OR CONDITIONS TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE ENGINEER REVIEW.
11. CONNECTION ANGLES SHALL HAVE A MINIMUM THICKNESS OF 1/4 INCHES.
12. STRUCTURAL CONNECTION BOLTS SHALL CONFORM TO ASTM A325. ALL BOLTS SHALL BE 3/4" DIAMETER MINIMUM AND SHALL HAVE A MINIMUM OF TWO BOLTS, UNLESS OTHERWISE ON THE DRAWINGS.
13. LOCK WASHER ARE NOT PERMITTED FOR A325 STEEL ASSEMBLIES.
14. SHOP CONNECTIONS SHALL BE WELDED OR HIGH STRENGTH BOLTED.
15. MILL BEARING ENDS OF COLUMNS, STIFFENERS, AND OTHER BEARING SURFACES TO TRANSFER LOAD OVER ENTIRE CROSS SECTION.
16. FABRICATE BEAMS WITH MILL CAMBER UP.
17. LEVEL AND PLUMB INDIVIDUAL MEMBERS OF THE STRUCTURE TO AN ACCURACY OF 1:500, BUT NOT TO EXCEED 1/4" IN THE FULL HEIGHT OF THE COLUMN.
18. COMMENCEMENT OF STRUCTURAL STEEL WORK WITHOUT NOTIFYING THE ENGINEER OF ANY DISCREPANCIES WILL BE CONSIDERED ACCEPTANCE OF PRECEDING WORK.
19. INSPECTION AND TESTING OF ALL WELDING AND HIGH STRENGTH BOLTING SHALL BE PERFORMED BY AN INDEPENDENT TESTING LABORATORY.
20. FOUR COPIES OF ALL INSPECTION TEST REPORTS SHALL BE SUBMITTED TO THE ENGINEER WITHIN TEN (10) WORKING DAYS OF THE DATE OF INSPECTION.

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	11/09/21	ASC	TJR	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER SEAL

at&t

CENTEK engineering
Centered on Solutions℠
(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

AT&T MOBILITY

CTL01104 - LTE6C, 4TX4RX, 5G NR, BWE
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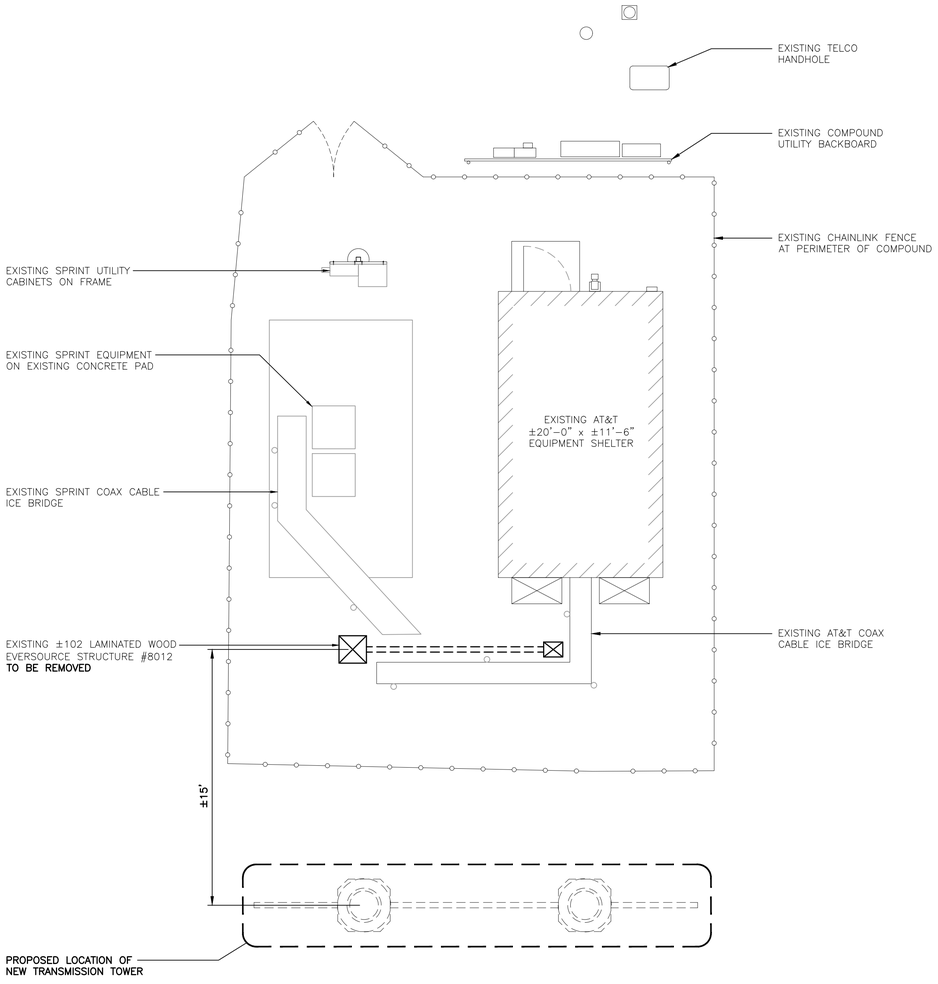
FARMINGTON NU MAPLE RIDGE DRIVE
45 MAPLE RIDGE DRIVE FARMINGTON, CT 06032

DATE: 10/20/21
SCALE: AS NOTED
JOB NO. 21122.00

GENERAL NOTES AND SPECIFICATIONS

N-1

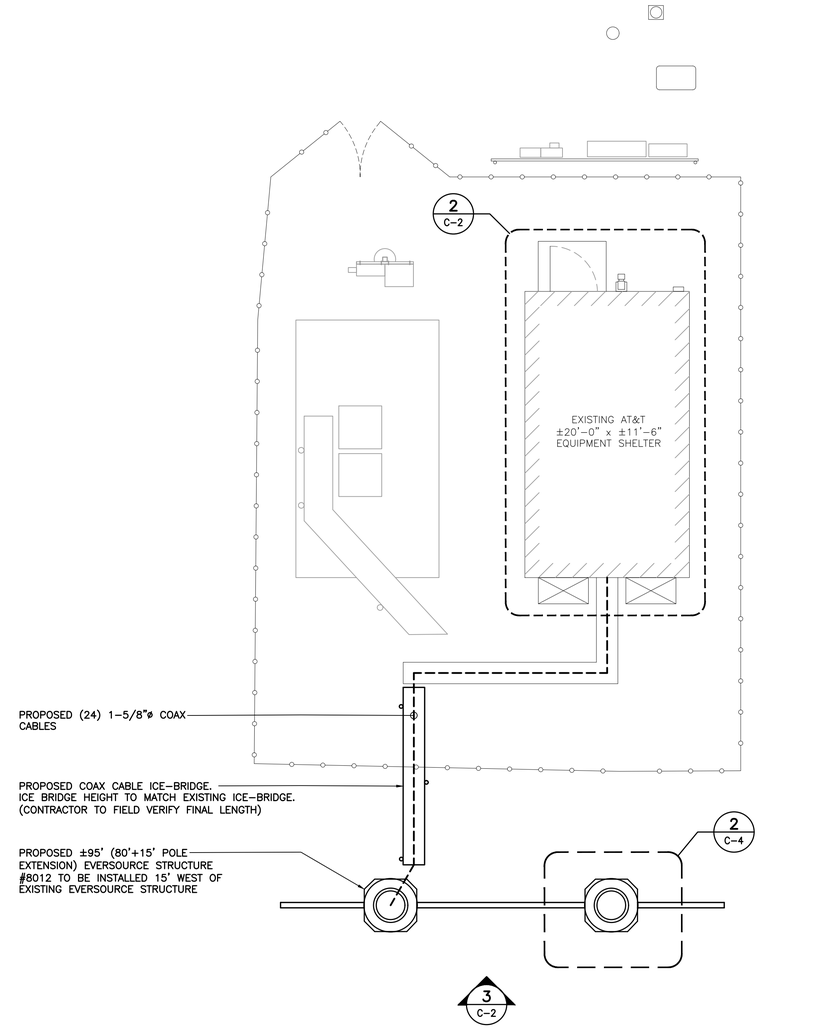
Sheet No. 2 of 12



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

APPROX. NORTH

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



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

APPROX. NORTH

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

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SCALE: AS NOTED
JOB NO. 21122.00

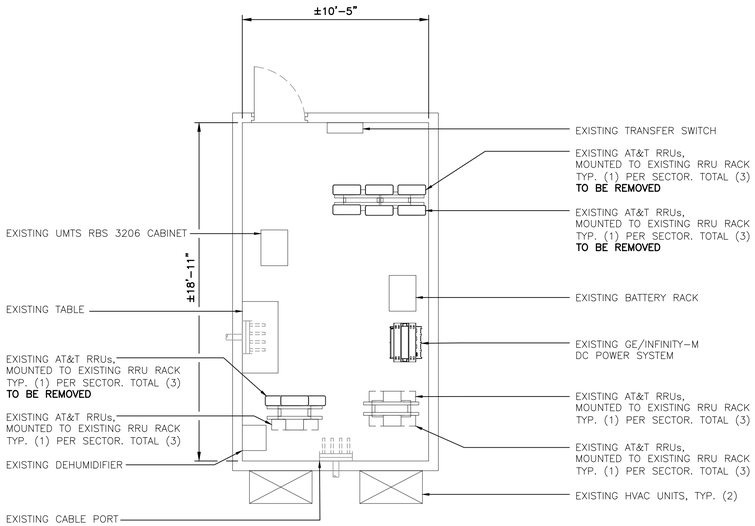
EXISTING AND PROPOSED COMPOUND PLANS

C-1

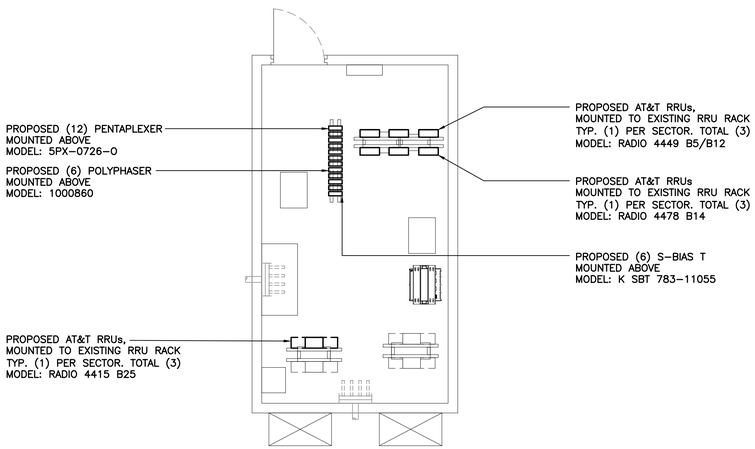
Sheet No. 3 of 12

EQUIPMENT GROUNDING NOTE:

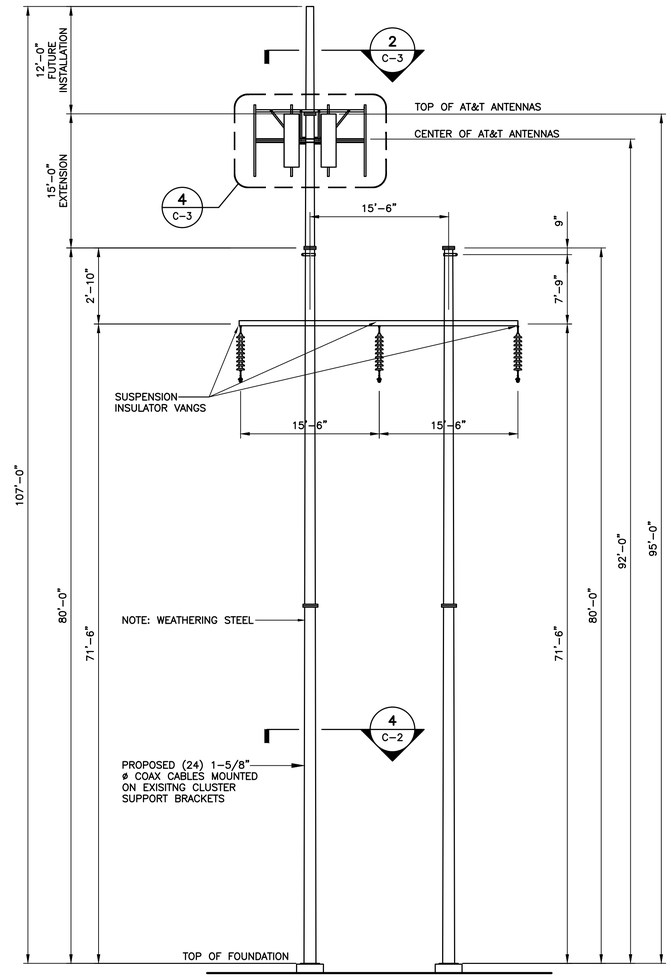
ALL (E/P) EQUIPMENT IS TO BE BONDED TO THE EXISTING GROUNDING SYSTEM. IF AN EXISTING GROUNDING SYSTEM IS NOT PRESENT OR IS NOT OPERATIONAL, THE CONTRACTOR IS TO CONTACT THE ENGINEER OF RECORD.



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



2 / C-2 **PROPOSED EQUIPMENT SHELTER PLAN**
SCALE: 1/2" = 1'- 0"
APPROX. NORTH



3 / C-2 **PROPOSED SOUTHWEST TOWER ELEVATION**
SCALE: NOT TO SCALE

STRUCTURAL COMPLIANCE

ANTENNA MOUNTS

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

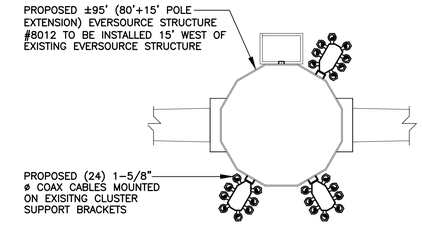
REFER TO THE ANTENNA MOUNT ANALYSIS REPORT PREPARED BY HUDSON DESIGN GROUP REV.1 DATED 09/30/21 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

TOWER AND TOWER FOUNDATION

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

REFER TO THE STRUCTURAL ANALYSIS REPORT PREPARED BY CENTEK ENGINEERING (PROJECT # 21122.00) DATED 11/09/21 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.



4 / C-2 **PROPOSED COAX CABLE ROUTING PLAN**
SCALE: NOT TO SCALE

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SCALE: AS NOTED
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EQUIPMENT PLANS, TOWER ELEVATION AND COAX PLAN

C-2

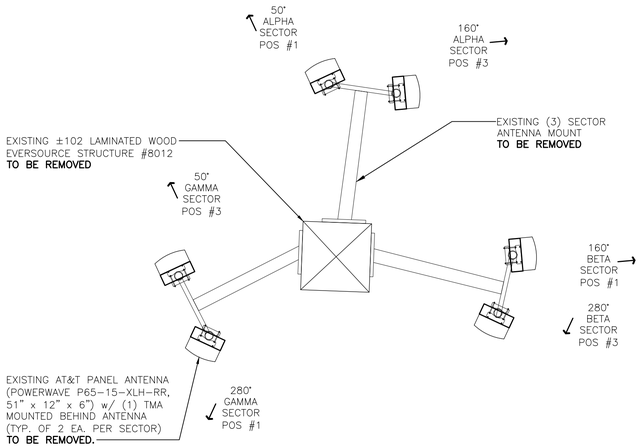
Sheet No. 4 of 12

EQUIPMENT GROUNDING NOTE:

ALL (E/P) EQUIPMENT IS TO BE BONDED TO THE EXISTING GROUNDING SYSTEM. IF AN EXISTING GROUNDING SYSTEM IS NOT PRESENT OR IS NOT OPERATIONAL, THE CONTRACTOR IS TO CONTACT THE ENGINEER OF RECORD.

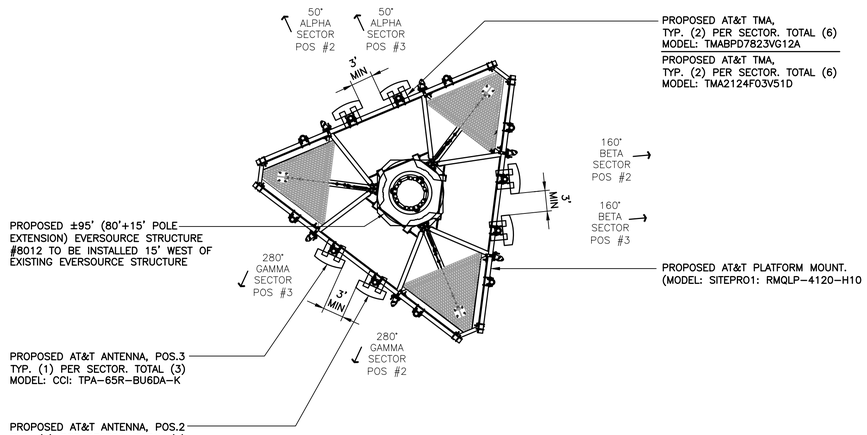
ANTENNA SCHEDULE

SECTOR	EXISTING/PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA ℄ HEIGHT	AZIMUTH	TMA/DIPLEXER/PENTAPLEXER (QTY)	(E/P) RRU (QTY) (GROUND)	FEEDER/LENGTH (QTY)	(E/P) SURGE ARRESTOR (QTY)
A1	PROPOSED	LTE 700 BC/5G850/WCS	CCI DMP65R-BU6DA	71.2 x 20.7 x 7.7	92'	50°	TMA: (P) TMABPD7823VG12A (2), DIPLEXER: (E)(G) DBC2055F1V1-2 (2),	(E) RRUS-32 B30 (1), (P) RADIO 4449 B5/B12 (2)	1-⅝"ø COAX (8)	(E) TSXDC-4310FM (4), (P) TSXDC-4310FM (4)(G)
A2	PROPOSED	LTE 700B14/PCS/AWS	CCI TPA-65R-BU6DA-K	71.2 x 20.7 x 7.7	92'	50°	TMA: (P) TMA2124F03V5-1D (2), PENTAPLEXER: (P)(G) 5PX-0726-O (4),	(P) RADIO 4478 B14 (1), (P) RADIO 4415 B25 (1), (P) RADIO 4426 B66 (1)		(E) APTDC-BDFDM-DB (10), (P) TSXDC-43FM (4)(G)
B1	PROPOSED	LTE 700 BC/5G850/WCS	CCI DMP65R-BU6DA	71.2 x 20.7 x 7.7	92'	160°	TMA: (P) TMABPD7823VG12A (2), DIPLEXER: (E)(G) DBC2055F1V1-2 (2),	(E) RRUS-32 B30 (1), (P) RADIO 4449 B5/B12 (2)	1-⅝"ø COAX (8)	(E) TSXDC-4310FM (4), (P) TSXDC-4310FM (4)(G)
B2	PROPOSED	LTE 700B14/PCS/AWS	CCI TPA-65R-BU6DA-K	71.2 x 20.7 x 7.7	92'	160°	TMA: (P) TMA2124F03V5-1D (2), PENTAPLEXER: (P)(G) 5PX-0726-O (4),	(P) RADIO 4478 B14 (1), (P) RADIO 4415 B25 (1), (P) RADIO 4426 B66 (1)		(E) APTDC-BDFDM-DB (10), (P) TSXDC-43FM (4)(G)
C1	PROPOSED	LTE 700 BC/5G850/WCS	CCI DMP65R-BU6DA	71.2 x 20.7 x 7.7	92'	280°	TMA: (P) TMABPD7823VG12A (2), DIPLEXER: (E)(G) DBC2055F1V1-2 (2),	(E) RRUS-32 B30 (1), (P) RADIO 4449 B5/B12 (2)	1-⅝"ø COAX (8)	(E) TSXDC-4310FM (4), (P) TSXDC-4310FM (4)(G)
C2	PROPOSED	LTE 700B14/PCS/AWS	CCI TPA-65R-BU6DA-K	71.2 x 20.7 x 7.7	92'	280°	TMA: (P) TMA2124F03V5-1D (2), PENTAPLEXER: (P)(G) 5PX-0726-O (4),	(P) RADIO 4478 B14 (1), (P) RADIO 4415 B25 (1), (P) RADIO 4426 B66 (1)		(E) APTDC-BDFDM-DB (10), (P) TSXDC-43FM (4)(G)



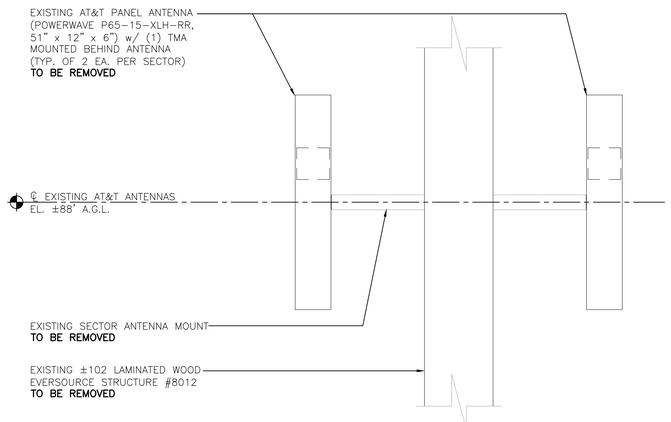
1 C-3 **EXISTING ANTENNA PLAN**
SCALE: 1/2" = 1'-0"

APPROX. NORTH

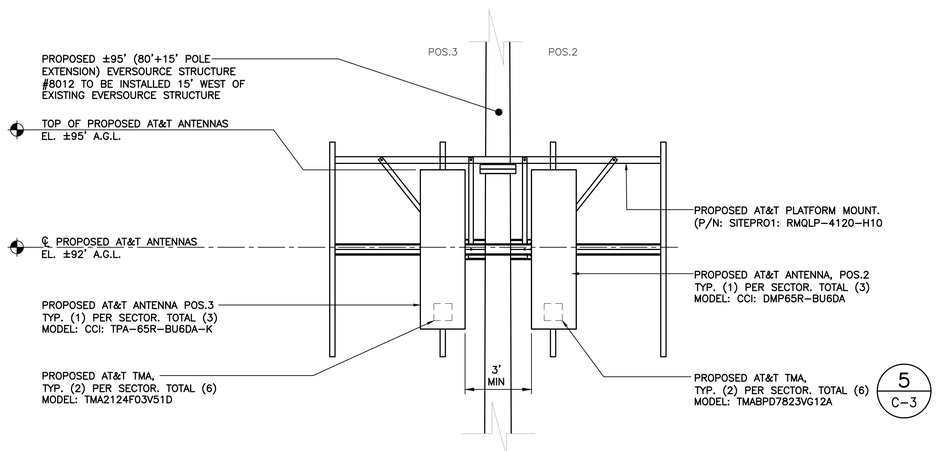


2 C-3 **PROPOSED ANTENNA PLAN**
SCALE: 1/4" = 1'-0"

APPROX. NORTH

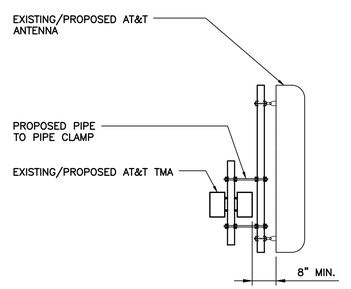


3 C-3 **EXISTING ANTENNA PLAN**
SCALE: 1/2" = 1'-0"



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

5 C-3



5 C-3 **TYPICAL TMA MOUNTING DETAIL**
SCALE: 1/2" = 1'-0"

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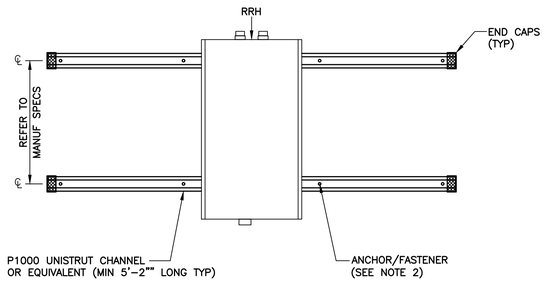
ANTENNA PLANS, ELEVATIONS, AND ANTENNA SCHEDULE

C-3

Sheet No. 5 of 12



ELEVATION

NOTES:

1. INSTALL ANCHORS/FASTENERS A MAXIMUM OF 0'-6" ON CENTERS TOTAL OF (9) FASTENERS PER UNISTRUT.
   - HILTI HTB TOGGLER BOLT 3/8" WITH SRH SCREW.
   - "SRH SCREW" DENOTES 3/8"ø x 2 ½" LONG MACHINE SCREW WITH ROUND HEAD (COMBINATION SLOTTED/PHILLIPS)
2. MOUNT RRU TO UNISTRUT WITH 3/8"ø UNISTRUT BOLTING HARDWARE AND SPRING NUTS. TYPICAL FOUR PER BRACKET.
3. NO PAINTING OF THE RRH OR SOLAR SHIELD IS ALLOWED.

1 / C-4 **TYPICAL RRUS MOUNTING DETAILS**
SCALE: NOT TO SCALE

RADIO 4415 B25

RADIO 4478 B14

RADIO 4449 B5/B12

RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERICSSON MODEL: RADIO 4415 B25	16.5"L x 13.4"W x 5.9"D	±46 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.

2 / C-4 **PROPOSED RRU DETAIL**
SCALE: NOT TO SCALE

TMABPD7823VG12A

TMA2124F03V5-1D

TMA		
EQUIPMENT	DIMENSIONS	WEIGHT
MODEL: TMABPD7823VG12A	10.6"L x 11.04"W x 3.75"D	±25 LBS.
MODEL: TMA2124F03V5-1D	9.6"L x 5"W x 8.27"D	±17.8 LBS.

NOTES:
1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.

3 / C-4 **PROPOSED TMA DETAIL**
SCALE: NOT TO SCALE

ALPHA/BETA/GAMMA ANTENNA		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: CCI MODEL: DMP65R-BU6DA	72"L x 20"W x 7.7"D	79.4 LBS.
MAKE: CCI MODEL: TPA-65R-BU6DA-K	72"L x 20"W x 7.7"D	69 LBS.

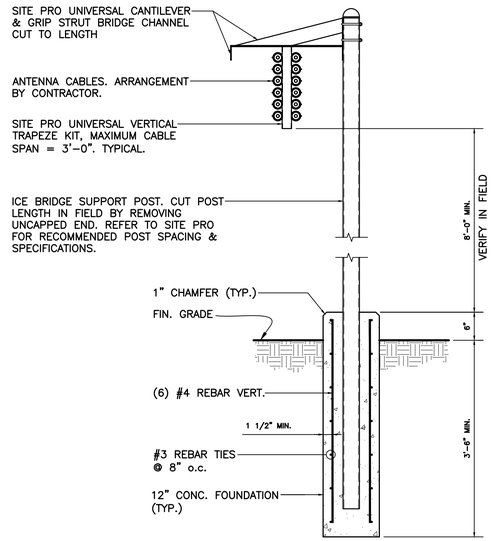
NOTES:
1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.

4 / C-4 **PROPOSED ANTENNA DETAIL**
SCALE: NOT TO SCALE

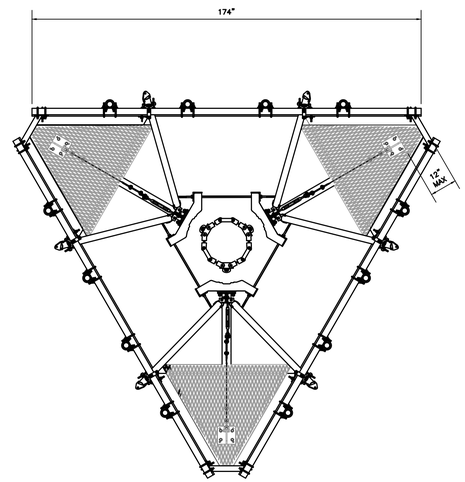
PENTAPLEXER		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: CCI MODEL: 5PX-0726-0	9.2"H x 19.02"W x 1.73"D	12-LBS

NOTES:
1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.

5 / C-4 **PROPOSED PENTAPLEXER DETAIL**
SCALE: NOT TO SCALE



6 / C-4 **TYPICAL ICE-BRIDGE DETAIL**
SCALE: NOT TO SCALE



SITEPRO1:
RMQLP-4120-H10

7 / C-4 **PLATFORM ANTENNA MOUNT DETAIL**
SCALE: NOT TO SCALE

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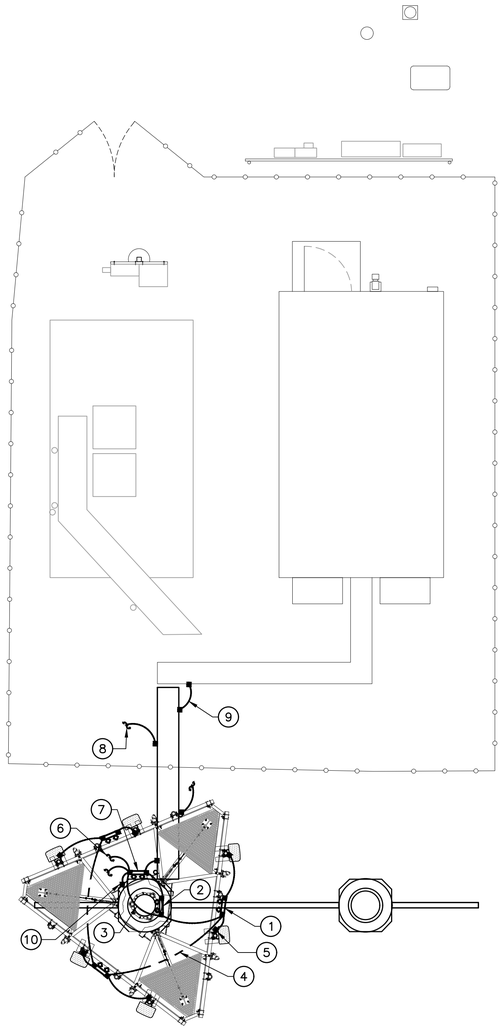
TYPICAL EQUIPMENT DETAILS

C-4

Sheet No. 6 of 12



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

GROUNDING PLAN NOTES

1. SECTOR GROUND BAR.
2. UPPER TOWER MOUNTED GROUND BAR
3. BOND UPPER TOWER MOUNTED GROUND BAR TO LOWER TOWER MOUNTED GROUND BAR (2 GROUND LEADS)
4. ALL SECTOR GROUND BARS SHALL BE BONDED TOGETHER WITH #2 AWG SOLID TINNED BCW.
5. BOND ANTENNA MOUNTING PIPES TO SECTOR GROUND BAR. (TYPICAL)
6. BOND LOWER TOWER MOUNTED GROUND BAR TO TOWER GROUND RING (BY OTHERS). TYP. OF 2.
7. LOWER TOWER MOUNTED GROUND BAR
8. ICE BRIDGE POST AND COVER. BOND EACH SECTION AND SUPPORT TO COMPOUND GROUND RING TYP.
9. BOND NEW ICE-BRIDGE SECTION TO EXISTING ICE-BRIDGE SECTION.
10. BOND LOWER TOWER MOUNTED GROUND BAR TO TOWER STEEL.

GENERAL GROUNDING NOTES

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

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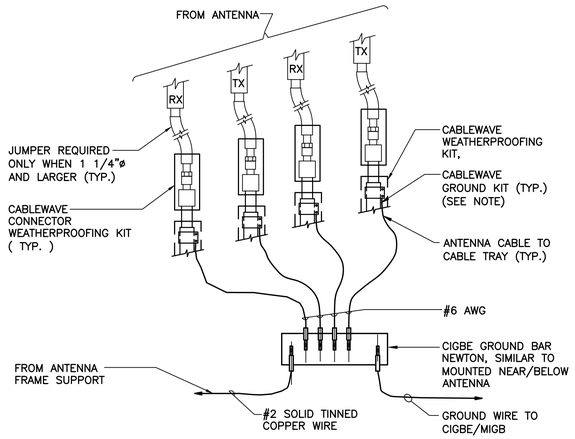
ELECTRICAL GROUNDING PLAN

E-1

Sheet No. 7 of 12

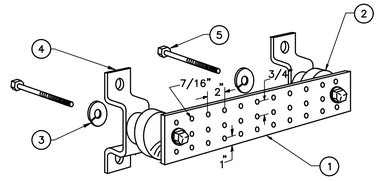


NOTES:

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

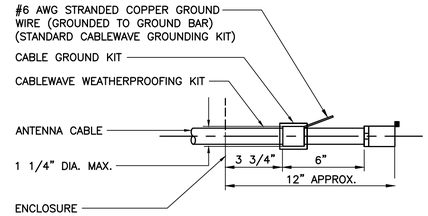


NOTES

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

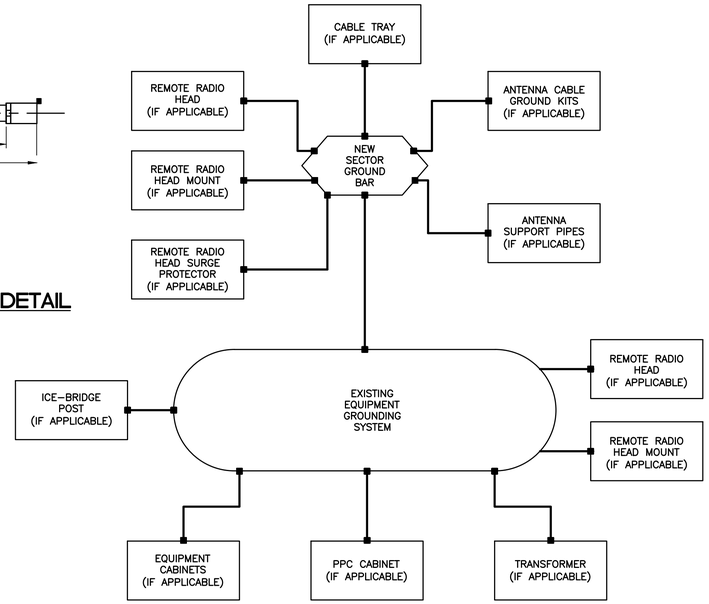


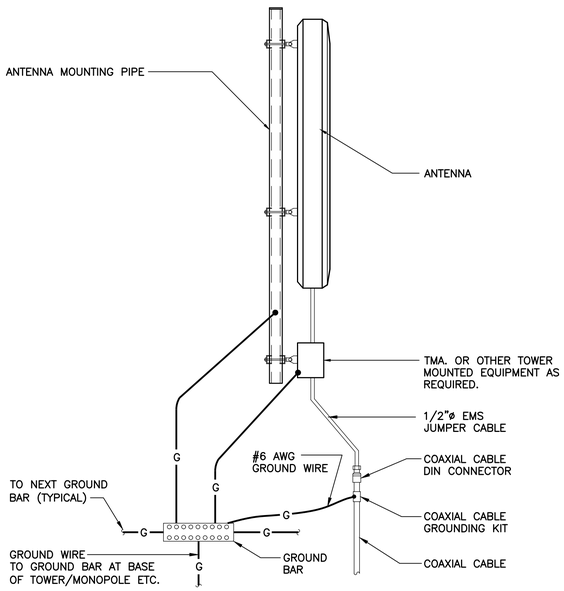
NOTES:

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

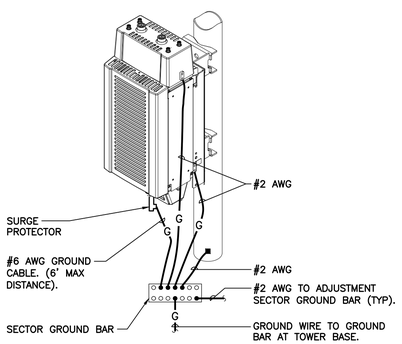




4 E-2 TYPICAL ANTENNA GROUNDING DETAIL

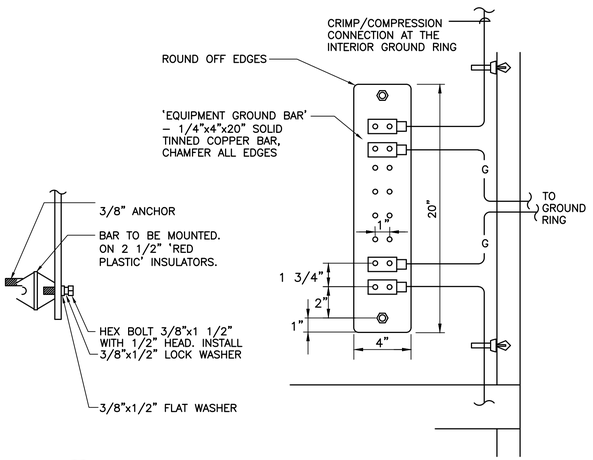
SCALE: NOT TO SCALE

EACH RRH CABINET SHALL BE GROUNDED IN THE FOLLOWING MANNER:
1. AT TOP OF THE CABINET
2. AT RIGHT SIDE OF THE CABINET.



5 E-2 RRH POLE MOUNT GROUNDING

SCALE: NOT TO SCALE



6 E-2 EQUIPMENT GROUND BAR DETAIL

SCALE: NOT TO SCALE

GROUNDING SCHEMATIC NOTES

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 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. REFER TO ALL ELECTRICAL AND GROUNDING DETAILS.
7. COORDINATE ALL TOWER MOUNTED EQUIPMENT WITH OWNER.
8. ALL TOWER MOUNTED AMPLIFIERS AND ASSOCIATED EQUIPMENT SHALL BE BONDED TO THE SECTOR GROUND BAR PER MANUFACTURER'S SPECIFICATIONS.
9. ALL GROUNDING SHALL BE IN ACCORDANCE WITH NEC AND OWNER'S REQUIREMENTS.

7 E-2 ELECTRICAL SCHEMATIC DIAGRAM

SCALE: NOT TO SCALE

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
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45 MAPLE RIDGE DRIVE FARMINGTON, CT 06032

DATE: 10/20/21
SCALE: AS NOTED
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TYPICAL ELECTRICAL DETAILS

E-2

Sheet No. 8 of 12

ELECTRICAL SPECIFICATIONS

SECTION 16010

1.02. GENERAL REQUIREMENTS

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

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

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

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

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

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

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

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

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

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

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

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

M. SHOP DRAWINGS:

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

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

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

SECTION 16111

1.01. CONDUITS

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

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

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

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

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

CONDUIT SCHEDULE SECTION 16111

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

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

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

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

SECTION 16123

1.01. CONDUCTORS

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

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

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

SECTION 16130

1.01. BOXES

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

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

SECTION 16140

1.01. WIRING DEVICES

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

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

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

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

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

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

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

SECTION 16170

1.01. DISCONNECT SWITCHES

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

SECTION 16190

1.01. SEISMIC RESTRAINT

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

SECTION 16195

1.01. LABELING AND IDENTIFICATION NOMENCLATURE FOR ELECTRICAL EQUIPMENT

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

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

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

SECTION 16450

1.01. GROUNDING

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

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

C. GROUNDING OF PANELBOARDS:

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

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

D. EQUIPMENT GROUNDING CONDUCTOR:

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

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

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

E. CELLULAR GROUNDING SYSTEM:

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

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

1. GROUND BARS

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

3. ANTENNA GROUND CONNECTIONS AND PLATES.

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

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

SECTION 16470

1.01. DISTRIBUTION EQUIPMENT

A. REFER TO CONTRACT DRAWINGS FOR DETAILS AND SCHEDULES.

SECTION 16477

1.01. FUSES

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

SECTION 16960

1.01. TESTS BY INDEPENDENT ELECTRICAL TESTING FIRM

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

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

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

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

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

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

3. GRAPHICAL DESCRIPTION OF TESTING METHOD ACTUALLY IMPLEMENTED.

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

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

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

SECTION 16961

1.01. TESTS BY CONTRACTOR

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

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

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

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
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JOB NO. 21122.00

ELECTRICAL SPECIFICATIONS

E-3

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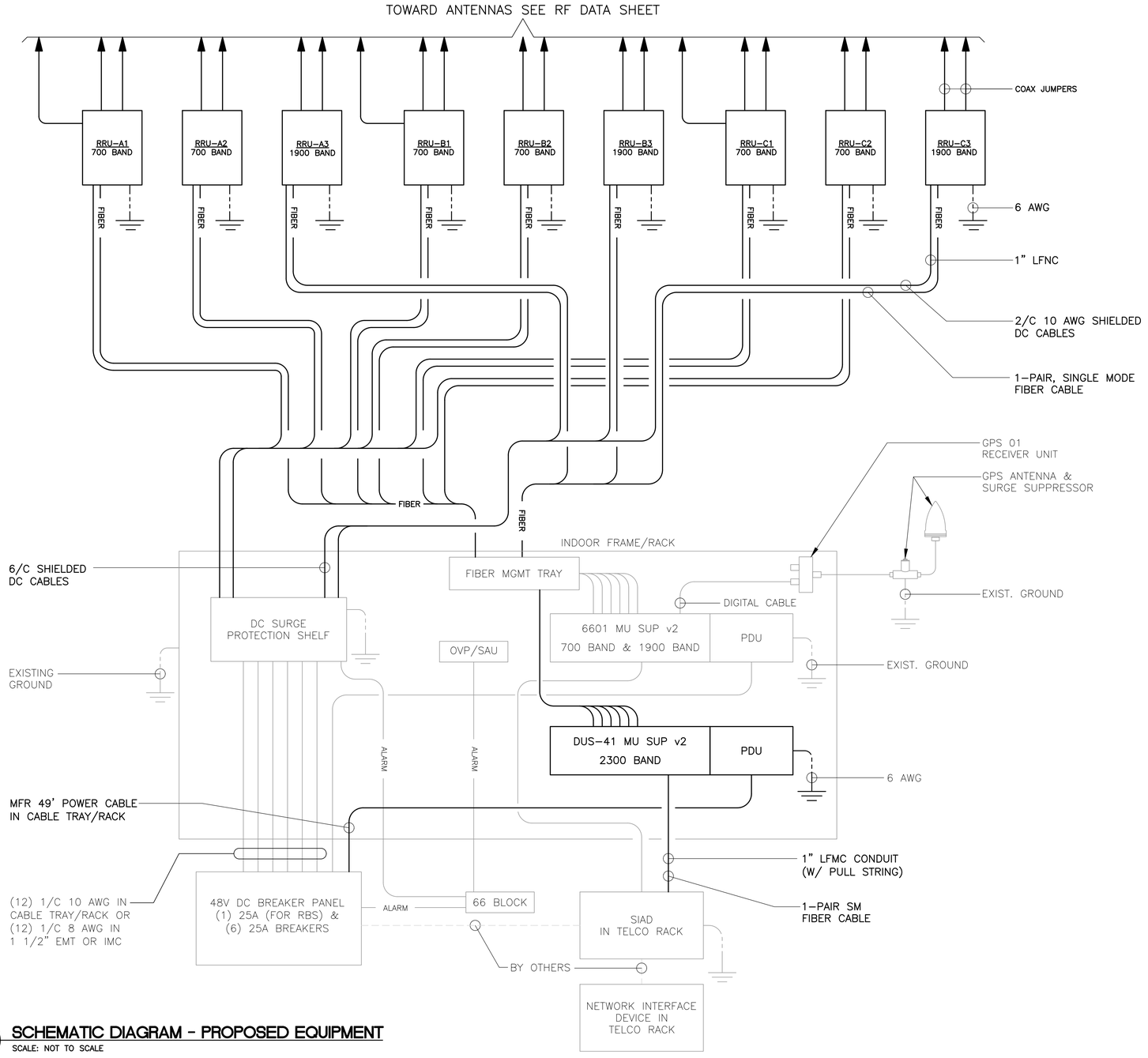


1 / E-4 SCHEMATIC DIAGRAM - PROPOSED EQUIPMENT

SCALE: NOT TO SCALE

SCHEMATIC DIAGRAM NOTES:

1. BREAKERS TO BE TAGGED AND LOCKED OUT. A 20A (MIN.) OR 30A (MAX.) BREAKER FOR RRUs MAY BE SUBSTITUTED FOR THE RECOMMENDED 25A BREAKER. SIZE 12 CONDUCTORS MAY BE USED ONLY WITH 20A BREAKERS.
2. LEAVE COILED AND PROTECTED UNTIL TERMINATED.
3. DC AND FIBER CABLE SHALL BE ROUTED WITH THE EXISTING COAX CABLE.
4. DC SURGE PROTECTION SHELF SHALL BE RAYCAP DCx-48-60-RM.
5. FIBER & DC DISTRIBUTION BOX W/DC SURGE PROTECTION SHALL BE RAYCAP DC6-48-60-18-8F. SEE DETAIL 1410 OR 1410B FOR INTERNAL WIRING DIAGRAM.
6. CONDUIT TO BE USED ON A TOWER IF THE RRU IS MORE THAN 10' FROM THE DISTRIBUTION UNITS. MAX CABLE LENGTH IS 16 FEET.
7. SINGLE-CONDUCTOR DC POWER CABLES SHALL BE TELCOFLEX® OR KS24194™, COPPER, UL LISTED RHH NON-HALOGEN, LOW SMOKE WITH BRAIDED COVER, TYPE TC (1/0 AND LARGER). UNLESS OTHERWISE NOTED, STRANDING SHALL BE CLASS B (TYPE III) FOR CABLES SIZES 14, 12 & 10 AWG AND CLASS I (TYPE IV) FOR SIZES 8 AWG AND LARGER. CABLES SHALL BE COLOR CODED RED FOR +24V, BLUE FOR -48V AND GRAY FOR 24V AND 48V RETURN CONDUCTORS. MULTI-CONDUCTOR DC POWER CABLES SHALL BE COPPER, CLASS B STRANDING WITH FLAME RETARDANT PVC JACKET, TYPE TC, UL LISTED FOR 90°C DRY/ 75°C WET INSTALLATION.
8. GROUNDING WIRES SHALL BE COPPER, GREEN THHN/THWN UL LISTED FOR 90°C DRY/75°C WET INSTALLATION. MINIMUM SIZE IS 6AWG UNLESS NOTED OTHERWISE.

ELECTRICAL NOTES

1. PRIOR TO START OF CONSTRUCTION CONTRACTOR SHALL COORDINATE WITH OWNER FOR ALL CONSTRUCTION STANDARDS AND SPECIFICATIONS, AND ALL MANUFACTURER DOCUMENTATION FOR ALL EQUIPMENT TO BE INSTALLED.
2. INSTALL ALL EQUIPMENT IN ACCORDANCE WITH LOCAL BUILDING CODE, NATIONAL ELECTRIC CODE, OWNER AND MANUFACTURER'S SPECIFICATIONS.
3. CONNECT ALL NEW EQUIPMENT TO EXISTING TELCO AS REQUIRED BY MANUFACTURER.
4. MAINTAIN ALL CLEARANCES REQUIRED BY NEC AND EQUIPMENT MANUFACTURER.
5. PRIOR TO INSTALLATION CONTRACTOR SHALL MEASURE EXISTING ELECTRICAL LOAD AND VERIFY EXISTING AVAILABLE CAPACITY FOR PROPOSED INSTALLATION. IF INADEQUATE CAPACITY IS AVAILABLE, CONTRACTOR SHALL COORDINATE WITH LOCAL ELECTRIC UTILITY COMPANY TO UPGRADE EXISTING ELECTRIC SERVICE.
6. CONTRACTOR SHALL INSPECT EXISTING GROUNDING AND LIGHTNING PROTECTION SYSTEM AND ENSURE THAT IT IS IN COMPLIANCE WITH NEC, AND SITE OWNER'S SPECIFICATIONS. THE RESULTS OF THIS INSPECTION SHALL BE PRESENTED TO OWNERS REPRESENTATIVE, AND ANY DEFICIENCIES SHALL BE CORRECTED.
7. ALL TRANSMISSION TOWER SITES CONTAIN AN EXTENSIVE BURIED GROUNDING SYSTEM. ALL GROUNDING WORK MUST BE COORDINATED WITH, AND APPROVED BY, THE TOWER OWNER'S SITE REPRESENTATIVE. ALL OF THE TOWER OWNER'S SPECIFICATIONS MUST BE STRICTLY FOLLOWED.
8. PROVIDE AND INSTALL GROUND KITS FOR ALL NEW COAXIAL CABLES AND BOND TO EXISTING OWNERS GROUNDING SYSTEM PER OWNERS SPECIFICATIONS AND NEC.
9. 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:
10. MINIMUM BENDING RADIUS FOR CONDUCTORS SHALL BE 12 TIMES THE LARGEST DIAMETER OF BRANCH CIRCUIT CONDUCTOR.
11. 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.
12. THE ELECTRICAL CONTRACTOR IS TO BE RESPONSIBLE FOR THE COMPLETE INSTALLATION AND COORDINATION OF THE ENTIRE ELECTRICAL SERVICE. ALL ACTIVITIES TO BE COORDINATED THROUGH OWNER'S REPRESENTATIVE, DESIGN ENGINEER AND OTHER AUTHORITIES HAVING JURISDICTION OF TRADES.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND PAY ALL FEES AS MAY BE REQUIRED FOR THE ELECTRICAL WORK AND FOR SCHEDULING OF ALL INSPECTIONS AS MAY BE REQUIRED BY THE LOCAL AUTHORITY.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH THE SITE AND/OR BUILDING OWNER FOR NEW AND/OR DEMOLITION WORK INVOLVED.
15. 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.
16. 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.
17. 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.
18. GROUNDING SYSTEM WILL BE IN ACCORDANCE WITH THE LATEST ACCEPTABLE EDITION OF THE NATIONAL ELECTRICAL CODE AND REQUIREMENTS PER LOCAL INSPECTOR HAVING JURISDICTION.
19. EACH EQUIPMENT GROUND CONDUCTOR SHALL BE SIZED IN ACCORDANCE WITH THE N.E.C. ARTICLE 250-122. (MIN. #12 AWG).
20. CONTRACTOR SHALL PROVIDE A CELLULAR GROUNDING SYSTEM WITH THE MAXIMUM AC RESISTANCE TO GROUND OF 5 OHM BETWEEN ANY POINT ON THE GROUNDING SYSTEM AS MEASURED BY 3-POINT GROUNDING TEST. (REFER TO SECTION 16960).

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. TESTING SHALL BE PERFORMED IN THE PRESENCE AND TO THE SATISFACTION OF OWNERS CONSTRUCTION REPRESENTATIVE. TESTING DATA SHALL BE INITIALED AND DATED BY THE CONSTRUCTION AND INCLUDED WITH THE WRITTEN REPORT/ANALYSIS.

C. THE CONTRACTOR SHALL FORWARD SIX (6) COPIES OF THE INDEPENDENT ELECTRICAL TESTING FIRM 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.

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	01/08/26	KMVC	CAR	CONSTRUCTION DRAWINGS - ISSUED FINAL CONSTRUCTION

PROFESSIONAL ENGINEER SEAL

at&t

CENTEK engineering
Centered on Solutions℠
(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

AT&T MOBILITY

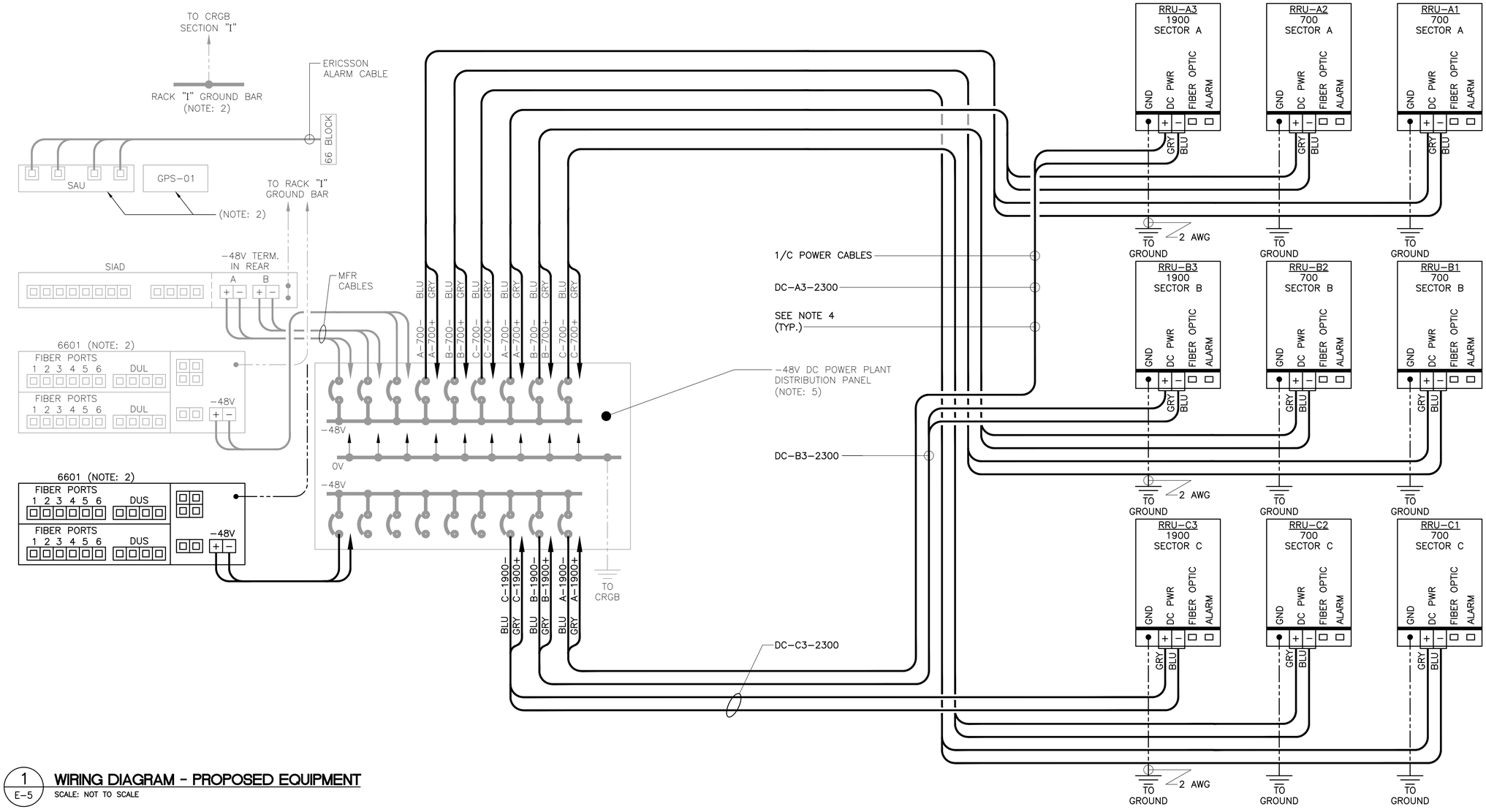
CTL01104 - LTE6C, 4TX4RX, 5G NR, BWE
EVERSOURCE STRUCT. NO. 8012
FARMINGTON NU MAPLE RIDGE DRIVE
45 MAPLE RIDGE DRIVE FARMINGTON, CT 06032

DATE: 10/20/21
SCALE: AS NOTED
JOB NO. 21122.00

SCHEMATIC DIAGRAM AND NOTES

E-4

Sheet No. 10 of 12



1 WIRING DIAGRAM - PROPOSED EQUIPMENT

E-5

SCALE: NOT TO SCALE

WIRING DIAGRAM NOTES:

1. LABEL THE DC POWER CABLES AT BOTH ENDS OF EVERY WIRE AND IN ANY PULL BOX IF USED. LABEL SHALL BE DURABLE, SELF ADHESIVE, WRAPPED LONGITUDINALLY ALONG THE CABLE AND STATE THE SECTOR, FREQUENCY BAND AND POLARITY; I.E. "A-2300+". CABLE AND WIRE LABELS SHOWN ARE REPRESENTATIVE AND MAY BE MODIFIED AS DIRECTED BY AT&T.
2. INSTALL ON BASEBAND EQUIPMENT RACK.
3. MAXIMUM CABLE LENGTH IS 49 FEET WITHOUT SURGE PROTECTION AT RRU. INCREASE CONDUCTOR SIZE TO 10 OR 8 AWG WHERE BREAKER RATING IS GREATER THAN 20A.
4. CABLE GROUND WIRE AND SHIELD DRAIN WIRE TO BE LEFT UN-TERMINATED AT RRU AND DC POWER PLANT.
5. SEE LTE SCHEMATIC DIAGRAM DETAIL 1/E-1 FOR BREAKER RATING.

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	11/09/21	ASC	TJR	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION

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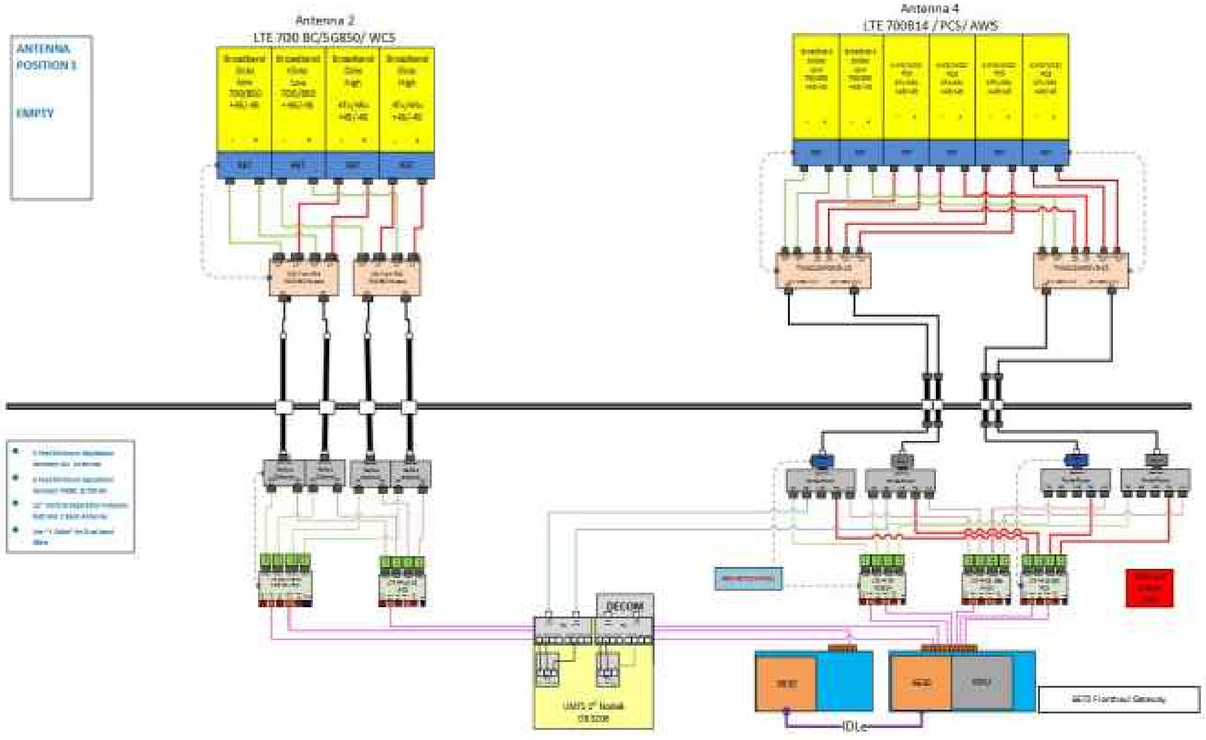
DATE: 10/20/21
SCALE: AS NOTED
JOB NO. 21122.00

WIRING DIAGRAM

E-5

Diagram Sector: B
Diagram File Name: CT1104_A_B_C_6C_5G_NR_RRHBottomRev
Atoll Site Name: CTL01104
Location Name: FARMINGTON NU MAPLE RIDGE DR
Market: CONNECTICUT
Market Cluster: NEW ENGLAND
Comments: Important Note: For detailed radio to antenna wiring refer to the latest field notice - Antenna_Radio Connection Dra



1 / E-6 **PROPOSED PLUMBING DIAGRAM**
SCALE: NOT TO SCALE

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	11/09/21	ASC	TJR	CONSTRUCTION DRAWINGS – ISSUED FOR CONSTRUCTION

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SCALE: AS NOTED
JOB NO. 21122.00

PLUMBING DIAGRAM

E-6

Sheet No. 12 of 12

CENTEK engineering

Centered on Solutions℠

Structural Analysis of Utility Pole

AT&T Site Ref: CT1104

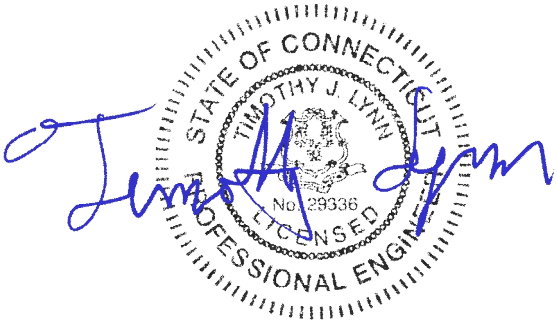
Eversource Structure No. 8012
107' Electric Transmission Pole

45 Maple Ridge Drive
Farmington, CT

CENTEK Project No. 21122.00

Date: October 15, 2021

Max Stress Ratio = 66.8%



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 107' utility pole located in Farmington, CT for the proposed antenna and equipment installation by AT&T.

The proposed loads consist of the following:

- **AT&T (Proposed):**
  Antennas: Three (3) CCI DMP65R-BU6DA panel antennas, three (3) CCI TPA65R-BU6DA panel antennas, six (6) CCI TMABPD7823VG12A TMAs and six (6) Kaelus TMA2124F03V5-1D TMAs mounted on platform with handrail kit p/n RMQLP-4120-H10 to the utility pole with a RAD center elevation of 92-ft above grade.
  Coax Cables: Twenty-four (24) 1-5/8" ∅ coax cables mounted to the outside of the pole as indicated in Section 4 of this report.

Primary assumptions used in the analysis

- Design steel stresses are defined by AISC-LRFD 14th edition for design of the antenna Mast and antenna supporting elements.
- ASCE Manual No. 48-11, "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 TIA-222-G, ASCE 48-11, "Design of Steel Transmission Pole Structures", NESC C2-2017 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 C2-2017 ~ Construction Grade B, and ASCE Manual No. 48-11.

  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…….. 4.0 psf
  Radial Ice Thickness……. 1.0"
  Vertical Overload Capacity Factor……. 1.0
  Wind Overload Capacity Factor……. 1.0

  Note 1: NESC C2-2017, 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. 48-11, "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 **66.81%** occurs in the utility pole base plate 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
LP - Section 2	0.00' -40.00' (AGL)	39.01%	**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	66.81%	**PASS**

- FOUNDATION AND ANCHORS

The base of the tower is connected to the foundation by means of (12) 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/NU prescribed loads.

Load Case	Shear	Axial	Moment
NESC Heavy Wind	13.51 kips	53.22 kips	851.97 ft-kips
NESC Extreme Wind	23.37 kips	26.09 kips	1424.29 ft-kips
NESC Extreme Ice w/ Wind	8.34 kips	50.34 kips	556.93 ft-kips

Note 1 – 10% increase applied to tower base reactions 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	49.3%	**PASS**

FOUNDATION:

Force	Original Design Loading	Proposed Loading	Result
Moment	3293.0 ft-kips	1424.3 ft-kips	**PASS**
Shear	51.9 kips	23.4 kips	**PASS**

Note 1: Taken from Eversource drawing 01085-60003p001 dated 10/12/21.

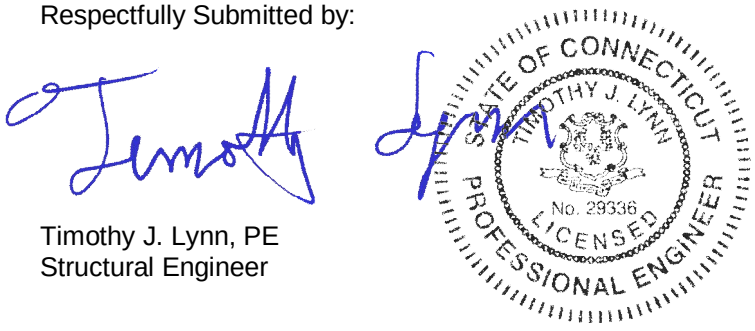
Conclusion

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-G 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 C2-2017 (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-G:

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 2017 Edition Extreme Wind (Rule 250C) and Combined Ice and Wind (Rule 250B-Heavy) Loadings. These provide equivalent loadings compared to TIA and its loads and factors with the exceptions noted above. (Note that the NESC does not require the projected wind surfaces of structures and equipment to be increased by the ice covering.)

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

Attachment A
Eversource Design Criteria

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

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

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

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

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

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

c) Electric Transmission Structure

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

ii) Shape Factor Multiplier:

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

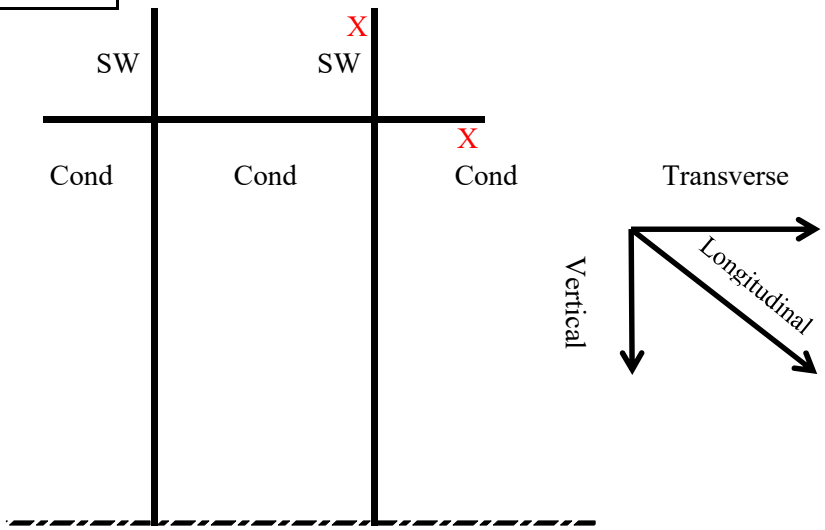
iii) When Coaxial Cables are mounted alongside the pole structure, the shape multiplier shall be:

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

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

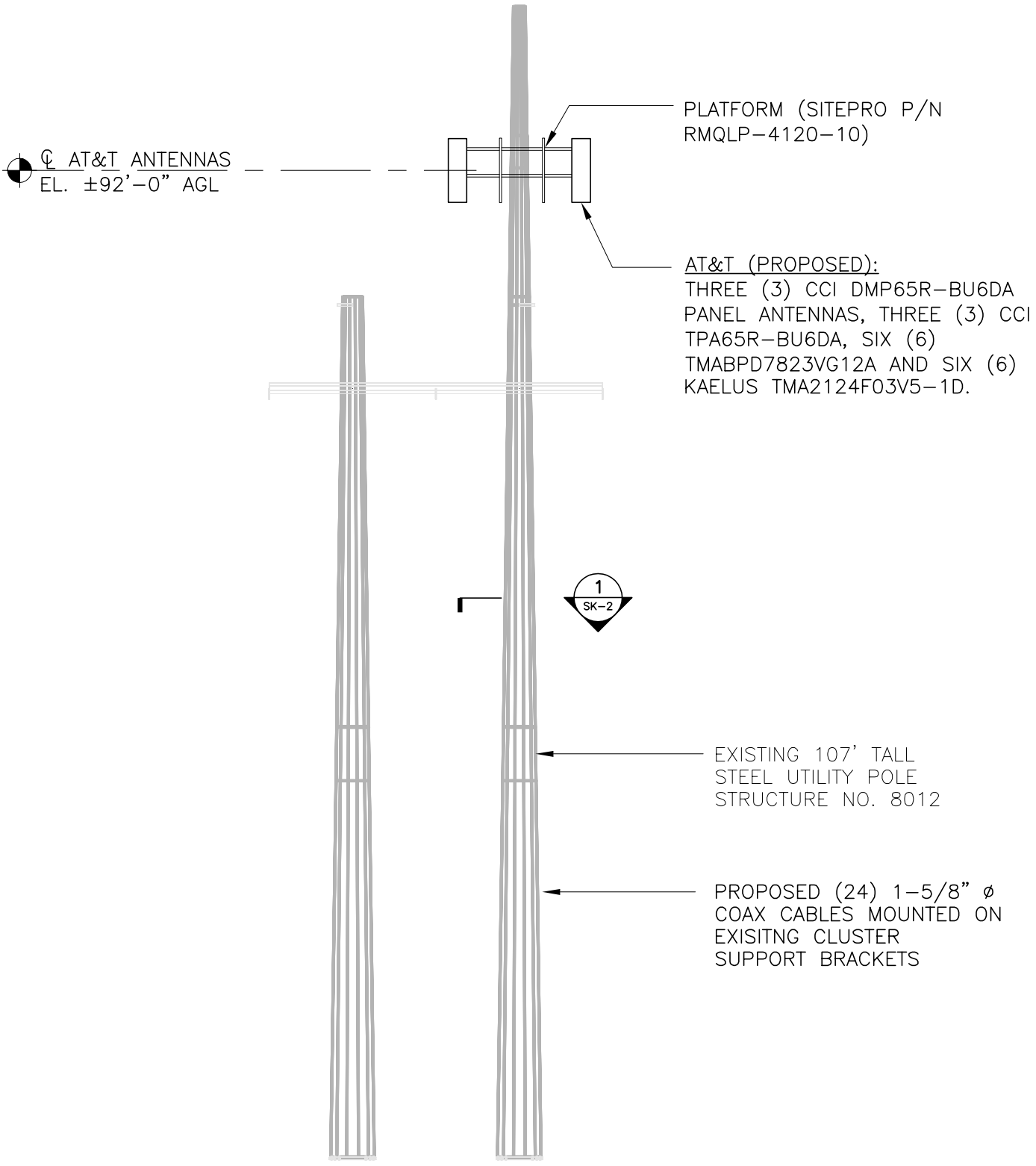
Wire Loads
Load Tree

Project Number
(Newington S/S - Farmir
Structure Number
#8012
Line Number
1783



Single Circuit Steel H-Frame Configuration
X Denotes Broken Wire Location

	Case	Vertical	Transverse	Longitudinal
Conductor	1	8055.1275	3533.4191	0
	2	3462.1	5240.6207	0
	3	3462.1	722.2362	0
	4	8211.07	2666.1391	0
	5	5370.085	2081.5931	0
	6	3462.1	722.2362	0
	7a	5270.085	1766.7096	12540
	7b	5270.085	1766.7096	12540
Shield Wire	Case	Vertical	Transverse	Longitudinal
	1	2422.3455	1890.7651	0
	2	673.5	1712.122	0
	3	673.5	261.67978	0
	4	3489.294	1589.9711	0
	5	1614.897	1078.6955	0
	6	673.5	261.67978	0
	7a	1614.897	945.38254	6050
	7b	1614.897	945.38254	6050



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SK-1

TOWER + MAST ELEVATION

SCALE: NOT TO SCALE

REVISIONS		
00	10/14/21	ISSUED FOR REVIEW

CENTEK engineering
Centered on Solutions℠
www.CentekEng.com
(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road, Branford, CT 06405

CT1104
STRUCTURE 8012

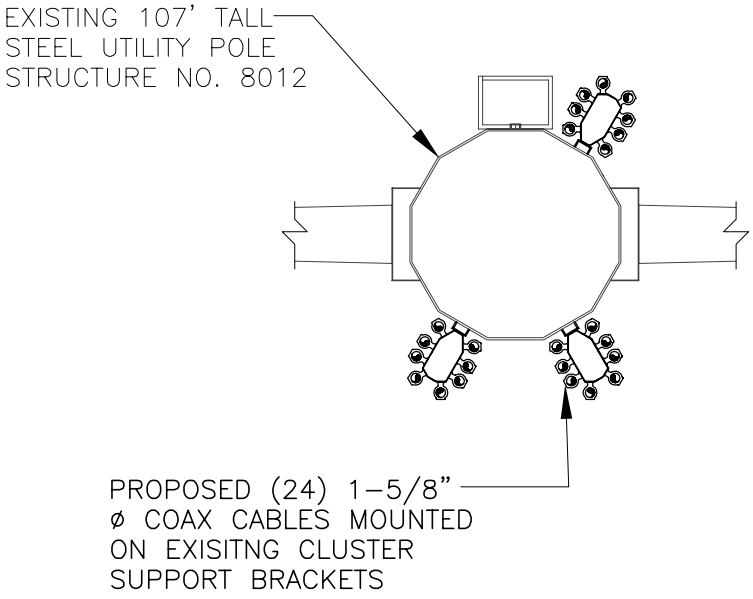
45 MAPLE RIDGE DRIVE
FARMINGTON, CT

PROJECT NO:	21122.00
DRAWN BY:	TJL
CHECKED BY:	CAG
SCALE:	AS NOTED
DATE:	10/14/21

TOWER AND MAST ELEVATION

SK-1

DWG. 1 OF 2



1 / SK-2 COAX CABLE PLAN

SCALE: NOT TO SCALE

REVISIONS		
00	10/14/21	ISSUED FOR REVIEW

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CT1104
STRUCTURE 8012

45 MAPLE RIDGE DRIVE
FARMINGTON, CT

PROJECT NO:	21122.00
DRAWN BY:	TJL
CHECKED BY:	CFC
SCALE:	AS NOTED
DATE:	10/14/21

FEEDLINE PLAN

SK-2

DWG. 2 OF 2

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

Subject: Loads - Structure #8012

Location: Farmington, CT

Rev. 0: 10/14/21

Prepared by: T.J.L Checked by: C.F.C.
Job No. 21122.00

Basic Components

Heavy Wind Pressure =	p := 4.00	psf	(User Input NESC 2017 Figure 250-1 & Table 250-1)
Basic Windspeed =	V := 110	mph	(User Input NESC 2017 Figure 250-2(e))
Radial Ice Thickness =	Ir := 0.50	in	(User Input)
Radial Ice Density =	Id := 56.0	pcf	(User Input)

Factors for Extreme Wind Calculation

Elevation of Top of Mast Above Grade =	TME := 107	ft	(User Input)
Multiplier Gust Response Factor =	m := 1.00		(User Input - Only for NESC Extreme wind case)
NESC Factor =	kv := 1.43		(User Input from NESC 2017 Table 250-3 equation)
Importance Factor =	I := 1.0		(User Input from NESC 2017 Section 250.C.2)

Velocity Pressure Coefficient = $Kz := 2.01 \cdot \left(\frac{TME}{900}\right)^{\frac{2}{9.5}} = 1.284$ (NESC 2017 Table 250-2)

Exposure Factor = $Es := 0.346 \left[\frac{33}{(0.67 \cdot TME)}\right]^{\frac{1}{7}} = 0.31$ (NESC 2017 Table 250-3)

Response Term = $Bs := \frac{1}{\left(1 + 0.375 \cdot \frac{TME}{220}\right)} = 0.846$ (NESC 2017 Table 250-3)

Gust Response Factor = $Grf := \frac{\left[1 + \left(2.7 \cdot Es \cdot Bs^{\frac{1}{2}}\right)\right]}{kv^2} = 0.865$ (NESC 2017 Table 250-3)

Wind Pressure = $qz := 0.00256 \cdot Kz \cdot V^2 \cdot Grf \cdot I = 34.4$ psf (NESC 2017 Section 250.C.2)

NESC Extreme Ice w/ Wind Components

Heavy Wind Pressure =	$p_{ex} := 4.0$	psf	(User Input NESC 2017 Figure 250-3 & Table 250-4)
Radial Ice Thickness =	$Ir_{ex} := 1.0$	in	(User Input NESC 2017 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 Open Lattice =	$Cd_{OL} := 3.2$	(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)	Apply in Risa-3D Analysis
NESC Extreme Loading =	**1.0**	(User Input)	Apply in Risa-3D Analysis

Overload Factors for Vertical Loads:

NESC Heavy Loading =	**1.5**	(User Input)	Apply in Risa-3D Analysis
NESC Extreme Loading =	**1.0**	(User Input)	Apply in Risa-3D Analysis

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	CCI DMP65-BU6D		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 71.2$	in	(User Input)
Antenna Width =	$W_{ant} := 20.7$	in	(User Input)
Antenna Thickness =	$T_{ant} := 7.7$	in	(User Input)
Antenna Weight =	$WT_{ant} := 96$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 3$		(User Input)

Gravity Load (without ice)

Weight of All Antennas = $Wt_{ant1} := WT_{ant} \cdot N_{ant} = 288$ lbs

Gravity Load (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 1 \times 10^{4}$ cu in

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

Weight of Ice on Each Antenna = $W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 74$ lbs

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

Gravity Load (Extreme ice only)

Volume of Extreme Ice on Each Antenna = $V_{ice.ex} := \left(L_{ant} + 2 \cdot Ir_{ex}\right)\left(W_{ant} + 2 \cdot Ir_{ex}\right)\left(T_{ant} + 2 \cdot Ir_{ex}\right) - V_{ant} = 4769$ cu in

Weight of Extreme Ice on Each Antenna = $W_{ICE.exant} := \frac{V_{ice.ex}}{1728} \cdot Id = 155$ lbs

Weight of Extreme Ice on All Antennas = $Wt_{ice.ex.ant1} := W_{ICE.exant} \cdot N_{ant} = 464$ lbs

Wind Load (NESC Heavy)

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := \frac{\left(L_{ant} + 2 \cdot Ir\right) \cdot \left(W_{ant} + 2 \cdot Ir\right)}{144} = 10.9$ sf

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

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

Wind Load (NESC Extreme)

Surface Area for One Antenna = $SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 10.2$ sf

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

Total Antenna Wind Force = $F_{ant1} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 1690$ lbs

Wind Load (NESC Extreme Ice w/ Wind)

Surface Area for One Antenna w/ Extreme Ice = $SA_{ICE.exant} := \frac{\left(L_{ant} + 2 \cdot Ir_{ex}\right) \cdot \left(W_{ant} + 2 \cdot Ir_{ex}\right)}{144} = 11.5$ sf

Antenna Projected Surface Area w/ Extreme Ice = $A_{ICE.exant} := SA_{ICE.exant} \cdot N_{ant} = 34.6$ sf

Total Antenna Wind Force w/ Extreme Ice = $Fi_{ex.ant1} := p_{ex} \cdot Cd_F \cdot A_{ICE.exant} \cdot m = 222$ lbs

Development of Wind & Ice Load on Antennas

Antenna Data:

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

Gravity Load (without ice)

Weight of All Antennas = $Wt_{ant2} := WT_{ant} \cdot N_{ant} = 210$ lbs

Gravity Load (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 1 \times 10^{4}$ cu in

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

Weight of Ice on Each Antenna = $W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 74$ lbs

Weight of Ice on All Antennas = $Wt_{ice.ant2} := W_{ICEant} \cdot N_{ant} = 222$ lbs

Gravity Load (Extreme ice only)

Volume of Extreme Ice on Each Antenna = $V_{ice.ex} := \left(L_{ant} + 2 \cdot Ir_{ex}\right)\left(W_{ant} + 2 \cdot Ir_{ex}\right)\left(T_{ant} + 2 \cdot Ir_{ex}\right) - V_{ant} = 4769$ cu in

Weight of Extreme Ice on Each Antenna = $W_{ICE.exant} := \frac{V_{ice.ex}}{1728} \cdot Id = 155$ lbs

Weight of Extreme Ice on All Antennas = $Wt_{ice.ex.ant2} := W_{ICE.exant} \cdot N_{ant} = 464$ lbs

Wind Load (NESC Heavy)

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := \frac{\left(L_{ant} + 2 \cdot Ir\right) \cdot \left(W_{ant} + 2 \cdot Ir\right)}{144} = 10.9$ sf

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

Total Antenna Wind Force w/ Ice = $Fi_{ant2} := p \cdot Cd_F \cdot A_{ICEant} = 209$ lbs

Wind Load (NESC Extreme)

Surface Area for One Antenna = $SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 10.2$ sf

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

Total Antenna Wind Force = $F_{ant2} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 1690$ lbs

Wind Load (NESC Extreme Ice w/ Wind)

Surface Area for One Antenna w/ Extreme Ice = $SA_{ICE.exant} := \frac{\left(L_{ant} + 2 \cdot Ir_{ex}\right) \cdot \left(W_{ant} + 2 \cdot Ir_{ex}\right)}{144} = 11.5$ sf

Antenna Projected Surface Area w/ Extreme Ice = $A_{ICE.exant} := SA_{ICE.exant} \cdot N_{ant} = 34.6$ sf

Total Antenna Wind Force w/ Extreme Ice = $Fi_{ex.ant2} := p_{ex} \cdot Cd_F \cdot A_{ICE.exant} \cdot m = 222$ lbs

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	TMABPDB7823VG12A		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 14.25$	in	(User Input)
Antenna Width =	$W_{ant} := 11.024$	in	(User Input)
Antenna Thickness =	$T_{ant} := 4.11$	in	(User Input)
Antenna Weight =	$WT_{ant} := 25$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 6$		(User Input)

Gravity Load (without ice)

Weight of All Antennas = $Wt_{ant3} := WT_{ant} \cdot N_{ant} = 150$ lbs

Gravity Load (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 646$ cu in

Volume of Ice on Each Antenna = $V_{ice} := (L_{ant} + 2 \cdot Ir)(W_{ant} + 2 \cdot Ir)(T_{ant} + 2 \cdot Ir) - V_{ant} = 291$ cu in

Weight of Ice on Each Antenna = $W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 9$ lbs

Weight of Ice on All Antennas = $Wt_{ice.ant3} := W_{ICEant} \cdot N_{ant} = 57$ lbs

Gravity Load (Extreme ice only)

Volume of Extreme Ice on Each Antenna = $V_{ice.ex} := (L_{ant} + 2 \cdot Ir_{ex})(W_{ant} + 2 \cdot Ir_{ex})(T_{ant} + 2 \cdot Ir_{ex}) - V_{ant} = 647$ cu in

Weight of Extreme Ice on Each Antenna = $W_{ICE.exant} := \frac{V_{ice.ex}}{1728} \cdot Id = 21$ lbs

Weight of Extreme Ice on All Antennas = $Wt_{ice.ex.ant3} := W_{ICE.exant} \cdot N_{ant} = 126$ lbs

Wind Load (NESC Heavy)

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := \frac{(L_{ant} + 2 \cdot Ir) \cdot (W_{ant} + 2 \cdot Ir)}{144} = 1.3$ sf

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 7.6$ sf

Total Antenna Wind Force w/ Ice = $Fi_{ant3} := p \cdot Cd_F \cdot A_{ICEant} = 49$ lbs

Wind Load (NESC Extreme)

Surface Area for One Antenna = $SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 1.1$ sf

Antenna Projected Surface Area = $A_{ant} := SA_{ant} \cdot N_{ant} = 6.5$ sf

Total Antenna Wind Force = $F_{ant3} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 360$ lbs

Wind Load (NESC Extreme Ice w/ Wind)

Surface Area for One Antenna w/ Extreme Ice = $SA_{ICE.exant} := \frac{(L_{ant} + 2 \cdot Ir_{ex}) \cdot (W_{ant} + 2 \cdot Ir_{ex})}{144} = 1.5$ sf

Antenna Projected Surface Area w/ Extreme Ice = $A_{ICE.exant} := SA_{ICE.exant} \cdot N_{ant} = 8.8$ sf

Total Antenna Wind Force w/ Extreme Ice = $Fi_{ex.ant3} := p_{ex} \cdot Cd_F \cdot A_{ICE.exant} \cdot m = 56$ lbs

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	Kaelus TMA2124F03V5-1D		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 9.65$	in	(User Input)
Antenna Width =	$W_{ant} := 5.04$	in	(User Input)
Antenna Thickness =	$T_{ant} := 8.27$	in	(User Input)
Antenna Weight =	$WT_{ant} := 20$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 6$		(User Input)

Gravity Load (without ice)

Weight of All Antennas = $Wt_{ant4} := WT_{ant} \cdot N_{ant} = 120$ lbs

Gravity Load (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 402$ cu in

Volume of Ice on Each Antenna = $V_{ice} := \left(L_{ant} + 2 \cdot Ir\right)\left(W_{ant} + 2 \cdot Ir\right)\left(T_{ant} + 2 \cdot Ir\right) - V_{ant} = 194$ cu in

Weight of Ice on Each Antenna = $W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 6$ lbs

Weight of Ice on All Antennas = $Wt_{ice.ant4} := W_{ICEant} \cdot N_{ant} = 38$ lbs

Gravity Load (Extreme ice only)

Volume of Extreme Ice on Each Antenna = $V_{ice.ex} := \left(L_{ant} + 2 \cdot Ir_{ex}\right)\left(W_{ant} + 2 \cdot Ir_{ex}\right)\left(T_{ant} + 2 \cdot Ir_{ex}\right) - V_{ant} = 440$ cu in

Weight of Extreme Ice on Each Antenna = $W_{ICE.exant} := \frac{V_{ice.ex}}{1728} \cdot Id = 14$ lbs

Weight of Extreme Ice on All Antennas = $Wt_{ice.ex.ant4} := W_{ICE.exant} \cdot N_{ant} = 86$ lbs

Wind Load (NESC Heavy)

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := \frac{\left(L_{ant} + 2 \cdot Ir\right) \cdot \left(W_{ant} + 2 \cdot Ir\right)}{144} = 0.4$ sf

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 2.7$ sf

Total Antenna Wind Force w/ Ice = $Fi_{ant4} := p \cdot Cd_F \cdot A_{ICEant} = 17$ lbs

Wind Load (NESC Extreme)

Surface Area for One Antenna = $SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 0.3$ sf

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

Total Antenna Wind Force = $F_{ant4} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 112$ lbs

Wind Load (NESC Extreme Ice w/ Wind)

Surface Area for One Antenna w/ Extreme Ice = $SA_{ICE.exant} := \frac{\left(L_{ant} + 2 \cdot Ir_{ex}\right) \cdot \left(W_{ant} + 2 \cdot Ir_{ex}\right)}{144} = 0.6$ sf

Antenna Projected Surface Area w/ Extreme Ice = $A_{ICE.exant} := SA_{ICE.exant} \cdot N_{ant} = 3.4$ sf

Total Antenna Wind Force w/ Extreme Ice = $Fi_{ex.ant4} := p_{ex} \cdot Cd_F \cdot A_{ICE.exant} \cdot m = 22$ lbs

Development of Wind & Ice Load on Antenna Mounts

Mount Data:

Mount Type:	RMQLP-4120-HK		
Mount Shape =	Flat		
Mount Projected Surface Area =	$CdAa := 45.6$	sf	(User Input)
Mount Projected Surface Area w/ Ice =	$CdAa_{ice} := 52.4$	sf	(User Input)
Mount Projected Surface Area w/ Extreme Ice =	$CdAa_{ice.ex} := 58$	sf	(User Input)
Mount Weight =	$WT_{mnt} := 3250$	lbs	(User Input)
Mount Weight w/ Ice =	$WT_{mnt.ice} := 3600$	lbs	(User Input)
Mount Weight w/ Extreme Ice =	$WT_{mnt.ice.ex} := 4000$	lbs	(User Input)

Gravity Loads (without ice)

Weight of All Mounts = $Wt_{mnt1} := WT_{mnt} = 3250$ lbs

Gravity Load (ice only)

Weight of Ice on All Mounts = $Wt_{ice.mnt1} := \left(WT_{mnt.ice} - WT_{mnt}\right) = 350$ lbs

Gravity Load (extreme ice only)

Weight of Ice on All Mounts = $Wt_{ice.ex.mnt1} := \left(WT_{mnt.ice.ex} - WT_{mnt}\right) = 750$ lbs

Wind Load (NESC Heavy)

Total Mount Wind Force w/ Ice = $Fi_{mnt1} := p \cdot CdAa_{ice} = 210$ lbs

Wind Load (NESC Extreme)

Total Mount Wind Force = $F_{mnt1} := qz \cdot CdAa \cdot m = 1569$ lbs

Wind Load (NESC Extreme Ice w/ Wind)

Total Mount Wind Force w/ Extreme Ice = $Fi_{ex.mnt1} := p_{ex} \cdot CdAa_{ice.ex} = 232$ lbs

Total Equipment Loads:

NESC Heavy Wind Vertical =

$$\left(Wt_{ant1} + Wt_{ice.ant1} + Wt_{ant2} + Wt_{ice.ant2} + Wt_{ant3} + Wt_{ice.ant3} + Wt_{ant4} + Wt_{ice.ant4} + Wt_{mnt1} + Wt_{ice.mnt1}\right)\cdot 1.5 = 7359$$

NESC Heavy Wind Trasnsverse =

$$\left(Fi_{ant1} + Fi_{ant2} + Fi_{ant3} + Fi_{ant4} + Fi_{mnt1}\right)\cdot 2.5 = 1734$$

NESC Extreme Wind Vertical =

$$\left(Wt_{ant1} + Wt_{ant2} + Wt_{ant3} + Wt_{ant4} + Wt_{mnt1}\right) = 4018$$

NESC Extreme Wind Trasnsverse =

$$\left(F_{ant1} + F_{ant2} + F_{ant3} + F_{ant4} + F_{mnt1}\right) = 5421$$

NESC Extreme Ice w/ Wind Vertical =

$$NESC_{ice.ex} := Wt_{ant1} + Wt_{ice.ex.ant1} + Wt_{ant2} + Wt_{ice.ex.ant2} + Wt_{ant3} + Wt_{ice.ex.ant3} + Wt_{ant4} + Wt_{ice.ex.ant4} + Wt_{mnt1} + Wt_{ice.ex.mnt1} = 5907$$

NESC Extreme Ice w/ Wind Trasnsverse =

$$\left(Fi_{ex.ant1} + Fi_{ex.ant2} + Fi_{ex.ant3} + Fi_{ex.ant4} + Fi_{ex.mnt1}\right) = 753$$

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Subject:	Coax Cable on Pole #8012
Location:	Farmington, CT
Rev. 0: 10/14/21	Prepared by: T.J.L Checked by: C.F.C. Job No. 21122.00

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 =	$p_{ex} := 4 \cdot psf$	*(User Input)*
Extreme Radial Ice Thickness =	$Ir_{ex} := 1.0 \cdot in$	*(User Input)*

Basic Windspeed =	$V := 110$	mph	(User Input NESC 2017 Figure 250-2(e))
Height to Top of Coax Above Grade =	$TC := 107$	ft	(User Input)
NESC Factor =	$kv := 1.43$		(User Input from NESC 2017 Table 250-3 equation)
Importance Factor =	$I := 1.0$		(User Input from NESC 2017 Section 250.C.2)
Velocity Pressure Coefficient =	$Kz := 2.01 \cdot \left(\frac{0.67TC}{900}\right)^{\frac{2}{9.5}} = 1.18$		(NESC 2017 Table 250-2)
Exposure Factor =	$Es := 0.346\left[\frac{33}{(0.67 \cdot TC)}\right]^{\frac{1}{7}} = 0.31$		(NESC 2017 Table 250-3)
Response Term =	$Bs := \frac{1}{\left(1 + 0.375 \cdot \frac{TC}{220}\right)} = 0.846$		(NESC 2017 Table 250-3)
Gust Response Factor =	$Grf := \frac{\left[1 + \left(2.7 \cdot Es \cdot Bs^{\frac{1}{2}}\right)\right]}{kv^2} = 0.865$		(NESC 2017 Table 250-3)
Wind Pressure =	$qz := 0.00256 \cdot Kz \cdot V^2 \cdot Grf \cdot I = 31.6$	psf	(NESC 2017 Section 250.C.2)

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 =	$N_{coax} := 24$	*(User Input)*
Number of Projected Coax Cables =	$NP_{coax} := 6$	*(User Input)*

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 = $A := \left(NP_{coax} \cdot D_{coax}\right) = 11.88 \cdot in$

Wind Area with Ice = $A_{ice} := \left(NP_{coax} \cdot D_{coax} + 2 \cdot Ir\right) = 12.88 \cdot in$

Wind Area with Extreme Ice = $A_{ice.ex} := \left(NP_{coax} \cdot D_{coax} + 2 \cdot Ir_{ex}\right) = 13.88 \cdot in$

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

Weight of Ice on All Coax Cables = $W_{ice} := Ai_{coax} \cdot Id \cdot N_{coax} = 36.359 \cdot plf$

Extreme Ice Area per Liner Ft = $Ai_{coax.ex} := \frac{\pi}{4} \cdot \left[\left(D_{coax} + 2 \cdot Ir_{ex}\right)^2 - D_{coax}^2\right] = 0.065\,ft^2$

Weight of Extreme Ice on All Coax Cables = $W_{ice.ex} := Ai_{coax.ex} \cdot Id \cdot N_{coax} = 87.378 \cdot plf$

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 =

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

$Heavy\_WInd_{Vert} = 920\,lb$ $Heavy\_Wind_{Trans} = 172\,lb$

Extreme Wind Vertical Load =

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

Extreme Wind Transverse Load =

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

$Extreme\_Wind_{Vert} = 250\,lb$ $Extreme\_Wind_{Trans} = 501\,lb$

Extreme Ice w/ Wind Vertical Load =

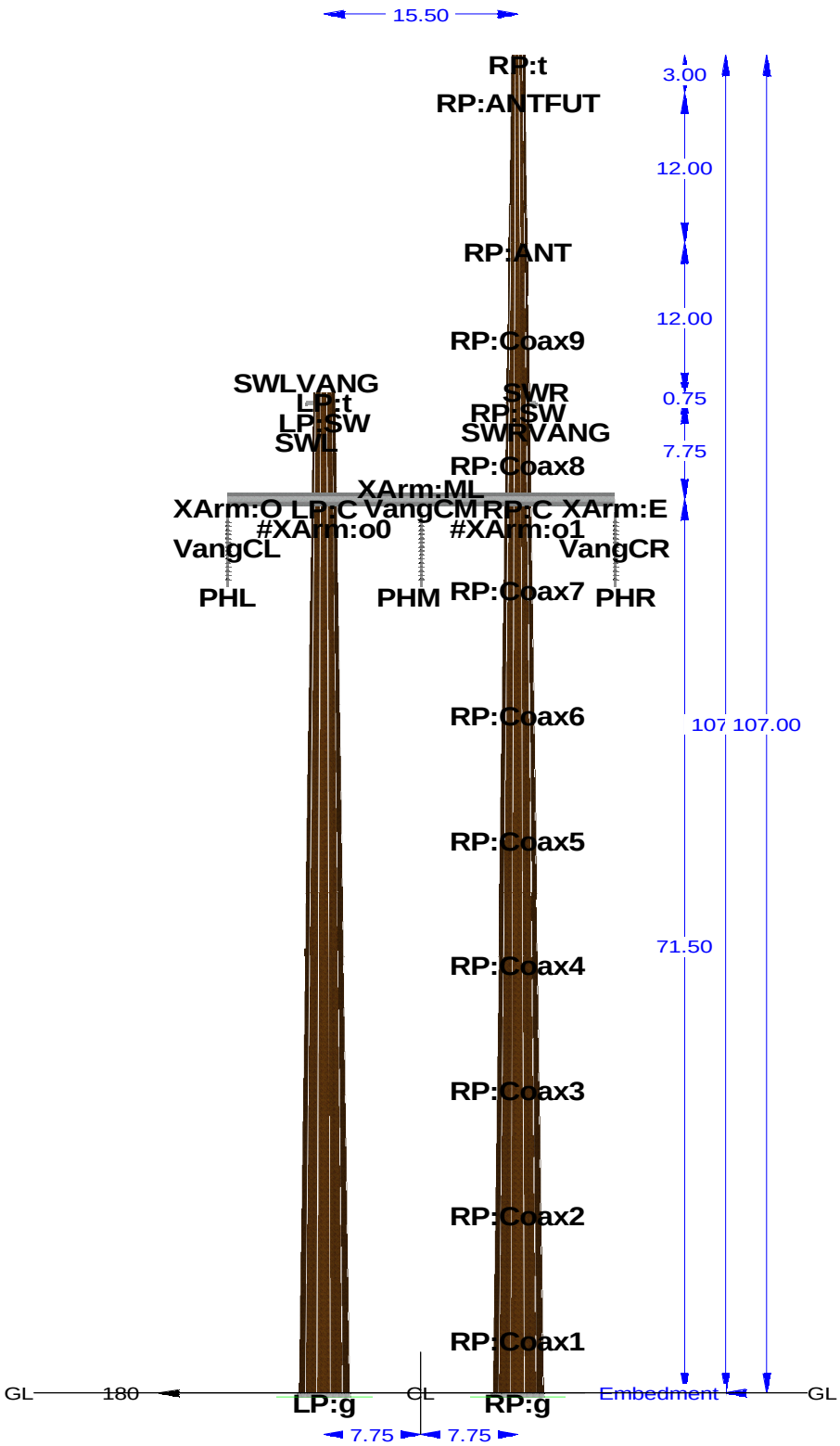
$$Extreme\_Ice_{Vert} := \overrightarrow{\left[\left(N_{coax} \cdot W_{coax} + W_{ice.ex}\right) \cdot Coax_{Span} \cdot OF_{EIV}\right]}$$

Extreme Ice w/ Wind Transverse Load =

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

$Extreme\_Ice_{Vert} = 1123\,lb$ $Extreme\_Ice_{Trans} = 74\,lb$

Centek Engineering Inc, Project: "qt003 & 103_str#8012_80ft(lp)-107ft(rp)_r3"
PLS-POLE Version 16.81, 2:48:30 PM Thursday, October 14, 2021
Undeformed geometry displayed



Project Name :
Project Notes:
Project File : J:\Jobs\2112200.WI\05_Structural\Tower Analysis\Backup Documentation\Calcs\PLS-Pole\qt003 & 103_str#8012_80ft(lp)-107ft(rp)_r3.pol
Date run : 2:46:11 PM Thursday, October 14, 2021
by : PLS-POLE Version 16.81
Licensed to : Centek Engineering Inc

Successfully performed nonlinear analysis

The model has 0 warnings.

Loads from file: J:\Jobs\2112200.WI\05_Structural\Tower Analysis\Backup Documentation\Calcs\PLS-Pole\qt003 & 103-str#8012-r3.lca

*** Analysis Results:

Maximum element usage is 66.81% for Base Plate "RP" in load case "NESC Rule 250D"

Summary of Joint Support Reactions For All Load Cases:

Load Case	Joint Label	Long. Force (kips)	Tran. Force (kips)	Vert. Force (kips)	Shear Force (kips)	Tran. Moment (ft-k)	Long. Moment (ft-k)	Bending Moment (ft-k)	Vert. Moment (ft-k)	Found. Usage %
NESC Rule 250B	LP:g	-0.19	-13.51	-36.66	13.51	851.37	-31.84	851.97	-10.26	0.00
NESC Rule 250B	RP:g	-0.03	-12.58	-53.22	12.58	812.68	-19.82	812.92	-5.36	0.00
NESC 250C	LP:g	-0.18	-23.37	-20.49	23.37	1424.12	-22.46	1424.29	-17.47	0.00
NESC 250C	RP:g	0.07	-21.86	-26.09	21.86	1344.14	-4.13	1344.14	-4.74	0.00
NESC Rule 250D	LP:g	-0.14	-8.34	-33.44	8.34	556.13	-29.95	556.93	-6.81	0.00
NESC Rule 250D	RP:g	-0.00	-7.72	-50.34	7.72	532.91	-21.00	533.32	-4.47	0.00

Summary of Tip Deflections For All Load Cases:

Note: positive tip load results in positive deflection

Load Case	Joint Label	Long. Defl. (in)	Tran. Defl. (in)	Vert. Defl. (in)	Resultant Defl. (in)	Long. Rot. (deg)	Tran. Rot. (deg)	Twist (deg)
NESC Rule 250B	LP:t	0.60	9.55	-0.08	9.56	0.08	-0.96	0.04
NESC Rule 250B	RP:t	0.85	16.22	-0.16	16.25	0.07	-1.16	0.02
NESC 250C	LP:t	0.35	15.72	-0.17	15.72	0.05	-1.56	0.08
NESC 250C	RP:t	0.31	27.58	-0.40	27.58	0.03	-2.04	0.02
NESC Rule 250D	LP:t	0.58	6.36	-0.04	6.39	0.08	-0.64	0.03
NESC Rule 250D	RP:t	0.91	10.65	-0.09	10.69	0.07	-0.74	0.02

Tubes Summary:

Pole Label	Tube Num.	Weight (lbs)	Load Case	Maximum Usage %	Resultant Moment (ft-k)
LP	1	4666	NESC 250C	29.16	577.79
LP	2	6821	NESC 250C	39.01	1424.40
RP	1	364	NESC 250C	1.25	2.80
RP	2	992	NESC 250C	13.45	85.14
RP	3	4666	NESC 250C	30.14	596.52
RP	4	6821	NESC 250C	36.88	1344.15

*** 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)
LP	39.01	NESC 250C	2.5	18	12719.3
RP	36.88	NESC 250C	2.5	25	14075.1

Summary of Tubular X-Arm Usages:

Tubular X-Arm Label	Maximum Usage %	Load Case	Height AGL (ft)	Segment Number	Weight (lbs)
XArm	30.21	NESC Rule 250B	71.5	3	1523.8

*** Maximum Stress Summary for Each Load Case

Summary of Maximum Usages by Load Case:

Load Case	Maximum Usage %	Element Label	Element Type
NESC Rule 250B	66.29	RP	Base Plate
NESC 250C	64.33	LP	Base Plate
NESC Rule 250D	66.81	RP	Base Plate

Summary of Steel Pole Usages by Load Case:

Load Case	Maximum Usage %	Steel Pole Label	Height AGL (ft)	Segment Number
NESC Rule 250B	24.10	LP	2.5	18
NESC 250C	39.01	LP	2.5	18
NESC Rule 250D	16.05	LP	2.5	18

Summary of Base Plate Usages by Load Case:

Load Case	Pole Label	Bend Line #	Length (in)	Vertical Load (kips)	X Moment (ft-k)	Y Moment (ft-k)	Bending Stress (ksi)	Bolt Moment Sum (ft-k)	# Bolts Acting On Bend Line	Max Bolt Load For Bend Line (kips)	Minimum Plate Thickness (in)	Usage %
NESC Rule 250B	LP	1	12.996	35.427	1856.686	-69.421	33.029	45.084	-1.5	118.589	2.235	66.06
NESC 250C	LP	1	12.996	19.257	1857.753	-29.274	32.165	43.904	-1.5	115.752	2.206	64.33
NESC Rule 250D	LP	1	12.996	32.205	1855.296	-99.895	33.301	45.455	-1.5	119.416	2.244	66.60
NESC Rule 250B	RP	1	12.996	51.986	1857.431	-45.302	33.147	45.245	-1.5	119.081	2.239	66.29
NESC 250C	RP	1	12.996	24.858	1857.975	-5.701	32.016	43.701	-1.5	115.320	2.201	64.03
NESC Rule 250D	RP	1	12.996	49.103	1856.543	-73.149	33.403	45.595	-1.5	119.864	2.248	66.81

Summary of Tubular X-Arm Usages by Load Case:

Load Case	Maximum Usage %	Tubular X-Arm Label	Height AGL (ft)	Segment Number
NESC Rule 250B	30.21	XArm	71.5	3
NESC 250C	16.30	XArm	71.5	3

NESC Rule 250D 29.71 XArm 71.5 3

Summary of Insulator Usages:

Insulator Label	Insulator Type	Maximum Usage %	Load Case	Weight (lbs)
RAntFUT	Clamp	0.00	NESC Rule 250B	0.0
RAnt	Clamp	0.00	NESC Rule 250B	0.0
Coax1	Clamp	0.00	NESC Rule 250B	0.0
Coax2	Clamp	0.00	NESC Rule 250B	0.0
Coax3	Clamp	0.00	NESC Rule 250B	0.0
Coax4	Clamp	0.00	NESC Rule 250B	0.0
Coax5	Clamp	0.00	NESC Rule 250B	0.0
Coax6	Clamp	0.00	NESC Rule 250B	0.0
Coax7	Clamp	0.00	NESC Rule 250B	0.0
Coax8	Clamp	0.00	NESC Rule 250B	0.0
Coax9	Clamp	0.00	NESC Rule 250B	0.0
SWL	Suspension	0.00	NESC Rule 250B	1.0
SWR	Suspension	0.00	NESC Rule 250B	1.0
PHL	Suspension	0.00	NESC Rule 250B	50.0
PHM	Suspension	0.00	NESC Rule 250B	50.0
PHR	Suspension	0.00	NESC Rule 250B	50.0

*** Weight of structure (lbs):
Weight of Tubular X-Arms: 1523.8
Weight of Steel Poles: 26794.4
Weight of Suspensions: 152.0
Total: 28470.2

*** End of Report

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**************************************************************************
*                                                                        *
*                              PLS-POLE                                  *
*                   POLE AND FRAME ANALYSIS AND DESIGN                   *
*               Copyright Power Line Systems 1999-2021                   *
*                                                                        *
**************************************************************************

Project Name :
Project Notes:
Project File : J:\Jobs\2112200.WI\05_Structural\Tower Analysis\Backup Documentation\Calcs\PLS-Pole\qt003 & 103_str#8012_80ft(lp)-107ft(rp)_r3.pol
Date run     : 2:46:10 PM Thursday, October 14, 2021
by           : PLS-POLE Version 16.81
Licensed to  : Centek Engineering Inc

Successfully performed nonlinear analysis

The model has 0 warnings.
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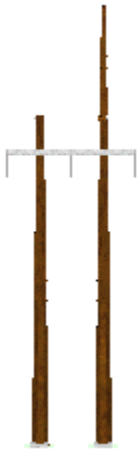


```
Modeling options:
  Offset Arms from Pole/Mast:   Yes
  Offset Braces from Pole/Mast: Yes
  Offset Guys from Pole/Mast:   Yes
  Offset Posts from Pole/Mast:  Yes
  Offset Strains from Pole/Mast:  Yes
  Use Alternate Convergence Process: No
  Steel poles and tubular arms checked with ASCE/SEI 48-19
```

Vang Connectivity:

Vang Label	Attach Label	Tip Label	Azimuth (deg)	Length (ft)	Measured Relative To
SWLVang	LP:SW	SWLVANG	180	0.5	Face
SWRVang	RP:SW	SWRVANG	0	0.5	Face
ArmSusL	XArm:O	VangCL	0	0.5	Face

ArmSusM	XArm:ML	VangCM	0	0.5	Face
ArmSusR	XArm:E	VangCR	0	0.5	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 Length Number	Length (ft)	Default Embedded Length (ft)	Base Plate	Shape	Tip Diameter (in)	Base Diameter (in)	Taper (in/ft)	Default Drag Coef.	Tubes	Modulus of Elasticity Override (ksi)	Weight Density Override (lbs/ft^3)	Shape At Base	Strength Check Type	Distance From Tip (ft)	Ultimate Trans. Load (kips)	Ultimate Long. Load (kips)
QT003_Str#8012_80FT(LP)-R3	80.00	0	Yes	12F	0	48.5	0.3283	1.6	2 tubes	0	0	Calculated	0.000	0.0000	0.0000	Corten Steel	
QT103_Str#8012_107FT(RP)-R3	107.00	0	Yes	12F	13	48.5	0	1.6	4 tubes	0	0	Calculated	0.000	0.0000	0.0000	Corten Steel	

Steel Tubes Properties:

Pole Property	Tube No.	Length (ft)	Thickness (in)	Lap Length (ft)	Lap Factor	Lap Butt Offset (in)	Gap or Yield Stress (ksi)	Moment Cap. Override (ft-k)	Tube Weight (lbs)	Center of Gravity (ft)	Calculated Taper (in/ft)	Tube Top Diameter (in)	Tube Bot. Diameter (in)	1.5x Lap Length (ft)	Actual Overlap (ft)
QT003_Str#8012_80FT(LP)-R3	1	40	0.375	0.000	0.000	0.000	65.000	0.000	4666	21.54	0.32827	22.24	35.37	4.327	0.000
QT003_Str#8012_80FT(LP)-R3	2	40	0.375	0.000	0.000	0.000	65.000	0.000	6821	21.05	0.32827	35.37	48.50	0.000	0.000

Steel Tubes Properties:

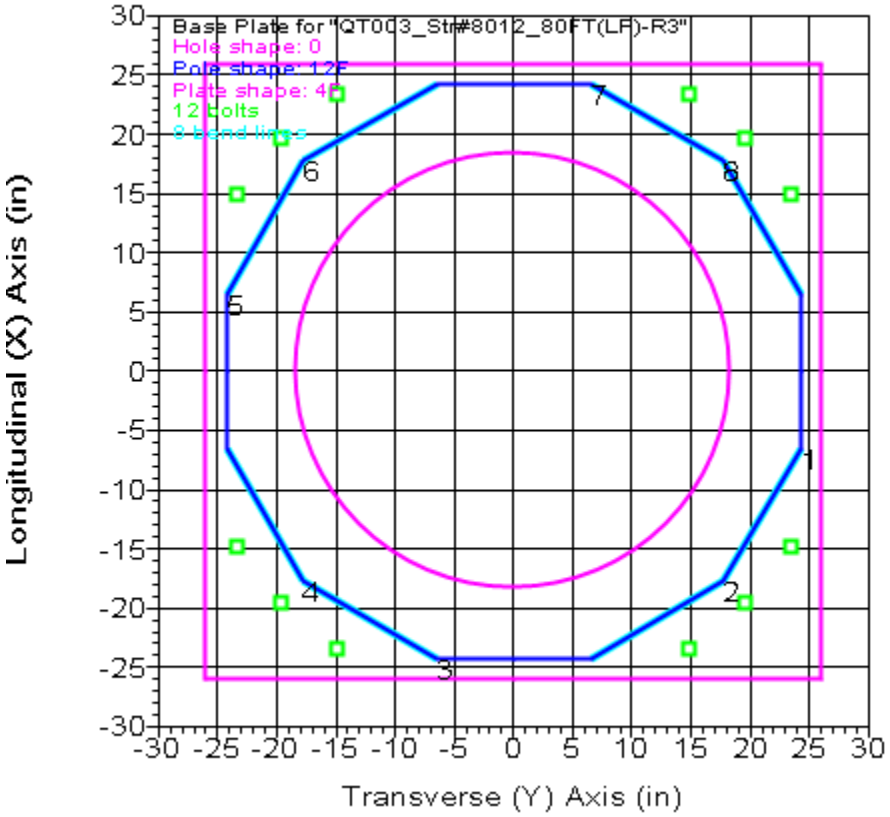
Pole Property	Tube No.	Length (ft)	Thickness (in)	Lap Length (ft)	Lap Factor	Lap Butt Offset (in)	Gap or Yield Stress (ksi)	Moment Cap. Override (ft-k)	Tube Weight (lbs)	Center of Gravity (ft)	Calculated Taper (in/ft)	Tube Top Diameter (in)	Tube Bot. Diameter (in)	1.5x Lap Length (ft)	Actual Overlap (ft)
QT103_Str#8012_107FT(RP)-R3	1	12	0.1875	0.000	0.000	0.000	65.000	0.000	364	6.27	0.32827	13.00	16.94	2.071	0.000
QT103_Str#8012_107FT(RP)-R3	2	15	0.3125	0.000	0.000	0.000	65.000	0.000	992	7.82	0.32827	17.19	22.11	2.686	0.000
QT103_Str#8012_107FT(RP)-R3	3	40	0.375	0.000	0.000	0.000	65.000	0.000	4666	21.54	0.32827	22.24	35.37	4.327	0.000
QT103_Str#8012_107FT(RP)-R3	4	40	0.375	0.000	0.000	0.000	65.000	0.000	6821	21.05	0.32827	35.37	48.50	0.000	0.000

Base Plate Properties:

Pole Property	Plate Diam. (in)	Plate Shape	Plate Thick. (in)	Plate Weight (lbs)	Bend Line Length Override (in)	Hole Diam. (in)	Hole Shape	Steel Density (lbs/ft^3)	Steel Yield Stress (ksi)	Bolt Diam. (in)	Bolt Pattern Diam. (in)	Num. Of Bolts	Bolt Cage X Inertia (in^4)	Bolt Cage Y Inertia (in^4)
QT003_Str#8012_80FT(LP)-R3	52.000	4F	2.750	1233	0.000	37.000	0	490.00	50.000	2.250	55.750	12	18334.12	18334.12
QT103_Str#8012_107FT(RP)-R3	52.000	4F	2.750	1233	0.000	37.000	0	490.00	50.000	2.250	55.750	12	18334.12	18334.12

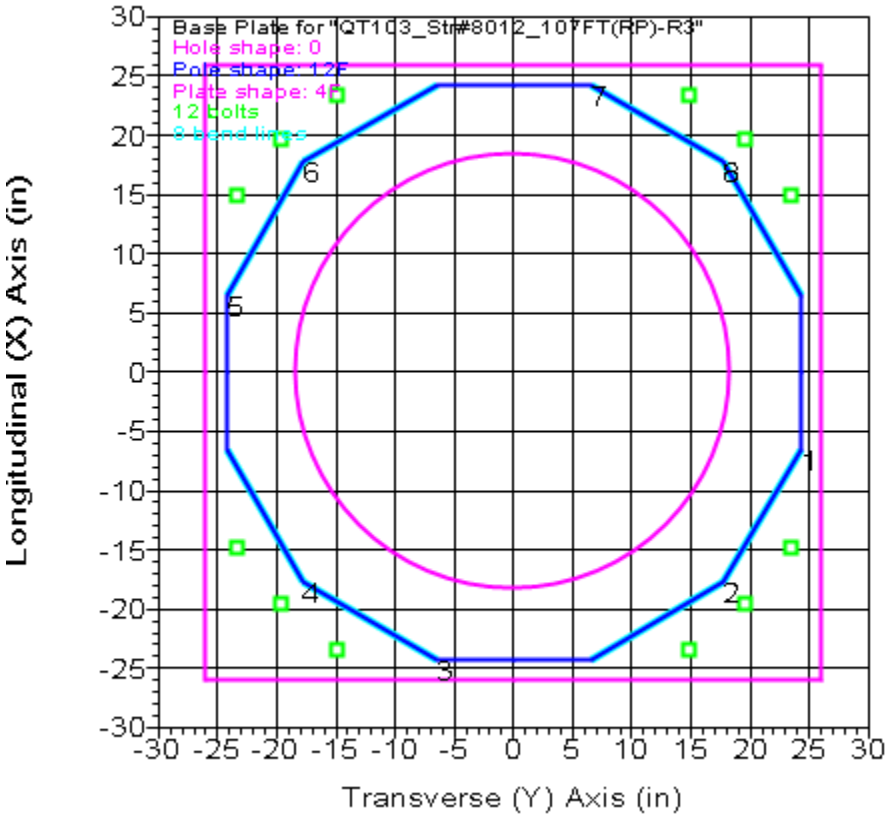
Base Plate Bolt Coordinates for Property "QT003_Str#8012_80FT(LP)-R3":

Bolt X Coord.	Bolt Y Coord.	Bolt Angle (deg)
0.5336	0.8386	0
0.704	0.704	0
0.8386	0.5336	0



Base Plate Bolt Coordinates for Property "QT103_Str#8012_107FT(RP)-R3":

Bolt X Coord.	Bolt Y Coord.	Bolt Angle (deg)
0.5336	0.8386	0
0.704	0.704	0
0.8386	0.5336	0



Steel Pole Connectivity:

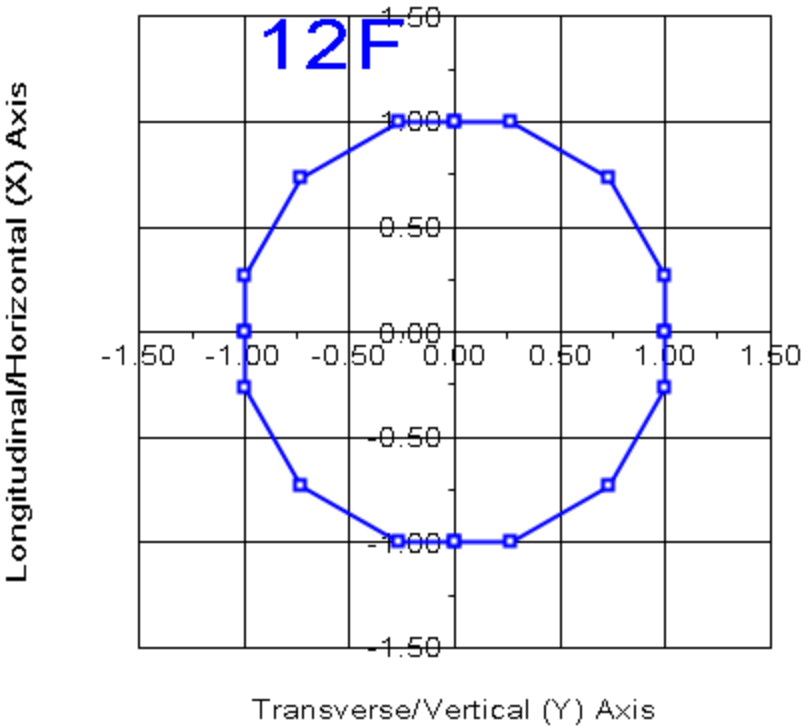
Pole Label	Tip Joint	Base X of Joint Base (ft)	Y of Base (ft)	Z of Base (ft)	Inclin. About X (deg)	Inclin. About Y (deg)	Property Set	Attach. Labels	Base Connect	Embed % Override	Embed C. Override (ft)
LP		0	-7.75	0	0	0	QT003_Str#8012_80FT(LP)-R3	2 labels		0.00	0
RP		0	7.75	0	0	0	QT103_Str#8012_107FT(RP)-R3	13 labels		0.00	0

Relative Attachment Labels for Steel Pole "LP":

Joint Label	Distance From Origin/Top Joint (ft)	Global Z of Attach (ft)
LP:SW	0.75	0.00
LP:C	8.50	0.00

Relative Attachment Labels for Steel Pole "RP":

Joint Label	Distance From Origin/Top Joint (ft)	Global Z of Attach (ft)
RP:ANTFUT	3.00	0.00
RP:ANT	15.00	0.00
RP:SW	27.75	0.00
RP:C	35.50	0.00
RP:Coax1	0.00	5.00
RP:Coax2	0.00	15.00
RP:Coax3	0.00	25.00
RP:Coax4	0.00	35.00
RP:Coax5	0.00	45.00
RP:Coax6	0.00	55.00
RP:Coax7	0.00	65.00
RP:Coax8	0.00	75.00
RP:Coax9	0.00	85.00



Pole Steel Properties:

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Outer Diam. (in)	Area (in^2)	T-Moment Inertia (in^4)	L-Moment Inertia (in^4)	D/t	W/t Max.	Fy (ksi)	Fa Min. (ksi)	T-Moment Capacity (ft-k)	L-Moment Capacity (ft-k)
LP	LP:t	LP:t Ori	0.00	22.24	26.36	1613.33	1613.33	0.00	13.2	65.00	65.00	785.93	785.93
LP	LP:SW	LP:SW End	0.75	22.48	26.66	1668.44	1668.44	0.00	13.4	65.00	65.00	803.87	803.87
LP	LP:SW	LP:SW Ori	0.75	22.48	26.66	1668.44	1668.44	0.00	13.4	65.00	65.00	803.87	803.87
LP	#LP:0	Tube 1 End	4.63	23.76	28.19	1973.24	1973.24	0.00	14.3	65.00	65.00	899.82	899.82
LP	#LP:0	Tube 1 Ori	4.63	23.76	28.19	1973.24	1973.24	0.00	14.3	65.00	65.00	899.82	899.82
LP	LP:C	LP:C End	8.50	25.03	29.73	2313.08	2313.08	0.00	15.2	65.00	65.00	1001.18	1001.18
LP	LP:C	LP:C Ori	8.50	25.03	29.73	2313.08	2313.08	0.00	15.2	65.00	65.00	1001.18	1001.18
LP	#LP:1	Tube 1 End	13.50	26.67	31.71	2806.43	2806.43	0.00	16.4	65.00	65.00	1139.97	1139.97
LP	#LP:1	Tube 1 Ori	13.50	26.67	31.71	2806.43	2806.43	0.00	16.4	65.00	65.00	1139.97	1139.97
LP	#LP:2	Tube 1 End	18.50	28.31	33.68	3365.38	3365.38	0.00	17.5	65.00	65.00	1287.76	1287.76
LP	#LP:2	Tube 1 Ori	18.50	28.31	33.68	3365.38	3365.38	0.00	17.5	65.00	65.00	1287.76	1287.76
LP	#LP:3	Tube 1 End	23.50	29.95	35.66	3994.01	3994.01	0.00	18.7	65.00	65.00	1444.56	1444.56
LP	#LP:3	Tube 1 Ori	23.50	29.95	35.66	3994.01	3994.01	0.00	18.7	65.00	65.00	1444.56	1444.56
LP	#LP:4	Tube 1 End	28.50	31.59	37.64	4696.43	4696.43	0.00	19.9	65.00	65.00	1610.36	1610.36
LP	#LP:4	Tube 1 Ori	28.50	31.59	37.64	4696.43	4696.43	0.00	19.9	65.00	65.00	1610.36	1610.36
LP	#LP:5	Tube 1 End	33.50	33.24	39.62	5476.73	5476.73	0.00	21.1	65.00	65.00	1785.18	1785.18
LP	#LP:5	Tube 1 Ori	33.50	33.24	39.62	5476.74	5476.74	0.00	21.1	65.00	65.00	1785.18	1785.18

LP	#LP:6	Tube 1	End	36.75	34.30	40.91	6027.63	6027.63	0.00	21.8	65.00	65.00	1903.64	1903.64
LP	#LP:6	Tube 1	Ori	36.75	34.30	40.91	6027.63	6027.63	0.00	21.8	65.00	65.00	1903.64	1903.64
LP	#LP:7	SpliceT	End	40.00	35.37	42.19	6614.29	6614.29	0.00	22.6	65.00	65.00	2025.91	2025.91
LP	#LP:7	SpliceT	Ori	40.00	35.37	42.19	6614.29	6614.29	0.00	22.6	65.00	65.00	2025.91	2025.91
LP	#LP:8	Tube 2	End	45.00	37.01	44.17	7589.25	7589.25	0.00	23.8	65.00	65.00	2221.44	2221.44
LP	#LP:8	Tube 2	Ori	45.00	37.01	44.17	7589.25	7589.25	0.00	23.8	65.00	65.00	2221.44	2221.44
LP	#LP:9	Tube 2	End	50.00	38.65	46.15	8655.60	8655.60	0.00	24.9	65.00	65.00	2425.98	2425.98
LP	#LP:9	Tube 2	Ori	50.00	38.65	46.15	8655.60	8655.60	0.00	24.9	65.00	65.00	2425.98	2425.98
LP	#LP:10	Tube 2	End	55.00	40.29	48.13	9817.44	9817.44	0.00	26.1	65.00	65.00	2639.53	2639.53
LP	#LP:10	Tube 2	Ori	55.00	40.29	48.13	9817.44	9817.44	0.00	26.1	65.00	65.00	2639.53	2639.53
LP	#LP:11	Tube 2	End	60.00	41.93	50.11	11078.85	11078.85	0.00	27.3	65.00	65.00	2862.09	2862.09
LP	#LP:11	Tube 2	Ori	60.00	41.93	50.11	11078.85	11078.85	0.00	27.3	65.00	65.00	2862.09	2862.09
LP	#LP:12	Tube 2	End	65.00	43.58	52.09	12443.94	12443.94	0.00	28.5	65.00	65.00	3093.66	3093.66
LP	#LP:12	Tube 2	Ori	65.00	43.58	52.09	12443.95	12443.95	0.00	28.5	65.00	65.00	3093.66	3093.66
LP	#LP:13	Tube 2	End	70.00	45.22	54.07	13916.80	13916.80	0.00	29.6	65.00	65.00	3334.24	3334.24
LP	#LP:13	Tube 2	Ori	70.00	45.22	54.07	13916.80	13916.80	0.00	29.6	65.00	65.00	3334.24	3334.24
LP	#LP:14	Tube 2	End	75.00	46.86	56.05	15501.53	15501.53	0.00	30.8	65.00	64.01	3529.36	3529.36
LP	#LP:14	Tube 2	Ori	75.00	46.86	56.05	15501.53	15501.53	0.00	30.8	65.00	64.01	3529.36	3529.36
LP	LP:g	LP:g	End	80.00	48.50	58.03	17202.21	17202.21	0.00	32.0	65.00	62.86	3715.97	3715.97
RP	RP:t	RP:t	Ori	0.00	13.00	7.72	162.33	162.33	0.00	15.9	65.00	65.00	135.28	135.28
RP	RP:ANTFUT	RP:ANTFUT	End	3.00	13.98	8.32	202.71	202.71	0.00	17.3	65.00	65.00	157.03	157.03
RP	RP:ANTFUT	RP:ANTFUT	Ori	3.00	13.98	8.32	202.71	202.71	0.00	17.3	65.00	65.00	157.03	157.03
RP	#RP:15	Tube 1	End	7.50	15.46	9.21	275.03	275.03	0.00	19.4	65.00	65.00	192.70	192.70
RP	#RP:15	Tube 1	Ori	7.50	15.46	9.21	275.03	275.03	0.00	19.4	65.00	65.00	192.70	192.70
RP	#RP:16	SpliceT	End	12.00	16.94	10.10	362.79	362.79	0.00	21.5	65.00	65.00	232.02	232.02
RP	#RP:16	SpliceT	Ori	12.00	17.19	16.96	618.41	618.41	0.00	12.1	65.00	65.00	389.74	389.74
RP	RP:ANT	RP:ANT	End	15.00	18.17	17.95	733.08	733.08	0.00	12.9	65.00	65.00	436.98	436.98
RP	RP:ANT	RP:ANT	Ori	15.00	18.17	17.95	733.08	733.08	0.00	12.9	65.00	65.00	436.98	436.98
RP	#RP:17	Tube 2	End	18.50	19.32	19.10	883.81	883.81	0.00	13.9	65.00	65.00	495.50	495.50
RP	#RP:17	Tube 2	Ori	18.50	19.32	19.10	883.81	883.81	0.00	13.9	65.00	65.00	495.50	495.50
RP	RP:Coax9	RP:Coax9	End	22.00	20.47	20.26	1053.91	1053.91	0.00	14.9	65.00	65.00	557.71	557.71
RP	RP:Coax9	RP:Coax9	Ori	22.00	20.47	20.26	1053.91	1053.91	0.00	14.9	65.00	65.00	557.71	557.71
RP	#RP:18	SpliceT	End	27.00	22.11	21.91	1332.82	1332.82	0.00	16.3	65.00	65.00	652.95	652.95
RP	#RP:18	SpliceT	Ori	27.00	22.24	26.36	1613.31	1613.31	0.00	13.2	65.00	65.00	785.92	785.92
RP	RP:SW	RP:SW	End	27.75	22.48	26.66	1668.42	1668.42	0.00	13.4	65.00	65.00	803.87	803.87
RP	RP:SW	RP:SW	Ori	27.75	22.48	26.66	1668.42	1668.42	0.00	13.4	65.00	65.00	803.87	803.87
RP	RP:Coax8	RP:Coax8	End	32.00	23.88	28.34	2004.55	2004.55	0.00	14.4	65.00	65.00	909.39	909.39
RP	RP:Coax8	RP:Coax8	Ori	32.00	23.88	28.34	2004.55	2004.55	0.00	14.4	65.00	65.00	909.39	909.39
RP	RP:C	RP:C	End	35.50	25.03	29.73	2313.06	2313.06	0.00	15.2	65.00	65.00	1001.18	1001.18
RP	RP:C	RP:C	Ori	35.50	25.03	29.73	2313.06	2313.06	0.00	15.2	65.00	65.00	1001.18	1001.18
RP	#RP:19	Tube 3	End	38.75	26.10	31.01	2626.48	2626.48	0.00	16.0	65.00	65.00	1090.36	1090.36
RP	#RP:19	Tube 3	Ori	38.75	26.10	31.01	2626.48	2626.48	0.00	16.0	65.00	65.00	1090.36	1090.36
RP	RP:Coax7	RP:Coax7	End	42.00	27.16	32.30	2967.02	2967.02	0.00	16.7	65.00	65.00	1183.35	1183.35
RP	RP:Coax7	RP:Coax7	Ori	42.00	27.16	32.30	2967.02	2967.02	0.00	16.7	65.00	65.00	1183.35	1183.35
RP	#RP:20	Tube 3	End	47.00	28.80	34.28	3546.44	3546.44	0.00	17.9	65.00	65.00	1333.84	1333.84
RP	#RP:20	Tube 3	Ori	47.00	28.80	34.28	3546.44	3546.44	0.00	17.9	65.00	65.00	1333.84	1333.84
RP	RP:Coax6	RP:Coax6	End	52.00	30.45	36.26	4196.78	4196.78	0.00	19.1	65.00	65.00	1493.35	1493.35
RP	RP:Coax6	RP:Coax6	Ori	52.00	30.45	36.26	4196.78	4196.78	0.00	19.1	65.00	65.00	1493.35	1493.35
RP	#RP:21	Tube 3	End	57.00	32.09	38.24	4922.14	4922.14	0.00	20.2	65.00	65.00	1661.86	1661.86
RP	#RP:21	Tube 3	Ori	57.00	32.09	38.24	4922.14	4922.14	0.00	20.2	65.00	65.00	1661.86	1661.86
RP	RP:Coax5	RP:Coax5	End	62.00	33.73	40.22	5726.60	5726.60	0.00	21.4	65.00	65.00	1839.37	1839.37
RP	RP:Coax5	RP:Coax5	Ori	62.00	33.73	40.22	5726.60	5726.60	0.00	21.4	65.00	65.00	1839.37	1839.37
RP	#RP:22	SpliceT	End	67.00	35.37	42.19	6614.26	6614.26	0.00	22.6	65.00	65.00	2025.90	2025.90
RP	#RP:22	SpliceT	Ori	67.00	35.37	42.19	6614.27	6614.27	0.00	22.6	65.00	65.00	2025.90	2025.90
RP	RP:Coax4	RP:Coax4	End	72.00	37.01	44.17	7589.23	7589.23	0.00	23.8	65.00	65.00	2221.44	2221.44
RP	RP:Coax4	RP:Coax4	Ori	72.00	37.01	44.17	7589.23	7589.23	0.00	23.8	65.00	65.00	2221.44	2221.44
RP	#RP:23	Tube 4	End	77.00	38.65	46.15	8655.58	8655.58	0.00	24.9	65.00	65.00	2425.98	2425.98
RP	#RP:23	Tube 4	Ori	77.00	38.65	46.15	8655.58	8655.58	0.00	24.9	65.00	65.00	2425.98	2425.98

RP	RP:Coax3	RP:Coax3 End	82.00	40.29	48.13	9817.42	9817.42	0.00	26.1	65.00	65.00	2639.53	2639.53
RP	RP:Coax3	RP:Coax3 Ori	82.00	40.29	48.13	9817.42	9817.42	0.00	26.1	65.00	65.00	2639.53	2639.53
RP	#RP:24	Tube 4 End	87.00	41.93	50.11	11078.84	11078.84	0.00	27.3	65.00	65.00	2862.09	2862.09
RP	#RP:24	Tube 4 Ori	87.00	41.93	50.11	11078.84	11078.84	0.00	27.3	65.00	65.00	2862.09	2862.09
RP	RP:Coax2	RP:Coax2 End	92.00	43.58	52.09	12443.93	12443.93	0.00	28.5	65.00	65.00	3093.66	3093.66
RP	RP:Coax2	RP:Coax2 Ori	92.00	43.58	52.09	12443.93	12443.93	0.00	28.5	65.00	65.00	3093.66	3093.66
RP	#RP:25	Tube 4 End	97.00	45.22	54.07	13916.79	13916.79	0.00	29.6	65.00	65.00	3334.23	3334.23
RP	#RP:25	Tube 4 Ori	97.00	45.22	54.07	13916.80	13916.80	0.00	29.6	65.00	65.00	3334.23	3334.23
RP	RP:Coax1	RP:Coax1 End	102.00	46.86	56.05	15501.52	15501.52	0.00	30.8	65.00	64.01	3529.36	3529.36
RP	RP:Coax1	RP:Coax1 Ori	102.00	46.86	56.05	15501.52	15501.52	0.00	30.8	65.00	64.01	3529.36	3529.36
RP	RP:g	RP:g End	107.00	48.50	58.03	17202.21	17202.21	0.00	32.0	65.00	62.86	3715.97	3715.97

Tubular X-Arm Properties:

Cross Arm Property Label	Stock Number	Steel Shape	Thickness (in)	Diameter or Depth (in)	Length (ft)	Modulus of Elasticity (ksi)	Drag Coef.	Geometry	Strength Check Type	Vertical Capacity (lbs)	Trans. Capacity (lbs)	Long. Capacity (lbs)	Steel Yield Stress (ksi)	Weight Density Override (lbs/ft^3)	Texture
31FT_XArm_QT003&QT103	8F		0.375	12	31	29000	1.3	3 points	Calculated	0	0	0	65	0	

Joints Relative to the Origin for Cross Arm Property "31FT_XArm_QT003&QT103":

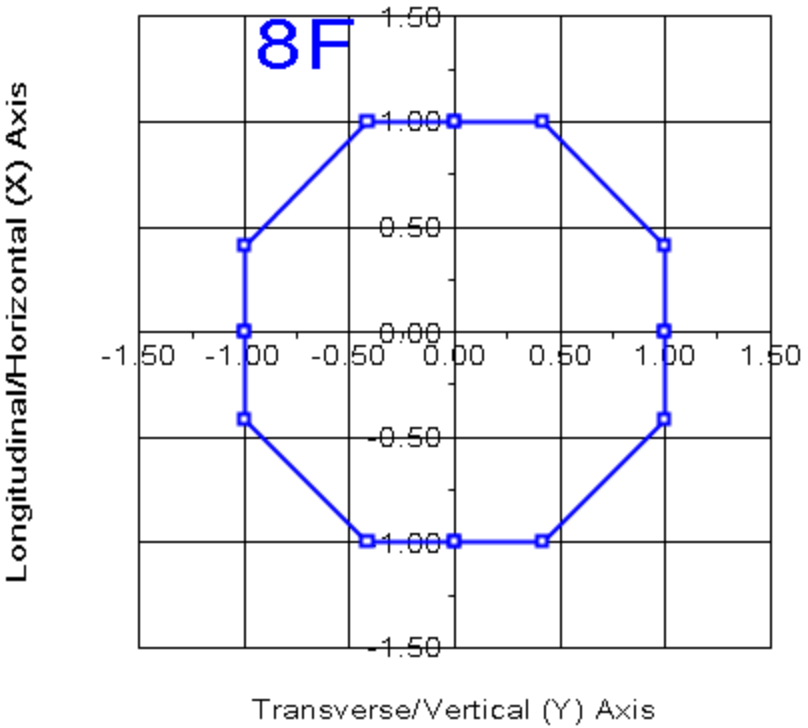
Joint Label	Offset (ft)
LP	7.75
ML	15.5
RP	23.25

Tubular X-Arm Connectivity:

X-Arm Label	X-Arm Property Set	Azimuth (deg)	Slope (deg)	Attach. Labels	Connects
XArm	31FT_XArm_QT003&QT103	0	0		5 connections

X-Arm Connections for "XArm":

Attach Label	Offset (ft)	Connect At	Connection Code Type
XArm:O	0.000		
XArm:LP	7.750	LP:C	Pinned Face
XArm:ML	15.500		
XArm:RP	23.250	RP:C	Pinned Face
XArm:E	31.000		



Tubular X-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)
XArm	XArm:O	Origin	0.00	12.00	14.45	258.25	258.25	0.00	9.1	65.00	65.00	233.14	233.14
XArm	#sXArm:0	End	3.87	12.00	14.45	258.25	258.25	0.00	9.1	65.00	65.00	233.14	233.14
XArm	#sXArm:0	Origin	3.87	12.00	14.45	258.25	258.25	0.00	9.1	65.00	65.00	233.14	233.14
XArm	XArm:LP	End	7.75	12.00	14.45	258.25	258.25	0.00	9.1	65.00	65.00	233.14	233.14
XArm	XArm:LP	Origin	7.75	12.00	14.45	258.25	258.25	0.00	9.1	65.00	65.00	233.14	233.14
XArm	#sXArm:1	End	11.63	12.00	14.45	258.25	258.25	0.00	9.1	65.00	65.00	233.14	233.14
XArm	#sXArm:1	Origin	11.63	12.00	14.45	258.25	258.25	0.00	9.1	65.00	65.00	233.14	233.14
XArm	XArm:ML	End	15.50	12.00	14.45	258.25	258.25	0.00	9.1	65.00	65.00	233.14	233.14
XArm	XArm:ML	Origin	15.50	12.00	14.45	258.25	258.25	0.00	9.1	65.00	65.00	233.14	233.14
XArm	#sXArm:2	End	19.38	12.00	14.45	258.25	258.25	0.00	9.1	65.00	65.00	233.14	233.14
XArm	#sXArm:2	Origin	19.38	12.00	14.45	258.25	258.25	0.00	9.1	65.00	65.00	233.14	233.14
XArm	XArm:RP	End	23.25	12.00	14.45	258.25	258.25	0.00	9.1	65.00	65.00	233.14	233.14
XArm	XArm:RP	Origin	23.25	12.00	14.45	258.25	258.25	0.00	9.1	65.00	65.00	233.14	233.14
XArm	#sXArm:3	End	27.13	12.00	14.45	258.25	258.25	0.00	9.1	65.00	65.00	233.14	233.14
XArm	#sXArm:3	Origin	27.13	12.00	14.45	258.25	258.25	0.00	9.1	65.00	65.00	233.14	233.14
XArm	XArm:E	End	31.00	12.00	14.45	258.25	258.25	0.00	9.1	65.00	65.00	233.14	233.14

*** Insulator Data

Clamp Properties:

Label	Stock Number	Holding Capacity (lbs)	Hardware Capacity (lbs)	Notes
CLAMP		1e+05	0	

Clamp Insulator Connectivity:

Clamp Label	Structure And Tip Attach	Property Set	Min. Required Vertical Load (uplift) (lbs)
RAntFUT	RP:ANTFUT	CLAMP	No Uplift
RAnt	RP:ANT	CLAMP	No Uplift
Coax1	RP:Coax1	CLAMP	No Limit
Coax2	RP:Coax2	CLAMP	No Limit
Coax3	RP:Coax3	CLAMP	No Limit
Coax4	RP:Coax4	CLAMP	No Limit
Coax5	RP:Coax5	CLAMP	No Limit
Coax6	RP:Coax6	CLAMP	No Limit
Coax7	RP:Coax7	CLAMP	No Limit
Coax8	RP:Coax8	CLAMP	No Limit
Coax9	RP:Coax9	CLAMP	No Limit

Suspension Properties:

Label	Stock Number	Length (ft)	Weight (lbs)	Wind Area (ft^2)	Tension Capacity (lbs)	Top Rect Width (ft)	Top Rect Height (ft)	Bot. Rect Width (ft)	Bot. Rect Height (ft)	Vert. Rect Width (ft)	Vert. Rect Height (ft)	Hardware Capacity (lbs)	Notes	Draw Rigid
SW SUS		0.25	1	0	2.5e+04	0	0	0	0	0	0	0	Sheds	No
dummy Susp		6	50	2	3e+04	0	0	0	0	0	0	0	Sheds	No

Suspension Insulator Connectivity:

Suspension Label	Structure Attach	Tip Label	Property Set	Cond. 1 Minimum Swing (deg)	Cond. 1 Maximum Swing (deg)	Cond. 2 Minimum Swing (deg)	Cond. 2 Maximum Swing (deg)	Cond. 3 Minimum Swing (deg)	Cond. 3 Maximum Swing (deg)	Cond. 4 Minimum Swing (deg)	Cond. 4 Maximum Swing (deg)	Min. Required Vertical Load (uplift) (lbs)
SWL	SWLVANG	SWL	SW SUS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	No Limit
SWR	SWRVANG	SWR	SW SUS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	No Limit
PHL	VangCL	PHL	dummy Susp	-90.00	77.00	-90.00	48.00	0.00	0.00	0.00	0.00	No Limit
PHM	VangCM	PHM	dummy Susp	-77.00	77.00	-48.00	48.00	0.00	0.00	0.00	0.00	No Limit
PHR	VangCR	PHR	dummy Susp	-77.00	90.00	-48.00	90.00	0.00	0.00	0.00	0.00	No Limit

*** Loads Data

Loads from file: J:\Jobs\2112200.WI\05_Structural\Tower Analysis\Backup Documentation\Calcs\PLS-Pole\qt003 & 103-str#8012-r3.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   0.00 (ft)
  Z of ground with shift   0.00 (ft)
  Z of structure top (highest joint)   107.00 (ft)
  Structure height   107.00 (ft)
  Structure height above ground   107.00 (ft)

Vector Load Cases:

Load Case Description	Dead Load	Wind Area Factor	SF for Steel Poles Factor	SF for Wood Poles Factor	SF for Conc. Tubular Poles and Towers	SF for Conc. Arms	SF for Conc. First Crack	SF for Guys Zero Tens.	SF for and Tubular Cables	SF for Non Tubular Arms	SF For Braces Insuls.	Point Hardware Found.	Wind/Ice Loads	Trans. Longit. Model	Ice Thick.	Wind Density	Wind Pressure	Ice Pressure
			Deflection Check	Deflection Limit														
															(in)	(lbs/ft^3)	(psf)	(psf)
					and Towers		Crack	Tens.	Cables	Arms						(deg F)	% or (ft)	
NESC Rule 250B	1.5000	2.5000	1.00000	1.0000	1.0000	0.0000	0.0000	1.0000	1.0000	1.0000	0.0000	1.0000	0.0000	15 loads	Wind on All	4	0.500	57.000	0.0	No Limit	0
NESC 250C	1.0000	1.0000	1.00000	1.0000	1.0000	0.0000	0.0000	1.0000	1.0000	1.0000	0.0000	1.0000	0.0000	15 loads	NESC 2017	31	0.000	57.000	0.0	No Limit	0
NESC Rule 250D	1.0000	1.0000	1.00000	1.0000	1.0000	0.0000	0.0000	1.0000	1.0000	1.0000	0.0000	1.0000	0.0000	15 loads	Wind on All	4	1.000	57.000	15.0	No Limit	0

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

Joint Label	Vertical Load (lbs)	Transverse Load (lbs)	Longitudinal Load (lbs)	Load Comment
RP:ANT	7359	1734	0	
SWL	2422.35	1890.8	0	
SWR	2422.35	1890.8	0	
PHL	8055.13	3533.42	0	
PHM	8055.13	3533.42	0	
PHR	8055.13	3533.42	0	
RP:Coax1	920	172	0	
RP:Coax2	920	172	0	
RP:Coax3	920	172	0	
RP:Coax4	920	172	0	
RP:Coax5	920	172	0	
RP:Coax6	920	172	0	
RP:Coax7	920	172	0	
RP:Coax8	920	172	0	

RP:Coax9 920 172 0

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

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

Pole Label	Top Joint	Bottom Joint	Section Top Z (ft)	Section Bottom Z (ft)	Section Average Elevation (ft)	Outer Diameter (in)	Reynolds Number	Drag Coef.	Adjusted Wind Pressure (psf)	Adjusted Ice Thickness (in)	Pole Vert. Load (lbs)	Pole Wind Load (lbs)	Pole Ice Vertical Load (lbs)	Pole Ice Wind Load (lbs)	Tran. Wind Load (lbs)	Long. Wind Load (lbs)
LP	LP:t	LP:SW	80.00	79.25	79.63	22.362	1.06e+06	1.600	10.00	0.50	101.49	22.36	10.67	1.00	23.36	0.00
LP	LP:SW		79.25	75.38	77.31	23.121	1.09e+06	1.600	10.00	0.50	542.45	119.46	57.01	5.17	124.63	0.00
LP		LP:C	75.38	71.50	73.44	24.393	1.15e+06	1.600	10.00	0.50	572.79	126.04	60.15	5.17	131.20	0.00
LP	LP:C		71.50	66.50	69.00	25.849	1.22e+06	1.600	10.00	0.50	783.90	172.34	82.25	6.67	179.01	0.00
LP			66.50	61.50	64.00	27.491	1.3e+06	1.600	10.00	0.50	834.41	183.28	87.47	6.67	189.95	0.00
LP			61.50	56.50	59.00	29.132	1.38e+06	1.600	10.00	0.50	884.92	194.22	92.70	6.67	200.89	0.00
LP			56.50	51.50	54.00	30.773	1.46e+06	1.600	10.00	0.50	935.43	205.17	97.92	6.67	211.83	0.00
LP			51.50	46.50	49.00	32.415	1.53e+06	1.600	10.00	0.50	985.94	216.11	103.14	6.67	222.78	0.00
LP			46.50	43.25	44.87	33.769	1.6e+06	1.600	10.00	0.50	667.94	146.34	69.84	4.33	150.67	0.00
LP			43.25	40.00	41.63	34.836	1.65e+06	1.600	10.00	0.50	689.28	150.96	72.05	4.33	155.30	0.00
LP			40.00	35.00	37.50	36.190	1.71e+06	1.600	10.00	0.50	1102.11	241.28	115.15	6.67	247.95	0.00
LP			35.00	30.00	32.50	37.831	1.79e+06	1.600	10.00	0.50	1152.61	252.22	120.38	6.67	258.89	0.00
LP			30.00	25.00	27.50	39.473	1.87e+06	1.600	10.00	0.50	1203.12	263.16	125.60	6.67	269.83	0.00
LP			25.00	20.00	22.50	41.114	1.95e+06	1.600	10.00	0.50	1253.63	274.11	130.82	6.67	280.77	0.00
LP			20.00	15.00	17.50	42.755	2.02e+06	1.600	10.00	0.50	1304.14	285.05	136.04	6.67	291.72	0.00
LP			15.00	10.00	12.50	44.397	2.1e+06	1.600	10.00	0.50	1354.65	295.99	141.27	6.67	302.66	0.00
LP			10.00	5.00	7.50	46.038	2.18e+06	1.600	10.00	0.50	1405.15	306.94	146.49	6.67	313.60	0.00
LP		LP:g	5.00	0.00	2.50	47.679	2.26e+06	1.600	10.00	0.50	1455.66	317.88	151.71	6.67	324.55	0.00
RP	RP:t	RP:ANTFUT	107.00	104.00	105.50	13.492	6.39e+05	1.600	10.00	0.50	122.83	53.97	25.76	4.00	57.97	0.00
RP	RP:ANTFUT		104.00	99.50	101.75	14.723	6.97e+05	1.600	10.00	0.50	201.29	88.35	42.16	6.00	94.35	0.00
RP			99.50	95.00	97.25	16.201	7.67e+05	1.600	10.00	0.50	221.77	97.21	46.39	6.00	103.21	0.00
RP		RP:ANT	95.00	92.00	93.50	17.682	8.37e+05	1.600	10.00	0.50	267.20	70.73	33.76	4.00	74.73	0.00
RP	RP:ANT		92.00	88.50	90.25	18.749	8.88e+05	1.600	10.00	0.50	330.94	87.50	41.76	4.67	92.16	0.00
RP		RP:Coax9	88.50	85.00	86.75	19.897	9.42e+05	1.600	10.00	0.50	351.56	92.86	44.32	4.67	97.53	0.00
RP	RP:Coax9		85.00	80.00	82.50	21.293	1.01e+06	1.600	10.00	0.50	538.03	141.96	67.75	6.67	148.63	0.00
RP		RP:SW	80.00	79.25	79.63	22.361	1.06e+06	1.600	10.00	0.50	101.46	22.36	10.67	1.00	23.36	0.00
RP	RP:SW	RP:Coax8	79.25	75.00	77.13	23.182	1.1e+06	1.600	10.00	0.50	596.55	131.37	62.70	5.67	137.04	0.00
RP	RP:Coax8	RP:C	75.00	71.50	73.25	24.454	1.16e+06	1.600	10.00	0.50	518.68	114.13	54.47	4.67	118.79	0.00
RP	RP:C		71.50	68.25	69.88	25.562	1.21e+06	1.600	10.00	0.50	503.79	110.77	52.87	4.33	115.11	0.00
RP		RP:Coax7	68.25	65.00	66.63	26.629	1.26e+06	1.600	10.00	0.50	525.13	115.40	55.07	4.33	119.73	0.00
RP	RP:Coax7		65.00	60.00	62.50	27.983	1.32e+06	1.600	10.00	0.50	849.56	186.56	89.04	6.67	193.23	0.00
RP		RP:Coax6	60.00	55.00	57.50	29.624	1.4e+06	1.600	10.00	0.50	900.07	197.51	94.26	6.67	204.17	0.00
RP	RP:Coax6		55.00	50.00	52.50	31.266	1.48e+06	1.600	10.00	0.50	950.58	208.45	99.48	6.67	215.12	0.00
RP		RP:Coax5	50.00	45.00	47.50	32.907	1.56e+06	1.600	10.00	0.50	1001.09	219.39	104.71	6.67	226.06	0.00
RP	RP:Coax5		45.00	40.00	42.50	34.548	1.64e+06	1.600	10.00	0.50	1051.60	230.34	109.93	6.67	237.00	0.00
RP		RP:Coax4	40.00	35.00	37.50	36.190	1.71e+06	1.600	10.00	0.50	1102.10	241.28	115.15	6.67	247.95	0.00
RP	RP:Coax4		35.00	30.00	32.50	37.831	1.79e+06	1.600	10.00	0.50	1152.61	252.22	120.37	6.67	258.89	0.00
RP		RP:Coax3	30.00	25.00	27.50	39.473	1.87e+06	1.600	10.00	0.50	1203.12	263.16	125.60	6.67	269.83	0.00
RP	RP:Coax3		25.00	20.00	22.50	41.114	1.95e+06	1.600	10.00	0.50	1253.63	274.11	130.82	6.67	280.77	0.00
RP		RP:Coax2	20.00	15.00	17.50	42.755	2.02e+06	1.600	10.00	0.50	1304.14	285.05	136.04	6.67	291.72	0.00
RP	RP:Coax2		15.00	10.00	12.50	44.397	2.1e+06	1.600	10.00	0.50	1354.65	295.99	141.27	6.67	302.66	0.00
RP		RP:Coax1	10.00	5.00	7.50	46.038	2.18e+06	1.600	10.00	0.50	1405.15	306.94	146.49	6.67	313.60	0.00
RP	RP:Coax1	RP:g	5.00	0.00	2.50	47.679	2.26e+06	1.600	10.00	0.50	1455.66	317.88	151.71	6.67	324.55	0.00

Point Loads for Load Case "NESC 250C":

Joint	Vertical	Transverse	Longitudinal	Load

Label	Load (lbs)	Load (lbs)	Load (lbs)	Comment
RP:ANT	4018	5421	61	
SWL	673.5	1712.12	0	
SWR	673.5	1712.12	0	
PHL	3462.1	5240.62	0	
PHM	3462.1	5240.62	0	
PHR	3462.1	5240.62	0	
RP:Coax1	250	501	0	
RP:Coax2	250	501	0	
RP:Coax3	250	501	0	
RP:Coax4	250	501	0	
RP:Coax5	250	501	0	
RP:Coax6	250	501	0	
RP:Coax7	250	501	0	
RP:Coax8	250	501	0	
RP:Coax9	250	501	0	

Detailed Pole Loading Data for Load Case "NESC 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)
LP	LP:t	LP:SW	80.00	79.25	79.63	22.362	1.88e+06	1.000	31.62	0.00	67.66	44.19	0.00	0.00	44.19	0.00
LP	LP:SW		79.25	75.38	77.31	23.121	1.95e+06	1.000	31.62	0.00	361.63	236.04	0.00	0.00	236.04	0.00
LP		LP:C	75.38	71.50	73.44	24.393	2.05e+06	1.000	31.62	0.00	381.86	249.03	0.00	0.00	249.03	0.00
LP	LP:C		71.50	66.50	69.00	25.849	2.18e+06	1.000	31.62	0.00	522.60	340.51	0.00	0.00	340.51	0.00
LP			66.50	61.50	64.00	27.491	2.31e+06	1.000	31.62	0.00	556.28	362.14	0.00	0.00	362.14	0.00
LP			61.50	56.50	59.00	29.132	2.45e+06	1.000	31.62	0.00	589.95	383.76	0.00	0.00	383.76	0.00
LP			56.50	51.50	54.00	30.773	2.59e+06	1.000	31.62	0.00	623.62	405.38	0.00	0.00	405.38	0.00
LP			51.50	46.50	49.00	32.415	2.73e+06	1.000	31.62	0.00	657.29	427.00	0.00	0.00	427.00	0.00
LP			46.50	43.25	44.87	33.769	2.84e+06	1.000	31.62	0.00	445.30	289.15	0.00	0.00	289.15	0.00
LP			43.25	40.00	41.63	34.836	2.93e+06	1.000	31.62	0.00	459.52	298.28	0.00	0.00	298.28	0.00
LP			40.00	35.00	37.50	36.190	3.05e+06	1.000	31.62	0.00	734.74	476.73	0.00	0.00	476.73	0.00
LP			35.00	30.00	32.50	37.831	3.18e+06	1.000	31.62	0.00	768.41	498.35	0.00	0.00	498.35	0.00
LP			30.00	25.00	27.50	39.473	3.32e+06	1.000	31.62	0.00	802.08	519.97	0.00	0.00	519.97	0.00
LP			25.00	20.00	22.50	41.114	3.46e+06	1.000	31.62	0.00	835.75	541.60	0.00	0.00	541.60	0.00
LP			20.00	15.00	17.50	42.755	3.6e+06	1.000	31.62	0.00	869.43	563.22	0.00	0.00	563.22	0.00
LP			15.00	10.00	12.50	44.397	3.74e+06	1.000	31.62	0.00	903.10	584.84	0.00	0.00	584.84	0.00
LP			10.00	5.00	7.50	46.038	3.88e+06	1.000	31.62	0.00	936.77	606.46	0.00	0.00	606.46	0.00
LP		LP:g	5.00	0.00	2.50	47.679	4.01e+06	1.000	31.62	0.00	970.44	628.08	0.00	0.00	628.08	0.00
RP	RP:t	RP:ANTFUT	107.00	104.00	105.50	13.492	1.14e+06	1.000	31.62	0.00	81.88	106.64	0.00	0.00	106.64	0.00
RP	RP:ANTFUT		104.00	99.50	101.75	14.723	1.24e+06	1.000	31.62	0.00	134.19	174.56	0.00	0.00	174.56	0.00
RP			99.50	95.00	97.25	16.201	1.36e+06	1.000	31.62	0.00	147.85	192.07	0.00	0.00	192.07	0.00
RP		RP:ANT	95.00	92.00	93.50	17.682	1.49e+06	1.000	31.62	0.00	178.14	139.75	0.00	0.00	139.75	0.00
RP	RP:ANT		92.00	88.50	90.25	18.749	1.58e+06	1.000	31.62	0.00	220.62	172.88	0.00	0.00	172.88	0.00
RP		RP:Coax9	88.50	85.00	86.75	19.897	1.67e+06	1.000	31.62	0.00	234.37	183.48	0.00	0.00	183.48	0.00
RP	RP:Coax9		85.00	80.00	82.50	21.293	1.79e+06	1.000	31.62	0.00	358.68	280.49	0.00	0.00	280.49	0.00
RP		RP:SW	80.00	79.25	79.63	22.361	1.88e+06	1.000	31.62	0.00	67.64	44.19	0.00	0.00	44.19	0.00
RP	RP:SW	RP:Coax8	79.25	75.00	77.13	23.182	1.95e+06	1.000	31.62	0.00	397.70	259.57	0.00	0.00	259.57	0.00
RP	RP:Coax8	RP:C	75.00	71.50	73.25	24.454	2.06e+06	1.000	31.62	0.00	345.79	225.49	0.00	0.00	225.49	0.00
RP	RP:C		71.50	68.25	69.88	25.562	2.15e+06	1.000	31.62	0.00	335.86	218.87	0.00	0.00	218.87	0.00
RP		RP:Coax7	68.25	65.00	66.63	26.629	2.24e+06	1.000	31.62	0.00	350.09	228.01	0.00	0.00	228.01	0.00

RP	RP:Coax7		65.00	60.00	62.50	27.983	2.36e+06	1.000	31.62	0.00	566.38	368.62	0.00	0.00	368.62	0.00
RP		RP:Coax6	60.00	55.00	57.50	29.624	2.49e+06	1.000	31.62	0.00	600.05	390.24	0.00	0.00	390.24	0.00
RP	RP:Coax6		55.00	50.00	52.50	31.266	2.63e+06	1.000	31.62	0.00	633.72	411.87	0.00	0.00	411.87	0.00
RP		RP:Coax5	50.00	45.00	47.50	32.907	2.77e+06	1.000	31.62	0.00	667.39	433.49	0.00	0.00	433.49	0.00
RP	RP:Coax5		45.00	40.00	42.50	34.548	2.91e+06	1.000	31.62	0.00	701.06	455.11	0.00	0.00	455.11	0.00
RP		RP:Coax4	40.00	35.00	37.50	36.190	3.05e+06	1.000	31.62	0.00	734.74	476.73	0.00	0.00	476.73	0.00
RP	RP:Coax4		35.00	30.00	32.50	37.831	3.18e+06	1.000	31.62	0.00	768.41	498.35	0.00	0.00	498.35	0.00
RP		RP:Coax3	30.00	25.00	27.50	39.473	3.32e+06	1.000	31.62	0.00	802.08	519.97	0.00	0.00	519.97	0.00
RP	RP:Coax3		25.00	20.00	22.50	41.114	3.46e+06	1.000	31.62	0.00	835.75	541.59	0.00	0.00	541.59	0.00
RP		RP:Coax2	20.00	15.00	17.50	42.755	3.6e+06	1.000	31.62	0.00	869.42	563.22	0.00	0.00	563.22	0.00
RP	RP:Coax2		15.00	10.00	12.50	44.397	3.74e+06	1.000	31.62	0.00	903.10	584.84	0.00	0.00	584.84	0.00
RP		RP:Coax1	10.00	5.00	7.50	46.038	3.88e+06	1.000	31.62	0.00	936.77	606.46	0.00	0.00	606.46	0.00
RP	RP:Coax1	RP:g	5.00	0.00	2.50	47.679	4.01e+06	1.000	31.62	0.00	970.44	628.08	0.00	0.00	628.08	0.00

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

Joint Label	Vertical Load (lbs)	Transverse Load (lbs)	Longitudinal Load (lbs)	Load Comment
RP:ANT	5907	753	53	
SWL	3489.29	1589.97	0	
SWR	3489.29	1589.97	0	
PHL	8211.07	2666.14	0	
PHM	8211.07	2666.14	0	
PHR	8211.07	2666.14	0	
RP:Coax1	1123	74	0	
RP:Coax2	1123	74	0	
RP:Coax3	1123	74	0	
RP:Coax4	1123	74	0	
RP:Coax5	1123	74	0	
RP:Coax6	1123	74	0	
RP:Coax7	1123	74	0	
RP:Coax8	1123	74	0	
RP:Coax9	1123	74	0	

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

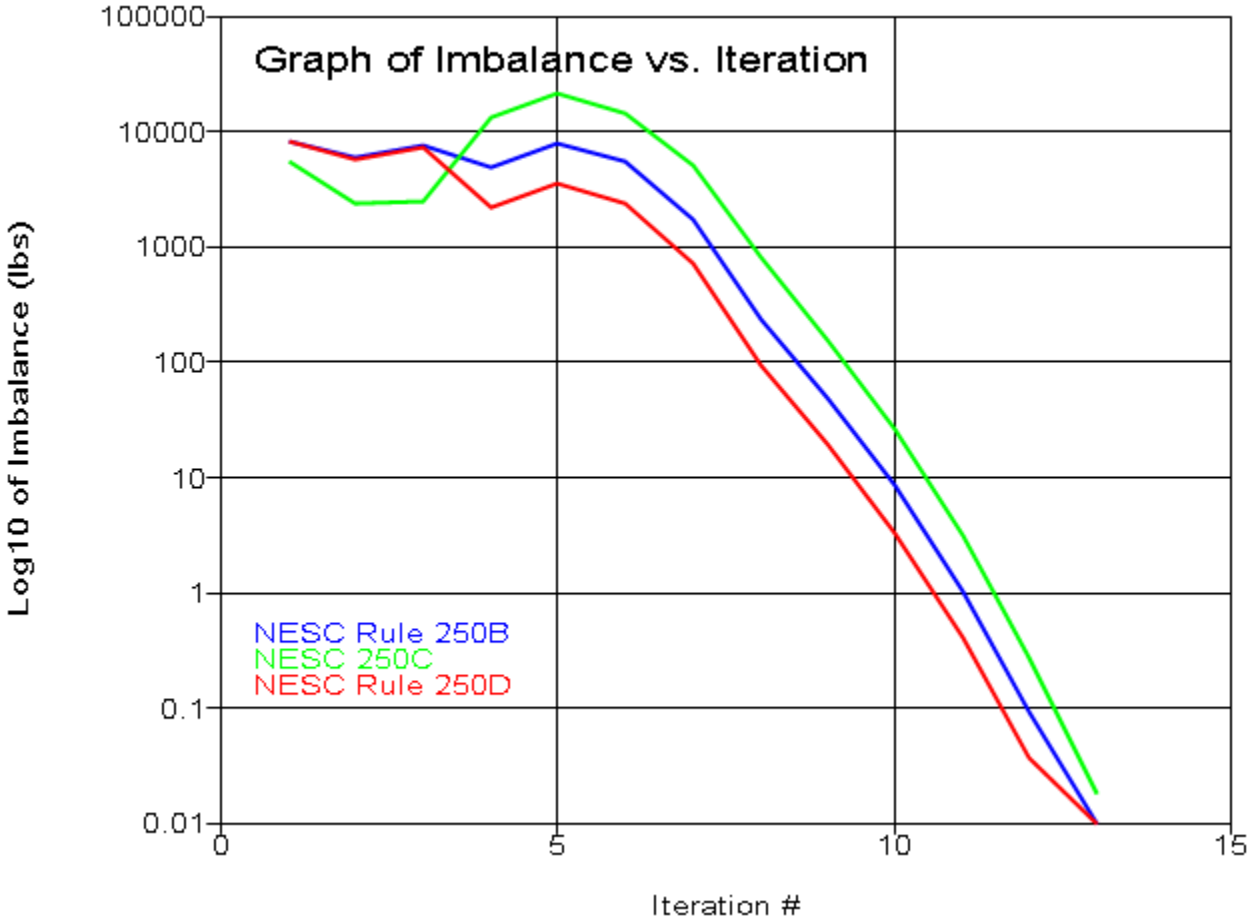
Notes: Does not include loads from equipment, arms, guys, braces, etc. or user input loads.
Wind load is calculated for the undeformed shape of a pole.

Pole Label	Top Joint	Bottom Joint	Section Top Z (ft)	Section Bottom Z (ft)	Section Average Elevation (ft)	Outer Diameter (in)	Reynolds Number	Drag Coef.	Adjusted Wind Pressure (psf)	Adjusted Ice Thickness (in)	Pole Vert. Load (lbs)	Pole Wind Load (lbs)	Pole Ice Vertical Load (lbs)	Pole Ice Wind Load (lbs)	Tran. Wind Load (lbs)	Long. Wind Load (lbs)
LP	LP:t	LP:SW	80.00	79.25	79.63	22.362	6.7e+05	1.600	4.00	1.00	67.66	8.95	21.35	0.80	9.75	0.00
LP	LP:SW		79.25	75.38	77.31	23.121	6.92e+05	1.600	4.00	1.00	361.63	47.80	114.03	4.13	51.93	0.00
LP		LP:C	75.38	71.50	73.44	24.393	7.31e+05	1.600	4.00	1.00	381.86	50.43	120.30	4.13	54.56	0.00
LP	LP:C		71.50	66.50	69.00	25.849	7.74e+05	1.600	4.00	1.00	522.60	68.96	164.50	5.34	74.29	0.00
LP			66.50	61.50	64.00	27.491	8.23e+05	1.600	4.00	1.00	556.28	73.33	174.95	5.34	78.67	0.00
LP			61.50	56.50	59.00	29.132	8.72e+05	1.600	4.00	1.00	589.95	77.71	185.39	5.34	83.05	0.00
LP			56.50	51.50	54.00	30.773	9.22e+05	1.600	4.00	1.00	623.62	82.09	195.84	5.34	87.43	0.00
LP			51.50	46.50	49.00	32.415	9.71e+05	1.600	4.00	1.00	657.29	86.47	206.28	5.34	91.80	0.00
LP			46.50	43.25	44.87	33.769	1.01e+06	1.600	4.00	1.00	445.30	58.55	139.68	3.47	62.02	0.00
LP			43.25	40.00	41.63	34.836	1.04e+06	1.600	4.00	1.00	459.52	60.40	144.10	3.47	63.87	0.00
LP			40.00	35.00	37.50	36.190	1.08e+06	1.600	4.00	1.00	734.74	96.54	230.30	5.34	101.87	0.00
LP			35.00	30.00	32.50	37.831	1.13e+06	1.600	4.00	1.00	768.41	100.92	240.75	5.34	106.25	0.00
LP			30.00	25.00	27.50	39.473	1.18e+06	1.600	4.00	1.00	802.08	105.30	251.20	5.34	110.63	0.00

LP			25.00	20.00	22.50	41.114	1.23e+06	1.600	4.00	1.00	835.75	109.67	261.64	5.34	115.01	0.00
LP			20.00	15.00	17.50	42.755	1.28e+06	1.600	4.00	1.00	869.43	114.05	272.09	5.34	119.39	0.00
LP			15.00	10.00	12.50	44.397	1.33e+06	1.600	4.00	1.00	903.10	118.43	282.53	5.34	123.77	0.00
LP			10.00	5.00	7.50	46.038	1.38e+06	1.600	4.00	1.00	936.77	122.81	292.98	5.34	128.14	0.00
LP		LP:g	5.00	0.00	2.50	47.679	1.43e+06	1.600	4.00	1.00	970.44	127.19	303.42	5.34	132.52	0.00
RP	RP:t	RP:ANTFUT	107.00	104.00	105.50	13.492	4.04e+05	1.600	4.00	1.00	81.88	21.60	51.52	3.20	24.80	0.00
RP	RP:ANTFUT		104.00	99.50	101.75	14.723	4.41e+05	1.600	4.00	1.00	134.19	35.35	84.33	4.80	40.15	0.00
RP			99.50	95.00	97.25	16.201	4.85e+05	1.600	4.00	1.00	147.85	38.89	92.79	4.80	43.70	0.00
RP		RP:ANT	95.00	92.00	93.50	17.682	5.3e+05	1.600	4.00	1.00	178.14	28.30	67.51	3.20	31.50	0.00
RP	RP:ANT		92.00	88.50	90.25	18.749	5.61e+05	1.600	4.00	1.00	220.62	35.01	83.52	3.73	38.74	0.00
RP		RP:Coax9	88.50	85.00	86.75	19.897	5.96e+05	1.600	4.00	1.00	234.37	37.15	88.64	3.73	40.89	0.00
RP	RP:Coax9		85.00	80.00	82.50	21.293	6.38e+05	1.600	4.00	1.00	358.68	56.80	135.50	5.34	62.13	0.00
RP		RP:SW	80.00	79.25	79.63	22.361	6.7e+05	1.600	4.00	1.00	67.64	8.95	21.35	0.80	9.75	0.00
RP	RP:SW	RP:Coax8	79.25	75.00	77.13	23.182	6.94e+05	1.600	4.00	1.00	397.70	52.56	125.40	4.53	57.10	0.00
RP	RP:Coax8	RP:C	75.00	71.50	73.25	24.454	7.32e+05	1.600	4.00	1.00	345.79	45.66	108.93	3.73	49.40	0.00
RP	RP:C		71.50	68.25	69.88	25.562	7.66e+05	1.600	4.00	1.00	335.86	44.32	105.74	3.47	47.79	0.00
RP		RP:Coax7	68.25	65.00	66.63	26.629	7.97e+05	1.600	4.00	1.00	350.09	46.17	110.15	3.47	49.64	0.00
RP	RP:Coax7		65.00	60.00	62.50	27.983	8.38e+05	1.600	4.00	1.00	566.38	74.65	178.08	5.34	79.98	0.00
RP		RP:Coax6	60.00	55.00	57.50	29.624	8.87e+05	1.600	4.00	1.00	600.05	79.03	188.52	5.34	84.36	0.00
RP	RP:Coax6		55.00	50.00	52.50	31.266	9.36e+05	1.600	4.00	1.00	633.72	83.40	198.97	5.34	88.74	0.00
RP		RP:Coax5	50.00	45.00	47.50	32.907	9.86e+05	1.600	4.00	1.00	667.39	87.78	209.41	5.34	93.12	0.00
RP	RP:Coax5		45.00	40.00	42.50	34.548	1.03e+06	1.600	4.00	1.00	701.06	92.16	219.86	5.34	97.50	0.00
RP		RP:Coax4	40.00	35.00	37.50	36.190	1.08e+06	1.600	4.00	1.00	734.74	96.54	230.30	5.34	101.87	0.00
RP	RP:Coax4		35.00	30.00	32.50	37.831	1.13e+06	1.600	4.00	1.00	768.41	100.92	240.75	5.34	106.25	0.00
RP		RP:Coax3	30.00	25.00	27.50	39.473	1.18e+06	1.600	4.00	1.00	802.08	105.30	251.20	5.34	110.63	0.00
RP	RP:Coax3		25.00	20.00	22.50	41.114	1.23e+06	1.600	4.00	1.00	835.75	109.67	261.64	5.34	115.01	0.00
RP		RP:Coax2	20.00	15.00	17.50	42.755	1.28e+06	1.600	4.00	1.00	869.42	114.05	272.09	5.34	119.39	0.00
RP	RP:Coax2		15.00	10.00	12.50	44.397	1.33e+06	1.600	4.00	1.00	903.10	118.43	282.53	5.34	123.77	0.00
RP		RP:Coax1	10.00	5.00	7.50	46.038	1.38e+06	1.600	4.00	1.00	936.77	122.81	292.98	5.34	128.14	0.00
RP	RP:Coax1	RP:g	5.00	0.00	2.50	47.679	1.43e+06	1.600	4.00	1.00	970.44	127.19	303.42	5.34	132.52	0.00

*** Analysis Results:

Maximum element usage is 66.81% for Base Plate "RP" in load case "NESC Rule 250D"



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

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

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
LP:g	0	0	0	0.0000	0.0000	0.0000	0	-7.75	0
LP:t	0.04961	0.7955	-0.006596	-0.9560	0.0821	0.0448	0.04961	-6.955	79.99
LP:SW	0.04854	0.7829	-0.006491	-0.9560	0.0821	0.0448	0.04854	-6.967	79.24
LP:C	0.03754	0.6537	-0.005376	-0.9513	0.0821	0.0448	0.03754	-7.096	71.49

RP:g	0	0	0	0.0000	0.0000	0.0000	0	7.75	0
RP:t	0.07045	1.352	-0.01346	-1.1589	0.0693	0.0234	0.07045	9.102	107
RP:ANTFUT	0.06685	1.291	-0.01284	-1.1587	0.0693	0.0234	0.06685	9.041	104
RP:ANT	0.05246	1.049	-0.01037	-1.1500	0.0690	0.0234	0.05246	8.799	91.99
RP:Coax9	0.0441	0.9098	-0.00887	-1.1270	0.0687	0.0233	0.0441	8.66	84.99
RP:SW	0.03726	0.7983	-0.00769	-1.0922	0.0683	0.0233	0.03726	8.548	79.24
RP:Coax8	0.03224	0.7183	-0.006863	-1.0605	0.0680	0.0233	0.03224	8.468	74.99
RP:C	0.02812	0.6543	-0.006214	-1.0295	0.0677	0.0232	0.02812	8.404	71.49
RP:Coax7	0.02137	0.5413	-0.005022	-0.9572	0.0534	0.0185	0.02137	8.291	64.99
RP:Coax6	0.01362	0.3856	-0.003497	-0.8181	0.0372	0.0130	0.01362	8.136	55
RP:Coax5	0.00823	0.2557	-0.002345	-0.6650	0.0257	0.0091	0.00823	8.006	45
RP:Coax4	0.004544	0.1529	-0.001512	-0.5093	0.0172	0.0061	0.004544	7.903	35
RP:Coax3	0.002137	0.07707	-0.0009207	-0.3564	0.0107	0.0038	0.002137	7.827	25
RP:Coax2	0.0007155	0.02749	-0.0004927	-0.2090	0.0057	0.0020	0.0007155	7.777	15
RP:Coax1	7.524e-05	0.003104	-0.0001557	-0.0680	0.0017	0.0006	7.524e-05	7.753	5
SWLVANG	0.0497	0.7831	0.01748	-0.9560	0.0821	0.0448	0.0497	-8.404	79.27
SWRVANG	0.03665	0.798	-0.03508	-1.0922	0.0683	0.0233	0.03665	9.985	79.21
XArm:O	0.04393	0.6555	-0.09112	0.7186	0.0909	0.0483	1.587	-14.84	71.41
XArm:LP	0.03754	0.655	-0.007898	0.4135	0.0907	0.0482	1.58	-7.095	71.49
XArm:ML	0.0321	0.655	0.01596	-0.0018	0.0836	0.0338	1.575	0.655	71.52
XArm:RP	0.02812	0.655	-0.008324	-0.3997	0.0765	0.0256	1.571	8.405	71.49
XArm:E	0.02455	0.6547	-0.08535	-0.6419	0.0763	0.0256	1.567	16.15	71.41
VangCL	0.04233	0.6681	-0.09104	0.7186	0.0909	0.0483	1.585	-14.83	70.41
VangCM	0.03064	0.655	0.01596	-0.0018	0.0836	0.0338	1.574	0.655	70.52
VangCR	0.02322	0.6435	-0.08529	-0.6419	0.0763	0.0256	1.566	16.14	70.41

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

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	H-Shear Usage %	Z Force (kips)	Comp. Uplift Usage %	Uplift Usage %	Result. Force (kips)	Result. Usage %	X Moment (ft-k)	X-M. Usage %	Y Moment (ft-k)	Y-M. Usage %	H-Bend-M Usage %	Z Moment (ft-k)	Z-M. Usage %	Max. Usage %
LP:g	-0.19	0.0	-13.51	0.0	0.0	-36.66	0.0	0.0	0.00	0.0	851.37	0.0	-31.8	0.0	0.0	-10.26	0.0	0.0
RP:g	-0.03	0.0	-12.58	0.0	0.0	-53.22	0.0	0.0	0.00	0.0	812.68	0.0	-19.8	0.0	0.0	-5.36	0.0	0.0

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

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Trans. Defl. (in)	Long. Defl. (in)	Vert. Defl. (in)	Trans. Mom. (Local Mx) (ft-k)	Long. Mom. (Local My) (ft-k)	Tors. Mom. (ft-k)	Axial Force (kips)	Tran. Shear (kips)	Long. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	Max. Usage %	At Pt.
LP	LP:t	Origin	0.00	9.55	0.60	-0.08	0.00	0.00	-0.0	-0.06	0.01	-0.00	-0.00	0.00	0.00	0.00	0.00	0.0	5
LP	LP:SW	End	0.75	9.40	0.58	-0.08	0.01	-0.00	-0.0	-0.06	0.01	-0.00	-0.00	0.00	0.00	0.00	0.00	0.0	3
LP	LP:SW	Origin	0.75	9.40	0.58	-0.08	-3.47	0.00	0.0	-2.80	2.02	-0.01	-0.11	0.28	0.04	0.00	0.39	0.6	2
LP	Tube 1	End	4.63	8.62	0.52	-0.07	4.37	-0.03	0.0	-2.80	2.02	-0.01	-0.10	0.32	0.04	0.00	0.42	0.6	2
LP	Tube 1	Origin	4.63	8.62	0.52	-0.07	4.37	-0.03	0.0	-3.42	2.16	-0.01	-0.12	0.32	0.04	0.00	0.44	0.7	2
LP	LP:C	End	8.50	7.84	0.45	-0.06	12.75	-0.08	0.0	-3.42	2.16	-0.01	-0.11	0.83	0.04	0.00	0.95	1.5	2
LP	LP:C	Origin	8.50	7.84	0.45	-0.06	12.74	-20.81	10.3	-17.98	10.29	-0.13	-0.60	1.57	0.68	0.35	2.81	4.3	4
LP	Tube 1	End	13.50	6.86	0.37	-0.06	64.22	-21.46	10.3	-17.98	10.29	-0.13	-0.57	3.99	0.17	0.30	4.63	7.1	2
LP	Tube 1	Origin	13.50	6.86	0.37	-0.06	64.22	-21.47	10.3	-18.88	10.48	-0.13	-0.60	3.99	0.18	0.30	4.66	7.2	2
LP	Tube 1	End	18.50	5.90	0.31	-0.05	116.63	-22.12	10.3	-18.88	10.48	-0.13	-0.56	6.19	0.17	0.27	6.79	10.4	2
LP	Tube 1	Origin	18.50	5.90	0.31	-0.05	116.63	-22.13	10.3	-19.84	10.68	-0.14	-0.59	6.19	0.17	0.27	6.82	10.5	2
LP	Tube 1	End	23.50	4.99	0.25	-0.04	170.02	-22.80	10.3	-19.84	10.68	-0.14	-0.56	7.93	0.16	0.24	8.51	13.1	2
LP	Tube 1	Origin	23.50	4.99	0.25	-0.04	170.02	-22.81	10.3	-20.85	10.88	-0.14	-0.58	7.93	0.16	0.24	8.54	13.1	2
LP	Tube 1	End	28.50	4.15	0.20	-0.03	224.40	-23.48	10.3	-20.85	10.88	-0.14	-0.55	9.31	0.15	0.21	9.89	15.2	2
LP	Tube 1	Origin	28.50	4.15	0.20	-0.03	224.40	-23.49	10.3	-21.93	11.08	-0.14	-0.58	9.31	0.16	0.21	9.92	15.3	2
LP	Tube 1	End	33.50	3.38	0.16	-0.02	279.81	-24.18	10.3	-21.93	11.08	-0.14	-0.55	10.42	0.15	0.19	10.99	16.9	2
LP	Tube 1	Origin	33.50	3.38	0.16	-0.02	279.81	-24.19	10.3	-22.85	11.26	-0.14	-0.58	10.42	0.15	0.19	11.02	16.9	2

LP	Tube 1	End	36.75	2.92	0.13	-0.02	316.40	-24.65	10.3	-22.85	11.26	-0.14	-0.56	11.03	0.15	0.18	11.60	17.8	2
LP	Tube 1	Origin	36.75	2.92	0.13	-0.02	316.40	-24.66	10.3	-23.61	11.40	-0.15	-0.58	11.03	0.15	0.18	11.62	17.9	2
LP	SpliceT	End	40.00	2.50	0.11	-0.02	353.45	-25.12	10.3	-23.61	11.40	-0.15	-0.56	11.56	0.14	0.17	12.13	18.7	2
LP	SpliceT	Origin	40.00	2.50	0.11	-0.02	353.45	-25.14	10.3	-24.61	11.58	-0.15	-0.58	11.56	0.15	0.17	12.15	18.7	2
LP	Tube 2	End	45.00	1.90	0.08	-0.01	411.37	-25.87	10.3	-24.61	11.58	-0.15	-0.56	12.24	0.14	0.16	12.81	19.7	2
LP	Tube 2	Origin	45.00	1.90	0.08	-0.01	411.37	-25.88	10.3	-25.88	11.82	-0.16	-0.59	12.24	0.14	0.16	12.84	19.7	2
LP	Tube 2	End	50.00	1.39	0.06	-0.01	470.45	-26.64	10.3	-25.88	11.82	-0.16	-0.56	12.80	0.14	0.14	13.37	20.6	2
LP	Tube 2	Origin	50.00	1.39	0.06	-0.01	470.45	-26.65	10.3	-27.19	12.05	-0.16	-0.59	12.80	0.14	0.14	13.39	20.6	2
LP	Tube 2	End	55.00	0.96	0.04	-0.01	530.72	-27.43	10.3	-27.19	12.05	-0.16	-0.56	13.25	0.13	0.13	13.82	21.3	2
LP	Tube 2	Origin	55.00	0.96	0.04	-0.01	530.72	-27.45	10.3	-28.57	12.30	-0.17	-0.59	13.25	0.14	0.13	13.85	21.3	2
LP	Tube 2	End	60.00	0.61	0.02	-0.01	592.22	-28.25	10.3	-28.57	12.30	-0.17	-0.57	13.62	0.13	0.12	14.20	21.8	2
LP	Tube 2	Origin	60.00	0.61	0.02	-0.01	592.22	-28.27	10.3	-29.99	12.56	-0.17	-0.60	13.62	0.13	0.12	14.23	21.9	2
LP	Tube 2	End	65.00	0.34	0.01	-0.00	655.00	-29.10	10.3	-29.99	12.56	-0.17	-0.58	13.93	0.13	0.11	14.51	22.3	2
LP	Tube 2	Origin	65.00	0.34	0.01	-0.00	655.00	-29.12	10.3	-31.48	12.82	-0.18	-0.60	13.93	0.13	0.11	14.54	22.4	2
LP	Tube 2	End	70.00	0.15	0.01	-0.00	719.09	-29.98	10.3	-31.48	12.82	-0.18	-0.58	14.18	0.13	0.10	14.76	22.7	2
LP	Tube 2	Origin	70.00	0.15	0.01	-0.00	719.09	-29.99	10.3	-33.02	13.09	-0.18	-0.61	14.18	0.13	0.10	14.79	22.8	2
LP	Tube 2	End	75.00	0.04	0.00	-0.00	784.53	-30.89	10.3	-33.02	13.09	-0.18	-0.59	14.38	0.12	0.10	14.97	23.4	2
LP	Tube 2	Origin	75.00	0.04	0.00	-0.00	784.53	-30.90	10.3	-34.61	13.37	-0.19	-0.62	14.38	0.13	0.10	15.00	23.4	2
LP	LP:g	End	80.00	0.00	0.00	0.00	851.37	-31.83	10.3	-34.61	13.37	-0.19	-0.60	14.55	0.12	0.09	15.15	24.1	2
RP	RP:t	Origin	0.00	16.22	0.85	-0.16	-0.00	0.00	0.0	-0.07	0.03	-0.00	-0.01	0.00	0.01	0.00	0.02	0.0	5
RP	RP:ANTFUT	End	3.00	15.49	0.80	-0.15	0.09	-0.00	0.0	-0.07	0.03	-0.00	-0.01	0.04	0.00	0.00	0.05	0.1	2
RP	RP:ANTFUT	Origin	3.00	15.49	0.80	-0.15	0.09	-0.00	-0.0	-0.27	0.11	-0.00	-0.03	0.04	0.01	0.00	0.07	0.1	2
RP	Tube 1	End	7.50	14.40	0.74	-0.14	0.59	-0.02	-0.0	-0.27	0.11	-0.00	-0.03	0.20	0.01	0.00	0.23	0.4	2
RP	Tube 1	Origin	7.50	14.40	0.74	-0.14	0.59	-0.02	-0.0	-0.53	0.21	-0.01	-0.06	0.20	0.01	0.00	0.26	0.4	2
RP	SpliceT	End	12.00	13.31	0.67	-0.13	1.55	-0.04	-0.0	-0.53	0.21	-0.01	-0.05	0.44	0.01	0.00	0.49	0.8	2
RP	SpliceT	Origin	12.00	13.31	0.67	-0.13	1.55	-0.04	-0.0	-0.81	0.31	-0.01	-0.05	0.26	0.01	0.00	0.31	0.5	2
RP	RP:ANT	End	15.00	12.59	0.63	-0.12	2.48	-0.07	-0.0	-0.81	0.31	-0.01	-0.05	0.37	0.01	0.00	0.42	0.6	2
RP	RP:ANT	Origin	15.00	12.59	0.63	-0.12	2.48	-0.07	-0.0	-8.47	2.28	-0.02	-0.47	0.37	0.07	0.00	0.85	1.3	2
RP	Tube 2	End	18.50	11.75	0.58	-0.12	10.46	-0.14	-0.0	-8.47	2.28	-0.02	-0.44	1.38	0.06	0.00	1.82	2.8	2
RP	Tube 2	Origin	18.50	11.75	0.58	-0.12	10.46	-0.14	-0.0	-8.85	2.38	-0.02	-0.46	1.38	0.07	0.00	1.84	2.8	2
RP	RP:Coax9	End	22.00	10.92	0.53	-0.11	18.79	-0.23	-0.0	-8.85	2.38	-0.02	-0.44	2.20	0.06	0.00	2.64	4.1	2
RP	RP:Coax9	Origin	22.00	10.92	0.53	-0.11	18.79	-0.23	-0.0	-10.27	2.70	-0.03	-0.51	2.20	0.07	0.00	2.71	4.2	2
RP	SpliceT	End	27.00	9.75	0.46	-0.09	32.29	-0.37	-0.0	-10.27	2.70	-0.03	-0.47	3.22	0.07	0.00	3.70	5.7	2
RP	SpliceT	Origin	27.00	9.75	0.46	-0.09	32.29	-0.37	-0.0	-10.63	2.79	-0.03	-0.40	2.68	0.06	0.00	3.08	4.7	2
RP	RP:SW	End	27.75	9.58	0.45	-0.09	34.39	-0.39	-0.0	-10.63	2.79	-0.03	-0.40	2.79	0.06	0.00	3.19	4.9	2
RP	RP:SW	Origin	27.75	9.58	0.45	-0.09	37.87	-0.40	-0.0	-13.41	4.81	-0.04	-0.50	3.07	0.10	0.00	3.58	5.5	2
RP	RP:Coax8	End	32.00	8.62	0.39	-0.08	58.31	-0.56	-0.0	-13.41	4.81	-0.04	-0.47	4.18	0.09	0.00	4.65	7.2	2
RP	RP:Coax8	Origin	32.00	8.62	0.39	-0.08	58.31	-0.56	-0.0	-14.94	5.13	-0.04	-0.53	4.18	0.10	0.00	4.71	7.2	2
RP	RP:C	End	35.50	7.85	0.34	-0.07	76.26	-0.71	-0.0	-14.94	5.13	-0.04	-0.50	4.96	0.09	0.00	5.47	8.4	2
RP	RP:C	Origin	35.50	7.85	0.34	-0.07	76.26	-20.54	5.4	-27.97	8.33	0.03	-0.94	5.31	0.15	0.18	6.28	9.7	2
RP	Tube 3	End	38.75	7.16	0.29	-0.07	103.35	-20.43	5.4	-27.97	8.33	0.03	-0.90	6.49	0.14	0.17	7.41	11.4	2
RP	Tube 3	Origin	38.75	7.16	0.29	-0.07	103.34	-20.44	5.4	-28.54	8.44	0.03	-0.92	6.49	0.14	0.17	7.43	11.4	2
RP	RP:Coax7	End	42.00	6.50	0.26	-0.06	130.78	-20.33	5.4	-28.54	8.44	0.03	-0.88	7.48	0.14	0.15	8.38	12.9	2
RP	RP:Coax7	Origin	42.00	6.50	0.26	-0.06	130.78	-20.34	5.4	-30.22	8.77	0.03	-0.94	7.48	0.14	0.15	8.43	13.0	2
RP	Tube 3	End	47.00	5.52	0.21	-0.05	174.64	-20.18	5.4	-30.22	8.77	0.03	-0.88	8.77	0.14	0.14	9.67	14.9	2
RP	Tube 3	Origin	47.00	5.52	0.21	-0.05	174.64	-20.19	5.4	-31.20	8.95	0.03	-0.91	8.77	0.14	0.14	9.70	14.9	2
RP	RP:Coax6	End	52.00	4.63	0.16	-0.04	219.38	-20.04	5.4	-31.20	8.95	0.03	-0.86	9.78	0.13	0.12	10.65	16.4	2
RP	RP:Coax6	Origin	52.00	4.63	0.16	-0.04	219.38	-20.05	5.4	-33.15	9.32	0.03	-0.91	9.78	0.14	0.12	10.71	16.5	2
RP	Tube 3	End	57.00	3.81	0.13	-0.03	265.96	-19.91	5.4	-33.15	9.32	0.03	-0.87	10.61	0.13	0.11	11.49	17.7	2
RP	Tube 3	Origin	57.00	3.81	0.13	-0.03	265.95	-19.92	5.4	-34.24	9.51	0.02	-0.90	10.61	0.13	0.11	11.51	17.7	2
RP	RP:Coax5	End	62.00	3.07	0.10	-0.03	313.48	-19.80	5.4	-34.24	9.51	0.02	-0.85	11.27	0.13	0.10	12.12	18.7	2
RP	RP:Coax5	Origin	62.00	3.07	0.10	-0.03	313.48	-19.80	5.4	-36.31	9.88	0.02	-0.90	11.27	0.13	0.10	12.17	18.7	2
RP	SpliceT	End	67.00	2.41	0.07	-0.02	362.90	-19.70	5.4	-36.31	9.88	0.02	-0.86	11.81	0.12	0.09	12.68	19.5	2
RP	SpliceT	Origin	67.00	2.41	0.07	-0.02	362.90	-19.71	5.4	-37.51	10.09	0.01	-0.89	11.81	0.13	0.09	12.71	19.5	2
RP	RP:Coax4	End	72.00	1.83	0.05	-0.02	413.34	-19.62	5.4	-37.51	10.09	0.01	-0.85	12.25	0.12	0.08	13.10	20.2	2
RP	RP:Coax4	Origin	72.00	1.83	0.05	-0.02	413.34	-19.63	5.4	-39.69	10.48	0.01	-0.90	12.25	0.13	0.08	13.15	20.2	2
RP	Tube 4	End	77.00	1.34	0.04	-0.01	465.75	-19.57	5.4	-39.69	10.48	0.01	-0.86	12.62	0.12	0.07	13.48	20.7	2
RP	Tube 4	Origin	77.00	1.34	0.04	-0.01	465.75	-19.58	5.4	-41.00	10.70	0.01	-0.89	12.62	0.12	0.07	13.51	20.8	2

RP	RP:Coax3	End	82.00	0.92	0.03	-0.01	519.26	-19.54	5.4	-41.00	10.70	0.01	-0.85	12.92	0.12	0.07	13.77	21.2	2
RP	RP:Coax3	Origin	82.00	0.92	0.03	-0.01	519.26	-19.54	5.4	-43.29	11.11	0.00	-0.90	12.92	0.12	0.07	13.82	21.3	2
RP	Tube 4	End	87.00	0.59	0.02	-0.01	574.80	-19.53	5.4	-43.29	11.11	0.00	-0.86	13.17	0.12	0.06	14.04	21.6	2
RP	Tube 4	Origin	87.00	0.59	0.02	-0.01	574.80	-19.54	5.4	-44.72	11.34	-0.01	-0.89	13.17	0.12	0.06	14.07	21.6	2
RP	RP:Coax2	End	92.00	0.33	0.01	-0.01	631.52	-19.56	5.4	-44.72	11.34	-0.01	-0.86	13.38	0.11	0.06	14.24	21.9	2
RP	RP:Coax2	Origin	92.00	0.33	0.01	-0.01	631.52	-19.57	5.4	-47.12	11.76	-0.01	-0.90	13.38	0.12	0.06	14.29	22.0	2
RP	Tube 4	End	97.00	0.15	0.00	-0.00	690.34	-19.61	5.4	-47.12	11.76	-0.01	-0.87	13.56	0.11	0.05	14.43	22.2	2
RP	Tube 4	Origin	97.00	0.15	0.00	-0.00	690.34	-19.62	5.4	-48.66	12.02	-0.02	-0.90	13.56	0.12	0.05	14.46	22.3	2
RP	RP:Coax1	End	102.00	0.04	0.00	-0.00	750.42	-19.70	5.4	-48.66	12.02	-0.02	-0.87	13.71	0.11	0.05	14.58	22.8	2
RP	RP:Coax1	Origin	102.00	0.04	0.00	-0.00	750.42	-19.71	5.4	-51.17	12.45	-0.02	-0.91	13.71	0.12	0.05	14.62	22.8	2
RP	RP:g	End	107.00	0.00	0.00	0.00	812.68	-19.82	5.4	-51.17	12.45	-0.02	-0.88	13.84	0.11	0.05	14.72	23.4	2

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

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Trans. Defl. (in)	Long. Defl. (in)	Vert. Defl. (in)	Vert. Mom. (ft-k)	Horz. Mom. (ft-k)	Tors. Mom. (ft-k)	Axial Force (kips)	Vert. Shear (kips)	Horz. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	Max. Usage %	At Pt.
XArm	XArm:O	Origin	0.00	7.87	0.53	-1.09	-3.53	-0.01	0.0	-3.43	-8.24	-0.02	-0.24	0.00	1.19	0.00	2.07	3.2	4
XArm	#sXArm:0	End	3.87	7.86	0.49	-0.53	-35.46	-0.07	0.0	-3.43	-8.24	-0.02	-0.24	9.90	0.46	0.00	10.16	15.6	2
XArm	#sXArm:0	Origin	3.87	7.86	0.49	-0.53	-35.46	-0.07	0.0	-3.45	-8.52	-0.02	-0.24	9.90	0.48	0.00	10.17	15.6	2
XArm	XArm:LP	End	7.75	7.86	0.45	-0.09	-68.46	-0.13	0.0	-3.45	-8.52	-0.02	-0.24	19.10	0.48	0.00	19.36	29.8	2
XArm	XArm:LP	Origin	7.75	7.86	0.45	-0.09	-68.46	-2.15	-0.6	4.18	5.19	0.10	0.29	19.34	0.29	0.09	19.64	30.2	2
XArm	#sXArm:1	End	11.63	7.86	0.42	0.13	-48.35	-1.75	-0.6	4.18	5.19	0.10	0.29	13.68	0.29	0.09	13.99	21.5	2
XArm	#sXArm:1	Origin	11.63	7.86	0.42	0.13	-48.35	-1.75	-0.6	4.20	4.89	0.10	0.29	13.68	0.27	0.09	13.99	21.5	2
XArm	XArm:ML	End	15.50	7.86	0.39	0.19	-29.39	-1.36	-0.6	4.20	4.89	0.10	0.29	8.35	0.27	0.09	8.67	13.3	2
XArm	XArm:ML	Origin	15.50	7.86	0.39	0.19	-32.93	-1.36	-0.6	0.67	-3.46	0.09	0.05	9.34	0.19	0.09	9.40	14.5	2
XArm	#sXArm:2	End	19.38	7.86	0.36	0.13	-46.32	-1.03	-0.6	0.67	-3.46	0.09	0.05	13.03	0.19	0.09	13.09	20.1	2
XArm	#sXArm:2	Origin	19.38	7.86	0.36	0.13	-46.32	-1.03	-0.6	0.65	-3.74	0.09	0.05	13.03	0.21	0.09	13.09	20.1	2
XArm	XArm:RP	End	23.25	7.86	0.34	-0.10	-60.83	-0.69	-0.6	0.65	-3.74	0.09	0.05	17.04	0.21	0.09	17.09	26.3	2
XArm	XArm:RP	Origin	23.25	7.86	0.34	-0.10	-60.83	-0.09	-0.0	3.61	8.45	0.01	0.25	16.97	0.47	0.00	17.24	26.5	2
XArm	#sXArm:3	End	27.13	7.86	0.32	-0.51	-28.08	-0.04	-0.0	3.61	8.45	0.01	0.25	7.83	0.47	0.00	8.13	12.5	2
XArm	#sXArm:3	Origin	27.13	7.86	0.32	-0.51	-28.08	-0.04	-0.0	3.62	8.16	0.01	0.25	7.83	0.46	0.00	8.12	12.5	2
XArm	XArm:E	End	31.00	7.86	0.29	-1.02	3.53	0.00	-0.0	3.62	8.16	0.01	0.25	0.00	1.18	0.00	2.05	3.2	4

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

Clamp Label	Force (kips)	Input Holding Capacity (kips)	Factored Holding Capacity (kips)	Holding Usage %	Input Hardware Capacity (kips)	Factored Hardware Capacity (kips)	Hardware Usage %	Max. Usage %
RAntFUT	0.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00
RAnt	7.561	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Coax1	0.936	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Coax2	0.936	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Coax3	0.936	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Coax4	0.936	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Coax5	0.936	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Coax6	0.936	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Coax7	0.936	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Coax8	0.936	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Coax9	0.936	100.00	0.00	0.00	0.00	0.00	0.00	0.00

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

Suspension	Tension	Input Factored Tension	Input Factored Hardware	Max.

Label		Tension Capacity (kips)	Tension Capacity (kips)	Usage %	Hardware Capacity (kips)	Hardware Capacity (kips)	Usage %	Usage %
SWL	3.073	25.00	0.00	0.00	0.00	0.00	0.00	0.00
SWR	3.073	25.00	0.00	0.00	0.00	0.00	0.00	0.00
PHL	8.796	30.00	0.00	0.00	0.00	0.00	0.00	0.00
PHM	8.796	30.00	0.00	0.00	0.00	0.00	0.00	0.00
PHR	8.796	30.00	0.00	0.00	0.00	0.00	0.00	0.00

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

Equilibrium Joint Positions and Rotations for Load Case "NESC 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)
LP:g	0	0	0	0.0000	0.0000	0.0000	0	-7.75	0
LP:t	0.02889	1.31	-0.01455	-1.5625	0.0467	0.0768	0.02889	-6.44	79.99
LP:SW	0.02831	1.289	-0.01427	-1.5625	0.0467	0.0768	0.02831	-6.461	79.24
LP:C	0.02228	1.078	-0.01138	-1.5554	0.0466	0.0768	0.02228	-6.672	71.49
RP:g	0	0	0	0.0000	0.0000	0.0000	0	7.75	0
RP:t	0.02615	2.298	-0.03313	-2.0448	0.0290	0.0207	0.02615	10.05	107
RP:ANTFUT	0.02467	2.191	-0.03122	-2.0444	0.0290	0.0207	0.02467	9.941	104
RP:ANT	0.01875	1.764	-0.02362	-2.0287	0.0290	0.0207	0.01875	9.514	91.98
RP:Coax9	0.01532	1.519	-0.01926	-1.9709	0.0284	0.0206	0.01532	9.269	84.98
RP:SW	0.01257	1.325	-0.01595	-1.8794	0.0276	0.0206	0.01257	9.075	79.23
RP:Coax8	0.0106	1.188	-0.01371	-1.8061	0.0269	0.0206	0.0106	8.938	74.99
RP:C	0.00901	1.08	-0.012	-1.7376	0.0263	0.0206	0.00901	8.83	71.49
RP:Coax7	0.006558	0.8906	-0.009147	-1.5940	0.0196	0.0164	0.006558	8.641	64.99
RP:Coax6	0.003917	0.633	-0.005686	-1.3476	0.0126	0.0115	0.003917	8.383	54.99
RP:Coax5	0.002221	0.4196	-0.003266	-1.0906	0.0080	0.0080	0.002221	8.17	45
RP:Coax4	0.001152	0.2511	-0.001702	-0.8345	0.0049	0.0054	0.001152	8.001	35
RP:Coax3	0.0005092	0.1268	-0.0007849	-0.5849	0.0028	0.0034	0.0005092	7.877	25
RP:Coax2	0.0001601	0.04532	-0.0003064	-0.3438	0.0014	0.0018	0.0001601	7.795	15
RP:Coax1	1.55e-05	0.005135	-7.624e-05	-0.1122	0.0004	0.0005	1.55e-05	7.755	5
SWLVANG	0.03027	1.29	0.02491	-1.5625	0.0467	0.0768	0.03027	-7.897	79.27
SWRVANG	0.01203	1.325	-0.06307	-1.8794	0.0276	0.0206	0.01203	10.51	79.19
XArm:O	0.03338	1.081	-0.05241	0.3533	0.0506	0.0824	1.576	-14.42	71.45
XArm:LP	0.02228	1.08	-0.01284	0.1884	0.0505	0.0821	1.565	-6.67	71.49
XArm:ML	0.01367	1.081	-0.00244	0.0001	0.0403	0.0473	1.557	1.081	71.5
XArm:RP	0.009009	1.081	-0.01284	-0.1644	0.0303	0.0234	1.552	8.831	71.49
XArm:E	0.005831	1.081	-0.04295	-0.2382	0.0302	0.0234	1.549	16.58	71.46
VangCL	0.03248	1.087	-0.05239	0.3533	0.0506	0.0824	1.575	-14.41	70.45
VangCM	0.01297	1.081	-0.00244	0.0001	0.0403	0.0473	1.556	1.081	70.5
VangCR	0.005305	1.077	-0.04294	-0.2382	0.0302	0.0234	1.548	16.58	70.46

Joint Support Reactions for Load Case "NESC 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 %
LP:g	-0.18	0.0	-23.37	0.0	0.0	-20.49	0.0	0.0	0.00	0.0	1424.12	0.0	-22.5	0.0	0.0	-17.47	0.0	0.0
RP:g	0.07	0.0	-21.86	0.0	0.0	-26.09	0.0	0.0	0.00	0.0	1344.14	0.0	-4.1	0.0	0.0	-4.74	0.0	0.0

Detailed Steel Pole Usages for Load Case "NESC 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.
LP	LP:t	Origin	0.00	15.72	0.35	-0.17	-0.00	0.00	-0.0	-0.03	0.02	-0.00	-0.00	0.00	0.00	0.00	0.00	0.0	5
LP	LP:SW	End	0.75	15.47	0.34	-0.17	0.02	-0.00	-0.0	-0.03	0.02	-0.00	-0.00	0.00	0.00	0.00	0.00	0.0	4
LP	LP:SW	Origin	0.75	15.47	0.34	-0.17	-0.95	0.00	0.0	-0.87	1.90	-0.00	-0.03	0.00	0.15	0.00	0.25	0.4	5
LP	Tube 1	End	4.63	14.20	0.30	-0.15	6.41	-0.01	0.0	-0.87	1.90	-0.00	-0.03	0.46	0.04	0.00	0.50	0.8	2

LP	Tube 1	Origin	4.63	14.20	0.30	-0.15	6.41	-0.01	0.0	-1.25	2.15	-0.01	-0.04	0.46	0.04	0.00	0.51	0.8	2
LP	LP:C	End	8.50	12.94	0.27	-0.14	14.74	-0.03	0.0	-1.25	2.15	-0.01	-0.04	0.96	0.04	0.00	1.00	1.5	2
LP	LP:C	Origin	8.50	12.94	0.27	-0.14	14.74	-9.46	17.5	-8.30	16.85	-0.19	-0.28	0.87	1.12	0.59	3.17	4.9	4
LP	Tube 1	End	13.50	11.32	0.23	-0.11	98.97	-10.39	17.5	-8.30	16.85	-0.19	-0.26	5.80	0.28	0.52	6.22	9.6	2
LP	Tube 1	Origin	13.50	11.32	0.23	-0.11	98.97	-10.41	17.5	-8.86	17.20	-0.19	-0.28	5.80	0.29	0.52	6.24	9.6	2
LP	Tube 1	End	18.50	9.75	0.19	-0.09	184.99	-11.31	17.5	-8.86	17.20	-0.19	-0.26	9.49	0.27	0.46	9.83	15.1	2
LP	Tube 1	Origin	18.50	9.75	0.19	-0.09	184.99	-11.34	17.5	-9.45	17.58	-0.19	-0.28	9.49	0.28	0.46	9.85	15.2	2
LP	Tube 1	End	23.50	8.26	0.16	-0.07	272.88	-12.23	17.5	-9.45	17.58	-0.19	-0.27	12.43	0.26	0.41	12.74	19.6	2
LP	Tube 1	Origin	23.50	8.26	0.16	-0.07	272.88	-12.26	17.5	-10.09	17.97	-0.19	-0.28	12.43	0.27	0.41	12.76	19.6	2
LP	Tube 1	End	28.50	6.88	0.13	-0.06	362.74	-13.14	17.5	-10.09	17.97	-0.19	-0.27	14.78	0.25	0.37	15.09	23.2	2
LP	Tube 1	Origin	28.50	6.88	0.13	-0.06	362.73	-13.17	17.5	-10.76	18.38	-0.18	-0.29	14.78	0.26	0.37	15.11	23.2	2
LP	Tube 1	End	33.50	5.61	0.10	-0.04	454.64	-14.04	17.5	-10.76	18.38	-0.18	-0.27	16.69	0.25	0.33	16.99	26.1	2
LP	Tube 1	Origin	33.50	5.61	0.10	-0.04	454.64	-14.07	17.5	-11.35	18.73	-0.18	-0.29	16.69	0.25	0.33	17.01	26.2	2
LP	Tube 1	End	36.75	4.85	0.09	-0.04	515.52	-14.63	17.5	-11.35	18.73	-0.18	-0.28	17.74	0.24	0.31	18.04	27.8	2
LP	Tube 1	Origin	36.75	4.85	0.09	-0.04	515.52	-14.66	17.5	-11.83	19.02	-0.18	-0.29	17.74	0.25	0.31	18.05	27.8	2
LP	SpliceT	End	40.00	4.14	0.07	-0.03	577.33	-15.22	17.5	-11.83	19.02	-0.18	-0.28	18.65	0.24	0.29	18.96	29.2	2
LP	SpliceT	Origin	40.00	4.14	0.07	-0.03	577.33	-15.25	17.5	-12.46	19.39	-0.18	-0.30	18.65	0.24	0.29	18.97	29.2	2
LP	Tube 2	End	45.00	3.17	0.05	-0.02	674.30	-16.11	17.5	-12.46	19.39	-0.18	-0.28	19.86	0.23	0.26	20.16	31.0	2
LP	Tube 2	Origin	45.00	3.17	0.05	-0.02	674.30	-16.15	17.5	-13.25	19.86	-0.18	-0.30	19.86	0.24	0.26	20.18	31.0	2
LP	Tube 2	End	50.00	2.32	0.04	-0.01	773.62	-17.01	17.5	-13.25	19.86	-0.18	-0.29	20.85	0.23	0.24	21.15	32.5	2
LP	Tube 2	Origin	50.00	2.32	0.04	-0.01	773.62	-17.05	17.5	-14.08	20.35	-0.18	-0.31	20.85	0.23	0.24	21.17	32.6	2
LP	Tube 2	End	55.00	1.61	0.03	-0.01	875.38	-17.91	17.5	-14.08	20.35	-0.18	-0.29	21.67	0.22	0.22	21.98	33.8	2
LP	Tube 2	Origin	55.00	1.61	0.03	-0.01	875.38	-17.95	17.5	-14.95	20.86	-0.18	-0.31	21.68	0.23	0.22	22.00	33.8	2
LP	Tube 2	End	60.00	1.02	0.02	-0.01	979.69	-18.81	17.5	-14.95	20.86	-0.18	-0.30	22.36	0.22	0.21	22.67	34.9	2
LP	Tube 2	Origin	60.00	1.02	0.02	-0.01	979.69	-18.85	17.5	-15.84	21.39	-0.18	-0.32	22.36	0.23	0.21	22.69	34.9	2
LP	Tube 2	End	65.00	0.58	0.01	-0.00	1086.62	-19.71	17.5	-15.84	21.39	-0.18	-0.30	22.94	0.22	0.19	23.26	35.8	2
LP	Tube 2	Origin	65.00	0.58	0.01	-0.00	1086.62	-19.75	17.5	-16.78	21.93	-0.18	-0.32	22.94	0.22	0.19	23.27	35.8	2
LP	Tube 2	End	70.00	0.26	0.00	-0.00	1196.27	-20.62	17.5	-16.78	21.93	-0.18	-0.31	23.43	0.21	0.18	23.75	36.5	2
LP	Tube 2	Origin	70.00	0.26	0.00	-0.00	1196.27	-20.66	17.5	-17.75	22.49	-0.18	-0.33	23.43	0.22	0.18	23.77	36.6	2
LP	Tube 2	End	75.00	0.07	0.00	-0.00	1308.74	-21.53	17.5	-17.75	22.49	-0.18	-0.32	23.84	0.21	0.16	24.17	37.8	2
LP	Tube 2	Origin	75.00	0.07	0.00	-0.00	1308.74	-21.56	17.5	-18.75	23.07	-0.19	-0.33	23.84	0.22	0.16	24.19	37.8	2
LP	LP:g	End	80.00	0.00	0.00	0.00	1424.12	-22.44	17.5	-18.75	23.07	-0.19	-0.32	24.19	0.21	0.15	24.52	39.0	2
RP	RP:t	Origin	0.00	27.58	0.31	-0.40	-0.00	0.00	0.0	-0.04	0.05	-0.00	-0.01	0.00	0.01	0.00	0.03	0.0	5
RP	RP:ANTFUT	End	3.00	26.29	0.30	-0.37	0.16	-0.00	0.0	-0.04	0.05	-0.00	-0.00	0.07	0.00	0.00	0.07	0.1	2
RP	RP:ANTFUT	Origin	3.00	26.29	0.30	-0.37	0.16	-0.00	0.0	-0.15	0.20	-0.00	-0.02	0.05	0.03	0.00	0.09	0.1	3
RP	Tube 1	End	7.50	24.37	0.27	-0.34	1.06	-0.00	0.0	-0.15	0.20	-0.00	-0.02	0.36	0.01	0.00	0.37	0.6	2
RP	Tube 1	Origin	7.50	24.37	0.27	-0.34	1.06	-0.00	-0.0	-0.29	0.39	-0.00	-0.03	0.36	0.02	0.00	0.39	0.6	2
RP	SpliceT	End	12.00	22.45	0.24	-0.31	2.80	-0.01	-0.0	-0.29	0.39	-0.00	-0.03	0.79	0.02	0.00	0.82	1.3	2
RP	SpliceT	Origin	12.00	22.45	0.24	-0.31	2.80	-0.01	-0.0	-0.45	0.56	-0.00	-0.03	0.47	0.02	0.00	0.50	0.8	2
RP	RP:ANT	End	15.00	21.17	0.22	-0.28	4.48	-0.02	-0.0	-0.45	0.56	-0.00	-0.03	0.67	0.02	0.00	0.69	1.1	2
RP	RP:ANT	Origin	15.00	21.17	0.22	-0.28	4.48	-0.02	0.0	-4.48	6.28	-0.07	-0.25	0.18	0.69	0.00	1.27	2.0	4
RP	Tube 2	End	18.50	19.69	0.20	-0.26	26.46	-0.26	0.0	-4.48	6.28	-0.07	-0.23	3.48	0.18	0.00	3.73	5.7	2
RP	Tube 2	Origin	18.50	19.69	0.20	-0.26	26.46	-0.26	-0.0	-4.71	6.46	-0.07	-0.25	3.48	0.18	0.00	3.74	5.8	2
RP	RP:Coax9	End	22.00	18.23	0.18	-0.23	49.09	-0.50	-0.0	-4.71	6.46	-0.07	-0.23	5.74	0.17	0.00	5.98	9.2	2
RP	RP:Coax9	Origin	22.00	18.23	0.18	-0.23	49.09	-0.50	-0.0	-5.24	7.21	-0.07	-0.26	5.74	0.19	0.00	6.00	9.2	2
RP	SpliceT	End	27.00	16.20	0.16	-0.20	85.14	-0.85	-0.0	-5.24	7.21	-0.07	-0.24	8.50	0.17	0.00	8.74	13.5	2
RP	SpliceT	Origin	27.00	16.20	0.16	-0.20	85.14	-0.85	-0.0	-5.46	7.38	-0.07	-0.21	7.06	0.15	0.00	7.27	11.2	2
RP	RP:SW	End	27.75	15.91	0.15	-0.19	90.67	-0.90	-0.0	-5.46	7.38	-0.07	-0.20	7.35	0.15	0.00	7.56	11.6	2
RP	RP:SW	Origin	27.75	15.91	0.15	-0.19	91.64	-0.90	-0.0	-6.32	9.26	-0.07	-0.24	7.43	0.18	0.00	7.67	11.8	2
RP	RP:Coax8	End	32.00	14.26	0.13	-0.16	131.01	-1.21	-0.0	-6.32	9.26	-0.07	-0.22	9.39	0.17	0.00	9.61	14.8	2
RP	RP:Coax8	Origin	32.00	14.26	0.13	-0.16	131.01	-1.21	-0.0	-6.94	10.02	-0.07	-0.24	9.39	0.19	0.00	9.64	14.8	2
RP	RP:C	End	35.50	12.96	0.11	-0.14	166.07	-1.46	-0.0	-6.94	10.02	-0.07	-0.23	10.81	0.18	0.00	11.05	17.0	2
RP	RP:C	Origin	35.50	12.96	0.11	-0.14	166.07	-9.81	4.7	-12.16	11.90	0.08	-0.41	10.95	0.21	0.16	11.38	17.5	2
RP	Tube 3	End	38.75	11.80	0.09	-0.13	204.76	-9.54	4.7	-12.16	11.90	0.08	-0.39	12.36	0.20	0.15	12.77	19.6	2
RP	Tube 3	Origin	38.75	11.80	0.09	-0.13	204.76	-9.54	4.7	-12.52	12.12	0.08	-0.40	12.36	0.21	0.15	12.78	19.7	2
RP	RP:Coax7	End	42.00	10.69	0.08	-0.11	244.16	-9.26	4.7	-12.52	12.12	0.08	-0.39	13.55	0.20	0.13	13.95	21.5	2
RP	RP:Coax7	Origin	42.00	10.69	0.08	-0.11	244.16	-9.27	4.7	-13.23	12.92	0.08	-0.41	13.55	0.21	0.13	13.97	21.5	2
RP	Tube 3	End	47.00	9.08	0.06	-0.09	308.76	-8.84	4.7	-13.23	12.92	0.08	-0.39	15.16	0.20	0.12	15.56	23.9	2

RP	Tube 3	Origin	47.00	9.08	0.06	-0.09	308.76	-8.85	4.7	-13.85	13.28	0.08	-0.40	15.16	0.21	0.12	15.58	24.0	2
RP	RP:Coax6	End	52.00	7.60	0.05	-0.07	375.18	-8.42	4.7	-13.85	13.28	0.08	-0.38	16.43	0.19	0.11	16.82	25.9	2
RP	RP:Coax6	Origin	52.00	7.60	0.05	-0.07	375.18	-8.43	4.7	-14.73	14.17	0.08	-0.41	16.43	0.21	0.11	16.84	25.9	2
RP	Tube 3	End	57.00	6.25	0.04	-0.05	446.05	-8.00	4.7	-14.73	14.17	0.08	-0.39	17.53	0.20	0.10	17.92	27.6	2
RP	Tube 3	Origin	57.00	6.25	0.04	-0.05	446.05	-8.01	4.7	-15.41	14.58	0.08	-0.40	17.53	0.20	0.10	17.94	27.6	2
RP	RP:Coax5	End	62.00	5.04	0.03	-0.04	518.94	-7.59	4.7	-15.41	14.58	0.08	-0.38	18.41	0.19	0.09	18.80	28.9	2
RP	RP:Coax5	Origin	62.00	5.04	0.03	-0.04	518.94	-7.60	4.7	-16.37	15.50	0.08	-0.41	18.41	0.20	0.09	18.82	29.0	2
RP	SpliceT	End	67.00	3.96	0.02	-0.03	596.46	-7.18	4.7	-16.37	15.50	0.08	-0.39	19.20	0.19	0.08	19.59	30.1	2
RP	SpliceT	Origin	67.00	3.96	0.02	-0.03	596.46	-7.19	4.7	-17.13	15.94	0.08	-0.41	19.20	0.20	0.08	19.61	30.2	2
RP	RP:Coax4	End	72.00	3.01	0.01	-0.02	676.18	-6.77	4.7	-17.13	15.94	0.08	-0.39	19.84	0.19	0.07	20.23	31.1	2
RP	RP:Coax4	Origin	72.00	3.01	0.01	-0.02	676.18	-6.79	4.7	-18.16	16.91	0.08	-0.41	19.84	0.20	0.07	20.26	31.2	2
RP	Tube 4	End	77.00	2.20	0.01	-0.01	760.72	-6.38	4.7	-18.16	16.91	0.08	-0.39	20.43	0.19	0.07	20.83	32.0	2
RP	Tube 4	Origin	77.00	2.20	0.01	-0.01	760.72	-6.39	4.7	-18.98	17.39	0.08	-0.41	20.43	0.20	0.07	20.84	32.1	2
RP	RP:Coax3	End	82.00	1.52	0.01	-0.01	847.66	-5.98	4.7	-18.98	17.39	0.08	-0.39	20.91	0.19	0.06	21.31	32.8	2
RP	RP:Coax3	Origin	82.00	1.52	0.01	-0.01	847.66	-5.99	4.7	-20.08	18.39	0.08	-0.42	20.91	0.20	0.06	21.34	32.8	2
RP	Tube 4	End	87.00	0.97	0.00	-0.01	939.60	-5.60	4.7	-20.08	18.39	0.08	-0.40	21.37	0.19	0.06	21.78	33.5	2
RP	Tube 4	Origin	87.00	0.97	0.00	-0.01	939.60	-5.60	4.7	-20.97	18.90	0.08	-0.42	21.37	0.20	0.06	21.80	33.5	2
RP	RP:Coax2	End	92.00	0.54	0.00	-0.00	1034.12	-5.22	4.7	-20.97	18.90	0.08	-0.40	21.76	0.19	0.05	22.16	34.1	2
RP	RP:Coax2	Origin	92.00	0.54	0.00	-0.00	1034.12	-5.23	4.7	-22.15	19.94	0.07	-0.43	21.76	0.20	0.05	22.19	34.1	2
RP	Tube 4	End	97.00	0.24	0.00	-0.00	1133.82	-4.84	4.7	-22.15	19.94	0.07	-0.41	22.13	0.19	0.05	22.54	34.7	2
RP	Tube 4	Origin	97.00	0.24	0.00	-0.00	1133.82	-4.85	4.7	-23.11	20.50	0.07	-0.43	22.13	0.20	0.05	22.56	34.7	2
RP	RP:Coax1	End	102.00	0.06	0.00	-0.00	1236.30	-4.48	4.7	-23.11	20.50	0.07	-0.41	22.44	0.19	0.04	22.86	35.7	2
RP	RP:Coax1	Origin	102.00	0.06	0.00	-0.00	1236.30	-4.49	4.7	-24.35	21.57	0.07	-0.43	22.44	0.20	0.04	22.88	35.7	2
RP	RP:g	End	107.00	0.00	0.00	0.00	1344.14	-4.12	4.7	-24.35	21.57	0.07	-0.42	22.76	0.20	0.04	23.18	36.9	2

Detailed Tubular X-Arm Usages for Load Case "NESC 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.
XArm	XArm:O	Origin	0.00	12.97	0.40	-0.63	-5.24	-0.00	0.0	-5.22	-3.59	-0.01	-0.36	1.46	0.20	0.00	1.86	2.9	2
XArm	#sXArm:0	End	3.87	12.97	0.33	-0.36	-19.14	-0.05	0.0	-5.22	-3.59	-0.01	-0.36	5.34	0.20	0.00	5.71	8.8	2
XArm	#sXArm:0	Origin	3.87	12.97	0.33	-0.36	-19.14	-0.05	0.0	-5.22	-3.77	-0.01	-0.36	5.34	0.21	0.00	5.72	8.8	2
XArm	XArm:LP	End	7.75	12.97	0.27	-0.15	-33.75	-0.09	0.0	-5.22	-3.77	-0.01	-0.36	9.42	0.21	0.00	9.79	15.1	2
XArm	XArm:LP	Origin	7.75	12.97	0.27	-0.15	-33.75	-4.77	-0.9	8.96	3.07	0.17	0.62	9.96	0.17	0.14	10.59	16.3	2
XArm	#sXArm:1	End	11.63	12.97	0.21	-0.05	-21.85	-4.09	-0.9	8.96	3.07	0.17	0.62	6.57	0.17	0.14	7.21	11.1	2
XArm	#sXArm:1	Origin	11.63	12.97	0.21	-0.05	-21.85	-4.09	-0.9	8.96	2.87	0.17	0.62	6.57	0.16	0.14	7.20	11.1	2
XArm	XArm:ML	End	15.50	12.97	0.16	-0.03	-10.75	-3.43	-0.9	8.96	2.87	0.17	0.62	3.39	0.16	0.14	4.05	6.2	2
XArm	XArm:ML	Origin	15.50	12.97	0.16	-0.03	-15.99	-3.44	-0.9	3.72	-0.79	0.16	0.26	4.86	0.05	0.13	5.12	7.9	2
XArm	#sXArm:2	End	19.38	12.97	0.13	-0.06	-19.07	-2.81	-0.9	3.72	-0.79	0.16	0.26	5.64	0.05	0.13	5.91	9.1	2
XArm	#sXArm:2	Origin	19.38	12.97	0.13	-0.06	-19.07	-2.81	-0.9	3.72	-0.99	0.16	0.26	5.64	0.06	0.13	5.91	9.1	2
XArm	XArm:RP	End	23.25	12.97	0.11	-0.15	-22.91	-2.18	-0.9	3.72	-0.99	0.16	0.26	6.64	0.06	0.13	6.90	10.6	2
XArm	XArm:RP	Origin	23.25	12.97	0.11	-0.15	-22.91	-0.03	-0.0	5.25	3.73	0.00	0.36	6.39	0.21	0.00	6.76	10.4	2
XArm	#sXArm:3	End	27.13	12.97	0.09	-0.32	-8.46	-0.01	-0.0	5.25	3.73	0.00	0.36	2.36	0.21	0.00	2.75	4.2	2
XArm	#sXArm:3	Origin	27.13	12.97	0.09	-0.32	-8.46	-0.01	-0.0	5.26	3.54	0.00	0.36	2.36	0.20	0.00	2.75	4.2	2
XArm	XArm:E	End	31.00	12.97	0.07	-0.52	5.24	0.00	-0.0	5.26	3.54	0.00	0.36	1.46	0.20	0.00	1.86	2.9	2

Summary of Clamp Capacities and Usages for Load Case "NESC 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 %
RAntFUT	0.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00
RAnt	6.748	100.00	0.00	0.00	0.00	0.00	0.00	0.00

Coax1	0.560	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Coax2	0.560	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Coax3	0.560	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Coax4	0.560	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Coax5	0.560	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Coax6	0.560	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Coax7	0.560	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Coax8	0.560	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Coax9	0.560	100.00	0.00	0.00	0.00	0.00	0.00	0.00

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

Suspension Label	Tension (kips)	Input Tension Capacity (kips)	Factored Tension Capacity (kips)	Tension Usage %	Input Hardware Capacity (kips)	Factored Hardware Capacity (kips)	Hardware Usage %	Max. Usage %
SWL	1.840	25.00	0.00	0.00	0.00	0.00	0.00	0.00
SWR	1.840	25.00	0.00	0.00	0.00	0.00	0.00	0.00
PHL	6.281	30.00	0.00	0.00	0.00	0.00	0.00	0.00
PHM	6.281	30.00	0.00	0.00	0.00	0.00	0.00	0.00
PHR	6.281	30.00	0.00	0.00	0.00	0.00	0.00	0.00

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

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

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
LP:g	0	0	0	0.0000	0.0000	0.0000	0	-7.75	0
LP:t	0.04863	0.53	-0.003716	-0.6385	0.0805	0.0297	0.04863	-7.22	80
LP:SW	0.04758	0.5216	-0.003668	-0.6385	0.0805	0.0297	0.04758	-7.228	79.25
LP:C	0.03673	0.4351	-0.00314	-0.6371	0.0805	0.0297	0.03673	-7.315	71.5
RP:g	0	0	0	0.0000	0.0000	0.0000	0	7.75	0
RP:t	0.07578	0.8873	-0.007117	-0.7445	0.0746	0.0195	0.07578	8.637	107
RP:ANTFUT	0.07188	0.8483	-0.00686	-0.7444	0.0746	0.0195	0.07188	8.598	104
RP:ANT	0.05631	0.6927	-0.005825	-0.7406	0.0745	0.0195	0.05631	8.443	91.99
RP:Coax9	0.04726	0.6027	-0.005151	-0.7306	0.0740	0.0195	0.04726	8.353	84.99
RP:SW	0.03991	0.5301	-0.004607	-0.7153	0.0730	0.0194	0.03991	8.28	79.25
RP:Coax8	0.03453	0.4776	-0.004211	-0.6980	0.0723	0.0194	0.03453	8.228	75
RP:C	0.03015	0.4354	-0.003895	-0.6806	0.0717	0.0194	0.03015	8.185	71.5
RP:Coax7	0.02294	0.3604	-0.003258	-0.6368	0.0567	0.0155	0.02294	8.11	65
RP:Coax6	0.01463	0.2566	-0.002414	-0.5461	0.0397	0.0109	0.01463	8.007	55
RP:Coax5	0.008836	0.1699	-0.00174	-0.4437	0.0275	0.0076	0.008836	7.92	45
RP:Coax4	0.004871	0.1013	-0.001212	-0.3390	0.0184	0.0051	0.004871	7.851	35
RP:Coax3	0.002284	0.05092	-0.0007947	-0.2364	0.0115	0.0032	0.002284	7.801	25
RP:Coax2	0.0007621	0.0181	-0.0004507	-0.1380	0.0061	0.0017	0.0007621	7.768	15
RP:Coax1	7.968e-05	0.002035	-0.0001469	-0.0447	0.0018	0.0005	7.968e-05	7.752	5
SWLVANG	0.04835	0.5217	0.01234	-0.6385	0.0805	0.0297	0.04835	-8.665	79.26
SWRVANG	0.0394	0.53	-0.02255	-0.7153	0.0730	0.0194	0.0394	9.717	79.23
XArm:O	0.04093	0.4365	-0.08896	0.7168	0.0893	0.0320	1.584	-15.06	71.41
XArm:LP	0.03673	0.436	-0.005604	0.4167	0.0891	0.0319	1.58	-7.314	71.49
XArm:ML	0.03311	0.436	0.0186	-0.0020	0.0847	0.0233	1.576	0.436	71.52
XArm:RP	0.03014	0.436	-0.006104	-0.4075	0.0802	0.0212	1.573	8.186	71.49
XArm:E	0.02717	0.4356	-0.08496	-0.6602	0.0801	0.0211	1.57	15.94	71.42
VangCL	0.03936	0.449	-0.08888	0.7168	0.0893	0.0320	1.582	-15.05	70.41
VangCM	0.03163	0.436	0.0186	-0.0020	0.0847	0.0233	1.574	0.436	70.52
VangCR	0.02578	0.4241	-0.08489	-0.6602	0.0801	0.0211	1.569	15.92	70.42

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

Joint Label	X Force (kips)	X Usage %(kips)	Y Force	Y Usage %	H-Shear Usage %	Z Force (kips)	Comp. Uplift Usage %	Uplift Usage %	Result. Force (kips)	Result. Usage %	X Moment (ft-k)	X-M. Usage %	Y Moment (ft-k)	Y-M. Usage %	H-Bend-M Usage %	Z Moment (ft-k)	Z-M. Usage %	Max. Usage %
LP:g	-0.14	0.0	-8.34	0.0	0.0	-33.44	0.0	0.0	0.00	0.0	556.13	0.0	-29.9	0.0	0.0	-6.81	0.0	0.0
RP:g	-0.00	0.0	-7.72	0.0	0.0	-50.34	0.0	0.0	0.00	0.0	532.91	0.0	-21.0	0.0	0.0	-4.47	0.0	0.0

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

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Trans. Defl. (in)	Long. Defl. (in)	Vert. Defl. (in)	Trans. Mom. (Local Mx) (ft-k)	Long. Mom. (Local My) (ft-k)	Tors. Mom. (ft-k)	Axial Force (kips)	Tran. Shear (kips)	Long. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	Max. Usage %	At Pt.
LP	LP:t	Origin	0.00	6.36	0.58	-0.04	0.00	0.00	-0.0	-0.04	0.01	-0.00	-0.00	0.00	0.00	0.00	0.00	0.0	5
LP	LP:SW	End	0.75	6.26	0.57	-0.04	0.00	-0.00	-0.0	-0.04	0.01	-0.00	-0.00	0.00	0.00	0.00	0.00	0.0	2
LP	LP:SW	Origin	0.75	6.26	0.57	-0.04	-5.01	0.00	0.0	-3.80	1.67	-0.01	-0.14	0.41	0.03	0.00	0.55	0.8	2
LP	Tube 1	End	4.63	5.74	0.51	-0.04	1.45	-0.03	0.0	-3.80	1.67	-0.01	-0.13	0.03	0.12	0.00	0.26	0.4	4

LP	Tube 1	Origin	4.63	5.74	0.51	-0.04	1.45	-0.03	0.0	-4.29	1.73	-0.01	-0.15	0.03	0.12	0.00	0.28	0.4	4
LP	LP:C	End	8.50	5.22	0.44	-0.04	8.15	-0.06	0.0	-4.29	1.73	-0.01	-0.14	0.53	0.03	0.00	0.68	1.0	2
LP	LP:C	Origin	8.50	5.22	0.44	-0.04	8.14	-20.62	6.8	-18.44	7.11	-0.13	-0.62	1.48	0.47	0.23	2.43	3.7	4
LP	Tube 1	End	13.50	4.56	0.36	-0.03	43.67	-21.26	6.8	-18.44	7.11	-0.13	-0.58	2.82	0.12	0.20	3.44	5.3	2
LP	Tube 1	Origin	13.50	4.56	0.36	-0.03	43.67	-21.27	6.8	-19.15	7.18	-0.13	-0.60	2.82	0.12	0.20	3.46	5.3	2
LP	Tube 1	End	18.50	3.92	0.30	-0.03	79.59	-21.90	6.8	-19.15	7.18	-0.13	-0.57	4.31	0.11	0.18	4.91	7.6	2
LP	Tube 1	Origin	18.50	3.92	0.30	-0.03	79.59	-21.91	6.8	-19.91	7.26	-0.13	-0.59	4.31	0.11	0.18	4.93	7.6	2
LP	Tube 1	End	23.50	3.31	0.24	-0.02	115.89	-22.54	6.8	-19.91	7.26	-0.13	-0.56	5.49	0.11	0.16	6.06	9.3	2
LP	Tube 1	Origin	23.50	3.31	0.24	-0.02	115.89	-22.54	6.8	-20.71	7.34	-0.13	-0.58	5.49	0.11	0.16	6.08	9.4	2
LP	Tube 1	End	28.50	2.75	0.19	-0.02	152.58	-23.17	6.8	-20.71	7.34	-0.13	-0.55	6.41	0.10	0.14	6.97	10.7	2
LP	Tube 1	Origin	28.50	2.75	0.19	-0.02	152.58	-23.18	6.8	-21.56	7.42	-0.13	-0.57	6.41	0.10	0.14	7.00	10.8	2
LP	Tube 1	End	33.50	2.24	0.15	-0.02	189.68	-23.81	6.8	-21.56	7.42	-0.13	-0.54	7.14	0.10	0.13	7.69	11.8	2
LP	Tube 1	Origin	33.50	2.24	0.15	-0.02	189.67	-23.81	6.8	-22.29	7.49	-0.13	-0.56	7.14	0.10	0.13	7.71	11.9	2
LP	Tube 1	End	36.75	1.93	0.13	-0.01	214.00	-24.22	6.8	-22.29	7.49	-0.13	-0.54	7.53	0.10	0.12	8.08	12.4	2
LP	Tube 1	Origin	36.75	1.93	0.13	-0.01	214.00	-24.23	6.8	-22.89	7.54	-0.13	-0.56	7.53	0.10	0.12	8.10	12.5	2
LP	SpliceT	End	40.00	1.65	0.11	-0.01	238.51	-24.64	6.8	-22.89	7.54	-0.13	-0.54	7.86	0.09	0.11	8.41	12.9	2
LP	SpliceT	Origin	40.00	1.65	0.11	-0.01	238.51	-24.64	6.8	-23.68	7.61	-0.13	-0.56	7.86	0.10	0.11	8.43	13.0	2
LP	Tube 2	End	45.00	1.26	0.08	-0.01	276.57	-25.28	6.8	-23.68	7.61	-0.13	-0.54	8.29	0.09	0.10	8.83	13.6	2
LP	Tube 2	Origin	45.00	1.26	0.08	-0.01	276.57	-25.28	6.8	-24.67	7.70	-0.13	-0.56	8.29	0.09	0.10	8.86	13.6	2
LP	Tube 2	End	50.00	0.92	0.06	-0.01	315.07	-25.92	6.8	-24.67	7.70	-0.13	-0.53	8.63	0.09	0.09	9.17	14.1	2
LP	Tube 2	Origin	50.00	0.92	0.06	-0.01	315.07	-25.93	6.8	-25.71	7.79	-0.13	-0.56	8.63	0.09	0.09	9.19	14.1	2
LP	Tube 2	End	55.00	0.63	0.04	-0.01	354.02	-26.57	6.8	-25.71	7.79	-0.13	-0.53	8.89	0.09	0.09	9.43	14.5	2
LP	Tube 2	Origin	55.00	0.63	0.04	-0.01	354.02	-26.58	6.8	-26.79	7.88	-0.13	-0.56	8.89	0.09	0.09	9.45	14.5	2
LP	Tube 2	End	60.00	0.40	0.02	-0.00	393.44	-27.23	6.8	-26.79	7.88	-0.13	-0.53	9.10	0.08	0.08	9.64	14.8	2
LP	Tube 2	Origin	60.00	0.40	0.02	-0.00	393.44	-27.24	6.8	-27.92	7.98	-0.13	-0.56	9.10	0.08	0.08	9.66	14.9	2
LP	Tube 2	End	65.00	0.23	0.01	-0.00	433.35	-27.90	6.8	-27.92	7.98	-0.13	-0.54	9.26	0.08	0.07	9.80	15.1	2
LP	Tube 2	Origin	65.00	0.23	0.01	-0.00	433.35	-27.90	6.8	-29.09	8.08	-0.14	-0.56	9.26	0.08	0.07	9.82	15.1	2
LP	Tube 2	End	70.00	0.10	0.01	-0.00	473.76	-28.57	6.8	-29.09	8.08	-0.14	-0.54	9.39	0.08	0.07	9.93	15.3	2
LP	Tube 2	Origin	70.00	0.10	0.01	-0.00	473.76	-28.58	6.8	-30.31	8.18	-0.14	-0.56	9.39	0.08	0.07	9.95	15.3	2
LP	Tube 2	End	75.00	0.03	0.00	-0.00	514.68	-29.25	6.8	-30.31	8.18	-0.14	-0.54	9.48	0.08	0.06	10.02	15.7	2
LP	Tube 2	Origin	75.00	0.03	0.00	-0.00	514.68	-29.26	6.8	-31.56	8.29	-0.14	-0.56	9.48	0.08	0.06	10.04	15.7	2
LP	LP:g	End	80.00	0.00	0.00	0.00	556.13	-29.94	6.8	-31.56	8.29	-0.14	-0.54	9.54	0.08	0.06	10.09	16.1	2
RP	RP:t	Origin	0.00	10.65	0.91	-0.09	0.00	0.00	0.0	-0.07	0.01	-0.00	-0.01	0.00	0.00	0.00	0.01	0.0	5
RP	RP:ANTFUT	End	3.00	10.18	0.86	-0.08	0.04	-0.00	0.0	-0.07	0.01	-0.00	-0.01	0.02	0.00	0.00	0.02	0.0	2
RP	RP:ANTFUT	Origin	3.00	10.18	0.86	-0.08	0.04	-0.00	-0.0	-0.24	0.05	-0.00	-0.03	0.02	0.00	0.00	0.05	0.1	2
RP	Tube 1	End	7.50	9.48	0.79	-0.08	0.26	-0.01	-0.0	-0.24	0.05	-0.00	-0.03	0.09	0.00	0.00	0.11	0.2	2
RP	Tube 1	Origin	7.50	9.48	0.79	-0.08	0.26	-0.01	-0.0	-0.47	0.09	-0.00	-0.05	0.09	0.01	0.00	0.14	0.2	2
RP	SpliceT	End	12.00	8.78	0.72	-0.07	0.67	-0.02	-0.0	-0.47	0.09	-0.00	-0.05	0.19	0.00	0.00	0.24	0.4	2
RP	SpliceT	Origin	12.00	8.78	0.72	-0.07	0.67	-0.02	-0.0	-0.72	0.13	-0.00	-0.04	0.11	0.00	0.00	0.16	0.2	2
RP	RP:ANT	End	15.00	8.31	0.68	-0.07	1.07	-0.03	-0.0	-0.72	0.13	-0.00	-0.04	0.16	0.00	0.00	0.20	0.3	2
RP	RP:ANT	Origin	15.00	8.31	0.68	-0.07	1.07	-0.03	0.0	-6.89	1.00	-0.07	-0.38	0.16	0.03	0.00	0.55	0.8	2
RP	Tube 2	End	18.50	7.77	0.62	-0.07	4.58	-0.27	0.0	-6.89	1.00	-0.07	-0.36	0.61	0.03	0.00	0.97	1.5	2
RP	Tube 2	Origin	18.50	7.77	0.62	-0.07	4.58	-0.27	0.0	-7.20	1.04	-0.07	-0.38	0.61	0.03	0.00	0.99	1.5	2
RP	RP:Coax9	End	22.00	7.23	0.57	-0.06	8.24	-0.50	0.0	-7.20	1.04	-0.07	-0.36	0.98	0.03	0.00	1.33	2.0	2
RP	RP:Coax9	Origin	22.00	7.23	0.57	-0.06	8.24	-0.50	-0.0	-8.73	1.19	-0.07	-0.43	0.98	0.03	0.00	1.41	2.2	2
RP	SpliceT	End	27.00	6.47	0.49	-0.06	14.18	-0.86	-0.0	-8.73	1.19	-0.07	-0.40	1.43	0.03	0.00	1.83	2.8	2
RP	SpliceT	Origin	27.00	6.47	0.49	-0.06	14.18	-0.86	-0.0	-9.02	1.23	-0.07	-0.34	1.19	0.03	0.00	1.53	2.4	2
RP	RP:SW	End	27.75	6.36	0.48	-0.06	15.10	-0.91	-0.0	-9.02	1.23	-0.07	-0.34	1.24	0.03	0.00	1.58	2.4	2
RP	RP:SW	Origin	27.75	6.36	0.48	-0.06	20.11	-0.92	-0.0	-12.80	2.90	-0.08	-0.48	1.65	0.06	0.00	2.13	3.3	2
RP	RP:Coax8	End	32.00	5.73	0.41	-0.05	32.41	-1.25	-0.0	-12.80	2.90	-0.08	-0.45	2.34	0.05	0.00	2.79	4.3	2
RP	RP:Coax8	Origin	32.00	5.73	0.41	-0.05	32.41	-1.25	-0.0	-14.41	3.04	-0.08	-0.51	2.34	0.06	0.00	2.85	4.4	2
RP	RP:C	End	35.50	5.22	0.36	-0.05	43.05	-1.54	-0.0	-14.41	3.04	-0.08	-0.48	2.82	0.05	0.00	3.31	5.1	2
RP	RP:C	Origin	35.50	5.22	0.36	-0.05	43.05	-21.21	4.5	-27.36	6.07	-0.00	-0.92	3.16	0.11	0.15	4.11	6.3	2
RP	Tube 3	End	38.75	4.77	0.32	-0.04	62.79	-21.21	4.5	-27.36	6.07	-0.00	-0.88	4.08	0.10	0.14	4.98	7.7	2
RP	Tube 3	Origin	38.75	4.77	0.32	-0.04	62.79	-21.21	4.5	-27.82	6.12	0.00	-0.90	4.08	0.10	0.14	5.00	7.7	2
RP	RP:Coax7	End	42.00	4.32	0.28	-0.04	82.67	-21.21	4.5	-27.82	6.12	0.00	-0.86	4.85	0.10	0.13	5.73	8.8	2
RP	RP:Coax7	Origin	42.00	4.32	0.28	-0.04	82.67	-21.21	4.5	-29.55	6.26	0.00	-0.91	4.85	0.10	0.13	5.78	8.9	2
RP	Tube 3	End	47.00	3.68	0.22	-0.03	113.96	-21.19	4.5	-29.55	6.26	0.00	-0.86	5.83	0.10	0.11	6.70	10.3	2

RP	Tube 3	Origin	47.00	3.68	0.22	-0.03	113.96	-21.19	4.5	-30.32	6.33	0.00	-0.88	5.83	0.10	0.11	6.72	10.3	2
RP	RP:Coax6	End	52.00	3.08	0.18	-0.03	145.59	-21.17	4.5	-30.32	6.33	0.00	-0.84	6.58	0.09	0.10	7.43	11.4	2
RP	RP:Coax6	Origin	52.00	3.08	0.18	-0.03	145.59	-21.17	4.5	-32.26	6.48	0.00	-0.89	6.58	0.09	0.10	7.48	11.5	2
RP	Tube 3	End	57.00	2.53	0.14	-0.02	177.97	-21.14	4.5	-32.26	6.48	0.00	-0.84	7.18	0.09	0.09	8.03	12.4	2
RP	Tube 3	Origin	57.00	2.53	0.14	-0.02	177.97	-21.14	4.5	-33.12	6.55	0.01	-0.87	7.18	0.09	0.09	8.05	12.4	2
RP	RP:Coax5	End	62.00	2.04	0.11	-0.02	210.70	-21.11	4.5	-33.12	6.55	0.01	-0.82	7.65	0.09	0.08	8.47	13.0	2
RP	RP:Coax5	Origin	62.00	2.04	0.11	-0.02	210.70	-21.11	4.5	-35.14	6.70	0.01	-0.87	7.65	0.09	0.08	8.52	13.1	2
RP	SpliceT	End	67.00	1.60	0.08	-0.02	244.20	-21.08	4.5	-35.14	6.70	0.01	-0.83	8.02	0.08	0.07	8.85	13.6	2
RP	SpliceT	Origin	67.00	1.60	0.08	-0.02	244.20	-21.09	4.5	-36.09	6.77	0.01	-0.86	8.02	0.08	0.07	8.88	13.7	2
RP	RP:Coax4	End	72.00	1.22	0.06	-0.01	278.07	-21.05	4.5	-36.09	6.77	0.01	-0.82	8.30	0.08	0.07	9.12	14.0	2
RP	RP:Coax4	Origin	72.00	1.22	0.06	-0.01	278.07	-21.06	4.5	-38.21	6.93	0.00	-0.86	8.30	0.08	0.07	9.17	14.1	2
RP	Tube 4	End	77.00	0.89	0.04	-0.01	312.72	-21.03	4.5	-38.21	6.93	0.00	-0.83	8.53	0.08	0.06	9.36	14.4	2
RP	Tube 4	Origin	77.00	0.89	0.04	-0.01	312.72	-21.03	4.5	-39.25	7.01	0.00	-0.85	8.53	0.08	0.06	9.38	14.4	2
RP	RP:Coax3	End	82.00	0.61	0.03	-0.01	347.76	-21.01	4.5	-39.25	7.01	0.00	-0.82	8.70	0.08	0.06	9.52	14.6	2
RP	RP:Coax3	Origin	82.00	0.61	0.03	-0.01	347.76	-21.01	4.5	-41.45	7.17	0.00	-0.86	8.70	0.08	0.06	9.57	14.7	2
RP	Tube 4	End	87.00	0.39	0.02	-0.01	383.61	-20.99	4.5	-41.45	7.17	0.00	-0.83	8.84	0.08	0.05	9.67	14.9	2
RP	Tube 4	Origin	87.00	0.39	0.02	-0.01	383.61	-20.99	4.5	-42.58	7.25	0.00	-0.85	8.84	0.08	0.05	9.69	14.9	2
RP	RP:Coax2	End	92.00	0.22	0.01	-0.01	419.88	-20.98	4.5	-42.58	7.25	0.00	-0.82	8.94	0.07	0.05	9.76	15.0	2
RP	RP:Coax2	Origin	92.00	0.22	0.01	-0.01	419.88	-20.98	4.5	-44.87	7.42	0.00	-0.86	8.94	0.08	0.05	9.80	15.1	2
RP	Tube 4	End	97.00	0.10	0.00	-0.00	456.97	-20.98	4.5	-44.87	7.42	0.00	-0.83	9.02	0.07	0.05	9.85	15.2	2
RP	Tube 4	Origin	97.00	0.10	0.00	-0.00	456.97	-20.98	4.5	-46.08	7.51	-0.00	-0.85	9.02	0.07	0.05	9.87	15.2	2
RP	RP:Coax1	End	102.00	0.02	0.00	-0.00	494.52	-20.98	4.5	-46.08	7.51	-0.00	-0.82	9.07	0.07	0.04	9.90	15.5	2
RP	RP:Coax1	Origin	102.00	0.02	0.00	-0.00	494.52	-20.99	4.5	-48.46	7.68	-0.00	-0.86	9.07	0.07	0.04	9.94	15.5	2
RP	RP:g	End	107.00	0.00	0.00	0.00	532.91	-21.00	4.5	-48.46	7.68	-0.00	-0.84	9.11	0.07	0.04	9.95	15.8	2

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

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Trans. Defl. (in)	Long. Defl. (in)	Vert. Defl. (in)	Vert. Mom. (ft-k)	Horz. Mom. (ft-k)	Tors. Mom. (ft-k)	Axial Force (kips)	Vert. Shear (kips)	Horz. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	Max. Usage %	At Pt.
XArm	XArm:O	Origin	0.00	5.24	0.49	-1.07	-2.67	-0.00	0.0	-2.57	-8.34	-0.01	-0.18	0.00	1.20	0.00	2.09	3.2	4
XArm	#sXArm:0	End	3.87	5.23	0.47	-0.51	-34.98	-0.06	0.0	-2.57	-8.34	-0.01	-0.18	9.76	0.47	0.00	9.97	15.3	2
XArm	#sXArm:0	Origin	3.87	5.23	0.47	-0.51	-34.98	-0.06	0.0	-2.59	-8.52	-0.01	-0.18	9.76	0.48	0.00	9.97	15.3	2
XArm	XArm:LP	End	7.75	5.23	0.44	-0.07	-68.00	-0.12	0.0	-2.59	-8.52	-0.01	-0.18	18.97	0.48	0.00	19.17	29.5	2
XArm	XArm:LP	Origin	7.75	5.23	0.44	-0.07	-67.99	-1.50	-0.4	2.47	4.94	0.11	0.17	19.13	0.28	0.06	19.31	29.7	2
XArm	#sXArm:1	End	11.63	5.23	0.42	0.16	-48.84	-1.08	-0.4	2.47	4.94	0.11	0.17	13.74	0.28	0.06	13.92	21.4	2
XArm	#sXArm:1	Origin	11.63	5.23	0.42	0.16	-48.84	-1.08	-0.4	2.49	4.74	0.11	0.17	13.74	0.27	0.06	13.93	21.4	2
XArm	XArm:ML	End	15.50	5.23	0.40	0.22	-30.46	-0.67	-0.4	2.49	4.74	0.11	0.17	8.57	0.27	0.06	8.76	13.5	2
XArm	XArm:ML	Origin	15.50	5.23	0.40	0.22	-33.12	-0.68	-0.4	-0.18	-3.66	0.09	-0.01	9.31	0.21	0.06	9.34	14.4	2
XArm	#sXArm:2	End	19.38	5.23	0.38	0.16	-47.31	-0.32	-0.4	-0.18	-3.66	0.09	-0.01	13.23	0.21	0.06	13.25	20.4	2
XArm	#sXArm:2	Origin	19.38	5.23	0.38	0.16	-47.31	-0.32	-0.4	-0.19	-3.85	0.09	-0.01	13.23	0.22	0.06	13.25	20.4	2
XArm	XArm:RP	End	23.25	5.23	0.36	-0.07	-62.23	0.04	-0.4	-0.19	-3.85	0.09	-0.01	17.36	0.22	0.06	17.38	26.7	2
XArm	XArm:RP	Origin	23.25	5.23	0.36	-0.07	-62.23	-0.10	-0.0	2.74	8.47	0.01	0.19	17.36	0.47	0.00	17.57	27.0	2
XArm	#sXArm:3	End	27.13	5.23	0.34	-0.50	-29.40	-0.05	-0.0	2.74	8.47	0.01	0.19	8.20	0.47	0.00	8.43	13.0	2
XArm	#sXArm:3	Origin	27.13	5.23	0.34	-0.50	-29.40	-0.05	-0.0	2.76	8.28	0.01	0.19	8.20	0.46	0.00	8.43	13.0	2
XArm	XArm:E	End	31.00	5.23	0.33	-1.02	2.67	0.00	-0.0	2.76	8.28	0.01	0.19	0.00	1.19	0.00	2.08	3.2	4

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

Clamp Label	Force (kips)	Input Holding Capacity (kips)	Factored Holding Capacity (kips)	Holding Usage %	Input Hardware Capacity (kips)	Factored Hardware Capacity (kips)	Hardware Usage %	Max. Usage %
RAntFUT	0.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00
RAnt	5.955	100.00	0.00	0.00	0.00	0.00	0.00	0.00

Coax1	1.125	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Coax2	1.125	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Coax3	1.125	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Coax4	1.125	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Coax5	1.125	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Coax6	1.125	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Coax7	1.125	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Coax8	1.125	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Coax9	1.125	100.00	0.00	0.00	0.00	0.00	0.00	0.00

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

Suspension Label	Tension (kips)	Input Tension Capacity (kips)	Factored Tension Capacity (kips)	Tension Usage %	Input Hardware Capacity (kips)	Factored Hardware Capacity (kips)	Hardware Usage %	Max. Usage %
SWL	3.834	25.00	0.00	0.00	0.00	0.00	0.00	0.00
SWR	3.834	25.00	0.00	0.00	0.00	0.00	0.00	0.00
PHL	8.633	30.00	0.00	0.00	0.00	0.00	0.00	0.00
PHM	8.633	30.00	0.00	0.00	0.00	0.00	0.00	0.00
PHR	8.633	30.00	0.00	0.00	0.00	0.00	0.00	0.00

*** 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)
LP	39.01	NESC 250C	2.5	18	12719.3
RP	36.88	NESC 250C	2.5	25	14075.1

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 %	
LP	NESC Rule 250B	1	-0.541	2.021	-1.479	1.479	12.996	33.029	45.084	-1.5	118.589	2.235	2.750	66.06	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2
LP	NESC Rule 250B	2	-1.479	1.479	-2.021	0.541	12.996	24.745	33.777	-1.5	101.318	1.935	2.750	49.49	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2
LP	NESC Rule 250B	3	-2.021	-0.541	-1.479	-1.479	12.996	20.689	28.240	-1.5	-88.323	1.769	2.750	41.38	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2
LP	NESC Rule 250B	4	-1.479	-1.479	-0.541	-2.021	12.996	29.616	40.426	-1.5	-107.310	2.116	2.750	59.23	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2
LP	NESC Rule 250B	5	0.541	-2.021	1.479	-1.479	12.996	31.315	42.744	-1.5	-112.684	2.176	2.750	62.63	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2
LP	NESC Rule 250B	6	1.479	-1.479	2.021	-0.541	12.996	23.031	31.437	-1.5	-95.414	1.866	2.750	46.06	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2
LP	NESC Rule 250B	7	2.021	0.541	1.479	1.479	12.996	22.403	30.580	-1.5	94.227	1.841	2.750	44.81	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2
LP	NESC Rule 250B	8	1.479	1.479	0.541	2.021	12.996	31.330	42.765	-1.5	113.215	2.177	2.750	62.66	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2
LP	NESC 250C	1	-0.541	2.021	-1.479	1.479	12.996	32.165	43.904	-1.5	115.752	2.206	2.750	64.33	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2
LP	NESC 250C	2	-1.479	1.479	-2.021	0.541	12.996	23.690	32.336	-1.5	97.975	1.893	2.750	47.38	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2
LP	NESC 250C	3	-2.021	-0.541	-1.479	-1.479	12.996	21.771	29.716	-1.5	-91.775	1.815	2.750	43.54	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2
LP	NESC 250C	4	-1.479	-1.479	-0.541	-2.021	12.996	30.517	41.655	-1.5	-110.277	2.148	2.750	61.03	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2
LP	NESC 250C	5	0.541	-2.021	1.479	-1.479	12.996	31.233	42.632	-1.5	-112.543	2.173	2.750	62.47	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2
LP	NESC 250C	6	1.479	-1.479	2.021	-0.541	12.996	22.758	31.065	-1.5	-94.765	1.855	2.750	45.52	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2
LP	NESC 250C	7	2.021	0.541	1.479	1.479	12.996	22.702	30.988	-1.5	94.985	1.853	2.750	45.40	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2
LP	NESC 250C	8	1.479	1.479	0.541	2.021	12.996	31.448	42.926	-1.5	113.486	2.181	2.750	62.90	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2
LP	NESC Rule 250D	1	-0.541	2.021	-1.479	1.479	12.996	33.301	45.455	-1.5	119.416	2.244	2.750	66.60	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2
LP	NESC Rule 250D	2	-1.479	1.479	-2.021	0.541	12.996	25.165	34.349	-1.5	102.535	1.951	2.750	50.33	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2
LP	NESC Rule 250D	3	-2.021	-0.541	-1.479	-1.479	12.996	20.236	27.622	-1.5	-86.964	1.749	2.750	40.47	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2
LP	NESC Rule 250D	4	-1.479	-1.479	-0.541	-2.021	12.996	29.298	39.991	-1.5	-106.314	2.105	2.750	58.60	Note: actual load

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overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2
    LP NESC Rule 250D    5  0.541 -2.021  1.479 -1.479 12.996  31.743   43.328    -1.5 -114.048     2.191     2.750    63.49  Note: actual load
overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2
    LP NESC Rule 250D    6  1.479 -1.479  2.021 -0.541 12.996  23.606   32.222    -1.5  -97.167     1.890     2.750    47.21  Note: actual load
overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2
    LP NESC Rule 250D    7  2.021  0.541  1.479  1.479 12.996  21.794   29.748    -1.5   92.332     1.816     2.750    43.59  Note: actual load
overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2
    LP NESC Rule 250D    8  1.479  1.479  0.541  2.021 12.996  30.856   42.118    -1.5  111.682     2.160     2.750    61.71  Note: actual load
overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2

    RP NESC Rule 250B    1 -0.541  2.021 -1.479  1.479 12.996  33.147   45.245    -1.5  119.081     2.239     2.750    66.29  Note: actual load
overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2
    RP NESC Rule 250B    2 -1.479  1.479 -2.021  0.541 12.996  24.748   33.781    -1.5  101.504     1.935     2.750    49.50  Note: actual load
overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2
    RP NESC Rule 250B    3 -2.021 -0.541 -1.479 -1.479 12.996  20.705   28.261    -1.5  -88.213     1.770     2.750    41.41  Note: actual load
overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2
    RP NESC Rule 250B    4 -1.479 -1.479 -0.541 -2.021 12.996  29.523   40.299    -1.5 -106.909     2.113     2.750    59.05  Note: actual load
overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2
    RP NESC Rule 250B    5  0.541 -2.021  1.479 -1.479 12.996  30.632   41.812    -1.5 -110.416     2.152     2.750    61.26  Note: actual load
overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2
    RP NESC Rule 250B    6  1.479 -1.479  2.021 -0.541 12.996  22.233   30.348    -1.5  -92.840     1.834     2.750    44.47  Note: actual load
overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2
    RP NESC Rule 250B    7  2.021  0.541  1.479  1.479 12.996  23.220   31.694    -1.5   96.877     1.874     2.750    46.44  Note: actual load
overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2
    RP NESC Rule 250B    8  1.479  1.479  0.541  2.021 12.996  32.039   43.732    -1.5  115.573     2.201     2.750    64.08  Note: actual load
overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2

    RP      NESC 250C    1 -0.541  2.021 -1.479  1.479 12.996  32.016   43.701    -1.5  115.320     2.201     2.750    64.03  Note: actual load
overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2
    RP      NESC 250C    2 -1.479  1.479 -2.021  0.541 12.996  23.431   31.982    -1.5   97.249     1.883     2.750    46.86  Note: actual load
overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2
    RP      NESC 250C    3 -2.021 -0.541 -1.479 -1.479 12.996  22.036   30.078    -1.5  -92.524     1.826     2.750    44.07  Note: actual load
overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2
    RP      NESC 250C    4 -1.479 -1.479 -0.541 -2.021 12.996  30.673   41.868    -1.5 -110.736     2.154     2.750    61.35  Note: actual load
overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2
    RP      NESC 250C    5  0.541 -2.021  1.479 -1.479 12.996  30.813   42.059    -1.5 -111.177     2.159     2.750    61.63  Note: actual load
overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2
    RP      NESC 250C    6  1.479 -1.479  2.021 -0.541 12.996  22.228   30.341    -1.5  -93.106     1.834     2.750    44.46  Note: actual load
overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2
    RP      NESC 250C    7  2.021  0.541  1.479  1.479 12.996  23.238   31.720    -1.5   96.667     1.875     2.750    46.48  Note: actual load
overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2
    RP      NESC 250C    8  1.479  1.479  0.541  2.021 12.996  31.876   43.510    -1.5  114.879     2.196     2.750    63.75  Note: actual load
overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2

    RP NESC Rule 250D    1 -0.541  2.021 -1.479  1.479 12.996  33.403   45.595    -1.5  119.864     2.248     2.750    66.81  Note: actual load
overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2
    RP NESC Rule 250D    2 -1.479  1.479 -2.021  0.541 12.996  25.137   34.312    -1.5  102.641     1.950     2.750    50.27  Note: actual load
overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2
    RP NESC Rule 250D    3 -2.021 -0.541 -1.479 -1.479 12.996  20.294   27.700    -1.5  -86.986     1.752     2.750    40.59  Note: actual load
overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2
    RP NESC Rule 250D    4 -1.479 -1.479 -0.541 -2.021 12.996  29.238   39.909    -1.5 -106.017     2.103     2.750    58.48  Note: actual load
overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2
    RP NESC Rule 250D    5  0.541 -2.021  1.479 -1.479 12.996  31.028   42.352    -1.5 -111.680     2.166     2.750    62.06  Note: actual load
overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2
    RP NESC Rule 250D    6  1.479 -1.479  2.021 -0.541 12.996  22.762   31.069    -1.5  -94.457     1.855     2.750    45.52  Note: actual load
overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2
    RP NESC Rule 250D    7  2.021  0.541  1.479  1.479 12.996  22.669   30.943    -1.5   95.169     1.852     2.750    45.34  Note: actual load
overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2
    RP NESC Rule 250D    8  1.479  1.479  0.541  2.021 12.996  31.613   43.151    -1.5  114.201     2.187     2.750    63.23  Note: actual load
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overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-11 6.4.2

Summary of Tubular X-Arm Usages:

Tubular X-Arm Label	Maximum Usage %	Load Case	Height AGL (ft)	Segment Number	Weight (lbs)
XArm	30.21	NESC Rule 250B	71.5	3	1523.8

*** Maximum Stress Summary for Each Load Case

Summary of Maximum Usages by Load Case:

Load Case	Maximum Usage %	Element Label	Element Type
NESC Rule 250B	66.29	RP	Base Plate
NESC 250C	64.33	LP	Base Plate
NESC Rule 250D	66.81	RP	Base Plate

Summary of Steel Pole Usages by Load Case:

Load Case	Maximum Usage %	Steel Pole Label	Height AGL (ft)	Segment Number
NESC Rule 250B	24.10	LP	2.5	18
NESC 250C	39.01	LP	2.5	18
NESC Rule 250D	16.05	LP	2.5	18

Summary of Base Plate Usages by Load Case:

Load Case	Pole Label	Bend Line #	Length (in)	Vertical Load (kips)	X Moment (ft-k)	Y Moment (ft-k)	Bending Stress (ksi)	Bolt Moment Sum (ft-k)	# Bolts Acting On Bend Line	Max Bolt Load For Bend Line (kips)	Minimum Plate Thickness (in)	Usage %
NESC Rule 250B	LP	1	12.996	35.427	1856.686	-69.421	33.029	45.084	-1.5	118.589	2.235	66.06
NESC 250C	LP	1	12.996	19.257	1857.753	-29.274	32.165	43.904	-1.5	115.752	2.206	64.33
NESC Rule 250D	LP	1	12.996	32.205	1855.296	-99.895	33.301	45.455	-1.5	119.416	2.244	66.60
NESC Rule 250B	RP	1	12.996	51.986	1857.431	-45.302	33.147	45.245	-1.5	119.081	2.239	66.29
NESC 250C	RP	1	12.996	24.858	1857.975	-5.701	32.016	43.701	-1.5	115.320	2.201	64.03
NESC Rule 250D	RP	1	12.996	49.103	1856.543	-73.149	33.403	45.595	-1.5	119.864	2.248	66.81

Summary of Tubular X-Arm Usages by Load Case:

Load Case	Maximum Usage %	Tubular X-Arm Label	Height AGL (ft)	Segment Number
NESC Rule 250B	30.21	XArm	71.5	3
NESC 250C	16.30	XArm	71.5	3
NESC Rule 250D	29.71	XArm	71.5	3

Summary of Insulator Usages:

Insulator Label	Insulator Type	Maximum Usage %	Load Case	Weight (lbs)

RAntFUT	Clamp	0.00	NESC Rule 250B	0.0
RAnt	Clamp	0.00	NESC Rule 250B	0.0
Coax1	Clamp	0.00	NESC Rule 250B	0.0
Coax2	Clamp	0.00	NESC Rule 250B	0.0
Coax3	Clamp	0.00	NESC Rule 250B	0.0
Coax4	Clamp	0.00	NESC Rule 250B	0.0
Coax5	Clamp	0.00	NESC Rule 250B	0.0
Coax6	Clamp	0.00	NESC Rule 250B	0.0
Coax7	Clamp	0.00	NESC Rule 250B	0.0
Coax8	Clamp	0.00	NESC Rule 250B	0.0
Coax9	Clamp	0.00	NESC Rule 250B	0.0
SWL	Suspension	0.00	NESC Rule 250B	1.0
SWR	Suspension	0.00	NESC Rule 250B	1.0
PHL	Suspension	0.00	NESC Rule 250B	50.0
PHM	Suspension	0.00	NESC Rule 250B	50.0
PHR	Suspension	0.00	NESC Rule 250B	50.0

Loads At Insulator Attachments For All Load Cases:

Load Case	Insulator Label	Insulator Type	Structure Attach Label	Structure Attach Load X (kips)	Structure Attach Load Y (kips)	Structure Attach Load Z (kips)	Structure Attach Load Res. (kips)
NESC Rule 250B	RAntFUT	Clamp	RP:ANTFUT	0.000	0.000	-0.000	0.000
NESC Rule 250B	RAnt	Clamp	RP:ANT	0.000	1.734	7.359	7.561
NESC Rule 250B	Coax1	Clamp	RP:Coax1	0.000	0.172	0.920	0.936
NESC Rule 250B	Coax2	Clamp	RP:Coax2	0.000	0.172	0.920	0.936
NESC Rule 250B	Coax3	Clamp	RP:Coax3	0.000	0.172	0.920	0.936
NESC Rule 250B	Coax4	Clamp	RP:Coax4	0.000	0.172	0.920	0.936
NESC Rule 250B	Coax5	Clamp	RP:Coax5	0.000	0.172	0.920	0.936
NESC Rule 250B	Coax6	Clamp	RP:Coax6	0.000	0.172	0.920	0.936
NESC Rule 250B	Coax7	Clamp	RP:Coax7	0.000	0.172	0.920	0.936
NESC Rule 250B	Coax8	Clamp	RP:Coax8	0.000	0.172	0.920	0.936
NESC Rule 250B	Coax9	Clamp	RP:Coax9	0.000	0.172	0.920	0.936
NESC Rule 250B	SWL	Suspension	SWLVANG	0.000	1.891	2.422	3.073
NESC Rule 250B	SWR	Suspension	SWRVANG	0.000	1.891	2.422	3.073
NESC Rule 250B	PHL	Suspension	VangCL	0.000	3.533	8.055	8.796
NESC Rule 250B	PHM	Suspension	VangCM	0.000	3.533	8.055	8.796
NESC Rule 250B	PHR	Suspension	VangCR	0.000	3.533	8.055	8.796
NESC 250C	RAntFUT	Clamp	RP:ANTFUT	0.000	0.000	-0.000	0.000
NESC 250C	RAnt	Clamp	RP:ANT	0.061	5.421	4.018	6.748
NESC 250C	Coax1	Clamp	RP:Coax1	0.000	0.501	0.250	0.560
NESC 250C	Coax2	Clamp	RP:Coax2	0.000	0.501	0.250	0.560
NESC 250C	Coax3	Clamp	RP:Coax3	0.000	0.501	0.250	0.560
NESC 250C	Coax4	Clamp	RP:Coax4	0.000	0.501	0.250	0.560
NESC 250C	Coax5	Clamp	RP:Coax5	0.000	0.501	0.250	0.560
NESC 250C	Coax6	Clamp	RP:Coax6	0.000	0.501	0.250	0.560
NESC 250C	Coax7	Clamp	RP:Coax7	0.000	0.501	0.250	0.560
NESC 250C	Coax8	Clamp	RP:Coax8	0.000	0.501	0.250	0.560
NESC 250C	Coax9	Clamp	RP:Coax9	0.000	0.501	0.250	0.560
NESC 250C	SWL	Suspension	SWLVANG	0.000	1.712	0.673	1.840
NESC 250C	SWR	Suspension	SWRVANG	0.000	1.712	0.673	1.840
NESC 250C	PHL	Suspension	VangCL	0.000	5.241	3.462	6.281
NESC 250C	PHM	Suspension	VangCM	0.000	5.241	3.462	6.281
NESC 250C	PHR	Suspension	VangCR	0.000	5.241	3.462	6.281
NESC Rule 250D	RAntFUT	Clamp	RP:ANTFUT	0.000	0.000	-0.000	0.000
NESC Rule 250D	RAnt	Clamp	RP:ANT	0.053	0.753	5.907	5.955

NESC Rule 250D	Coax1	Clamp	RP:Coax1	0.000	0.074	1.123	1.125
NESC Rule 250D	Coax2	Clamp	RP:Coax2	0.000	0.074	1.123	1.125
NESC Rule 250D	Coax3	Clamp	RP:Coax3	0.000	0.074	1.123	1.125
NESC Rule 250D	Coax4	Clamp	RP:Coax4	0.000	0.074	1.123	1.125
NESC Rule 250D	Coax5	Clamp	RP:Coax5	0.000	0.074	1.123	1.125
NESC Rule 250D	Coax6	Clamp	RP:Coax6	0.000	0.074	1.123	1.125
NESC Rule 250D	Coax7	Clamp	RP:Coax7	0.000	0.074	1.123	1.125
NESC Rule 250D	Coax8	Clamp	RP:Coax8	0.000	0.074	1.123	1.125
NESC Rule 250D	Coax9	Clamp	RP:Coax9	0.000	0.074	1.123	1.125
NESC Rule 250D	SWL	Suspension	SWLVANG	0.000	1.590	3.489	3.834
NESC Rule 250D	SWR	Suspension	SWRVANG	0.000	1.590	3.489	3.834
NESC Rule 250D	PHL	Suspension	VangCL	0.000	2.666	8.211	8.633
NESC Rule 250D	PHM	Suspension	VangCM	0.000	2.666	8.211	8.633
NESC Rule 250D	PHR	Suspension	VangCR	0.000	2.666	8.211	8.633

Overturning Moments For User Input Concentrated Loads:

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

Load Case	Total Tran. Load (kips)	Total Long. Load (kips)	Total Vert. Load (kips)	Transverse Overturning Moment (ft-k)	Longitudinal Overturning Moment (ft-k)	Torsional Moment (ft-k)
NESC Rule 250B	17.664	0.000	44.649	1397.400	-37.284	-16.355
NESC 250C	29.076	0.061	18.001	2129.976	-21.637	-23.784
NESC Rule 250D	12.597	0.053	47.626	1039.253	-42.882	-11.930

*** Weight of structure (lbs):

Weight of Tubular X-Arms:	1523.8
Weight of Steel Poles:	26794.4
Weight of Suspensions:	152.0
Total:	28470.2

*** End of Report

CENTEK engineering
Centered on Solutions℠ www.centekeng.com
63-2 North Branford Road P: (203) 488-0580
Branford, CT 06405 F: (203) 488-8587

Subject: Anchor Bolt Analysis CL&P Pole #8012

Location: Farmington, CT

Rev. 0: 10/14/21

Prepared by: T.J.L. Checked by: C.F.C.
Job No. 21122.00

Anchor Bolt Analysis:

Input Data:

Bolt Force:

Maximum Tensile Force = $T_{Max} := 120 \cdot kips$ (User Input from PLS-Pole)

Maximum Shear Force at Base = $V_{base} := 24 \cdot kips$ (User Input from PLS-Pole)

Anchor Bolt Data:

Use AST MA615 Grade 75

Number of Anchor Bolts = $N := 12$ (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 = $V_{Max} := \frac{V_{base}}{N} = 2 \times 10^3 lbf$

Shear Stress per Bolt = $f_v := \frac{V_{Max}}{A_s} = 615.8\,psi$

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

Shear Stress Permitted = $F_v := 0.35 F_y = 26.25 \cdot ksi$

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

Bolt Tension % of Capacity = $\frac{T_{Max}}{F_{tv} \cdot A_s} = 49.28 \cdot \%$

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

Condition1 = "OK"

Section 1 - RFDS GENERAL INFORMATION

RFDS NAME:	CTL01104	DATE:	3/10/2020	RF DESIGN ENG:	Omair Mohammed	RF PERF ENG:	Folarin Ayo
ISSUE:	Preliminary	Approved? (Y/N):	Yes	RF DESIGN PHONE:	(860) 513-7598	RF PERF PHONE:	
REVISION:	Bronze Standard	RF MANAGER:	John Benedetto	RF DESIGN EMAIL:	OM636A@US.ATT.COM	RF PERF EMAIL:	
						ADDITIONAL WORKFLOW NOTIFICATIONS:	

LTE 6C[700 UPPER D], 4TX4RX Software Retrofit[700 B-C], 5G NR Upgrade[850 B(U)], BWE Software Carrier[1900 A3-A4 & E & C5]

RFDS PROGRAM TYPE:	2021 LTE Next Carrier				
RFDS TECHNOLOGY:	LTE				
STATE/STATUS:	Final/Approved				
RFDS ID:	3719981				
RFDS VERSION	2.00	Created By:	OM636A	Updated By:	sp656b
UMTS FREQUENCY:	850	Created:	3/9/2020	Updated:	10/11/2021
LTE FREQUENCY:	700,850,1900,WCS	EXPIRATION DATE:			
5G FREQUENCY:	850	ESTIMATED SQIN:	10,322	Calculation ID:	20211011325119363
IPLAN JOB # 1:	NER-RCTB-20-01313	PRD || SUB GRP #1	LTE Next Carrier || LTE 6C		
IPLAN JOB # 2:	NER-RCTB-20-01376	PRD || SUB GRP #2	Antenna Modifications || 4TX4RX Software Retrofit		
IPLAN JOB # 3:	NER-RCTB-20-01351	PRD || SUB GRP #3	Cell Site RF Modifications || 5G NR Upgrade		
IPLAN JOB # 4:	NER-RCTB-20-01630	PRD || SUB GRP #4	LTE Multi Carrier || BWE Tower Top RRH Swap		
IPLAN JOB # 5:		PRD || SUB GRP #5			
IPLAN JOB # 6:		PRD || SUB GRP #6			
IPLAN JOB # 7:		PRD || SUB GRP #7			
IPLAN JOB # 8:		PRD || SUB GRP #8			

Section 2 - LOCATION INFORMATION

USID:	59423	FA LOCATION CODE:	10035295	LOCATION NAME:	FARMINGTON NU MAPLE RIDGE DR	ORACLE PRJT # 1:	2051A0V4N7
REGION:	NORTHEAST	MARKET CLUSTER:	NEW ENGLAND	MARKET:	CONNECTICUT	ORACLE PRJT # 2:	2051A0V4AC
ADDRESS:	45 MAPLE RIDGE DRIVE	CITY:	FARMINGTON	STATE:	CT	ORACLE PRJT # 3:	2051A0V4RN
ZIP CODE:	06032	COUNTY:	HARTFORD	LONG (DEC. DEG.):	-72.7693019	ORACLE PRJT # 4:	2051A0VNBT
LATITUDE (D-M-S):	41d 43m 4.692s	LONGITUDE (D-M-S):	-72d -46m -9.48684s	LAT (DEC. DEG.):	41.7179700	ORACLE PRJT # 5:	
						ORACLE PRJT # 6:	
						ORACLE PRJT # 7:	
						ORACLE PRJT # 8:	
						BORDER CELL WITH CONTOUR COORD:	
						AM STUDY REQ'D (Y/N):	No
						FREQ COORD:	
						RF DISTRICT:	TBD
						RF ZONE:	TBD
						PARENT NAME(UMTS):	MDTWCTNICRBR06

PACE JOB #1:	MRCTB046571
PACE JOB #2:	MRCTB047034
PACE JOB #3:	MRCTB047029
PACE JOB #4:	MRCTB047537
PACE JOB #5:	
PACE JOB #6:	
PACE JOB #7:	
PACE JOB #8:	
SEARCH RING NAME:	
SEARCH RING ID:	
BTA:	MSA / RSA:
LAC(UMTS):	05986
RNC(UMTS):	MIDDLETOWN RNC06
MME POOL ID(LTE):	FF01

DIRECTIONS, ACCESS AND EQUIPMENT LOCATION:

ROUTE 9 NORTH TOWARD NEW BRITIAN TAKE THE CT 71 EXIT NUMBER 30 TOWARD CORBINS CORNER TURN RIGHT ONTO CT 71 TURN LEFT ONTO SOUTH RD TURN LEFT ONTO MAPLE RIDGE DR. SHELTER SITE ON THE RIGHT DOWN THE ROAD N/U POWER MOUNT GATE COMBO 5000

METER # 89 094 946 POWER CO N/U 860-947-2000

T-1 ARE IN HOFFMANN BOX OURSIDE COMPOUND

GMS T-1 1 DHXV 295358 ET-60
2 DHXV 295359
3 HCGS 725802

UMTS IS ON FIBER

ET 60
HCGS295358SN
HTTP://ALNXNGWB1.WNSNET.ATTWS.COM:7777/PLS/ENGDB/XPERWEB.PATH_DEF?IPATHINSTID=1119420

Section 3 - LICENSE COVERAGE/FILING INFORMATION

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

CGSA CALL SIGNS:

Section 4 - TOWER/REGULATORY INFORMATION

STRUCTURE AT&T OWNED?:	Yes	GROUND ELEVATION (ft):	0	STRUCTURE TYPE:	UTILITY
ADDITIONAL REGULATORY?:	Yes	HEIGHT OVERALL (ft):	0.00	FCC ASR NUMBER:	NR
SUB-LEASE RIGHTS?:	Yes	STRUCTURE HEIGHT (ft):	62.00		
LIGHTING TYPE:	NOT REQUIRED				

MARKET LOCATION 700 MHz Band:	
MARKET LOCATION 850 MHz Band:	On-Air
MARKET LOCATION 1900 MHz Band:	On-Air
MARKET LOCATION AWS Band:	
MARKET LOCATION WCS Band:	
MARKET LOCATION Future Band:	

Section 5 - E-911 INFORMATION - existing

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

Section 5 - E-911 INFORMATION - final

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

SECTOR F								
OMNI								

Section 6/7 - BBU INFORMATION - existing				
	BBU 1	BBU 2	BBU 3	BBU 4
BBU ID:	172525	229472	366891	551242
TECHNOLOGY:	UMTS	UMTS	LTE	LTE,5G
BBU NAME:	CTU1104	CTV1104	CTL01104	CTL00104R,CTCN001104
BBU USID:	59423	59423	59423	59423
CELL ID / BCF:	CTU1104	CTU1104	CTL01104	CTL00104R
BTA/TID:	184V	184U	184L	184L
4-9 DIGIT SITE ID:	1104	1104	1104	0104
COW OR TOY?:	No	No	No	No
CELL SITE TYPE:	SECTORIZED	SECTORIZED	SECTORIZED	SECTORIZED
SITE TYPE:	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL
BTS LOCATION ID:	INTERNAL	INTERNAL	INTERNAL	
BASE STATION TYPE:	BASE	OVERLAY	BASE	OVERLAY
EQUIPMENT NAME:	FARMINGTON NU MAPLE RIDGE DR	FARMINGTON NU MAPLE RIDGE DR	FARMINGTON NU MAPLE RIDGE DR	FARMINGTON NU MAPLE RIDGE DR
DISASTER PRIORITY:	1	1	3	3
EQUIPMENT VENDOR:	ERICSSON	ERICSSON	ERICSSON	ERICSSON
EQUIPMENT TYPE (Model):			6601 INDOOR MU	
BASEBAND CONFIGURATION :				
MARKET STATE CODE:			CT	CT,CTC
NODE B NUMBER:	0	0	1104	104,1104
SIDEHAUL SWITCH VENDOR:				
SIDEHAUL SWITCH MODEL:				
SIDEHAUL SWITCH NAME:				
CSS - CTS COMMON ID:	CTU1104	CTV1104	CTL01104	CTL00104R
CSS - SECONDARY FUNCTION ID:				CTCN001104

Section 6/7 - BBU INFORMATION - final			
	BBU 1	BBU 2	BBU 3
BBU ID:	229472	366891	551242
TECHNOLOGY:	UMTS	LTE	LTE,5G
BBU NAME:	CTV1104	CTL01104	CTL00104R,CTCN001104
BBU USID:	59423	59423	59423
CELL ID / BCF:	CTU1104	CTL01104	CTL00104R
BTA/TID:	184W	184L	184L
4-9 DIGIT SITE ID:	1104	1104	0104
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:	OVERLAY	BASE	OVERLAY
EQUIPMENT NAME:	FARMINGTON NU MAPLE RIDGE DR	FARMINGTON NU MAPLE RIDGE DR	FARMINGTON NU MAPLE RIDGE DR
DISASTER PRIORITY:	1	3	3
EQUIPMENT VENDOR:	ERICSSON	ERICSSON	ERICSSON
EQUIPMENT TYPE (Model):		BASEBAND 6630	BASEBAND 6630
BASEBAND CONFIGURATION :		1x6601 / 2x6630 / 1xXMU03 + IDLe	
MARKET STATE CODE:		CT	CT,CTC
NODE B NUMBER:	0	1104	104,1104
SIDEHAUL SWITCH VENDOR:			
SIDEHAUL SWITCH MODEL:			
SIDEHAUL SWITCH NAME:			
CSS - CTS COMMON ID:	CTV1104	CTL01104	CTL00104R
CSS - SECONDARY FUNCTION ID:			CTCN001104

Section 7b - Radio INFORMATION - existing

Section 7b - Radio INFORMATION - final

Section 8 - RBS/SECTOR ASSOCIATION - existing

	BBU 1	BBU 2	BBU 3	BBU 4
CTS Common ID	CTU1104	CTV1104	CTL01104	CTL00104R,CTCN001104
Soft Sector IDs	CTU11044	CTV11041	CTL01104_2A_2	CTL00104_3A_1
	CTU11045	CTV11042	CTL01104_2B_2	CTL00104_7A_1
	CTU11046	CTV11043	CTL01104_2C_2	CTL00104_9A_1
	CTU11047	CTV1104A	CTL01104_3A_1	
	CTU11048	CTV1104B	CTL01104_3B_1	
	CTU11049	CTV1104C	CTL01104_3C_1	
			CTL01104_7A_1	
			CTL01104_7A_2_E	
			CTL01104_7B_1	
			CTL01104_7B_2_E	
			CTL01104_7C_1	
			CTL01104_7C_2_E	
			CTL01104_8A_1	
			CTL01104_8B_1	
			CTL01104_8C_1	
			CTL01104_9A_1	
			CTL01104_9A_2	
			CTL01104_9B_1	
			CTL01104_9B_2	
			CTL01104_9C_1	
			CTL01104_9C_2	

Section 8 - RBS/SECTOR ASSOCIATION - final

	BBU 1	BBU 2	BBU 3
CTS Common ID	CTV1104	CTL01104	CTL00104R,CTCN001104
Soft Sector IDs	CTV11041	CTL01104_3A_1	CTCN001104_N005A_1
	CTV11042	CTL01104_3B_1	CTCN001104_N005B_1
	CTV11043	CTL01104_3C_1	CTCN001104_N005C_1
		CTL01104_7A_1	CTL00104_2A_2
		CTL01104_7A_3_F	CTL00104_2B_2
		CTL01104_7B_1	CTL00104_2C_2
		CTL01104_7B_3_F	CTL00104_9A_1
		CTL01104_7C_1	CTL00104_9A_2
		CTL01104_7C_3_F	CTL00104_9A_3
		CTL01104_8A_1	CTL00104_9B_1
		CTL01104_8B_1	CTL00104_9B_2
		CTL01104_8C_1	CTL00104_9B_3
			CTL00104_9C_1
			CTL00104_9C_2
			CTL00104_9C_3

Section 9 - SOFT SECTOR ID - existing

	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 700	LTE 2ND 1900	LTE 2ND WCS	LTE 3RD 700	LTE 3RD 1900	LTE 4TH 1900	LTE 4TH AWS	LTE 5TH 700	LTE 5TH 1900	5G 1ST 850
USEID (excluding Hard Sector)	59423.850.3G.1	59423.1900.3G.1	59423.850.3G.2	59423.1900.3G.2															
SECTOR A SOFT SECTOR ID	CTV11041	CTU11047	CTV1104A	CTU11044	CTL01104_7A_1	CTL01104_8A_1	CTL01104_9A_1	CTL01104_2A_2	CTL01104_3A_1	CTL01104_7A_2_E	CTL01104_9A_2	CTL00104_3A_1	CTL00104_7A_1	CTL00104_9A_1					
SECTOR B	CTV11042	CTU11048	CTV1104B	CTU11045	CTL01104_7B_1	CTL01104_8B_1	CTL01104_9B_1	CTL01104_2B_2	CTL01104_3B_1	CTL01104_7B_2_E	CTL01104_9B_2								
SECTOR C	CTV11043	CTU11049	CTV1104C	CTU11046	CTL01104_7C_1	CTL01104_8C_1	CTL01104_9C_1	CTL01104_2C_2	CTL01104_3C_1	CTL01104_7C_2_E	CTL01104_9C_2								
SECTOR D																			
SECTOR E																			
SECTOR F																			
OMNI																			

Section 9 - SOFT SECTOR ID - final

	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 700	LTE 2ND 1900	LTE 2ND WCS	LTE 3RD 700	LTE 3RD 1900	LTE 4TH 1900	LTE 4TH AWS	LTE 5TH 700	LTE 5TH 1900	5G 1ST 850
USEID (excluding Hard Sector)	59423.850.3G.1																		
SECTOR A SOFT SECTOR ID	CTV11041				CTL01104_7A_1	CTL01104_8A_1			CTL01104_3A_1					CTL00104_9A_1	CTL00104_9A_2	CTL00104_2A_2	CTL01104_7A_3_F	CTL00104_9A_3	CTCN001104_N005A_1
SECTOR B	CTV11042				CTL01104_7B_1	CTL01104_8B_1	CTL00104_9B_1		CTL01104_3B_1						CTL00104_9B_2	CTL00104_2B_2	CTL01104_7B_3_F	CTL00104_9B_3	CTCN001104_N005B_1
SECTOR C	CTV11043				CTL01104_7C_1	CTL01104_8C_1	CTL00104_9C_1		CTL01104_3C_1						CTL00104_9C_2	CTL00104_2C_2	CTL01104_7C_3_F	CTL00104_9C_3	CTCN001104_N005C_1
SECTOR D																			
SECTOR E																			
SECTOR F																			
OMNI																			

Section 9 - Cell Number - existing

	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 700	LTE 2ND 1900	LTE 2ND WCS	LTE 3RD 700	LTE 3RD 1900	LTE 4TH 1900	LTE 4TH AWS	LTE 5TH 700	LTE 5TH 1900	5G 1ST 850
USEID (excluding Hard Sector)	59423.850.3G.1	59423.1900.3G.1	59423.850.3G.2	59423.1900.3G.2															
SECTOR A CELL NUMBER					15	1	8	192	149	185	178	149	15	8					
SECTOR B					16	2	9	193	150	186	179								
SECTOR C					17	3	10	194	151	187	180								
SECTOR D																			
SECTOR E																			
SECTOR F																			
OMNI																			

Section 9 - Cell Number - final

	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 700	LTE 2ND 1900	LTE 2ND WCS	LTE 3RD 700	LTE 3RD 1900	LTE 4TH 1900	LTE 4TH AWS	LTE 5TH 700	LTE 5TH 1900	5G 1ST 850
USEID (excluding Hard Sector)	59423.850.3G.1																		
SECTOR A CELL NUMBER					15	1			149					8	178	192	171	203	25
SECTOR B					16	2	9		150						179	193	172	204	49
SECTOR C					17	3	10		151						180	194	173	205	73
SECTOR D																			
SECTOR E																			
SECTOR F																			
OMNI																			

Section 10 - CID/SAC - existing

	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 700	LTE 2ND 1900	LTE 2ND WCS	LTE 3RD 700	LTE 3RD 1900	LTE 4TH 1900	LTE 4TH AWS	LTE 5TH 700	LTE 5TH 1900	5G 1ST 850					
SECTOR A CID/SAC	11041	11047	01041	11044																				
SECTOR B	11042	11048	01042	11045																				
SECTOR C	11043	11049	01043	11046																				
SECTOR D																								
SECTOR E																								
SECTOR F																								
OMNI																								

Section 10 - CID/SAC - final

	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 700	LTE 2ND 1900	LTE 2ND WCS	LTE 3RD 700	LTE 3RD 1900	LTE 4TH 1900	LTE 4TH AWS	LTE 5TH 700	LTE 5TH 1900	5G 1ST 850					
SECTOR A CID/SAC	11041																							
SECTOR B	11042																							
SECTOR C	11043																							
SECTOR D																								
SECTOR E																								
SECTOR F																								
OMNI																								

Section 11 - CURRENT RADIO COUNTS existing

Section 12 - CURRENT T1 COUNTS existing

Section 13 - NEW/PROPOSED RADIO COUNTS

Section 14 - NEW/PROPOSED T1 COUNTS

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

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1		ANTENNA POSITION 2		ANTENNA POSITION 3		ANTENNA POSITION 4		ANTENNA POSITION 5		ANTENNA POSITION 6		ANTENNA POSITION 7	
ANTENNA MAKE - MODEL	HPA-65R-BUU-H6				QS66512-2									
ANTENNA VENDOR	CCI Antennas				Quintel									
ANTENNA SIZE (H x W x D)	72X14.8X9				72X12X9.6									
ANTENNA WEIGHT	50.7				111									
AZIMUTH	160				50									
MAGNETIC DECLINATION														
RADIATION CENTER (feet)	88				88									
ANTENNA TIP HEIGHT														
MECHANICAL DOWNTILT	0				0									
FEEDER AMOUNT	4				8									
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)		Internal				Internal								
SURGE ARRESTOR (QTY/MODEL)	4	TSXDC-4310FM			12	Andrew APTDC-BDFDM-DB								
DIPLEXER (QTY/MODEL)	4	Kaelus DBC2055F1V1-2			8	Kaelus DBC2055F1V1-2								
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)	1	Powerwave / 7070				RRH CONTROLLED								
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)	2	DTMABP0721VG 12A			4	TMA2117F00V1-1 (Twin PCS-								
CURRENT INJECTORS FOR TMA (QTY/MODEL)		Powerwave AISG Diplexer (Built In)			1	KATHREIN 860-10006								
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)					1	RRUS-12 B5								
RRH - 1900 band (QTY/MODEL)					1	RRUS-32 B2								
RRH - AWS band (QTY/MODEL)	1	4426 B66												
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														
Local Market Note 2														
Local Market Note 3														

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 1	PORT 1		59423.A.850.3G.1	CTV11041	CTV11041		UMTS 850	H6_849MHz_10DT	14.6	160	10	None	1 5/8" - Andrew	130						449.78		1	
	PORT 3			CTL01104_2A_2	CTL01104_2A_2		LTE AWS	H6_2170MHz_04DT	17.3	50	4	Bottom	1 5/8" - Andrew	130						2535.1286		2	
ANTENNA POSITION 3	PORT 1		59423.A.700.4G.1	CTL01104_7A_1	CTL01104_7A_1		LTE 700	QS66512-2_722MHz_10DT	13.1	50	10	Bottom	1 5/8" - Andrew	130						1475.7065		5	
	PORT 2		59423.A.850.4G.1	CTL01104_8A_1	CTL01104_8A_1		LTE 850	QS66512-2_850MHz_10DT	13.5	50	10	None	1 5/8" - Andrew	130						1000		5	
	PORT 3		59423.A.WCS.4G.1	CTL01104_3A_1	CTL01104_3A_1		LTE WCS	2_2355MHz_08DT	17	50	6	Bottom	1 5/8" - Andrew	130						1285.2866		6	
	PORT 4		59423.A.1900.4G.1	CTL01104_9A_1	CTL01104_9A_1		LTE 1900	2_1930MHz_04DT	15.6	50	4	Bottom	1 5/8" - Andrew	130						4842.058		6	
	PORT 7		59423.A.1900.4G.2	CTL01104_9A_2	CTL01104_9A_2		LTE 1900	2_1930MHz_04DT	15.6	50	4	Bottom	1 5/8" - Andrew	130						4842.058		6	

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-H6				QS66512-2									
ANTENNA VENDOR	CCI Antennas				Quintel									
ANTENNA SIZE (H x W x D)	72X14.8X9				72X12X9.6									
ANTENNA WEIGHT	50.7				111									
AZIMUTH	280				160									
MAGNETIC DECLINATION														
RADIATION CENTER (feet)	88				88									
ANTENNA TIP HEIGHT														
MECHANICAL DOWNTILT	0				0									
FEEDER AMOUNT	4				8									
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)		Internal				Internal								
SURGE ARRESTOR (QTY/MODEL)	4	TSXDC-4310FM			12	Andrew APTDC-BDFDM-DB								
DIPLEXER (QTY/MODEL)	4	Kaelus DBC2055F1V1-2			8	Kaelus DBC2055F1V1-2								
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)						RRH CONTROLLED								
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)	2	DTMABP0721VG 12A			4	TMA2117F00V1-1 (Twin PCS-								
CURRENT INJECTORS FOR TMA (QTY/MODEL)		Powerwave AISG Diplexer (Built In)												
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)					1	RRUS-12 B5								
RRH - 1900 band (QTY/MODEL)					1	RRUS-32 B2								
RRH - AWS band (QTY/MODEL)	1	4426 B66												
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														
Local Market Note 2														
Local Market Note 3														

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 1	PORT 1		59423.B.850.3G.1	CTV11042	CTV11042		UMTS 850	H6_849MHz_00DT	14.8	280	0	None	1 5/8" - Andrew	130						449.78		9	
	PORT 3			CTL01104_2B_2	CTL01104_2B_2		LTE AWS	H6_2170MHz_02DT	17.24	160	2	Bottom	1 5/8" - Andrew	130						2535.1286		10	
ANTENNA POSITION 3	PORT 1		59423.B.700.4G.1	CTL01104_7B_1	CTL01104_7B_1		LTE 700	QS66512-2_722MHz_02DT	13.6	160	2	Bottom	1 5/8" - Andrew	130						1475.7065		13	
	PORT 2		59423.B.850.4G.1	CTL01104_8B_1	CTL01104_8B_1		LTE 850	QS66512-2_850MHz_02DT	13.2	160	2	None	1 5/8" - Andrew	130						1000		13	
	PORT 3		59423.B.WCS.4G.1	CTL01104_3B_1	CTL01104_3B_1		LTE WCS	2_2355MHz_03DT	16.7	160	3	Bottom	1 5/8" - Andrew	130						1285.2866		14	
	PORT 4		59423.B.1900.4G.1	CTL01104_9B_1	CTL01104_9B_1		LTE 1900	2_1930MHz_02DT	16	160	2	Bottom	1 5/8" - Andrew	130						4842.058		14	
	PORT 7		59423.B.1900.4G.2	CTL01104_9B_2	CTL01104_9B_2		LTE 1900	2_1930MHz_02DT	16	160	2	Bottom	1 5/8" - Andrew	130						4842.058		14	

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-H6				QS66512-2									
ANTENNA VENDOR	CCI Antennas				Quintel									
ANTENNA SIZE (H x W x D)	72X14.8X9				72X12X9.6									
ANTENNA WEIGHT	50.7				111									
AZIMUTH	50				280									
MAGNETIC DECLINATION														
RADIATION CENTER (feet)	88				88									
ANTENNA TIP HEIGHT														
MECHANICAL DOWNTILT	0				0									
FEEDER AMOUNT	4				8									
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)		Internal				Internal								
SURGE ARRESTOR (QTY/MODEL)	4	TSXDC-4310FM			12	Andrew APTDC-BDFDM-DB								
DIPLEXER (QTY/MODEL)	4	Kaelus DBC2055F1V1-2			8	Kaelus DBC2055F1V1-2								
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)						RRH CONTROLLED								
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)	2	DTMABP0721VG 12A			4	TMA2117F00V1-1 (Twin PCS-								
CURRENT INJECTORS FOR TMA (QTY/MODEL)		Powerwave AISG Diplexer (Built In)												
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)					1	RRUS-12 B5								
RRH - 1900 band (QTY/MODEL)					1	RRUS-32 B2								
RRH - AWS band (QTY/MODEL)	1	4426 B66												
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														
Local Market Note 2														
Local Market Note 3														

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 1	PORT 1		59423.C.850.3G.1	CTV11043	CTV11043		UMTS 850	H6_849MHz_10DT	14.6	50	10	None	1 5/8 Andrew	130						449.78		17	
	PORT 3			CTL01104_2C_2	CTL01104_2C_2		LTE AWS	H6_2170MHz_07DT	17.2	280	7	Bottom	1 5/8" - Andrew	130						2535.1286		18	
ANTENNA POSITION 3	PORT 1		59423.C.700.4G.1	CTL01104_7C_1	CTL01104_7C_1		LTE 700	QS66512-2_722MHz_06DT	13.1	280	6	Bottom	1 5/8" - Andrew	130						1475.7065		21	
	PORT 2		59423.C.850.4G.1	CTL01104_8C_1	CTL01104_8C_1		LTE 850	QS66512-2_850MHz_06DT	13.4	280	6	None	1 5/8" - Andrew	130						1000		21	
	PORT 3		59423.C.WCS.4G.1	CTL01104_3C_1	CTL01104_3C_1		LTE WCS	2_2355MHz_03DT	16.7	280	3	Bottom	1 5/8" - Andrew	130						1285.2866		22	
	PORT 4		59423.C.1900.4G.1	CTL01104_9C_1	CTL01104_9C_1		LTE 1900	2_1930MHz_07DT	15.9	280	7	Bottom	1 5/8" - Andrew	130						4842.058		22	
	PORT 7		59423.C.1900.4G.2	CTL01104_9C_2	CTL01104_9C_2		LTE 1900	2_1930MHz_07DT	15.9	280	7	Bottom	1 5/8" - Andrew	130						4842.058		22	

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-BU6DA		TPA-65R-BU6DA-K									
ANTENNA VENDOR			CCI		CCI									
ANTENNA SIZE (H x W x D)			71.2X20.7X7.7		71.2X20.7X7.7									
ANTENNA WEIGHT			79.4		69									
AZIMUTH			50		50									
MAGNETIC DECLINATION														
RADIATION CENTER (feet)			92'		92'									
ANTENNA TIP HEIGHT			95'		95'									
MECHANICAL DOWNTILT			0		0									
FEEDER AMOUNT					Fiber									
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)														
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)														
Antenna RET Motor (QTY/MODEL)				Internal		Built in								
SURGE ARRESTOR (QTY/MODEL)			4	TSXDC-4310FM	4	TSXDC-4310FM								
DIPLEXER (QTY/MODEL)														
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)														
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)			2	TMABPD7823VG12A	2	TMA2124F03V5-1D								
CURRENT INJECTORS FOR TMA (QTY/MODEL)														
PDU FOR TMAS (QTY/MODEL)														
FILTER (QTY/MODEL)														
SQUID (QTY/MODEL)														
FIBER TRUNK (QTY/MODEL)														
DC TRUNK (QTY/MODEL)														
REPEATER (QTY/MODEL)														
RRH - 700 band (QTY/MODEL)			1	4449 B5/B12	1	4478 B14								
RRH - 850 band (QTY/MODEL)				RRH is shared with another band										
RRH - 1900 band (QTY/MODEL)					1	4415 B25								
RRH - AWS band (QTY/MODEL)														
RRH - WCS band (QTY/MODEL)														
Additional RRH #1 - any band (QTY/MODEL)														
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)					4	Pentaplexer 5PX-0726-O								
Additional Component 2 (QTY/MODEL)					2	K SBT 782-11055								
Additional Component 3 (QTY/MODEL)					2	Polyphaser 1000860								
Local Market Note 1	- Antennae and Radios as per PD - Move UMTS													
Local Market Note 2	Configure each sector per plumbing diagram.													
Local Market Note 3	1x6601 / 2x6630 / 1xXMU03 + IDLe													

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (AtoII)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 2	PORT 1	59423.A.700.4G.1	59423.A.700.4G.1	CTL01104_7A_1	CTL01104_7A_1		LTE 700	BU6D_725MHz_10DT	12.7	50	10	BOTTOM	1-5/8 Coax	130						1475.71		1	
	PORT 2	59423.A.850.4G.1	59423.A.850.4G.1	CTL01104_8A_1	CTL01104_8A_1		LTE 850	BU6D_850MHz_10DT	13.3	50	10	BOTTOM	1-5/8 Coax	130						1000		1	
	PORT 5	59423.A.850.5G.Imp1	59423.A.850.5G.1	CTCN001104_N005A_1	CTCN001104_N005A_1		5G 850	BU6D_850MHz_10DT	13.3	50	10	BOTTOM	1-5/8 Coax	130						1000		1	
ANTENNA POSITION 3	PORT 1	59423.A.700.4G.Imp5	59423.A.700.4G.5	CTL01104_7A_3_F	CTL01104_7A_3_F		LTE 700	TPA65R-BU6DA-K	14.7	50	10	Bottom	1-5/8 Coax	130						2951.41		5	
	PORT 3	59423.A.1900.4G.2	59423.A.1900.4G.2	CTL08104_9A_1	CTL08104_9A_1		LTE 1900	TPA65R-BU6DA-K	17.15	50	4	Bottom	1-5/8 Coax	130						4842.06		6	
	PORT 4	59423.A.1900.4G.tmp4	59423.A.1900.4G.1	CTL08104_9A_2	CTL08104_9A_2		LTE 1900	TPA65R-BU6DA-K	17.15	50	4	BOTTOM	1-5/8 Coax	130								4	

	PORT 7	59423.A.AWS.4G tmp4	59423.A.AWS.4G 1	CTL08104_2A_2	CTL08104_2A_2		LTE AWS	TPA65R-BU6DA-K	17.15	50	4	Bottom	1-5/8 Coax	130								7	
	PORT 8	59423.A.1900.4G tmp5	59423.A.1900.4G tmp5	CTL08104_9A_3	CTL08104_9A_3		LTE 1900	TPA65R-BU6DA-K	17.15	50	4	Bottom	1-5/8 Coax	130								8	

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

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1		ANTENNA POSITION 2		ANTENNA POSITION 3		ANTENNA POSITION 4		ANTENNA POSITION 5		ANTENNA POSITION 6		ANTENNA POSITION 7	
Existing Antenna?														
ANTENNA MAKE - MODEL			DMP65R-BU6DA		TPA-65R-BU6DA-K									
ANTENNA VENDOR			CCI		CCI									
ANTENNA SIZE (H x W x D)			71.2X20.7X7.7		71.2X20.7X7.7									
ANTENNA WEIGHT			79.4		69									
AZIMUTH			160		160									
MAGNETIC DECLINATION														
RADIATION CENTER (feet)			92'		92'									
ANTENNA TIP HEIGHT			92											
MECHANICAL DOWNTILT			0											
FEEDER AMOUNT														
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)														
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)														
Antenna RET Motor (QTY/MODEL)				Internal										
SURGE ARRESTOR (QTY/MODEL)			4	TSXDC-4310FM	4	TSXDC-4310FM								
DIPLEXER (QTY/MODEL)														
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)														
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)			2	TMABPD7823VG12A	2	TMA2124F03V5-1D								
CURRENT INJECTORS FOR TMA (QTY/MODEL)														
PDU FOR TMAS (QTY/MODEL)														
FILTER (QTY/MODEL)														
SQUID (QTY/MODEL)														
FIBER TRUNK (QTY/MODEL)														
DC TRUNK (QTY/MODEL)														
REPEATER (QTY/MODEL)														
RRH - 700 band (QTY/MODEL)			1	4449 B5/B12	1	4478 B14								
RRH - 850 band (QTY/MODEL)				RRH is shared with another band										
RRH - 1900 band (QTY/MODEL)					1	4415 B25								
RRH - AWS band (QTY/MODEL)														
RRH - WCS band (QTY/MODEL)														
Additional RRH #1 - any band (QTY/MODEL)														
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)					4	Pentaplexer 5PX-0726-O								
Additional Component 2 (QTY/MODEL)					2	K SBT 782-11055								
Additional Component 3 (QTY/MODEL)					2	Polyphaser 1000860								
Local Market Note 1	- Antennae and Radios as per PD - Move UMTS													
Local Market Note 2	Configure per PD													
Local Market Note 3	1x6601 / 2x6630 / 1xXMU03 + IDLe													

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (AtoII)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 2	PORT 1	59423.B.700.4G.1	59423.B.700.4G.1	CTL01104_7B_1	CTL01104_7B_1		LTE 700	BU6D_725MHz_02DT	13.2	160	2	BOTTOM	1-5/8 Coax	130						1475.71		9	
	PORT 2	59423.B.850.4G.1	59423.B.850.4G.1	CTL01104_8B_1	CTL01104_8B_1		LTE 850	BU6D_850MHz_02DT	13.1	160	2	BOTTOM	1-5/8 Coax	130						1000		9	
	PORT 5	59423.B.850.5G.tmp1	59423.B.850.5G.1	CTCN001104_N005B_1	CTCN001104_N005B_1		5G 850	BU6D_850MHz_02DT	13.1	160	2	BOTTOM	1-5/8 Coax	130						1000		9	
ANTENNA POSITION 3	PORT 1	59423.B.700.4G.tmp5	59423.B.700.4G.5	CTL01104_7B_3_F	CTL01104_7B_3_F		LTE 700	TPA65R-BU6DA-K	13.7	160	2	Bottom	1-5/8 Coax	130						2951.41		13	
	PORT 4	59423.B.1900.4Gtmp1		CTL00104_9A_1	CTL00104_9A_1		LTE 1900	TPA65R-BU6DA-K	16.4	160	2	BOTTOM	1-5/8 Coax	130								15	
	PORT 7	59423.B.1900.4Gtmp4		CTL00104_9B_2	CTL00104_9B_2		LTE 1900	TPA65R-BU6DA-K	16	160	2	Bottom	1-5/8 Coax	130								16	

	PORT 8	.tmp4, 59423.B.1900.4G	59423.B.1900.4G 4	CTL00104_9B_3	CTL00104_9B_3		LTE 1900	TPA65R-BU6DA-K	16	160	2	Bottom	1-5/8 Coax	130						4842.06		14	

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-BU6DA	TPA-65R-BU6DA-K				
ANTENNA VENDOR		CCI	CCI				
ANTENNA SIZE (H x W x D)		71.2X20.7X7.7	71.2X20.7X7.7				
ANTENNA WEIGHT		79.4	69				
AZIMUTH		280	280				
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		92'	92'				
ANTENNA TIP HEIGHT		95'	95'				
MECHANICAL DOWNTILT		0					
FEEDER AMOUNT			Fiber				
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)		Internal	Built in				
SURGE ARRESTOR (QTY/MODEL)		4 TSXDC-4310FM					
DIPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)		2 TMABPD7823VG12A	2 TMA2124F03V5-1D				
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)		1 4449 B5/B12	1 4478 B14				
RRH - 850 band (QTY/MODEL)		RRH is shared with another band					
RRH - 1900 band (QTY/MODEL)			1 4415 B25				
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)							
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)			4 Pentaplexer 5PX-0726-O				
Additional Component 2 (QTY/MODEL)			2 K SBT 782-11055				
Additional Component 3 (QTY/MODEL)			2 Polyphaser 1000860				
Local Market Note 1	Antennae and Radios as per PD						
Local Market Note 2	Configure per PD						
Local Market Note 3	1x6601 / 2x6630 / 1xXMU03 + IDLe						

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (AtoII)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 2	PORT 1	59423.C.700.4G.1	59423.C.700.4G.1	CTL01104_7C_1	CTL01104_7C_1		LTE 700	BU6D_725MHz_06DT	12.8	50	6	BOTTOM	1-5/8 Coax	130						1475.71		17	
	PORT 2	59423.C.850.4G.1	59423.C.850.4G.1	CTL01104_8C_1	CTL01104_8C_1		LTE 850	BU6D_850MHz_06DT	13.2	50	6	BOTTOM	1-5/8 Coax	130						1000		17	
	PORT 5	59423.C.850.5G.tmp1	59423.C.850.5G.1	CTCN001104_N005C_1	CTCN001104_N005C_1		5G 850	BU6D_850MHz_06DT	13.2	50	6	BOTTOM	1-5/8 Coax	130						1000		17	
ANTENNA POSITION 3	PORT 1	59423.C.700.4G.tmp5	59423.C.700.4G.5	CTL01104_7C_3_F	CTL01104_7C_3_F		LTE 700	TPA65R-BU6DA-K	13.5	280	6	Bottom	1-5/8 Coax	130						2951.41		21	
	PORT 4	59423.C.1900.4G tmp1		CTL00104_9C_1	CTL00104_9C_1		LTE 1900	TPA65R-BU6DA-K	15.9	280	7	Bottom	1-5/8 Coax	130								23	
	PORT 7	59423.C.1900.4G tmp4		CTL00104_9C_2	CTL00104_9C_2		LTE 1900	TPA65R-BU6DA-K	15.9	280	7	Bottom	1-5/8 Coax	130								24	

	PORT 8	59423.C.1900.4G.tmp4	59423.C.1900.4G.4	CTL00104_9C_3	CTL00104_9C_3		LTE 1900	TPA65R-BU6DA-K	15.9	280	7	Bottom	1-5/8 Coax	130						4842.06		22	

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-BU6DA		TPA-65R-BU6DA-K									
ANTENNA VENDOR			CCI		CCI									
ANTENNA SIZE (H x W x D)			71.2X20.7X7.7		71.2X20.7X7.7									
ANTENNA WEIGHT			79.4		69									
AZIMUTH			50		50									
MAGNETIC DECLINATION														
RADIATION CENTER (feet)			92'		92'									
ANTENNA TIP HEIGHT			95'		95'									
MECHANICAL DOWNTILT			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)				Internal		Internal								
SURGE ARRESTOR (QTY/MODEL)			8	TSXDC-4310FM	14	BDFDM-DB (10) + TSXDC-								
DIPLEXER (QTY/MODEL)			2	DBC2055F1V1-2										
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)			1			RRH CONTROLLED								
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)			2	TMABPD7823VG 12A	2	TMA2124F03V5-1D								
CURRENT INJECTORS FOR TMA (QTY/MODEL)					1	KATHREIN 860-10006								
PDU FOR TMAS (QTY/MODEL)														
FILTER (QTY/MODEL)														
SQUID (QTY/MODEL)														
FIBER TRUNK (QTY/MODEL)														
DC TRUNK (QTY/MODEL)														
REPEATER (QTY/MODEL)														
RRH - 700 band (QTY/MODEL)			1	4449 B5/B12	1	4478 B14								
RRH - 850 band (QTY/MODEL)				RRH is shared with another band										
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)														
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)					4	Pentaplexer 5PX-0726-O								
Additional Component 2 (QTY/MODEL)					2	K SBT 782-11055								
Additional Component 3 (QTY/MODEL)					2	Polyphaser 1000860								
Local Market Note 1	- Antennae and Radios as per PD - Move UMTS													
Local Market Note 2	Configure per PD													
Local Market Note 3	1x6601 / 2x6630 / 1xXMU03 + IDLe													

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (AtoII)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 2	PORT 1	59423.A.700.4G.1	59423.A.700.4G.1	CTL01104_7A_1	CTL01104_7A_1		LTE 700	BU6D_725MHz_10DT	12.7	160	10	BOTTOM	1-5/8 Coax	130						1475.71		1	
	PORT 2	59423.A.850.4G.1	59423.A.850.4G.1	CTL01104_8A_1	CTL01104_8A_1		LTE 850	BU6D_850MHz_10DT	13.3	160	10	BOTTOM	1-5/8 Coax	130						1000		1	
	PORT 3	59423.A.WCS.4G.1	59423.A.WCS.4G.1	CTL01104_3A_1	CTL01104_3A_1		LTE WCS	BU6D_2355MHz_04DT	17.7	160	4	Bottom	1-5/8 Coax	130						5070.26		2	
	PORT 5	59423.A.850.5G.1mp1	59423.A.850.5G.1	CTCN001104_N005A_1	CTCN001104_N005A_1		5G 850	BU6D_850MHz_10DT	13.3	160	10	BOTTOM	1-5/8 Coax	130						1000		1	
	PORT 1	59423.A.700.4G.1mp5	59423.A.700.4G.5	CTL01104_7A_3_F	CTL01104_7A_3_F		LTE 700	TPA65R-BU6DA-K	13.1	50	10	Bottom	1-5/8 Coax	130						2951.413		5	
	PORT 2	59423.A.850.3G.1	59423.A.850.3G.1	CTV11041	CTV11041		UMTS 850	TPA65R-BU6DA-K	13.5	50	10	None	1-5/8 Coax	130						1000		5	

ANTENNA POSITION 3	**PORT 3**	59423.A.AWS.4G tmp4	59423.A.AWS.4G .4	CTL00104_2A_2	CTL00104_2A_2		LTE AWS	TPA65R-BU6DA-K	17	50	6	Bottom	1-5/8 Coax	130						1285.2866		6	
	PORT 4	59423.A.1900.4G .2	59423.A.1900.4G .1	CTL00104_9A_1	CTL00104_9A_1		LTE 1900	TPA65R-BU6DA-K	15.6	50	4	Bottom	1-5/8 Coax	130						4842.058		6	
	PORT 7	59423.A.1900.4G tmp4	59423.A.1900.4G .4	CTL00104_9A_2	CTL00104_9A_2		LTE 1900	TPA65R-BU6DA-K	15.6	50	4	Bottom	1-5/8 Coax	130						4842.058		6	
	PORT 8	tmp4, 59423.A.1900.4G	59423.A.1900.4G .4	CTL00104_9A_3	CTL00104_9A_3		LTE 1900	TPA65R-BU6DA-K	15.6	50	4	Bottom	1-5/8 Coax	130						4842.058		6	

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-BU6DA	TPA-65R-BU6DA-K				
ANTENNA VENDOR		CCI	CCI				
ANTENNA SIZE (H x W x D)		71.2X20.7X7.7	71.2X20.7X7.7				
ANTENNA WEIGHT		79.4	69				
AZIMUTH		160	160				
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		92'	92'				
ANTENNA TIP HEIGHT		95'	95'				
MECHANICAL DOWNTILT		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)		Internal	Internal				
SURGE ARRESTOR (QTY/MODEL)		8 TSXDC-4310FM	14 BDFDM-DB (10) + TSXDC-				
DIPLEXER (QTY/MODEL)		2 DBC2055F1V1-2					
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)			RRH CONTROLLED				
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)		2 TMABPD7823VG 12A	2 TMA2124F03V5-1D				
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)		1 4449 B5/B12	1 4478 B14				
RRH - 850 band (QTY/MODEL)		RRH is shared with another band					
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)							
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)			4 Pentaplexer SPX-0726-O				
Additional Component 2 (QTY/MODEL)			2 K SBT 782-11055				
Additional Component 3 (QTY/MODEL)			2 Polyphaser 1000860				
Local Market Note 1	- Antennae and Radios as per PD - Move UMTS						
Local Market Note 2	Configure per PD						
Local Market Note 3	1x6601 / 2x6630 / 1xXMU03 + IDLe						

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (AtoII)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 2	PORT 1	59423.B.700.4G.1	59423.B.700.4G.1	CTL01104_7B_1	CTL01104_7B_1		LTE 700	BU6D_725MHz_02DT	13.2	160	2	BOTTOM	1-5/8 Coax	130						1475.71		9	
	PORT 2	59423.B.850.4G.1	59423.B.850.4G.1	CTL01144_8B_1	CTL01104_8B_1		LTE 850	BU6D_850MHz_02DT	13.1	160	2	BOTTOM	1-5/8 Coax	130						1000		9	
	PORT 3	59423.B.WCS.4G.1	59423.B.WCS.4G.1	CTL01104_3B_1	CTL01104_3B_1		LTE WCS	BU6D_2355MHz_02DT	18.5	160	2	Bottom	1-5/8 Coax	130						5070.26		10	
	PORT 5	59423.B.850.5G.tmp1	59423.B.850.5G.1	CTCN001104_N005B_1	CTCN001104_N005B_1		5G 850	BU6D_850MHz_02DT	13.1	160	2	BOTTOM	1-5/8 Coax	130						1000		9	
ANTENNA POSITION 3	PORT 1	59423.B.700.4G.tmp5	59423.B.700.4G.5	CTL01104_7B_3_F	CTL01104_7B_3_F		LTE 700	TPA65R-BU6DA-K	13.7	160	2	Bottom	1-5/8 Coax	130						2951.413		13	
	PORT 2	59423.B.850.3G.1	59423.B.850.3G.1	CTV11042	CTV11042		UMTS 850	TPA65R-BU6DA-K	13.2	160	2	None	1-5/8 Coax	130						1000		13	
	PORT 3	59423.B.AWS.4G.tmp4	59423.B.AWS.4G.tmp4	CTL00104_2B_2	CTL00104_2B_2		LTE AWS	TPA65R-BU6DA-K	16.7	160	3	Bottom	1-5/8 Coax	130						1285.2866		14	

ANTENNA POSITION 3																								
	PORT 4	59423.B.1900.4G tmp1	59423.B.1900.4G .1	CTL00104_9B_1	CTL00104_9B_1		LTE 1900	TPA65R-BU6DA-K	16	160	2	Bottom	1-5/8 Coax	130							4842.058		14	
	PORT 7	59423.B.1900.4G tmp4	59423.B.1900.4G .4	CTL00104_9B_2	CTL00104_9B_2		LTE 1900	TPA65R-BU6DA-K	16	160	2	Bottom	1-5/8 Coax	130							4842.058		14	
	PORT 8	tmp4, 59423.B.1900.4G	59423.B.1900.4G .4	CTL00104_9B_3	CTL00104_9B_3		LTE 1900	TPA65R-BU6DA-K	16	160	2	Bottom	1-5/8 Coax	130							4842.058		14	

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-BU6DA	TPA-65R-BU6DA-K				
ANTENNA VENDOR		CCI	CCI				
ANTENNA SIZE (H x W x D)		71.2X20.7X7.7	71.2X20.7X7.7				
ANTENNA WEIGHT		79.4	69				
AZIMUTH		280	280				
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		92'	92'				
ANTENNA TIP HEIGHT		95'	95'				
MECHANICAL DOWNTILT		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)		Internal	Internal				
SURGE ARRESTOR (QTY/MODEL)		8 TSXDC-4310FM	10 Andrew APTDC-BDFDM-DB				
DIPLEXER (QTY/MODEL)		2 DBC2055F1V1-2					
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)			RRH CONTROLLED				
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)		2 TMABPD7823VG12A	2 TMA2124F03V5-1D				
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)		1 4449 B5/B12	1 4478 B14				
RRH - 850 band (QTY/MODEL)		RRH is shared with another band					
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)							
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)			4 Pentaplexer SPX-0726-O				
Additional Component 2 (QTY/MODEL)			2 K SBT 782-11055				
Additional Component 3 (QTY/MODEL)			2 Polyphaser 1000860				
Local Market Note 1	- Antennae and Radios as per PD - Move UMTS						
Local Market Note 2	Configure per PD						
Local Market Note 3	1x6601 / 2x6630 / 1xXMU03 + IDLe						

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (AtoII)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 2	PORT 1	59423.C.700.4G.1	59423.C.700.4G.1	CTL01104_7C_1	CTL01104_7C_1		LTE 700	BU6D_725MHz_06DT	12.8	280	6	BOTTOM	1-5/8 Coax	130						1475.71		17	
	PORT 2	59423.C.850.4G.1	59423.C.850.4G.1	CTL01144_8C_1	CTL01104_8C_1		LTE 850	BU6D_850MHz_06DT	13.2	280	6	BOTTOM	1-5/8 Coax	130						1000		17	
	PORT 3	59423.C.WCS.4G.1	59423.C.WCS.4G.1	CTL01104_3C_1	CTL01104_3C_1		LTE WCS	BU6D_2355MHz_07DT	17.2	280	7	Bottom	1-5/8 Coax	130						5070.26		18	
	PORT 5	59423.C.850.5G.tmp1	59423.C.850.5G.1	CTCN001104_N005C_1	CTCN001104_N005C_1		5G 850	BU6D_850MHz_06DT	13.2	280	6	BOTTOM	1-5/8 Coax	130						1000		17	
ANTENNA POSITION 3	PORT 1	59423.C.700.4G.tmp5	59423.C.700.4G.5	CTL01144_7C_3_F	CTL01104_7C_3_F		LTE 700	TPA65R-BU6DA-K	13.5	280	6	Bottom	1-5/8 Coax	130						2951.413		21	
	PORT 2	59423.C.850.3G.1	59423.C.850.3G.1	CTV11043	CTV11043		UMTS 850	TPA65R-BU6DA-K	13.4	280	6	None	1-5/8 Coax	130						1000		21	
	PORT 3	59423.C.AWS.4G.tmp4	59423.C.AWS.4G.tmp4	CTL00104_2C_2	CTL00104_2C_2		LTE AWS	TPA65R-BU6DA-K	16.7	280	3	Bottom	1-5/8 Coax	130						1285.2866		22	

ANTENNA POSITION 3																								
	PORT 4	59423.C.1900.4G tmp1	59423.C.1900.4G .1	CTL00104_9C_1	CTL00104_9C_1		LTE 1900	TPA65R-BU6DA-K	15.9	280	7	Bottom	1-5/8 Coax	130							4842.058		22	
	PORT 7	59423.C.1900.4G tmp4	59423.C.1900.4G .4	CTL00104_9C_2	CTL00104_9C_2		LTE 1900	TPA65R-BU6DA-K	15.9	280	7	Bottom	1-5/8 Coax	130							4842.058		22	
	PORT 8	tmp4, 59423.C.1900.4G	59423.C.1900.4G .4	CTL00104_9C_3	CTL00104_9C_3		LTE 1900	TPA65R-BU6DA-K	15.9	280	7	Bottom	1-5/8 Coax	130							4842.058		22	

Diagram Sector: A	Diagram File Name: CT1104_A_B_C_6C_5G_NR_RRHBottomRev
Atoll Site Name: CTL01104	Location Name: FARMINGTON NU MAPLE RIDGE DR
Market: CONNECTICUT	Market Cluster: NEW ENGLAND
Comments: Important Note: For detailed radio to antenna wiring refer to the latest field notice - Antenna_Radio Connection Dra	

ANTENNA POSITION 1

EMPTY

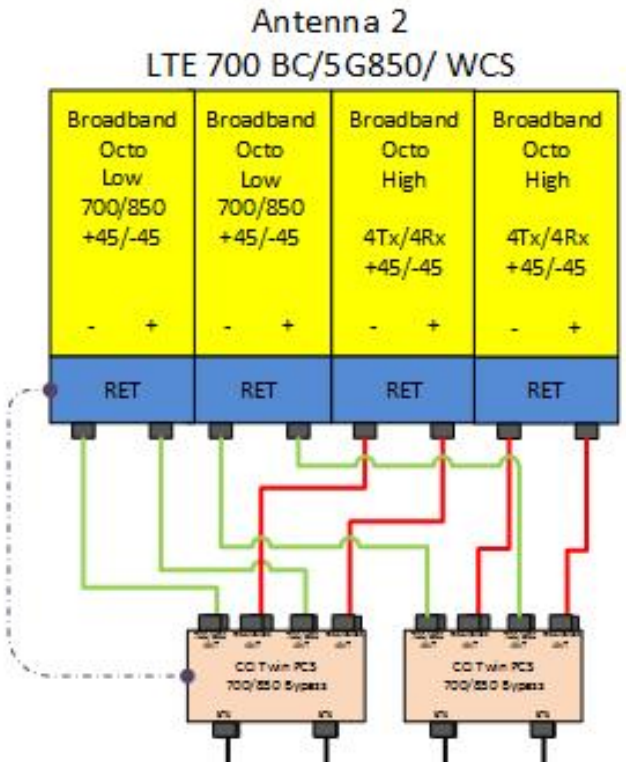


Diagram Sector: B	Diagram File Name: CT1104_A_B_C_6C_5G_NR_RRHBottomRev
Atoll Site Name: CTL01104	Location Name: FARMINGTON NU MAPLE RIDGE DR
Market: CONNECTICUT	Market Cluster: NEW ENGLAND
Comments: Important Note: For detailed radio to antenna wiring refer to the latest field notice - Antenna_Radio Connection Dra	

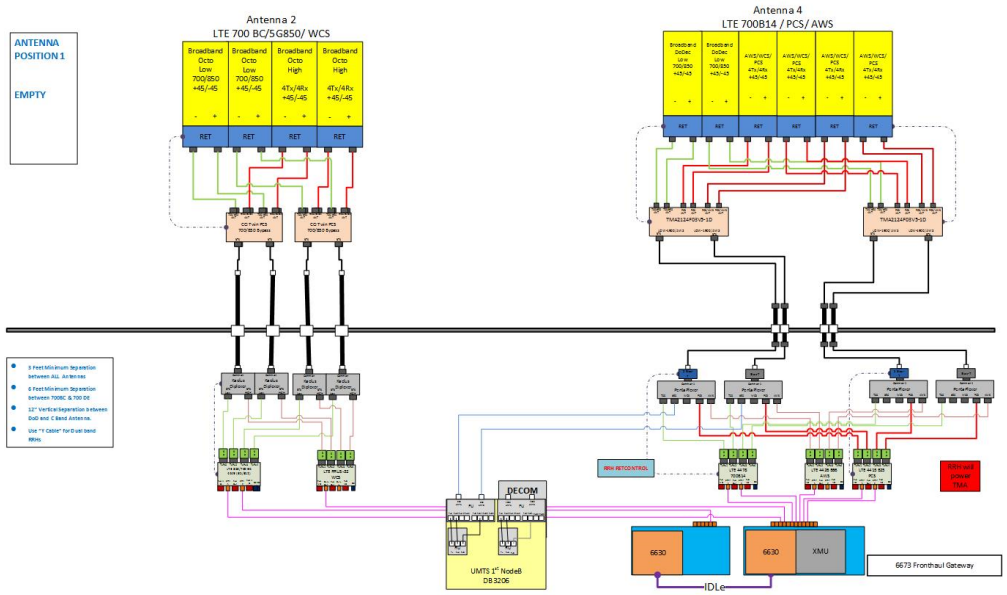
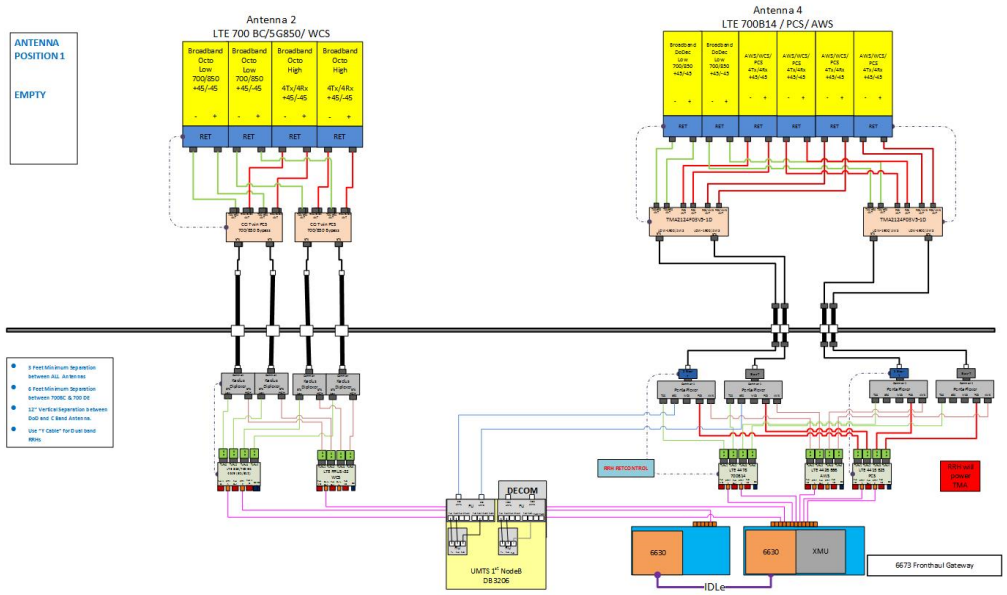


Diagram Sector: C	Diagram File Name: CT1104_A_B_C_6C_5G_NR_RRHBottomRev
Atoll Site Name: CTL01104	Location Name: FARMINGTON NU MAPLE RIDGE DR
Market: CONNECTICUT	Market Cluster: NEW ENGLAND
Comments: Important Note: For detailed radio to antenna wiring refer to the latest field notice - Antenna_Radio Connection Dra	



Date / Time (Eastern)	Version	ATTUID	Note
11/13/2020 3:59:2	2.00	om636a	RFDS VERSION incremented.
11/13/2020 3:59:2	2.00	om636a	Updated PCS radio to 4415
10/11/2021 12:07:	2.00	sp656b	Revised by Jobet

Date	FROM State / Status	FROM ATTUID	TO State / Status	TO ATTUID	Operation	Comments	PACE Status
03/27/2020	Preliminary In Progress	OM636A	Preliminary Submitted for Approv	KG0839	Promote	Preliminary RFDS	NER-RCTB-20-01313 MRCTB046571 SUCCESS 03/27/2020 6:38:35 PMNER-RCTB-20-01376 MRCTB047034 SUCCESS 03/27/2020 6:38:36 PMNER-RCTB-20-01351 MRCTB047029 SUCCESS 03/27/2020 6:38:36 PMNER-RCTB-20-01402 MRCTB046575 SUCCESS 03/27/2020 6:38:36 PM
04/07/2020	Preliminary Submitted for Approv	KG0839	Preliminary In Progress	om636a	Pull Back	incorrect iplan.	
04/07/2020	Preliminary In Progress	om636a	Preliminary Submitted for Approv	KG0839	Promote	iplan corrected	NER-RCTB-20-01313 FAILURE 04/07/2020 12:09:05 PMNER-RCTB-20-01376 FAILURE 04/07/2020 12:09:05 PMNER-RCTB-20-01351 FAILURE 04/07/2020 12:09:05 PMNER-RCTB-20-01630 MRCTB047537 SUCCESS 04/07/2020 12:09:05 PM
04/20/2020	Preliminary Submitted for Approv	KG0839	Preliminary Modification Recomm	OM636a	Demote	4/20/2020 - please refresh PACE & iPlan. NEI	
04/20/2020	Preliminary Modification Recomm	OM636a	Preliminary Submitted for Approv	KG0839	Promote	Mentioned iplan and pace are not found in R	
04/21/2020	Preliminary Submitted for Approv	KG0839	Preliminary Approved	FC091G	Promote	4/21/2020 - promoted without review, pleas	
05/14/2020	Preliminary Approved	FC091G	Preliminary Modification Recomm	OM636A	Demote	Plumbing Diagram (Incorrect) - PD Note indic	
05/15/2020	Preliminary Modification Recomm	OM636A	Preliminary Submitted for Approv	kg0839	Promote	updated separation notes in PD	
05/18/2020	Preliminary Submitted for Approv	kg0839	Preliminary Approved	FC091G	Promote	5/18/2020 - re-promoting without review	
05/19/2020	Preliminary Approved	FC091G	Final RF Approval	OM636A	Promote		
08/11/2020	Final RF Approval	OM636A	Final Approved	FC091G	Promote	Refreshed CSS	NER-RCTB-20-01313 MRCTB046571 SUCCESS 08/11/2020 6:59:56 AMNER-RCTB-20-01376 MRCTB047034 SUCCESS 08/11/2020 6:59:56 AMNER-RCTB-20-01351 MRCTB047029 SUCCESS 08/11/2020 6:59:56 AMNER-RCTB-20-01630 MRCTB047537 SUCCESS 08/11/2020 6:59:56 AM
11/13/2020	Final Approved	FC091G	Final RF Approval	om636a	Pull Back	Replace PCS radio to 4415	
11/13/2020	Final RF Approval	om636a	Final Approved	fc091g	Promote	updated PCS to 4415	NER-RCTB-20-01313 PENDING 11/13/2020 4:05:19 PMNER-RCTB-20-01376 PENDING 11/13/2020 4:05:19 PMNER-RCTB-20-01351 PENDING 11/13/2020 4:05:19 PMNER-RCTB-20-01630 FAILURE 11/13/2020 4:05:19 PM
						Scoping Change – Revise Sect 16, 17, LMN & to show the following Final Configuration for all Sectors: Pos. 2 (3) DMP65R-BU6DA (Tower) (6) TMABPD7823VG12A (Tower) (6) DBC2055F1V1-2 (Shelter) (3) 4449 (Shelter) (3) RRUS-32B30 (Shelter) (4) Lines of coax	
10/07/2021	Final Approved	fc091g	Final Modification Recommende	SP656B	Demote	Pos. 4 (3) TPA65R-BU6DA-K (Tower) (6) TMA2124F03V5-1D (Tower) (6) K SBT 782-11055 (Shelter) (6) Polyphaser 1000860 (Shelter) (12) Pentaplexer SPX-0726-O (Shelter) (3) 4478 -B14(Shelter) (3) 4415-B25 (Shelter) (3) 4426-B66 (Shelter) (4) lines of coax ALL Rad Centers to be 92'.	
10/11/2021	Final Modification Recommende	SP656B	Final Approved	FC091G	Promote	Revised as requested.	

Antennas

MultiPort Series

DATA SHEET

Diplexed Multi-Band Antenna

DMP65R-BU6D

- Six foot (1.8 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

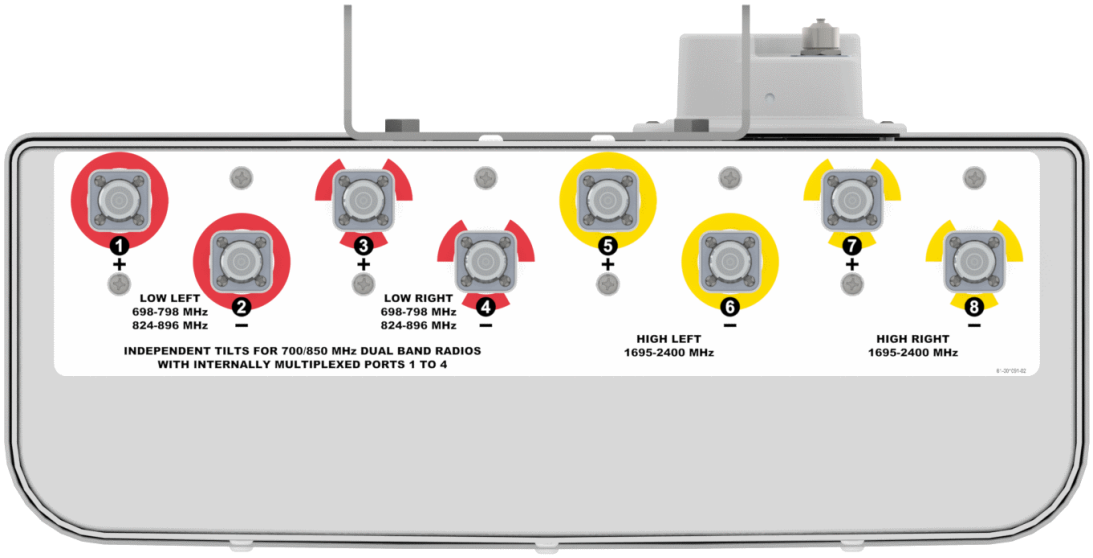
DMP65R-BU6D

Mechanical

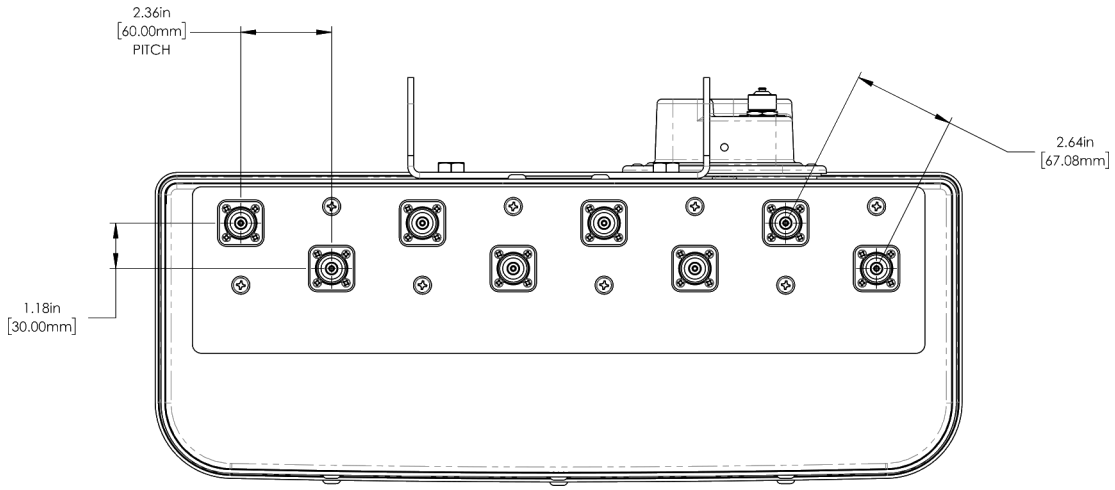
Dimensions (LxWxD)	71.2x20.7x7.7 in (1808x525x197 mm)
Survival Wind Speed	> 150 mph (> 241 kph)
Front Wind Load	325 lbs (1446 N) @ 100 mph (161 kph)
Side Wind Load	144 lbs (642 N) @ 100 mph (161 kph)
Equivalent Flat Plate Area	12.7 ft^2 (1.2 m^2)
Weight *	96.0 lbs (43.6 kg)
Connector	8 x 4.3-10 female
Mounting Pole	2 to 5 in (5 to 12 cm)

** Weight excludes mounting*

Bottom View



Connector Spacing



Antennas

MultiPort Series

DATA SHEET

Multi-Band Twelve-Port Antenna

TPA65R-BU6D

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

Overview

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

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

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

Applications

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

SPECIFICATIONS

Multi-Band Twelve-Port Antenna

TPA65R-BU6D

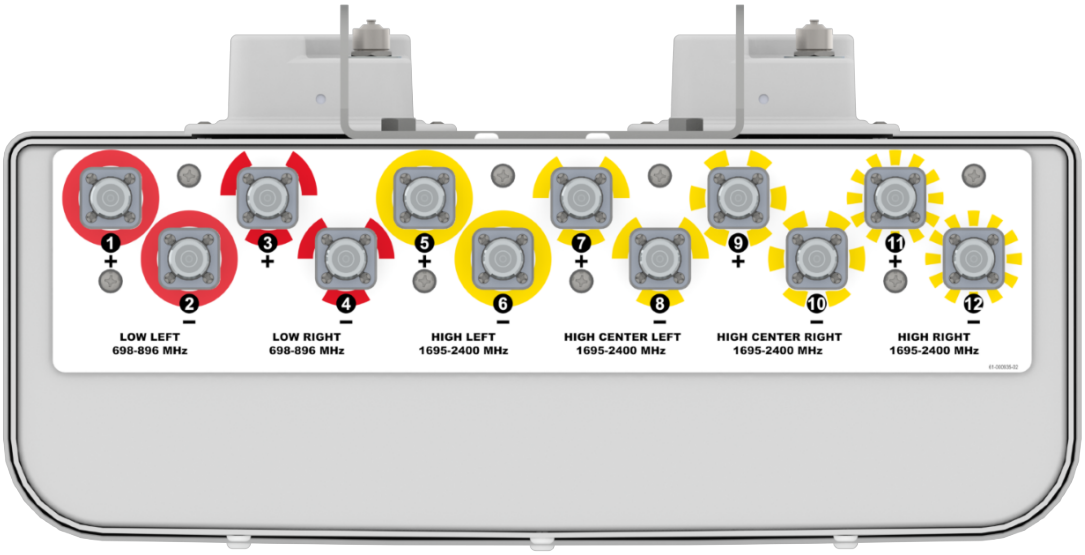
Mechanical

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

** Weight excludes mounting*

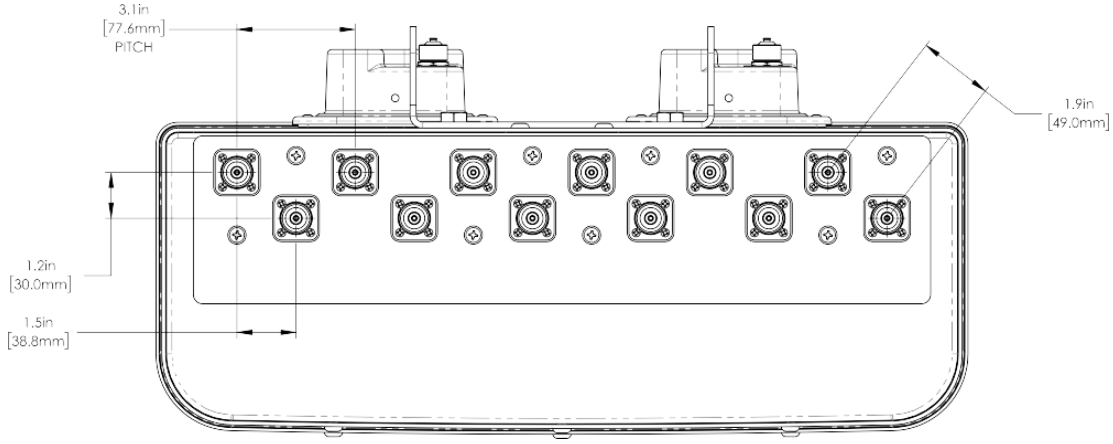
Bottom View

TPA65R-BU6DA



Connector Spacing

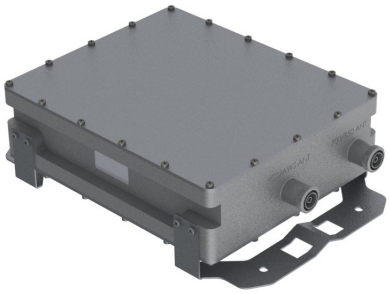
TPA65R-BU6DA



Triple Band (AWS/PCS/WCS) Twin TMA with 700/850 Bypass

Tel: 201-342-3338 Fax: 201-342-3339 www.cciproducts.com

General Information



CCI's Triple Band TMA with 700/850 bypass contains two triple band TMA's in a single housing. The TMA's are fully duplexed and share a single LNA for all three bands. The bypass path provides excellent isolation to the TMA path. Separate antenna ports for the bypass path and TMA path are combined onto a single BTS port. Low noise high linearity amplifiers improve the uplink sensitivity and the receive performance of base stations. The TMA is fully compliant with the latest AISG 2.0 specification. The TMA supports CDMA, EDGE/GSM, UMTS and LTE BTS equipment. The TMA is ideally suited for sites upgraded to quad-band using the existing infrastructure. The TMA allows the sharing of feeder lines for both AWS and PCS bands thus reducing tower loading, leasing, and installation costs. The input and output connectors are located inline for ease of installation in space constrained areas such as uni-pole structures and stealth antennas.

Model TMABPDB7823VG12A

Contents:

Features:

- Small lightweight unit
- Triple Band (AWS/PCS/WCS) Twin TMA with 700/850 Bypass
- Independent Gain Control
- High linearity
- Lightning protected
- Fail-safe bypass mode
- High reliability

Technical Description

The TMA system is an outdoor quad band tower mount unit which provides low noise amplification of PCS, AWS, and WCS uplink signals combined with 700/850 bypassed signals from separate antenna ports to a common BTS port. The tower mount unit consists of 14 band-pass filters, two redundant low noise amplifiers (LNA) with bypass failure circuitry, two bias tees, AISG control circuitry, and lightning protection circuitry all housed in an IP68 enclosure suited to long life masthead mounting. The AWS, PCS and WCS paths are dual duplexed to separate the low power uplink signals from the high power down link signals at the BTS and antenna ports. The AWS, PCS, and WCS uplink signals are amplified with a dedicated ultra-low noise PHEMT LNA with adjustable gain control. The unit provides protection against lightning strikes via a multistage surge protection circuit. DC power and AISG 2.0 control is provided via the BTS feeder cable. The unit operates in current window alarm (CWA) mode until a valid AISG message is detected, at which point it automatically switches to AISG mode. Once in AISG mode, the unit can only switch back to CWA mode with the receipt of an AISG CCI vendor defined command. In CWA mode, the unit requires 12VDC at each BTS port and follows typical current window convention. In AISG mode, the unit will accept 10-30 VDC from either BTS port. In AISG mode, the unit does not require an AISG 2.0 compatible site control unit (SCU) and may also be powered by a standard power distribution unit (PDU).

An optional Site Control Unit (SCU) is available to power up to 32 AISG modules per sector and to provide the monitoring and alarm functions for the system. The SCU is housed in a single (1U) 1.75" x 19" rack and contains dual redundant power supplies capable of being "hot swapped" that provide a regulated DC supply voltage on the RF coax for the tower mount amplifiers.

CCI Triple Band (AWS/PCS/WCS) Twin TMA with 700/850 Bypass Typical Specifications

Description	Typical Specifications			
Electrical Specifications	**700/850**	**PCS**	**AWS**	**WCS**
Receive Frequency Range	-	1850 – 1910 MHz	1710 – 1755 MHz	2305 – 2320 MHz
Transmit Frequency Range	-	1930 – 1990 MHz	2110 – 2155 MHz	2345 – 2360 MHz
Bypass Frequency Range	698 - 894 MHz	-	-	-
Amplifier Gain	-	6 to 12 dB Adjustable in 0.25 dB steps via AISG	6 to 12 dB Adjustable in 0.25 dB steps via AISG	6 to 12 dB Adjustable in 0.25 dB steps via AISG
Gain Variation	-	±1.0 dB	±1.0 dB	±1.0 dB
System Noise Figure	-	1.4 dB Typ.	1.3 dB Typ.	1.3 dB Typ.
Input Third Order Intercept Point	-	+12 dBm Min at Max. Gain		
Input / Output Return Loss	18 dB Min all ports, 12 dB Min. Bypass Mode			
Insertion Loss	0.25 dB Typ.			
Transmit Passband	-	0.5 dB Typical	0.4 dB Typical	0.4 dB Typical
Bypass Mode, (PCS/AWS/WCS) Rx Passband	-	2.5 dB Typ.	2.5 dB Typ.	2.5 dB Typ.
Filter Characteristics				
Continuous Average Power	200 Watts max			
Peak Envelope Power	2 KW max			
Intermodulation Performance				
IMD at ANT port in Rx Band	< -112 dBm (-155 dBc) [2 tones at +43 dBm]			
Operating Voltage	+10V to +30V DC provided via coax or AISG			
Power Consumption	<2.0 Watts			
Mechanical Specifications				
Connectors	DIN 7-16 female x 2; AISG x 1			
Dimensions (Body Only)	10.63” (H) x 11.024” (W) x 3.72” (D); (290.60 (H) x 280.00 (W) x 95.0 (D) mm)			
Dimensions (with Conn. & Bracket)	14.25” (H) x 11.024” (W) x 4.11” (D); (362.00 (H) x 280.00 (W) x 104.40 (D) mm)			
Weight	23.1 Lbs. (10.5 Kg) - with Brackets; 22 Lbs. (10 Kg) - without brackets			
Mounting	Pole/Wall Mounting Bracket			
Environmental Specifications				
Operating Temperature	-40˚ C to +65˚C			
Lightning Protection	8/20us, ±2KA max, 10 strikes each, IEC61000-4-5			
Enclosure	IP68			
MTBF	>500,000 hours			

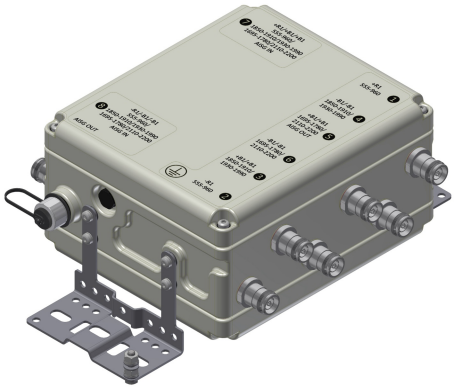
All specifications are subject to change. The latest specifications are available at www.cciproducts.com

TMA2124F03V5-1D

TWIN TMA 1900/AWS/LOWPASS 555-960MHZ 6 ANT

NON-DIPLEXED 1900/AWS ANTENNA PORTS

Designed to be deployed in co-located AWS & 1900 networks, the Kaelus TMA2124 provides gain in 1900 and AWS uplink, using independent LNAs per band and per channel. Low loss bypass 555-960MHz signal to low band antennas is also provided.



FEATURES

- Improved base station sensitivity through excellent noise figure performance and linearity
- AISG 2.0 compatible, full software upgradable using AISG "personality" upload
- DC/AISG passthrough to AWS antenna (port 5)
- AISG OUT connector disabled when AISG device (SBT equipped antenna) present on Port 3 +R1/+R1
- One AISG subunit per LNA, 4 in total. All fixed gain
- 555-960 bypass to low band antenna

TECHNICAL SPECIFICATIONS

BAND NAME	1900	AWS
DOWNLINK		
Passband	1930 - 1990MHz	2110 - 2200MHz
Insertion loss	0.4dB typical	0.3dB typical
Return loss	22dB typical	
Maximum input power	160W (average) / 2kW (PEP)	160W (average) / 2kW (PEP)
Intermodulation products	-155dBc maximum, at antenna port in RX band with 2 x 20W carriers	-163dBc maximum, at antenna port in RX band with 2 x 20W carriers
UPLINK		
Passband	1850 - 1910MHz	1695 - 1780MHz
Gain	13dB	
Gain variation	±1dB maximum	
Return loss	22dB typical	
Bypass return loss	14dB typical	
Bypass loss	3dB typical	
Noise figure	1.2dB typical @ 13dB gain	1.0dB typical @ 13dB gain
Output IP3	+28dBm typical	
Maximum input power with no damage	+12dBm	
555-960 LOWPASS FILTER		
Passband	555 - 960MHz	
Insertion loss	0.2dB typical	
Return loss	21dB typical	
Maximum input power	250W (average) / 2.5kW (PEP)	
Intermodulation products	-155dBc maximum, at antenna port with 2 x 20W carriers	
ELECTRICAL		
Impedance	50Ohms	

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POWER SUPPLY AND ALARM (CURRENT WINDOW ALARM MODE, DEFAULT)	
Current window alarm mode (CWA) is the default operating mode and can be configured to specific customer requirements. The TMA2124F03V4 is configured so that both channels are independently powered and monitored via their respective BTS port, 7 or 8. The BTS port sinks additional current to indicate an alarm state in its uplink path. Normal operating and alarm current values are configured independently via a field-loadable personality file. Please contact Kaelus for more information.	
DC supply voltage	+8.5 to +18V DC, case is DC ground
DC supply	Each BTS port powered individually
DC supply current, normal mode	200mA per port typical (both ports are powered)
DC supply current, alarm mode	300mA per port typical (both ports are powered)

AISG MODE OF OPERATION (AUTO SELECTED ON VALID AISG 2.0 FRAMES)	
AISG signals can be applied to port 7 or port 8. The TMA unit switches to AISG mode when valid frames are detected on either port 7 or 8. All LNAs take DC power from the port with the AISG frames or, if DC is present on both ports, power will be supplied equally between the ports. Each LNA is controlled uniquely by its sub-unit number.	
DC supply voltage	+7.5V to +30V DC
AISG version	2.0 (1.1 optional)
Supply current, AISG mode	500mA @ 7.5V, 135mA @ 30V typical
AISG connector, current rating	IEC60130-9, 8-pin female, < 4A peak, 2A continuous, pin 6
Field firmware upgradable	Yes (R951022ATA2.0 Rev 2.9.12)
AISG pass through to antenna port	Yes

ANTENNA AISG OOK + DC

When DC is applied it is quickly switched through to port 5. If an over-current condition is detected, DC & AISG are disconnected from port 5. If DC remains connected to the load at port 5, DC and AISG are disconnected from the AISG OUT 8 pin connector. If DC is disconnected from port 5, DC and AISG are enabled at the AISG OUT 8 pin connector. If a short circuit is detected at the AISG OUT 8 pin connector, DC and AISG are disabled.

Mode of Operation	Voltage at Port 5	Assumption	"Autosense + Protection" Switch Status	Comment
AISG or CWA	High	Device present or open circuit	Close	DC & AISG OOK will be supplied to port 5. DC & AISG is removed from the AISG OUT 8 pin port
AISG or CWA	Low	DC short circuit or low DC resistance	Open	DC & AISG OOK will not be supplied to port 5. DC & AISG are supplied to the AISG OUT 8 pin port

ENVIRONMENTAL	
For further details of environmental compliance, please contact Kaelus.	
Temperature range	-40ºC to +65ºC | -40°F to +149°F
Ingress protection	IP67
Altitude	3,000m | 10,000ft
Lightning protection	IEC61312-1, RF: ±5kA maximum (8/20us), AISG: ±2kA maximum (8/20us)
MTBF	>1,000,000 hours
Compliance	FCC Part 15 subpart B

MECHANICAL	
Dimensions H x D x W	245 x 128 x 210mm | 9.65 x 5.04 x 8.27in Excluding connectors
Weight	8.1kg | 17.86lbs
Finish	Painted, light grey (RAL 7035)
Connectors	4.3-10 (F) x 8 long neck, AISG (F) x 1
Wind Load	Front 390N, Side 147N (Single) Front 251N, Side 409N (Twin) At 74m/s (AS/NZS 1170-2-2011 Structural design - Wind actions - Cyclone areas)
Mounting	Pole/wall bracket supplied with two metal clamps 45-178mm diameter poles

ORDERING INFORMATION

PART NUMBER	CONFIGURATION	OPTIONAL FEATURES	CONNECTORS
TMA2124F03V5-1D	TWIN 2 in / 6 out	STANDARD	4.3-10 (F)
TMA2124F03V5-2D	QUAD 4 in / 12 out	STANDARD	4.3-10 (F)

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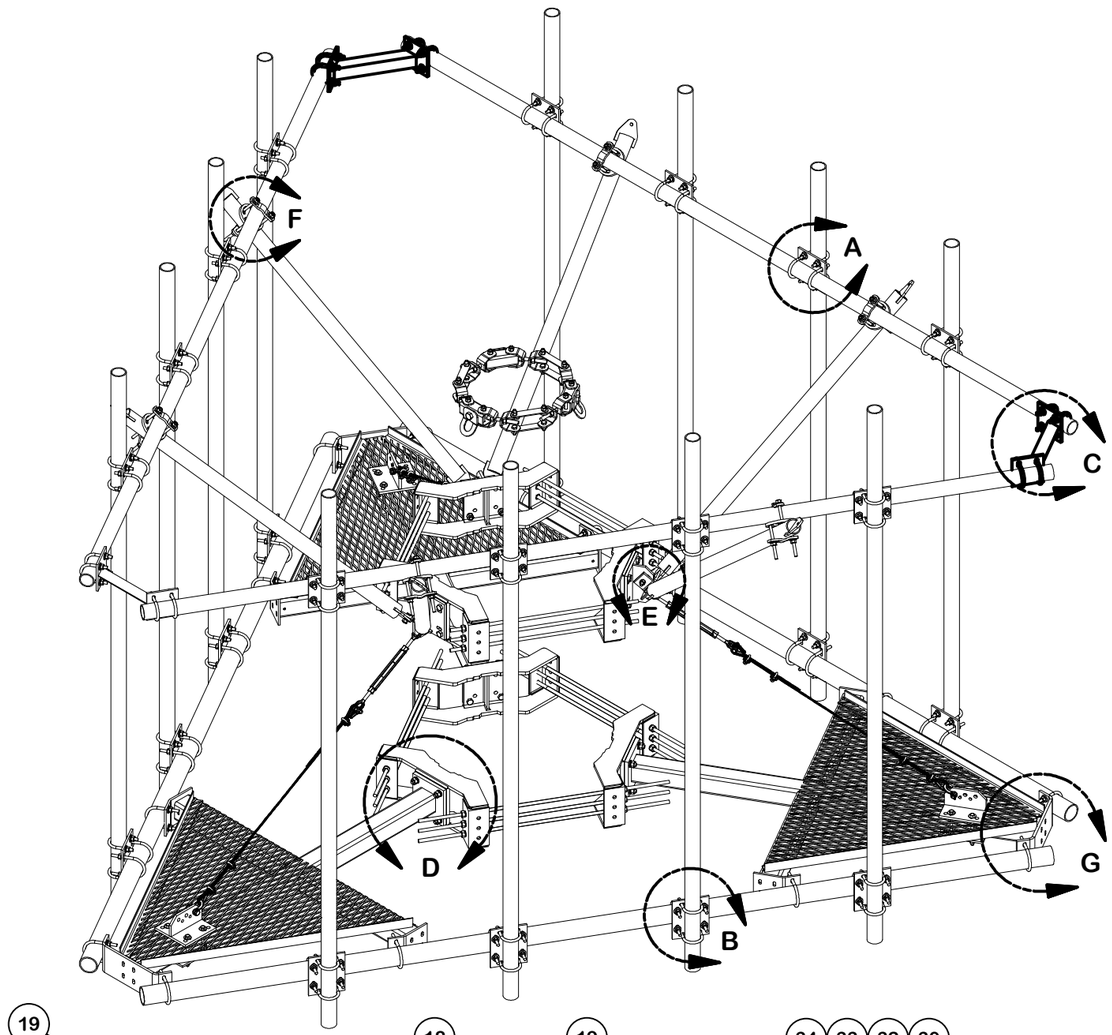
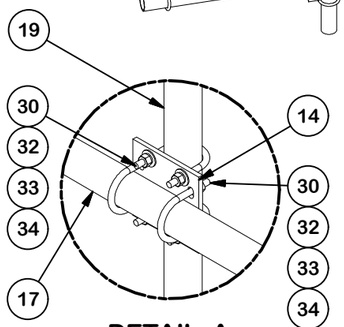


PARTS LIST

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



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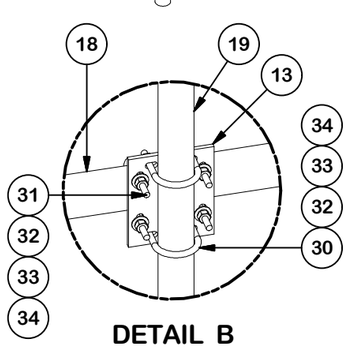

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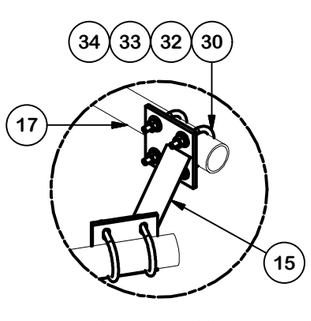

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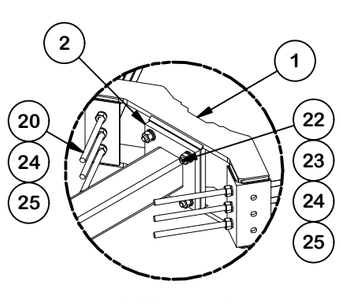

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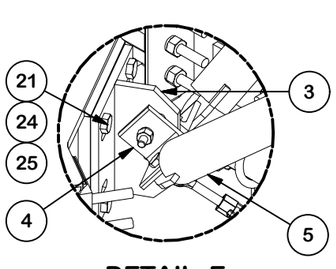

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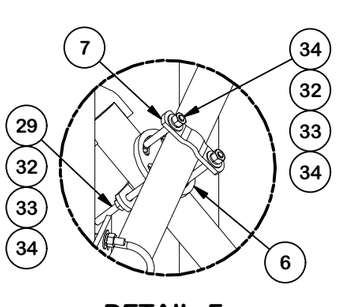
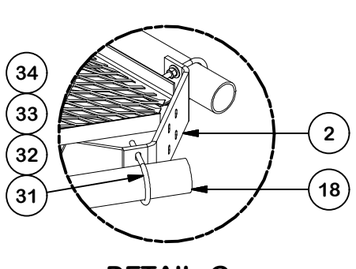


DETAIL F



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

September 30, 2021 (Rev. 1)
June 05, 2020

SAI Communications
12 Industrial Way
Salem NH, 03079

RE:		
	Site Number:	CT1104 (LTE 6C/5G/BWE)
	FA Number:	10035295
	PACE Number:	MRCTB046571
	PT Number:	2051A0V4N7
	Site Name:	FARMINGTON NU MAPLE RIDGE DR
	Site Address:	45 Maple Ridge Drive Farmington, CT 06032

To Whom It May Concern:

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

- **(3) TPA65R-BU6DA-K Antennas (71.2"x20.7"x7.7" – Wt. = 68 lbs. /each)**
- **(3) DMP65R-BU6DA Antennas (71.2"x20.7"x7.7" – Wt. = 80 lbs. /each)**
- **(6) TMABPD7823VG12A TMA's (10.7"x11.1"x3.8" – Wt. = 25 lbs. /each)**
- **(6) TMA2124F03V5 TMA's (9.7"x5.0"x8.3" – Wt. = 18 lbs. /each)**

**Proposed equipment shown in bold*

Mount fabrication drawings prepared by SitePro1 P/N RMQLP-4120-H10, dated October 17, 2019, were used to perform this analysis.

Mount Analysis Methods:

- This analysis was conducted in accordance with EIA/TIA-222-H, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, the International Building Code 2015 with 2018 Connecticut State Building Code, and AT&T Mount Technical Directive – R13.
- HDG considers this mount to be asymmetrical and has applied wind loads in 30 degree increments all around the mount. Per TIA-222-H and Appendix N of the Connecticut State Building Code, the max basic wind speed for this site is equal to 125 mph with a max basic wind speed with ice of 50 mph and a max ice thickness of 1.5 in. An escalated ice thickness of 1.65 in was used for this analysis.
- HDG considers this site to be exposure category B; tower is located in an urban/suburban or wooded area with numerous closely spaced obstructions.
- HDG considers this site to be topographic category 1; tower is located on flat terrain or the bottom of a hill or ridge.
- HDG considers this site to have a spectral response acceleration parameter at short periods, S_S, of 0.183 and a spectral response acceleration parameter at a period of 1 second, S_1, of 0.064.
- The mount has been analyzed with load combinations consisting of 500 lbs live load using a service wind speed of 30 mph wind on the worst case antenna. Analysis performed on each antenna pipe to determine worst case location; worst case location was antenna position 3.
- The mount has been analyzed with load combinations consisting of a 250 lbs live load in a worst case location on the mount.

Based on our evaluation, we have determined that the Proposed RMQLP-4120-H10 mount **IS CAPABLE** of supporting the proposed installation.

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
New (LTE 6C/5G/BWE) Mount Rating	37	LC4	56%	**PASS**

Reference Documents:

- Fabrication drawings prepared by SitePro1 P/N RMQLP-4120-H10, dated October 17, 2019.

This determination was based on the following limitations and assumptions:

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

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

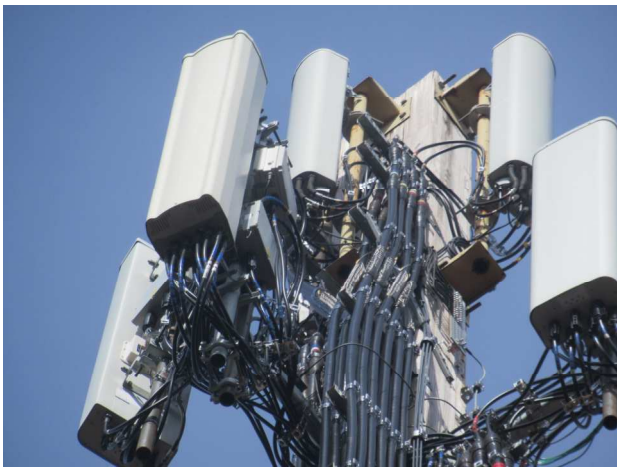
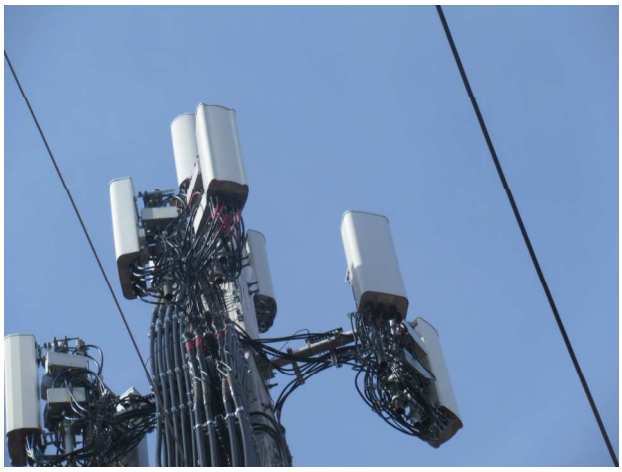
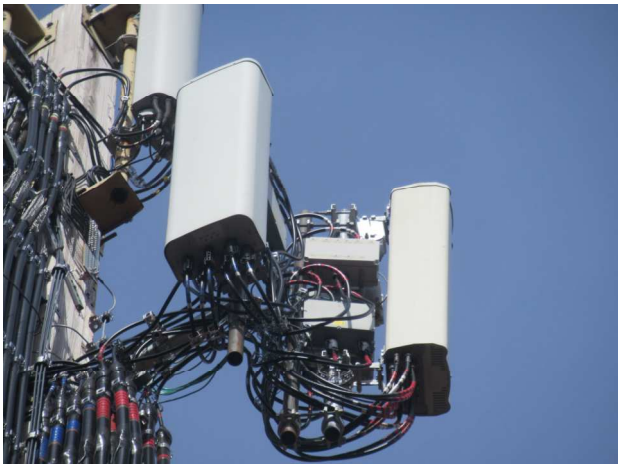
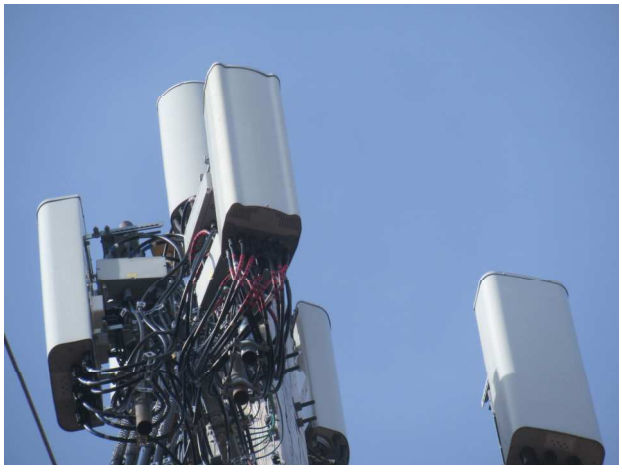
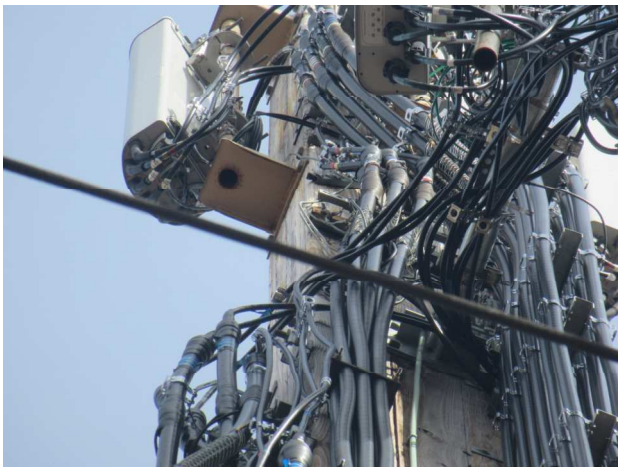
Respectfully Submitted,
Hudson Design Group LLC

Michael Cabral
Vice President

Daniel P. Hamm, PE
Principal

FIELD PHOTOS:

*Existing mounts to be removed and replaced.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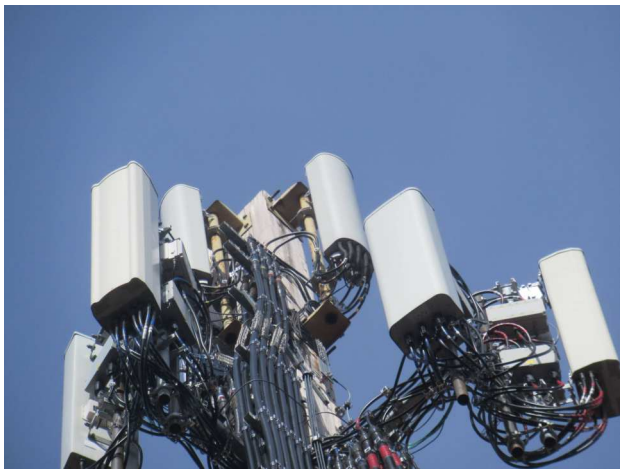

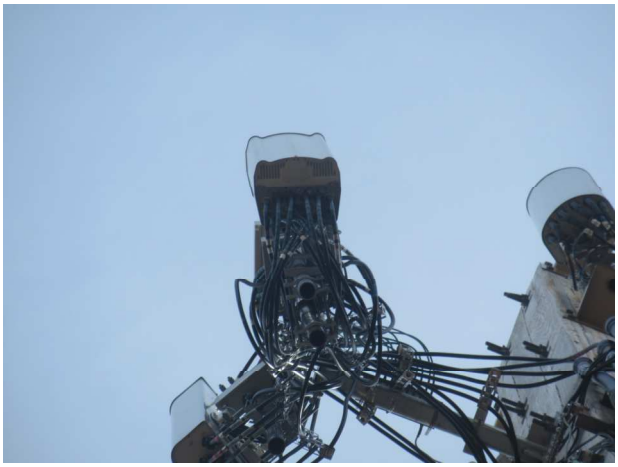

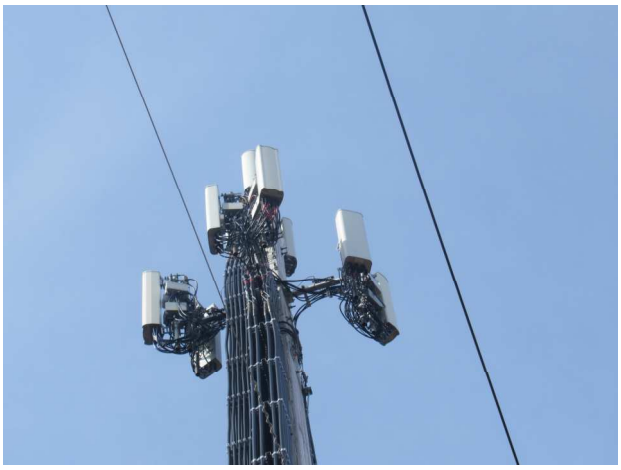

HUDSON
Design Group LLC

Wind & Ice
Calculations

Date: 9/30/2021
Project Name: FARMINGTON NU MAPLE RIDGE DR
Project No.: CT1104
Designed By: RL **Checked By:** MSC

HUDSON Design Group LLC

2.6.5.2 Velocity Pressure Coeff:

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

z=	88	(ft)
z_g=	1200	(ft)
α=	7.0	

K_z= 0.953

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=		(from Table 2-5)
f=		(from Table 2-5)
z=	88	
z_s=	240	(Mean elevation of base of structure above sea level)
H=		(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 =	1.50	in
Importance Factor = I=	1.00	(from Table 2-3)
K_{iz} =	1.10	(from Sec. 2.6.10)

$t_{iz} = t_i * I * K_{iz} * (K_{zt})^{0.35}$ t_{iz} = 1.65 in

Date: 9/30/2021
Project Name: FARMINGTON NU MAPLE RIDGE DR
Project No.: CT1104
Designed By: RL Checked By: MSC

HUDSON Design Group LLC

2.6.9 Gust Effect Factor

2.6.9.1 Self Supporting Lattice Structures

G_h = 1.0 Latticed Structures > 600 ft

G_h = 0.85 Latticed Structures 450 ft or less

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

h=	102	G_h=	0.85

2.6.9.2 Guyed Masts G_h= 0.85

2.6.9.3 Pole Structures G_h= 1.1

2.6.9 Appurtenances G_h= 1.0

2.6.9.4 Structures Supported on Other Structures

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

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

2.6.11.2 Design Wind Force on Appurtenances

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

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

		K_z=	0.953	(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=	**35.89**	K_e=	0.99	(from 2.6.8)
$q_{z\ (ice)}$=	**5.74**	K_d=	0.95	(from Table 2-2)
$q_{z\ (30)}$=	**2.07**	V_{max}=	125	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: 9/30/2021
Project Name: FARMINGTON NU MAPLE RIDGE DR
Project No.: CT1104
Designed By: RL Checked By: MSC

HUDSON Design Group LLC

Determine Ca:

Table 2-9

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

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

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

Ice Thickness = **1.65** 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-BU6DA Antenna	71.2	20.7	7.7	10.24	3.44	1.24	**456**	**89**	**26**
TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.44	1.24	**456**	**89**	**26**
TMABPD7823VG12A TMA	10.7	11.1	3.8	0.82	0.96	1.20	**36**	**10**	**2**
TMA2124F03V5 TMA	9.7	8.3	5.0	0.56	1.17	1.20	**24**	**7**	**1**
2-1/2" Pipe	2.9	12.0	-	0.24	0.24	1.20	**10**		
3" Pipe	3.5	12.0	-	0.29	0.29	1.20	**13**		
L 2x2 Angles	2.0	12.0	-	0.17	0.17	1.25	**7**		
L 2-1/2x2-1/2 Angles	2.5	12.0	-	0.21	0.21	1.25	**9**		
PL 6x3/8	0.4	12.0	-	0.03	0.03	2.00	**2**		
HSS 4x4	4.0	12.0	-	0.33	0.33	1.25	**15**		

Date: 9/30/2021
Project Name: FARMINGTON NU MAPLE RIDGE DR
Project No.: CT1104
Designed By: RL Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	30	(deg)	Ice Thickness =	1.65	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-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	**456**	**202**	**393**
TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	**456**	**202**	**393**
TMABPD7823VG12A TMA	10.7	11.1	3.8	0.82	0.28	0.96	2.82	1.20	1.21	**36**	**12**	**30**
TMA2124F03V5 TMA	9.7	8.3	5.0	0.56	0.34	1.17	1.94	1.20	1.20	**24**	**15**	**22**

WIND LOADS WITH ICE:

DMP65R-BU6DA Antenna	74.5	24.0	11.0	12.42	5.70	3.10	6.77	1.23	1.39	**88**	**45**	**77**
TPA65R-BU6DA-K Antenna	74.5	24.0	11.0	12.42	5.70	3.10	6.77	1.23	1.39	**88**	**45**	**77**
TMABPD7823VG12A TMA	14.0	14.4	7.1	1.40	0.69	0.97	1.97	1.20	1.20	**10**	**5**	**8**
TMA2124F03V5 TMA	13.0	11.6	8.3	1.05	0.75	1.12	1.57	1.20	1.20	**7**	**5**	**7**

WIND LOADS AT 30 MPH:

DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	**26**	**12**	**23**
TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	**26**	**12**	**23**
TMABPD7823VG12A TMA	10.7	11.1	3.8	0.82	0.28	0.96	2.82	1.20	1.21	**2**	**1**	**2**
TMA2124F03V5 TMA	9.7	8.3	5.0	0.56	0.34	1.17	1.94	1.20	1.20	**1**	**1**	**1**

Date: 9/30/2021
Project Name: FARMINGTON NU MAPLE RIDGE DR
Project No.: CT1104
Designed By: RL Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	60	(deg)	Ice Thickness =	1.65	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-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	**456**	**202**	**265**
TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	**456**	**202**	**265**
TMABPD7823VG12A TMA	10.7	11.1	3.8	0.82	0.28	0.96	2.82	1.20	1.21	**36**	**12**	**18**
TMA2124F03V5 TMA	9.7	8.3	5.0	0.56	0.34	1.17	1.94	1.20	1.20	**24**	**15**	**17**

WIND LOADS WITH ICE:

DMP65R-BU6DA Antenna	74.5	24.0	11.0	12.42	5.70	3.10	6.77	1.23	1.39	**88**	**45**	**56**
TPA65R-BU6DA-K Antenna	74.5	24.0	11.0	12.42	5.70	3.10	6.77	1.23	1.39	**88**	**45**	**56**
TMABPD7823VG12A TMA	14.0	14.4	7.1	1.40	0.69	0.97	1.97	1.20	1.20	**10**	**5**	**6**
TMA2124F03V5 TMA	13.0	11.6	8.3	1.05	0.75	1.12	1.57	1.20	1.20	**7**	**5**	**6**

WIND LOADS AT 30 MPH:

DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	**26**	**12**	**15**
TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	**26**	**12**	**15**
TMABPD7823VG12A TMA	10.7	11.1	3.8	0.82	0.28	0.96	2.82	1.20	1.21	**2**	**1**	**1**
TMA2124F03V5 TMA	9.7	8.3	5.0	0.56	0.34	1.17	1.94	1.20	1.20	**1**	**1**	**1**

Date: 9/30/2021
Project Name: FARMINGTON NU MAPLE RIDGE DR
Project No.: CT1104
Designed By: RL Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	90	(deg)	Ice Thickness =	1.65	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-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	**456**	**202**	**202**
TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	**456**	**202**	**202**
TMABPD7823VG12A TMA	10.7	11.1	3.8	0.82	0.28	0.96	2.82	1.20	1.21	**36**	**12**	**12**
TMA2124F03V5 TMA	9.7	8.3	5.0	0.56	0.34	1.17	1.94	1.20	1.20	**24**	**15**	**15**

WIND LOADS WITH ICE:

DMP65R-BU6DA Antenna	74.5	24.0	11.0	12.42	5.70	3.10	6.77	1.23	1.39	**88**	**45**	**45**
TPA65R-BU6DA-K Antenna	74.5	24.0	11.0	12.42	5.70	3.10	6.77	1.23	1.39	**88**	**45**	**45**
TMABPD7823VG12A TMA	14.0	14.4	7.1	1.40	0.69	0.97	1.97	1.20	1.20	**10**	**5**	**5**
TMA2124F03V5 TMA	13.0	11.6	8.3	1.05	0.75	1.12	1.57	1.20	1.20	**7**	**5**	**5**

WIND LOADS AT 30 MPH:

DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	**26**	**12**	**12**
TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	**26**	**12**	**12**
TMABPD7823VG12A TMA	10.7	11.1	3.8	0.82	0.28	0.96	2.82	1.20	1.21	**2**	**1**	**1**
TMA2124F03V5 TMA	9.7	8.3	5.0	0.56	0.34	1.17	1.94	1.20	1.20	**1**	**1**	**1**

Date: 9/30/2021
Project Name: FARMINGTON NU MAPLE RIDGE DR
Project No.: CT1104
Designed By: RL Checked By: MSC

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WIND LOADS

Angle =	120	(deg)	Ice Thickness =	1.65	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-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	**456**	**202**	**265**
TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	**456**	**202**	**265**
TMABPD7823VG12A TMA	10.7	11.1	3.8	0.82	0.28	0.96	2.82	1.20	1.21	**36**	**12**	**18**
TMA2124F03V5 TMA	9.7	8.3	5.0	0.56	0.34	1.17	1.94	1.20	1.20	**24**	**15**	**17**

WIND LOADS WITH ICE:

DMP65R-BU6DA Antenna	74.5	24.0	11.0	12.42	5.70	3.10	6.77	1.23	1.39	**88**	**45**	**56**
TPA65R-BU6DA-K Antenna	74.5	24.0	11.0	12.42	5.70	3.10	6.77	1.23	1.39	**88**	**45**	**56**
TMABPD7823VG12A TMA	14.0	14.4	7.1	1.40	0.69	0.97	1.97	1.20	1.20	**10**	**5**	**6**
TMA2124F03V5 TMA	13.0	11.6	8.3	1.05	0.75	1.12	1.57	1.20	1.20	**7**	**5**	**6**

WIND LOADS AT 30 MPH:

DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	**26**	**12**	**15**
TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	**26**	**12**	**15**
TMABPD7823VG12A TMA	10.7	11.1	3.8	0.82	0.28	0.96	2.82	1.20	1.21	**2**	**1**	**1**
TMA2124F03V5 TMA	9.7	8.3	5.0	0.56	0.34	1.17	1.94	1.20	1.20	**1**	**1**	**1**

Date: 9/30/2021
Project Name: FARMINGTON NU MAPLE RIDGE DR
Project No.: CT1104
Designed By: RL Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	150	(deg)	Ice Thickness =	1.65	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-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	**456**	**202**	**393**
TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	**456**	**202**	**393**
TMABPD7823VG12A TMA	10.7	11.1	3.8	0.82	0.28	0.96	2.82	1.20	1.21	**36**	**12**	**30**
TMA2124F03V5 TMA	9.7	8.3	5.0	0.56	0.34	1.17	1.94	1.20	1.20	**24**	**15**	**22**

WIND LOADS WITH ICE:

DMP65R-BU6DA Antenna	74.5	24.0	11.0	12.42	5.70	3.10	6.77	1.23	1.39	**88**	**45**	**77**
TPA65R-BU6DA-K Antenna	74.5	24.0	11.0	12.42	5.70	3.10	6.77	1.23	1.39	**88**	**45**	**77**
TMABPD7823VG12A TMA	14.0	14.4	7.1	1.40	0.69	0.97	1.97	1.20	1.20	**10**	**5**	**8**
TMA2124F03V5 TMA	13.0	11.6	8.3	1.05	0.75	1.12	1.57	1.20	1.20	**7**	**5**	**7**

WIND LOADS AT 30 MPH:

DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	**26**	**12**	**23**
TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	**26**	**12**	**23**
TMABPD7823VG12A TMA	10.7	11.1	3.8	0.82	0.28	0.96	2.82	1.20	1.21	**2**	**1**	**2**
TMA2124F03V5 TMA	9.7	8.3	5.0	0.56	0.34	1.17	1.94	1.20	1.20	**1**	**1**	**1**

Date: 9/30/2021
Project Name: FARMINGTON NU MAPLE RIDGE DR
Project No.: CT1104
Designed By: RL **Checked By:** MSC

HUDSON Design Group LLC

ICE WEIGHT CALCULATIONS

Thickness of ice:	1.65	in.
Density of ice:	56	pcf

DMP65R-BU6DA Antenna

Weight of ice based on total radial SF area:

Height (in):	71.2		
Width (in):	20.7		
Depth (in):	7.7		
Total weight of ice on object:		284	lbs
Weight of object:	80.0	lbs	
Combined weight of ice and object:		364	lbs

TPA65R-BU6DA-K Antenna

Weight of ice based on total radial SF area:

Height (in):	71.2		
Width (in):	20.7		
Depth (in):	7.7		
Total weight of ice on object:		284	lbs
Weight of object:	69.0	lbs	
Combined weight of ice and object:		353	lbs

TMABPD7823VG12A TMA

Weight of ice based on total radial SF area:

Height (in):	10.7		
Width (in):	3.8		
Depth (in):	11.1		
Total weight of ice on object:		24	lbs
Weight of object:	25.0	lbs	
Combined weight of ice and object:		49	lbs

TMA2124F03V5 TMA

Weight of ice based on total radial SF area:

Height (in):	9.7		
Width (in):	5.0		
Depth (in):	8.3		
Total weight of ice on object:		18	lbs
Weight of object:	18.0	lbs	
Combined weight of ice and object:		36	lbs

2-1/2" Pipe

Per foot weight of ice:

diameter (in):	2.88		
Per foot weight of ice on object:		9	plf

3" Pipe

Per foot weight of ice:

diameter (in):	3.5		
Per foot weight of ice on object:		10	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:		9	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:		10	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:		15	plf

HSS 4x4

Weight of ice based on total radial SF area:

Height (in):	4		
Width (in):	4		
Per foot weight of ice on object:		15	plf

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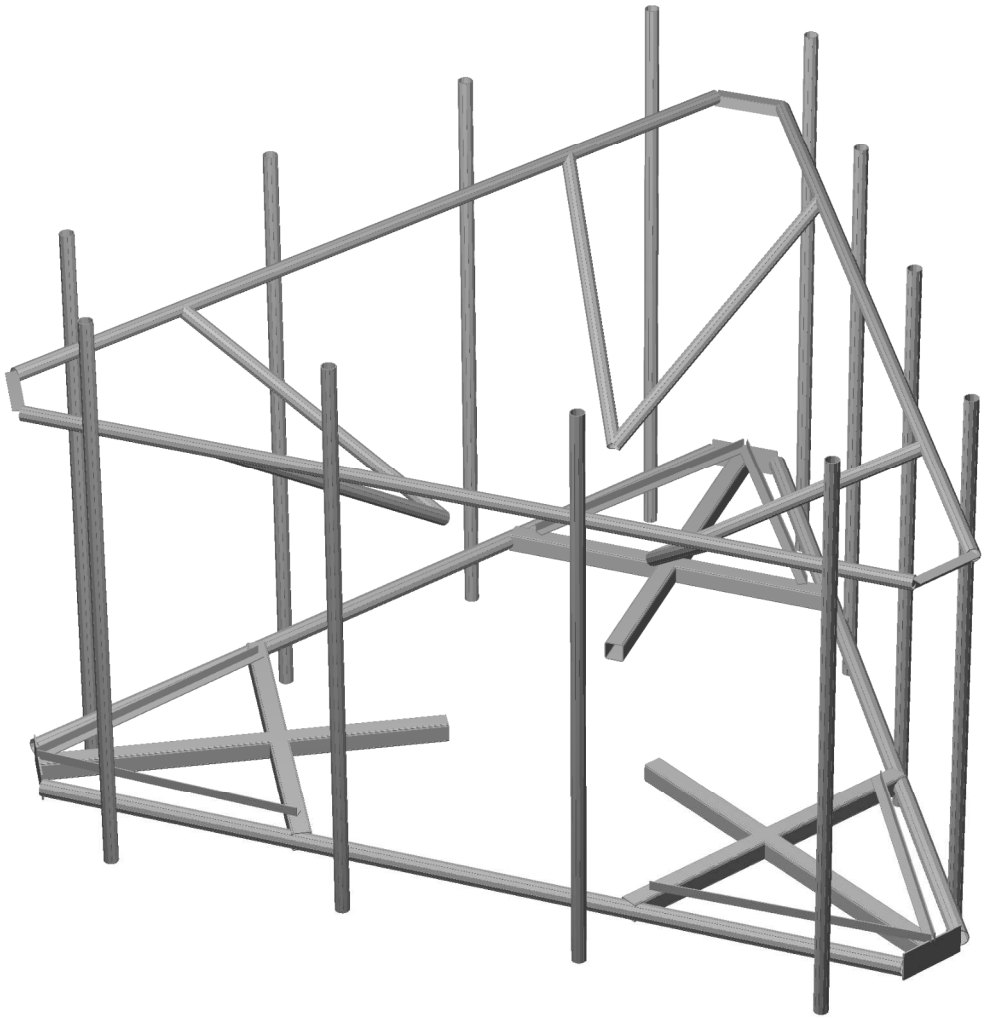
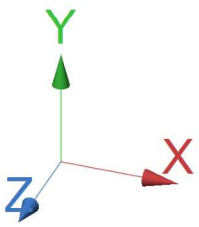
Mount Calculations
(New Conditions)

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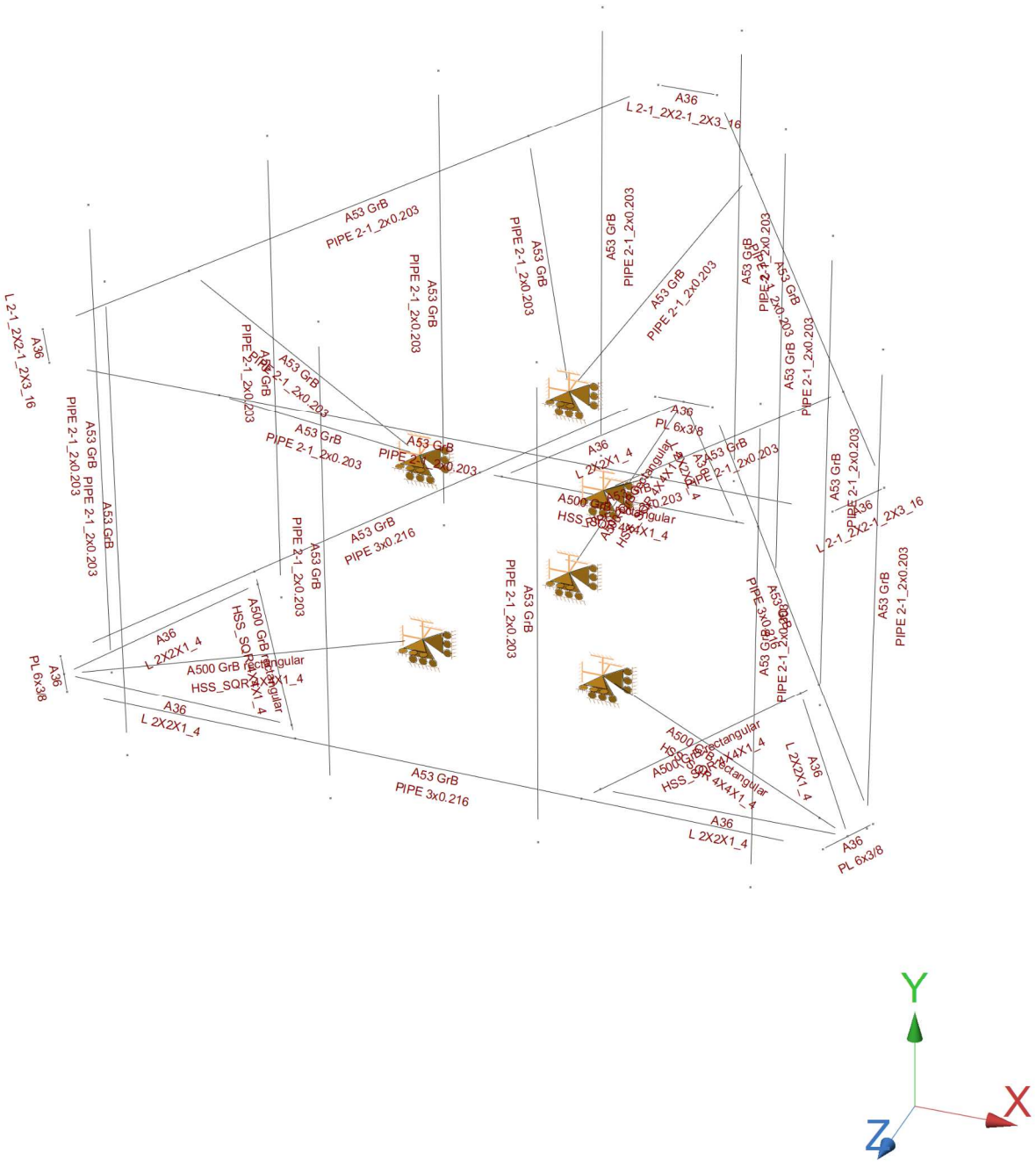
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PL 6x3/8
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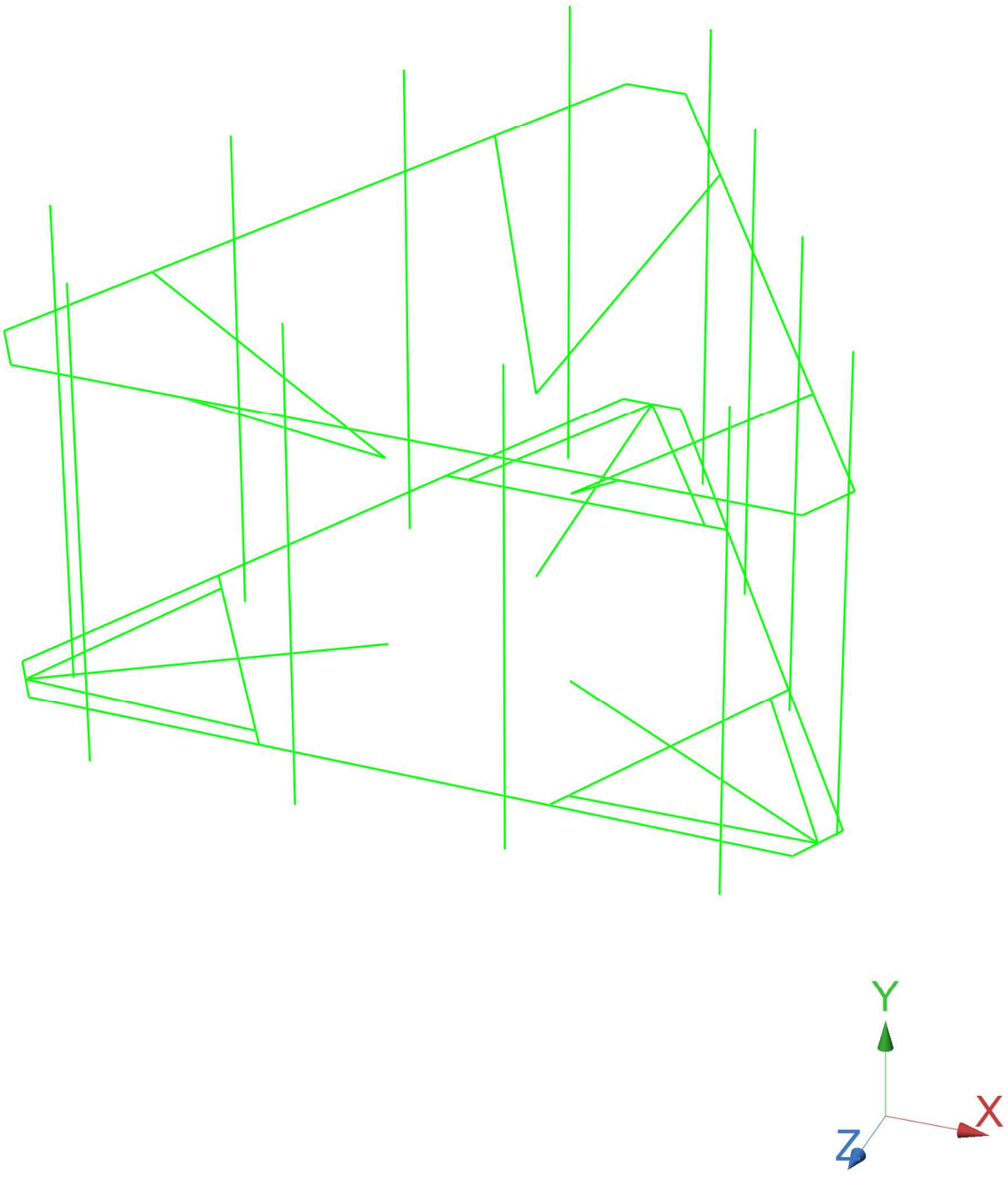
A53 GrB
PIPE 3x0.216
Y
X
Z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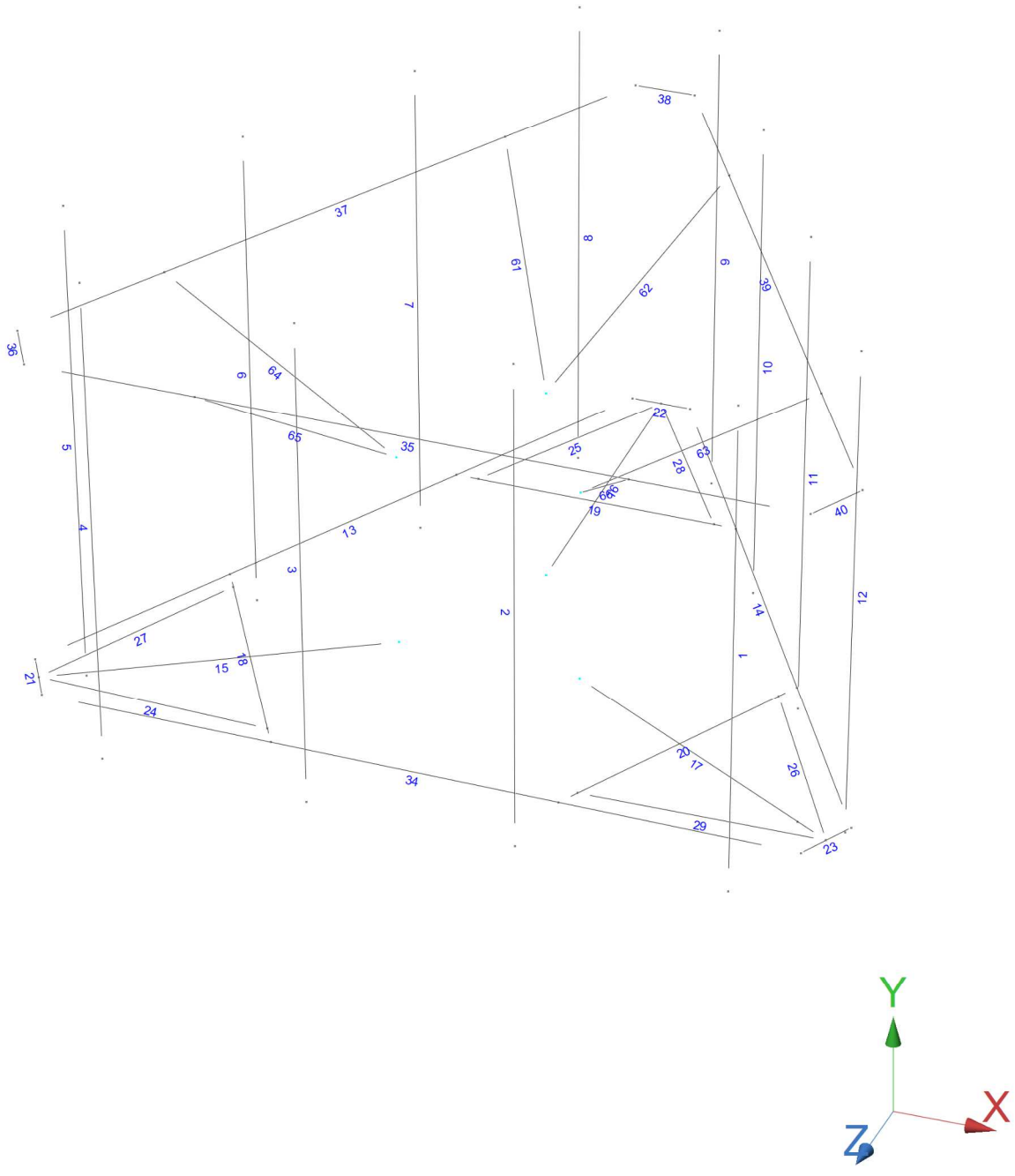
Not designed
Error on design
Design O.K.
With warnings
Y
X
Z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Load data

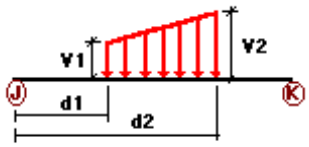
GLOSSARY

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

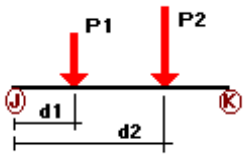


Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
DL	24	y	-0.01	-0.01	0.00	No	100.00	Yes
	25	y	-0.01	-0.01	0.00	No	100.00	Yes
	26	y	-0.01	-0.01	0.00	No	100.00	Yes
	27	y	-0.01	-0.01	0.00	No	100.00	Yes
	28	y	-0.01	-0.01	0.00	No	100.00	Yes
	29	y	-0.01	-0.01	0.00	No	100.00	Yes
	18	y	-0.01	-0.01	0.00	No	100.00	Yes
	19	y	-0.01	-0.01	0.00	No	100.00	Yes
	20	y	-0.01	-0.01	0.00	No	100.00	Yes
W0	2	z	-0.01	-0.01	0.00	No	100.00	Yes
	4	z	-0.01	-0.01	0.00	No	100.00	Yes
	5	z	-0.01	-0.01	0.00	No	100.00	Yes
	6	z	-0.01	-0.01	0.00	No	100.00	Yes
	7	z	-0.01	-0.01	0.00	No	100.00	Yes

	8	z	-0.01	-0.01	0.00	No	100.00	Yes
	9	z	-0.01	-0.01	0.00	No	100.00	Yes
	10	z	-0.01	-0.01	0.00	No	100.00	Yes
	11	z	-0.01	-0.01	0.00	No	100.00	Yes
	12	z	-0.01	-0.01	0.00	No	100.00	Yes
	61	z	-0.01	-0.01	0.00	No	100.00	Yes
	62	z	-0.01	-0.01	0.00	No	100.00	Yes
	63	z	-0.01	-0.01	0.00	No	100.00	Yes
	64	z	-0.01	-0.01	0.00	No	100.00	Yes
	65	z	-0.01	-0.01	0.00	No	100.00	Yes
	66	z	-0.01	-0.01	0.00	No	100.00	Yes
	35	z	-0.01	-0.01	0.00	No	100.00	Yes
	37	z	-0.01	-0.01	0.00	No	100.00	Yes
	39	z	-0.01	-0.01	0.00	No	100.00	Yes
	13	z	-0.013	-0.013	0.00	No	100.00	Yes
	14	z	-0.013	-0.013	0.00	No	100.00	Yes
	34	z	-0.013	-0.013	0.00	No	100.00	Yes
	24	z	-0.007	-0.007	0.00	No	100.00	Yes
	25	z	-0.007	-0.007	0.00	No	100.00	Yes
	26	z	-0.007	-0.007	0.00	No	100.00	Yes
	27	z	-0.007	-0.007	0.00	No	100.00	Yes
	28	z	-0.007	-0.007	0.00	No	100.00	Yes
	29	z	-0.007	-0.007	0.00	No	100.00	Yes
	36	z	-0.009	-0.009	0.00	No	100.00	Yes
	38	z	-0.009	-0.009	0.00	No	100.00	Yes
	40	z	-0.009	-0.009	0.00	No	100.00	Yes
	21	z	-0.002	-0.002	0.00	No	100.00	Yes
	22	z	-0.002	-0.002	0.00	No	100.00	Yes
	23	z	-0.002	-0.002	0.00	No	100.00	Yes
	15	z	-0.015	-0.015	0.00	No	100.00	Yes
	17	z	-0.015	-0.015	0.00	No	100.00	Yes
	18	z	-0.015	-0.015	0.00	No	100.00	Yes
	19	z	-0.015	-0.015	0.00	No	100.00	Yes
	20	z	-0.015	-0.015	0.00	No	100.00	Yes
W30	1	x	-0.01	-0.01	0.00	No	100.00	Yes
	2	x	-0.01	-0.01	0.00	No	100.00	Yes
	3	x	-0.01	-0.01	0.00	No	100.00	Yes
	4	x	-0.01	-0.01	0.00	No	100.00	Yes
	5	x	-0.01	-0.01	0.00	No	100.00	Yes
	6	x	-0.01	-0.01	0.00	No	100.00	Yes
	7	x	-0.01	-0.01	0.00	No	100.00	Yes
	8	x	-0.01	-0.01	0.00	No	100.00	Yes
	10	x	-0.01	-0.01	0.00	No	100.00	Yes
	12	x	-0.01	-0.01	0.00	No	100.00	Yes
	61	x	-0.01	-0.01	0.00	No	100.00	Yes
	62	x	-0.01	-0.01	0.00	No	100.00	Yes
	63	x	-0.01	-0.01	0.00	No	100.00	Yes
	64	x	-0.01	-0.01	0.00	No	100.00	Yes
	65	x	-0.01	-0.01	0.00	No	100.00	Yes
	66	x	-0.01	-0.01	0.00	No	100.00	Yes
	37	x	-0.01	-0.01	0.00	No	100.00	Yes
	39	x	-0.01	-0.01	0.00	No	100.00	Yes
	13	x	-0.013	-0.013	0.00	No	100.00	Yes
	14	x	-0.013	-0.013	0.00	No	100.00	Yes
	25	x	-0.007	-0.007	0.00	No	100.00	Yes
	26	x	-0.007	-0.007	0.00	No	100.00	Yes
	27	x	-0.007	-0.007	0.00	No	100.00	Yes
	28	x	-0.007	-0.007	0.00	No	100.00	Yes
	36	x	-0.009	-0.009	0.00	No	100.00	Yes
	40	x	-0.009	-0.009	0.00	No	100.00	Yes

	21	x	-0.002	-0.002	0.00	No	100.00	Yes
	23	x	-0.002	-0.002	0.00	No	100.00	Yes
	15	x	-0.015	-0.015	0.00	No	100.00	Yes
	16	x	-0.015	-0.015	0.00	No	100.00	Yes
	17	x	-0.015	-0.015	0.00	No	100.00	Yes
	18	x	-0.015	-0.015	0.00	No	100.00	Yes
	20	x	-0.015	-0.015	0.00	No	100.00	Yes
Di	1	y	-0.009	-0.009	0.00	No	100.00	Yes
	2	y	-0.009	-0.009	0.00	No	100.00	Yes
	3	y	-0.009	-0.009	0.00	No	100.00	Yes
	4	y	-0.009	-0.009	0.00	No	100.00	Yes
	5	y	-0.009	-0.009	0.00	No	100.00	Yes
	6	y	-0.009	-0.009	0.00	No	100.00	Yes
	7	y	-0.009	-0.009	0.00	No	100.00	Yes
	8	y	-0.009	-0.009	0.00	No	100.00	Yes
	9	y	-0.009	-0.009	0.00	No	100.00	Yes
	10	y	-0.009	-0.009	0.00	No	100.00	Yes
	11	y	-0.009	-0.009	0.00	No	100.00	Yes
	12	y	-0.009	-0.009	0.00	No	100.00	Yes
	61	y	-0.009	-0.009	0.00	No	100.00	Yes
	62	y	-0.009	-0.009	0.00	No	100.00	Yes
	63	y	-0.009	-0.009	0.00	No	100.00	Yes
	64	y	-0.009	-0.009	0.00	No	100.00	Yes
	65	y	-0.009	-0.009	0.00	No	100.00	Yes
	66	y	-0.009	-0.009	0.00	No	100.00	Yes
	35	y	-0.009	-0.009	0.00	No	100.00	Yes
	37	y	-0.009	-0.009	0.00	No	100.00	Yes
	39	y	-0.009	-0.009	0.00	No	100.00	Yes
	13	y	-0.01	-0.01	0.00	No	100.00	Yes
	14	y	-0.01	-0.01	0.00	No	100.00	Yes
	34	y	-0.01	-0.01	0.00	No	100.00	Yes
	24	y	-0.009	-0.009	0.00	No	100.00	Yes
	25	y	-0.009	-0.009	0.00	No	100.00	Yes
	26	y	-0.009	-0.009	0.00	No	100.00	Yes
	27	y	-0.009	-0.009	0.00	No	100.00	Yes
	28	y	-0.009	-0.009	0.00	No	100.00	Yes
	29	y	-0.009	-0.009	0.00	No	100.00	Yes
	36	y	-0.01	-0.01	0.00	No	100.00	Yes
	38	y	-0.01	-0.01	0.00	No	100.00	Yes
	40	y	-0.01	-0.01	0.00	No	100.00	Yes
	21	y	-0.015	-0.015	0.00	No	100.00	Yes
	22	y	-0.015	-0.015	0.00	No	100.00	Yes
	23	y	-0.015	-0.015	0.00	No	100.00	Yes
	15	y	-0.015	-0.015	0.00	No	100.00	Yes
	16	y	-0.015	-0.015	0.00	No	100.00	Yes
	17	y	-0.015	-0.015	0.00	No	100.00	Yes
	18	y	-0.015	-0.015	0.00	No	100.00	Yes
	19	y	-0.015	-0.015	0.00	No	100.00	Yes
	20	y	-0.015	-0.015	0.00	No	100.00	Yes

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	1	y	-0.04	3.00	No
		y	-0.04	8.00	No
		y	-0.025	4.00	No
		y	-0.025	6.00	No
	3	y	-0.035	3.00	No
		y	-0.035	8.00	No
		y	-0.018	4.00	No
		y	-0.018	6.00	No
	5	y	-0.04	3.00	No
		y	-0.04	8.00	No
		y	-0.025	4.00	No
		y	-0.025	6.00	No
	7	y	-0.035	3.00	No
		y	-0.035	8.00	No
		y	-0.018	4.00	No
		y	-0.018	6.00	No
	9	y	-0.04	3.00	No
		y	-0.04	8.00	No
		y	-0.025	4.00	No
		y	-0.025	6.00	No
	11	y	-0.035	3.00	No
		y	-0.035	8.00	No
		y	-0.018	4.00	No
		y	-0.018	6.00	No
W0	1	z	-0.229	3.00	No
		z	-0.229	8.00	No
	3	z	-0.229	3.00	No
		z	-0.229	8.00	No
	5	z	-0.133	3.00	No
		z	-0.133	8.00	No
		z	-0.018	4.00	No
		z	-0.018	6.00	No
	7	z	-0.133	3.00	No
		z	-0.133	8.00	No
		z	-0.017	4.00	No
		z	-0.017	6.00	No
	9	z	-0.133	3.00	No
		z	-0.133	8.00	No
		z	-0.018	4.00	No
		z	-0.018	6.00	No
	11	z	-0.133	3.00	No
		z	-0.133	8.00	No
		z	-0.017	4.00	No
		z	-0.017	6.00	No
W30	1	x	-0.101	3.00	No
		x	-0.101	8.00	No
		x	-0.012	4.00	No
		x	-0.012	6.00	No
	3	x	-0.101	3.00	No
		x	-0.101	8.00	No
		x	-0.015	4.00	No
		x	-0.015	6.00	No
	5	x	-0.197	3.00	No
		x	-0.197	8.00	No

		x	-0.03	4.00	No
		x	-0.03	6.00	No
	7	x	-0.197	3.00	No
		x	-0.197	8.00	No
		x	-0.022	4.00	No
		x	-0.022	6.00	No
	9	x	-0.197	3.00	No
		x	-0.197	8.00	No
		x	-0.03	4.00	No
		x	-0.03	6.00	No
	11	x	-0.197	3.00	No
		x	-0.197	8.00	No
		x	-0.022	4.00	No
		x	-0.022	6.00	No
Di	1	y	-0.142	3.00	No
		y	-0.142	8.00	No
		y	-0.024	4.00	No
		y	-0.024	6.00	No
	3	y	-0.142	3.00	No
		y	-0.142	8.00	No
		y	-0.018	4.00	No
		y	-0.018	6.00	No
	5	y	-0.142	3.00	No
		y	-0.142	8.00	No
		y	-0.024	4.00	No
		y	-0.024	6.00	No
	7	y	-0.142	3.00	No
		y	-0.142	8.00	No
		y	-0.018	4.00	No
		y	-0.018	6.00	No
	9	y	-0.142	3.00	No
		y	-0.142	8.00	No
		y	-0.024	4.00	No
		y	-0.024	6.00	No
	11	y	-0.142	3.00	No
		y	-0.142	8.00	No
		y	-0.018	4.00	No
		y	-0.018	6.00	No
Wi0	1	z	-0.045	3.00	No
		z	-0.045	8.00	No
	3	z	-0.045	3.00	No
		z	-0.045	8.00	No
	5	z	-0.028	3.00	No
		z	-0.028	8.00	No
		z	-0.006	4.00	No
		z	-0.006	6.00	No
	7	z	-0.028	3.00	No
		z	-0.028	8.00	No
		z	-0.006	4.00	No
		z	-0.006	6.00	No
	9	z	-0.028	3.00	No
		z	-0.028	8.00	No
		z	-0.006	4.00	No
		z	-0.006	6.00	No
	11	z	-0.028	3.00	No
		z	-0.028	8.00	No
		z	-0.006	4.00	No
		z	-0.006	6.00	No
Wi30	1	x	-0.023	3.00	No
		x	-0.023	8.00	No

		x	-0.005	4.00	No
		x	-0.005	6.00	No
	3	x	-0.023	3.00	No
		x	-0.023	8.00	No
		x	-0.005	4.00	No
		x	-0.005	6.00	No
	5	x	-0.039	3.00	No
		x	-0.039	8.00	No
		x	-0.008	4.00	No
		x	-0.008	6.00	No
	7	x	-0.039	3.00	No
		x	-0.039	8.00	No
		x	-0.007	4.00	No
		x	-0.007	6.00	No
	9	x	-0.039	3.00	No
		x	-0.039	8.00	No
		x	-0.008	4.00	No
		x	-0.008	6.00	No
	11	x	-0.039	3.00	No
		x	-0.039	8.00	No
		x	-0.007	4.00	No
		x	-0.007	6.00	No
WL0	1	z	-0.014	3.00	No
		z	-0.014	8.00	No
	3	z	-0.014	3.00	No
		z	-0.014	8.00	No
	5	z	-0.008	3.00	No
		z	-0.008	8.00	No
		z	-0.001	4.00	No
		z	-0.001	6.00	No
	7	z	-0.008	3.00	No
		z	-0.008	8.00	No
		z	-0.001	4.00	No
		z	-0.001	6.00	No
	9	z	-0.008	3.00	No
		z	-0.008	8.00	No
		z	-0.001	4.00	No
		z	-0.001	6.00	No
	11	z	-0.008	3.00	No
		z	-0.008	8.00	No
		z	-0.001	4.00	No
		z	-0.001	6.00	No
WL30	1	x	-0.006	3.00	No
		x	-0.006	8.00	No
		x	-0.001	4.00	No
		x	-0.001	6.00	No
	3	x	-0.006	3.00	No
		x	-0.006	8.00	No
		x	-0.001	4.00	No
		x	-0.001	6.00	No
	5	x	-0.012	3.00	No
		x	-0.012	8.00	No
		x	-0.002	4.00	No
		x	-0.002	6.00	No
	7	x	-0.012	3.00	No
		x	-0.012	8.00	No
		x	-0.001	4.00	No
		x	-0.001	6.00	No
	9	x	-0.012	3.00	No
		x	-0.012	8.00	No

		x	-0.002	4.00	No
		x	-0.002	6.00	No
	11	x	-0.012	3.00	No
		x	-0.012	8.00	No
		x	-0.001	4.00	No
		x	-0.001	6.00	No
LL1	35	y	-0.25	50.00	Yes
LL2	35	y	-0.25	100.00	Yes
LLa1	1	y	-0.50	50.00	Yes
LLa2	2	y	-0.50	50.00	Yes
LLa3	3	y	-0.50	50.00	Yes
LLa4	4	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

Current Date: 9/30/2021 10:55 AM
Units system: English
File name: Z:\Shared\Work2.0\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT1104\Rev. 1\Option 2\CT1104.retx

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
LC5=0.9DL+1.6W0
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	**15**	LC3 at 100.00%	0.17	OK	Eq. H1-1b
		16	LC2 at 100.00%	**0.23**	**OK**	Eq. H1-1b
		17	LC3 at 100.00%	0.18	OK	Eq. H1-1b
		18	LC2 at 50.00%	0.18	OK	Eq. H1-1b
		19	LC1 at 48.44%	0.16	OK	Eq. H1-1b
		20	LC4 at 48.44%	0.18	OK	Eq. H1-1b
	L 2-1_2X2-1_2X3_16	**36**	LC4 at 100.00%	0.52	OK	Eq. H2-1
		38	LC3 at 100.00%	**0.53**	**OK**	Sec. F1
		40	LC2 at 100.00%	0.46	OK	Sec. F1
	L 2X2X1_4	**24**	LC3 at 100.00%	0.20	OK	Eq. H2-1
		25	LC1 at 100.00%	0.22	OK	Eq. H2-1
		26	LC4 at 100.00%	**0.23**	**OK**	Eq. H2-1
		27	LC2 at 0.00%	0.22	OK	Eq. H2-1
		28	LC1 at 0.00%	0.21	OK	Eq. H2-1

	29	LC3 at 0.00%	0.20	OK	Eq. H2-1
PIPE 2-1_2x0.203	**1**	LC3 at 31.25%	0.16	OK	Eq. H1-1b
	2	LC4 at 89.58%	0.10	OK	Eq. H1-1b
	3	LC2 at 89.58%	0.15	OK	Eq. H1-1b
	4	LC2 at 89.58%	0.10	OK	Eq. H1-1b
	5	LC2 at 89.58%	0.25	OK	Eq. H1-1b
	6	LC2 at 89.58%	0.10	OK	Eq. H1-1b
	7	LC1 at 89.58%	0.19	OK	Eq. H1-1b
	8	LC1 at 89.58%	0.13	OK	Eq. H1-1b
	9	LC1 at 89.58%	0.21	OK	Eq. H1-1b
	10	LC1 at 89.58%	0.13	OK	Eq. H1-1b
	11	LC4 at 89.58%	0.16	OK	Eq. H1-1b
	12	LC4 at 89.58%	0.14	OK	Eq. H1-1b
	61	LC2 at 0.00%	0.40	OK	Eq. H1-1b
	62	LC1 at 0.00%	0.35	OK	Eq. H1-1b
	63	LC1 at 0.00%	0.32	OK	Eq. H1-1b
	64	LC2 at 0.00%	0.38	OK	Eq. H1-1b
	65	LC3 at 0.00%	0.23	OK	Eq. H1-1b
	66	LC4 at 0.00%	0.23	OK	Eq. H1-1b
	35	LC1 at 22.32%	0.41	OK	Eq. H1-1b
	37	LC4 at 22.32%	**0.56**	**OK**	Eq. H1-1b
	39	LC3 at 22.32%	0.52	OK	Eq. H1-1b
PIPE 3x0.216	**13**	LC2 at 8.04%	**0.18**	**OK**	Eq. H1-1b
	14	LC4 at 64.29%	0.15	OK	Eq. H1-1b
	34	LC3 at 8.04%	0.15	OK	Eq. H1-1b
PL 6x3/8	**21**	LC2 at 50.00%	0.20	OK	Eq. H1-1b
	22	LC1 at 50.00%	**0.22**	**OK**	Eq. H1-1b
	23	LC4 at 50.00%	0.20	OK	Eq. H1-1b

Current Date: 9/30/2021 10:50 AM
Units system: English
File name: Z:\Shared\Work2.0\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT1104\Rev. 1\Option 2\CT1104.retx

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
21	0.00	-4.00	-2.0457	0
15	1.7716	-4.00	1.0228	0
19	-1.7716	-4.00	1.0228	0
114	-1.7716	0.00	1.0228	0
116	1.7716	0.00	1.0228	0
115	0.00	0.00	-2.0457	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
21	1	1	1	1	1	1
15	1	1	1	1	1	1
19	1	1	1	1	1	1
114	1	1	1	1	1	1
116	1	1	1	1	1	1
115	1	1	1	1	1	1

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	lg factor
1	100	104		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
2	101	105		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
3	102	106		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
4	103	107		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
5	145	146		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
6	139	140		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
7	133	134		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
8	127	128		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
9	169	170		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
10	163	164		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
11	157	158		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
12	151	152		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
61	115	175		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
62	115	178		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
63	116	173		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
64	114	177		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
65	114	174		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
66	116	176		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
35	112	108		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
37	109	110		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
39	111	113		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
13	9	10		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
14	3	4		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
34	12	13		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
24	34	18		L 2X2X1_4	A36	0.00	0.00	0.00
25	36	20		L 2X2X1_4	A36	0.00	0.00	0.00
26	30	14		L 2X2X1_4	A36	0.00	0.00	0.00
27	18	35		L 2X2X1_4	A36	0.00	0.00	0.00
28	20	37		L 2X2X1_4	A36	0.00	0.00	0.00
29	14	31		L 2X2X1_4	A36	0.00	0.00	0.00
36	108	109		L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
38	110	111		L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
40	112	113		L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
21	13	9		PL 6x3/8	A36	0.00	0.00	0.00
22	10	3		PL 6x3/8	A36	0.00	0.00	0.00
23	12	4		PL 6x3/8	A36	0.00	0.00	0.00
15	18	19		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
16	20	21		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
17	14	15		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
18	28	27		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
19	26	22		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
20	23	29		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
36	180.00	0	0.00	0.00	0.00
38	180.00	0	0.00	0.00	0.00
40	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]
24	0.00	3.00	0.00	0.00	3.00	0.00
25	0.00	3.00	0.00	0.00	3.00	0.00
26	0.00	3.00	0.00	0.00	3.00	0.00
27	0.00	3.00	0.00	0.00	3.00	0.00
28	0.00	3.00	0.00	0.00	3.00	0.00
29	0.00	3.00	0.00	0.00	3.00	0.00

Town of Farmington, CT

Property Listing Report

Map Block Lot	109 37A	Building #		Unique Identifier	11950045

Property Information

Property Location	45 MAPLE RIDGE DR
Mailing Address	POST OFFICE BOX 270 HARTFORD CT 06141
Land Use	Commercial Vacant Land
Zoning Code	R20
Neighborhood	97

Owner	CONN LIGHT & POWER CO
Co-Owner	
Book / Page	0288/0347
Land Class	Public Utility
Census Tract	4601
Acreage	2

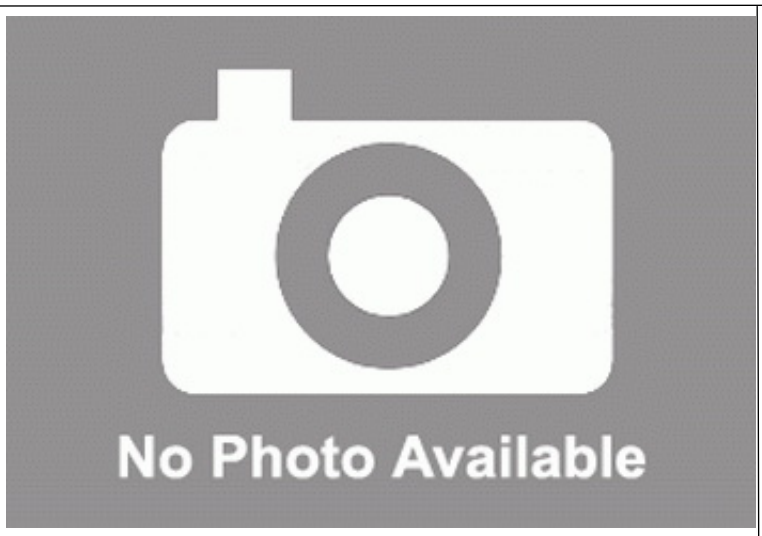
Valuation Summary

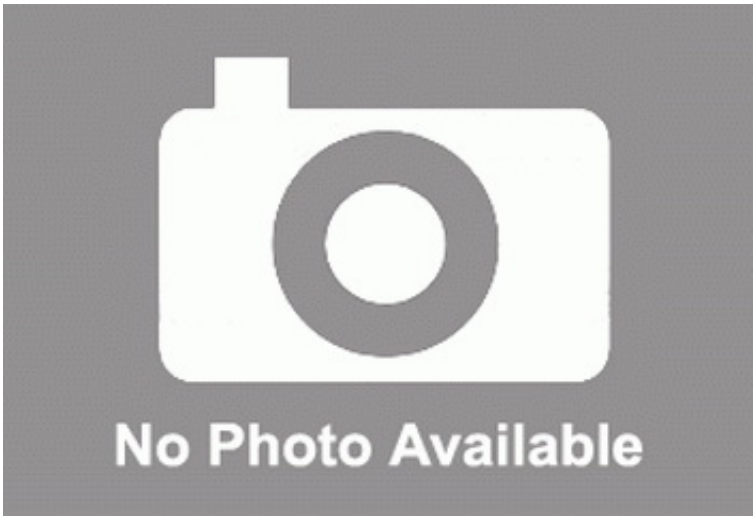
(Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	0	0
Outbuildings	2400	1680
Land	275000	192500
Total	277400	194180

Utility Information

Electric	No
Gas	No
Sewer	No
Public Water	No
Well	No





Primary Construction Details

Year Built		Heating Fuel		Building Use	
Building Desc.		Heating Type		Building Condition	
Building Style		AC Type		Frame Type	
Stories		Bedrooms		Fireplaces	
Exterior Walls		Full Bathrooms		Bsmt Gar	
Exterior Walls 2		Half Bathrooms		Fin Bsmt Area	
Interior Walls		Extra Fixtures		Fin Bsmt Quality	
Interior Walls 2		Total Rooms		Building Grade	
Interior Floors 1		Bath Style		Roof Style	
Interior Floors 2		Kitchen Style		Roof Cover	
		Occupancy			

Report Created On 10/18/2021

Town of Farmington, CT

Property Listing Report | Map Block Lot **109 37A** | Building # | Unique Identifier **11950045**

Detached Outbuildings

Type	Description	Area (sq ft)	Condition	Year Built
Utility	Pump House	240	Average	1960

Attached Extra Features

Type	Description	Area (sq ft)	Condition	Year Built

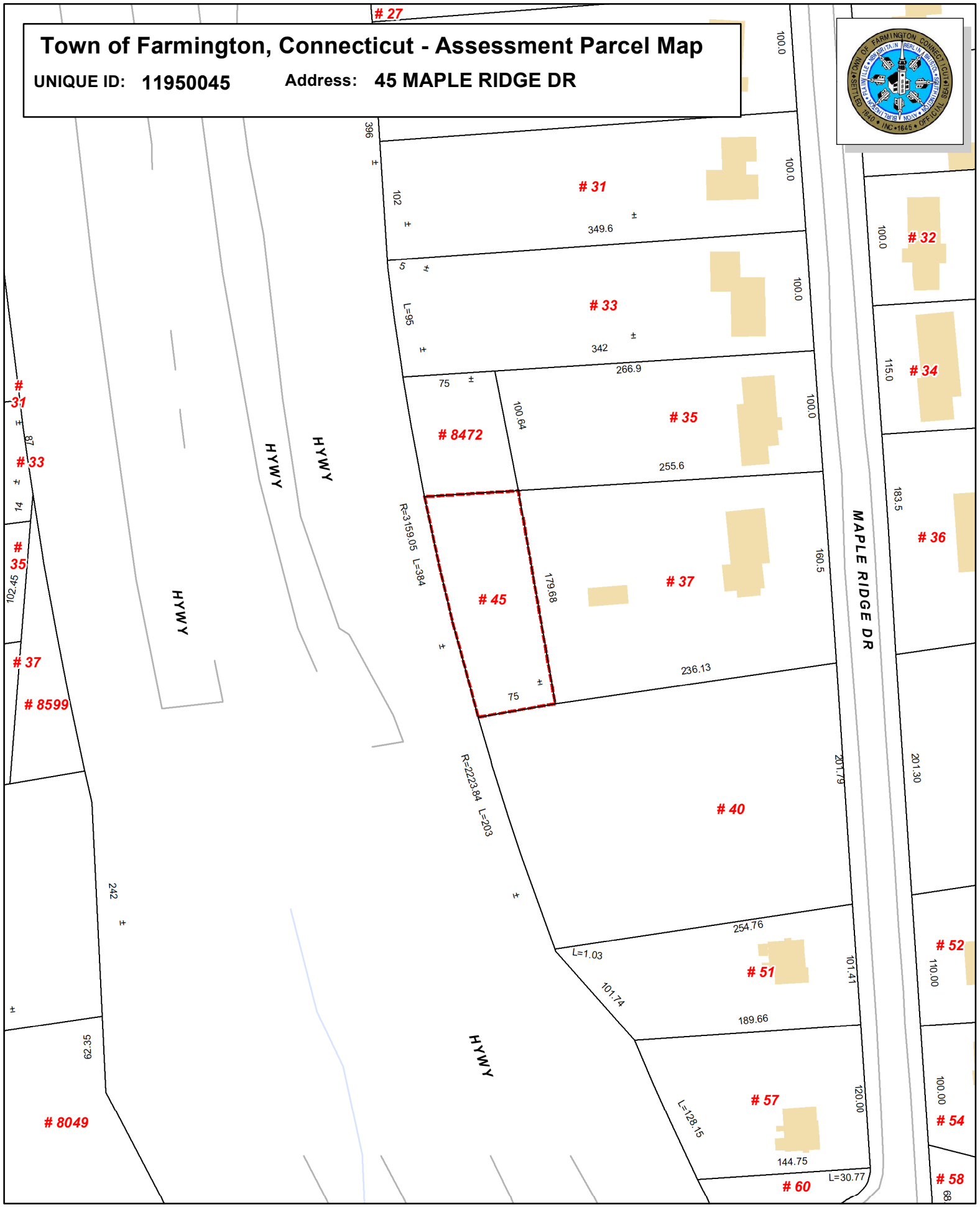
Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
CONN LIGHT & POWER CO	0288_0347	1/1/1900	0

Report Created On **10/18/2021**

Town of Farmington, Connecticut - Assessment Parcel Map

UNIQUE ID: 11950045 **Address:** 45 MAPLE RIDGE DR



Map Produced January 2021

Approximate Scale: 1 inch = 100 feet

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

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

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

November 6, 2003

Thomas J. Regan, Esq.
Brown Rudnick Berlack Israels LLP
185 Asylum Street, CityPlace I
Hartford, CT 06103-3402

RE: **PETITION NO. 644** - Sprint Spectrum, L.P., d/b/a Sprint PCS and Southwestern Bell Mobile Systems, LLC, d/b/a Cingular Wireless petition for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for the addition of Sprint PCS and Cingular Wireless Antennas to an existing Connecticut Light & Power Company electrical transmission structure at 45 Maple Ridge Drive, Farmington, Connecticut.

Dear Attorney Regan:

At a public meeting held on October 29, 2003, the Connecticut Siting Council (Council) considered and ruled that this proposal would not have a substantial adverse environmental effect, and pursuant to General Statutes § 16-50k would not require a Certificate of Environmental Compatibility and Public Need.

This decision 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 supplemental filing dated September 22, 2003 and with the condition that the color of the equipment building, equipment cabinets, and bollards conform with the surrounding landscape.

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

Very truly yours,

Pamela B. Katz, P.E.
Chairman

PBK/laf

Enclosure: Staff Report dated October 29, 2003

c: Honorable Arline B. Whitaker, Chairman Town Council, Town of Farmington
Jeffrey Ollendorf, Planning and Zoning Official, Town of Farmington

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

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

Petition No. 644
Sprint Spectrum, L.P. and Southwestern Bell Mobile System, LLC
Maple Ridge Drive, Farmington

Staff Report
October 29, 2003

On August 27, 2003, Connecticut Siting Council (Council) member Edward Wilinsky and Robert Mercier of Council staff met with Sprint Spectrum, L.P d/b/a Sprint PCS (Sprint) representative Thomas Regan at a Connecticut Light & Power Company (CL&P) right-of-way on Maple Ridge Drive in Farmington for the inspection of an electric transmission structure owned by CL&P. Sprint and Southwestern Bell Mobile System, LLC d/b/a Cingular Wireless (Cingular), with the agreement of CL&P, propose to redesign and replace CL&P transmission tower #8012 to allow for the installation of telecommunication equipment at this location. Sprint and Cingular (Applicant) are petitioning the Council for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need (Certificate) is required for the redesign and replacement of the transmission structure.

The Applicant proposes to replace an existing 61-foot H-frame transmission line structure with a new laminated wood structure. The new H-frame structure would consist of two poles, an 86-foot pole and a 100-foot pole connected by diagonal and horizontal cross beams. The 100-foot pole would accommodate 3 panel antennas owned by Sprint at a centerline height of 100 feet and 3 panel antennas owned by Cingular at a centerline height of 88 feet. The total height of the structure with antennas would be approximately 102 feet. The antennas of both carriers would be flush mounted to the pole.

A 42-foot by 33-foot equipment compound enclosed with six-foot high chain link fence would be constructed at the base of the transmission tower. Sprint would place four cabinets, no taller than six feet, on a concrete pad within the compound. Cingular would place a 20-foot by 12-foot by 11.75-foot equipment building within the compound.

Access to the site would be via a 12-foot wide, 125-foot long gravel driveway that would extend from Maple Ridge Drive within the existing CL&P right-of-way. No wetlands or watercourses are within or adjacent to the proposed construction area. Soil and erosion controls would be installed prior to construction.

Land use in the immediate area is residential. The two nearest residences are 37 Maple Ridge Drive, approximately 186 feet north of the site, and 51 Maple Ridge Drive, approximately 153 feet south of the site. Visual simulations indicate the residence at 37 Maple Ridge Drive would have year round views of most of the structure. The residence at 51 Maple Ridge Drive would have mostly winter views of the structure. The structure and compound would be visible from Maple Ridge Drive where the transmission line crosses the road. No landscaping is planned; existing shrubby vegetation in the right-of-way would provide limited screening. A 65-foot CL&P structure east of site and adjacent to Maple Ridge Drive was replaced with an 80-foot structure in 1999 to accommodate three flush mounted antennas owned by Omnipoint Communications Inc. (Petition 423).

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

September 20, 2021

Kathleen M. Shanley
Manager – Transmission Siting
Eversource Energy
P.O. Box 270
Hartford, CT 06141

RE: **SUB-PETITION NO. 1293- FA-02 (Farmington)** – Eversource Energy declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for all transmission facility asset condition maintenance improvements statewide to comply with the updated National Electrical Safety Code clearance requirements.

Dear Ms. Shanley:

The Connecticut Siting Council (Council) hereby acknowledges your notice to replace 2 transmission structures at various locations along Eversource transmission line right-of-way in the Town of Farmington pursuant to National Electrical Safety Code standards, with the following conditions:

1. Any deviation from the proposed transmission line maintenance activity as specified in this notice and supporting materials filed with the Council shall render this acknowledgement invalid;
2. Any material changes to this transmission line maintenance activity as proposed shall require the filing of a new notice with the Council;
3. Not less than 45 days after completion of the transmission line maintenance activity, the Council shall be notified in writing that construction has been completed;
4. The validity of this action shall expire one year from the date of this letter; and
5. The petitioner may file a request for an extension of time beyond the one year deadline provided that such request is submitted to the Council not less than 60 days prior to the expiration.

The proposed transmission line maintenance activities are to be implemented as specified here and in your notice dated August 9, 2021. This decision is under the exclusive jurisdiction of the Council.

Thank you for your attention and cooperation.

Sincerely,

Melanie Bachman
Executive Director

c: Honorable C.J. Thomas, Town Council Chairman, Town of Farmington (towncouncil@farmington-ct.org)

EVERSOURCE ENERGY

56 Prospect Street,
Hartford, CT 06103

P.O. Box 270
Hartford, CT 06141-0270
(860) 665-5000

November 12, 2021

Mr. Tim Burks
SAI Communications
12 Industrial Way
Salem, NH 03079

RE: AT&T Antenna Site CT1104, Maple Ridge Drive, Farmington CT, Eversource Structure 8012

Dear Mr. Burks:

Based on our reviews of the site drawings, the structural analysis and foundation review provided by Centek Engineering, along with a third party review performed by Paul J. Ford and Company, we accept the proposed modification.

Please work with Christopher Gelinas of Eversource Real Estate to process the site lease amendment. Please do not hesitate to contact us with questions or concerns. Christopher can be contacted at 860-665-2008, and I can be contacted at (203) 623-0409.

Sincerely,

Richard Badon

Richard Badon
Transmission Line Engineering

Ref: 2021-1109 - CT1104 Structural Analysis Rev2 (21122.00)
2021-1109_21122.00 CT1104 Rev0 CDs (S&S)

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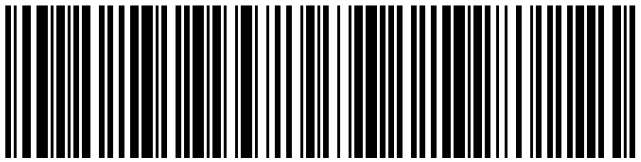
HOLLIS M REDDING
SAI GROUP
12 INDUSTRIAL WAY
SALEM NH 03079-2837

Expected Delivery Date: 11/15/21
Ref#: CT1104
0006

R001

SHIP TO: KATHLEEN BRONSKI, TOWN MANAGER SHANNON
TOWN OF FARMINGTON
1 MONTIETH DR
FARMINGTON CT 06032-1082

USPS TRACKING #



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Electronic Rate Approved #038555749

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SAI GROUP
12 INDUSTRIAL WAY
SALEM NH 03079-2837

Expected Delivery Date: 11/15/21
Ref#: CT1104
0006

C015

SHIP TO: CHRIS GELINAS
EVERSOURCE
107 SELDEN ST
BERLIN CT 06037-1616

USPS TRACKING #

9405 5036 9930 0060 2738 18

Electronic Rate Approved #038555749

From: auto-reply@usps.com
To: Hollis Redding
Subject: USPS® Expected Delivery by Saturday, November 13, 2021 arriving by 9:00pm 9405503699300060273801
Date: Friday, November 12, 2021 3:31:33 PM

Hello **HOLLIS M REDDING**,

USPS is now in possession of your item as of 2:35 pm on November 12, 2021 in MERIDEN, CT 06450.

Tracking Number:
9405503699300060273801

Expected Delivery By

13
Nov

By 9:00pm

By 9:00pm

Hollis Redding

From: auto-reply@usps.com
Sent: Friday, November 12, 2021 3:31 PM
To: Hollis Redding
Subject: USPS® Expected Delivery by Saturday, November 13, 2021 arriving by 9:00pm 9405503699300060273818

UNITED STATES POSTAL SERVICE®

Hello **HOLLIS M REDDING**,

USPS is now in possession of your item as of 2:35 pm on November 12, 2021 in MERIDEN, CT 06450.

Tracking Number: **9405503699300060273818**

Expected Delivery By

Sat
13
Nov

By 9:00pm

Tracking & Delivery Options

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