January 24, 2019

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

Regarding:	Notice of Exempt Modification – Antenna Modification
Property Address:	100 Reef Road, Fairfield, CT 06824 (the "Property")
Applicant:	AT&T Mobility ("AT&T", Site # CT5022)

Dear Ms. Bachman:

AT&T currently maintains a wireless telecommunications facility on an existing 145-foot monopole at the above-referenced address, latitude 41° 08' 22.32", longitude -73° 15' 26.56". Said monopole is owned by Town of Fairfield.

AT&T desires to modify its existing telecommunications facility by adding three (3) antennas, replacing (3) antennas and their associated cabling and ancillary equipment, add (12) remote-radio heads ("RRHs"), add (6) diplexers, and add (2) surge arrestor (squid). The centerline height of the existing antennas is and will remain at 130 feet.

Please accept this application as notification pursuant to R.C.S.A. §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16-50j-72 (b)(2). In accordance with R.C.S.A. §16-50j-73, a copy of this letter is being sent to the Michael C. Tetreau, First Selectman for the Town of Fairfield as property owner and as the chief elected official of the municipality in which the facility is located and Jim Wendt as the Director of Town Plan and Zoning of Town of Fairfield.

The planned modifications to AT&T's facility fall squarely within those activities explicitly provided for in R.C.S.A. §16-50j-72 (b)(2). Specifically:

1. The planned modification will not result in an increase in the height of the existing structure. The added antennas and accessory equipment along with equipment to be swapped will be installed at the existing height of 130 feet on the 145-foot monopole.

2. The proposed modifications will not involve any changes to ground-mounted equipment, and therefore will not require an extension of the site boundary.

3. The proposed modification will not increase the noise level 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 (RF) emissions at the facility to a level at or above Federal Communications Commission (FCC) safety standard. An RF emissions calculation (enclosed) for AT&T's modified facility is herein provided.

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

6. The existing structure and its foundation can support AT&T's proposed modifications (please see enclosed structural analysis completed by Centek Engineering, dated October 8th, 2018.

For the foregoing reasons, AT&T respectfully requests that the proposed antennas and remote-radio head installation be allowed within the exempt modifications under R.C.S.A. §16-50j-72 (b(2).

Sincerely,

Nora Oliver

Nora Oliver
Site Acquisition Manager

Enclosures: Exhibit 1 – Field Card and GIS Map
Exhibit 2 – Construction Drawings
Exhibit 3 – Structural Analysis
Exhibit 4 – RF Emissions Analysis Report Evaluation

cc:
Michael C. Tetreau, First Selectman, Town of Fairfield (municipality and landowner)
Jim Wendt as the Director of Town Plan and Zoning of Town of Fairfield

100 REEF ROAD

Location	100 REEF ROAD	**Mblu**	182/ 670/ / /
Acct#	05288	**Owner**	FAIRFIELD TOWN OF
Assessment	$4,450,390	**Appraisal**	$6,357,700
PID	16390	**Building Count**	2

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$4,826,700	$1,531,000	$6,357,700
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$3,378,690	$1,071,700	$4,450,390

Owner of Record

Owner	FAIRFIELD TOWN OF	**Sale Price**	$0
Co-Owner		**Certificate**	
Address	725 OLD POST ROAD FAIRFIELD, CT 06824	**Book & Page**	137/ 640
		Sale Date	

Ownership History

Ownership History				
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Sale Date**
FAIRFIELD TOWN OF	$0		137/ 640	

Building Information

Building 1 : Section 1

Year Built:	1975
Living Area:	24,580
Replacement Cost:	$5,708,959
Building Percent Good:	68
Replacement Cost Less Depreciation:	$3,882,100

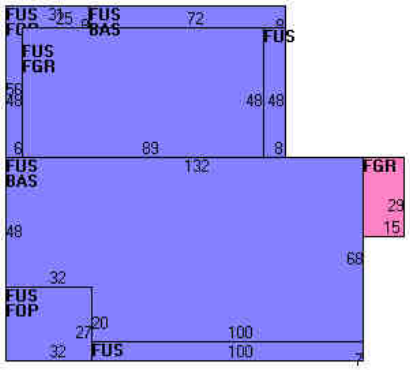
Building Attributes	
Field	**Description**
STYLE	Police Station
MODEL	Ind/Comm

Building Photo

Stories:	2
Occupancy	1
Exterior Wall 1	Brick/Masonry
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	Rolled Compos
Interior Wall 1	Minim/Masonry
Interior Wall 2	Drywall
Interior Floor 1	Vinyl/Asphalt
Interior Floor 2	Carpet
Heating Fuel	Gas
Heating Type	Hot Water
AC Type	Central
Bldg Use	Police Dept
Total Rooms	
Total Bedrms	00
Total Baths	0
Liv Area	
Effect Area	
1st Floor Use:	9031
Heat/AC	Heat/AC Split
Frame Type	Fireprf Steel
Baths/Plumbing	Average

(http://images.vgsi.com/photos2/FairfieldCTPhotos//\02\05\41/59.jpg)

Building Layout



(http://images.vgsi.com/photos2/FairfieldCTPhotos//Sketches/

Building Sub-Areas (sq ft)			
Code	**Description**	**Gross Area**	**Living Area**
FUS	Upper Story, Finished	15,668	15,668
BAS	First Floor	8,912	8,912
FGR	Garage	4,707	0
FOP	Porch, Open, Finished	1,400	0
		30,687	24,580

Building 2 : Section 1

Year Built: 1953
Living Area: 8,000
Replacement Cost: $1,119,760
Building Percent Good: 56
Replacement Cost Less Depreciation: $627,100

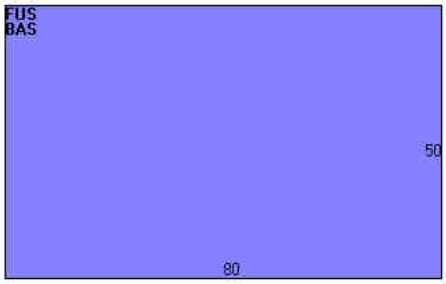
Building Photo

Building Attributes : Bldg 2 of 2	
Field	**Description**
STYLE	Office
MODEL	Ind/Comm
Stories:	2

Occupancy	1
Exterior Wall 1	Brick/Masonry
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	Rolled Compos
Interior Wall 1	Plastered
Interior Wall 2	Minim/Masonry
Interior Floor 1	Vinyl/Asphalt
Interior Floor 2	
Heating Fuel	Gas
Heating Type	Hot Water
AC Type	Central
Bldg Use	Police Dept
Total Rooms	
Total Bedrms	00
Total Baths	0
Liv Area	
Effect Area	
1st Floor Use:	9031
Heat/AC	None
Frame Type	Masonry
Baths/Plumbing	Average

(http://images.vgsi.com/photos2/FairfieldCTPhotos//\00\00\14/66.jpg)

Building Layout



(http://images.vgsi.com/photos2/FairfieldCTPhotos//Sketches/16

Building Sub-Areas (sq ft)			
Code	Description	Gross Area	Living Area
BAS	First Floor	4,000	4,000
FUS	Upper Story, Finished	4,000	4,000
		8,000	8,000

Extra Features

Extra Features				
Code	Description	Size	Value	Bldg #
MEZ1	MEZZANINE-UNF	1760 S.F.	$27,500	1
SPR1	SPRINKLERS-WET	8000 S.F.	$10,300	2
ELV1	PASS ELEV	2 STOPS	$39,200	2
VLT1	VAULT-AVG	84 S.F.	$19,100	1
ELV1	PASS ELEV	2 STOPS	$47,600	1
ELV2	FREIGHT ELEV	2 STOPS	$34,000	1

Land

Land Use

Land Line Valuation

Use Code	9031	**Size (Acres)**	1.50
Description	Police Dept	**Depth**	0
Zone	R3	**Assessed Value**	$1,071,700
Neighborhood	C3	**Appraised Value**	$1,531,000
Alt Land Appr	No		
Category			

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
LT1	LIGHTS-IN W/PL			9 UNITS	$6,500	1
FN3	FENCE-6' CHAIN			300 L.F.	$2,700	1
PAV1	PAVING-ASPHALT			40000 S.F.	$126,000	1
SHD2	W/LIGHTS ETC			300 S.F.	$4,600	1

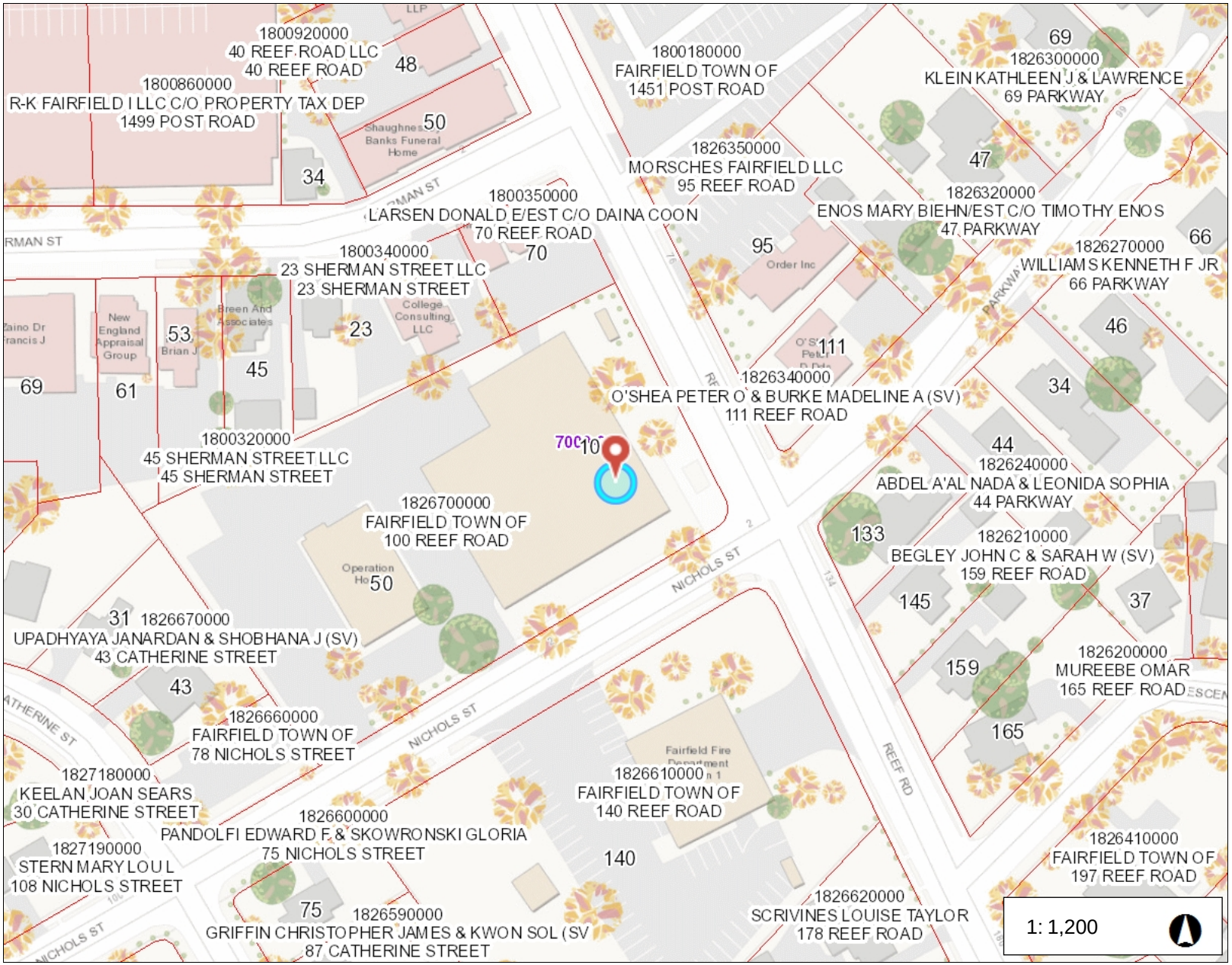
Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$4,826,700	$1,531,000	$6,357,700
2016	$4,826,700	$1,531,000	$6,357,700
2015	$4,826,700	$1,531,000	$6,357,700

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$3,378,690	$1,071,700	$4,450,390
2016	$3,378,690	$1,071,700	$4,450,390
2015	$3,378,690	$1,071,700	$4,450,390

Town of Fairfield

Title



Legend

- Parcels
- Local Basin Boundary
  - Major
  - Regional
  - Subregional
  - Local
- Local Basin Area

200.0 0 100.00 200.0 Feet

WGS_1984_Web_Mercator_Auxiliary_Sphere
Created by Greater Bridgeport Regional Council

METROCOG
Connecticut Metropolitan Council of Governments

WIRELESS COMMUNICATIONS FACILITY
CT5022 - LTE 3C WCS/4C AWS/5C 700 UPPER D/6C 5G 850
FAIRFIELD
100 REEF ROAD
FAIRFIELD, CT 06824

PROJECT SUMMARY

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

A. AT ANTENNA SECTORS:
- REMOVE (3) EXISTING ANTENNAS AT POS.4 (1 PER SECTOR)
- RELOCATE (3) EXISTING ANTENNAS FROM POS.3 TO POS.2
- INSTALL (3) NEW 8-PORT ANTENNAS AT POS.3 (1 PER SECTOR)
- INSTALL (3) NEW 6-PORT ANTENNAS AT POS.4 (1 PER SECTOR)
- INSTALL (3) NEW B14 4478 ASSIGNED TO POS.3 (1 PER SECTOR)
- INSTALL (3) NEW 4478 B5 ASSIGNED TO POS.3 (1 PER SECTOR)
- INSTALL (3) NEW 4426 B66 ASSIGNED TO POS.3 (1 PER SECTOR)
- INSTALL (3) NEW RRUS-32 ASSIGNED TO POS.4 (1 PER SECTOR)
- INSTALL (6) NEW LOW-BAND COMBINERS AT POS.3 (2 PER SECTOR)
- INSTALL (1) NEW DC FIBER SQUID
- INSTALL (1) NEW DC SQUID ONLY
- INSTALL (6) NEW SWIVEL MOUNTS AT POS.3 & POS.4 (2) PER SECTOR)
- INSTALL (4) DC CABLES
- INSTALL (1) 18 PAIR FIBER CABLES

B. AT THE EQUIPMENT SHELTER
- REMOVE (12) EXISTING DIPLEXERS
- REMOVE (6) EXISTING RRUW'S
- REMOVE AND DECOMMISSION (2) EXISTING GSM EQUIP. CABINETS
- INSTALL (3) NEW LOWBAND COMBINERS
- REMOVE EXISTING BBU WITH 2x 5216 UNITS
- INSTALL 2ND XMU+IDLE
- INSTALL (1) NEW RBS 6630
- INSTALL (1) NEW DC-12-48-60-25E

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2012 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2016 CONNECTICUT STATE BUILDING CODE, INCLUDING THE TIA-222 REVISION "G" STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES, 2016 CONNECTICUT FIRE SAFETY CODE AND, NATIONAL ELECTRICAL CODE AND LOCAL CODES.
2. THE COMPOUND, TOWER, PRIMARY GROUND RING, ELECTRICAL SERVICE TO THE METER BANK AND TELEPHONE SERVICE TO THE DEMARCATION POINT ARE PROVIDED BY SITE OWNER. AS BUILT FIELD CONDITIONS REGARDING THESE ITEMS SHALL BE CONFIRMED BY THE CONTRACTOR. SHOULD ANY FIELD CONDITIONS PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL NOT PROCEED WITH ANY AFFECTED WORK.
3. CONTRACTOR SHALL REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUBCONTRACTORS AND ALL RELATED PARTIES. THE SUBCONTRACTORS SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT AFFECTS THEIR WORK.
4. 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.
5. 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.
6. 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.
7. 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.
8. 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.
9. 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. MAINTAIN EXISTING BUILDING'S/PROPERTY'S OPERATIONS, COORDINATE WORK WITH BUILDING/PROPERTY OWNER.
10. 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.
11. ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
12. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUBCONTRACTORS FOR ANY CONDITION PER MFR.'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
13. 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.
14. 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.
15. 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.
16. 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.
17. COORDINATION, LAYOUT, FURNISHING AND INSTALLATION OF CONDUIT AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
18. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUB-CONTRACTORS FOR ANY CONDITION PER THE MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
19. 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.
20. 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 PRIOR TO ANY EXCAVATION WORK. CONTRACTOR SHALL MAINTAIN AND PROTECT MARKED UTILITIES THROUGHOUT PROJECT COMPLETION.
21. CONTRACTOR SHALL COMPLY WITH OWNERS ENVIRONMENTAL ENGINEER ON ALL METHODS AND PROVISIONS FOR ALL EXCAVATION ACTIVITIES INCLUDING SOIL DISPOSAL. ALL BACKFILL MATERIALS TO BE PROVIDED BY THE CONTRACTOR.

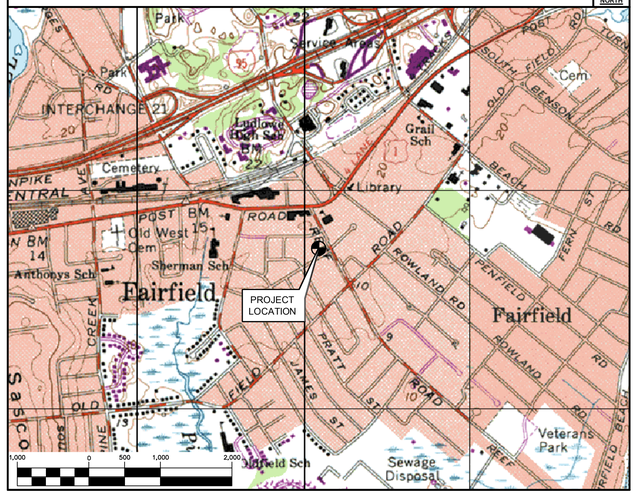
SITE DIRECTIONS

FROM: 500 ENTERPRISE DRIVE, ROCKY HILL, CONNECTICUT
TO: 100 REEF ROAD, FAIRFIELD, CONNECTICUT

1.	TURN LEFT ONTO CAPITAL BLVD.	0.36 MI
2.	TURN LEFT ONTO WEST ST.	0.27 MI
3.	TURN LEFT TO MERGE ONTO I-91 S TOWARD NEW HAVEN.	0.30 MI
4.	TAKE EXIT 17 FOR CT-15 S/W CROSS PKWY.	9.59 MI
5.	TAKE EXIT 52 FOR CT- 8 S.	30.24 MI
6.	MERGE ONTO CT-8 S VIA EXIT 52 TOWARD BRIDGEPORT.	5.93 MI
7.	MERGE ONTO I-95 S TOWARD NY CITY.	4.50 MI
8.	TAKE THE MILL PLAIN ROAD EXIT, EXIT 21.	0.26 MI
9.	TURN LEFT ONTO MILL PLAIN RD.	0.32 MI
10.	TURN LEFT ONTO POST RD/US-1 N.	0.29 MI
11.	TURN RIGHT ONTO REEF RD.	0.11 MI

VICINITY MAP

SCALE: 1" = 1000'



PROJECT INFORMATION

AT&T SITE NUMBER:	CT5022
AT&T SITE NAME:	FAIRFIELD
SITE ADDRESS:	100 REEF ROAD FAIRFIELD, CT 06824
LESSEE/APPLICANT:	AT&T MOBILITY 500 ENTERPRISE DRIVE, SUITE 3A ROCKY HILL, CT 06067
AT&T PACE ID NUMBER:	PACE JOB 1 - MRCTB031119 PACE JOB 2 - MRCTB031921 PACE JOB 3 - MRCTB031461 PACE JOB 4 - MRCTB031662
AT&T FA LOCATION CODE:	10108711
ENGINEER:	CENTEK ENGINEERING, INC. 63-2 NORTH BRANFORD RD. BRANFORD, CT 06405
PROJECT COORDINATES:	LATITUDE: 41°-08'-22.53" N LONGITUDE: 73°-15'-26.54" W GROUND ELEVATION: ±12' AMSL SITE COORDINATES AND GROUND ELEVATION REFERENCED FROM GOOGLE EARTH.

SHEET INDEX

SHT. NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	0
N-1	NOTES, SPECIFICATIONS AND ANTENNA SCHEDULE	0
C-1	PLANS AND ELEVATION	0
C-2	ANTENNA CONFIGURATION DETAILS	0
C-3	DETAILS	0
E-1	SCHEMATIC DIAGRAM AND NOTES	0
E-2	WIRING DIAGRAM	0
E-3	TYPICAL ELECTRICAL DETAILS	0

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	10/11/18	DMD	CAG	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
WIRELESS COMMUNICATIONS FACILITY
FAIRFIELD
CT5022 - LTE 3C/4C/5C/6C 5G 850
100 REEF ROAD
FAIRFIELD, CT 06824

DATE: 08/27/18
SCALE: AS NOTED
JOB NO. 18000.61

TITLE SHEET

T-1

Sheet No. 1 of 8

NOTES AND SPECIFICATIONS

DESIGN BASIS:

GOVERNING CODE: 2012 INTERNATIONAL BUILDING (IBC) AS MODIFIED BY THE 2016 CT STATE BUILDING CODE AND AMENDMENTS.

1. DESIGN CRITERIA:

- WIND LOAD: PER TIA 222 G (ANTENNA MOUNTS): 90–110 MPH (3 SECOND GUST)
- RISK CATEGORY: II (BASED ON IBC TABLE 1604.5)
- NOMINAL DESIGN SPEED (OTHER STRUCTURE): 97 MPH (Vasd) (EXPOSURE B/IMPORTANCE FACTOR 1.0 BASED ON ASCE 7–10) PER 2012 INTERNATIONAL BUILDING CODE (IBC) AS MODIFIED BY THE 2016 CONNECTICUT STATE BUILDING CODE.
- SEISMIC LOAD (DOES NOT CONTROL): PER ASCE 7–10 MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES.

GENERAL NOTES:

1. ALL CONSTRUCTION SHALL BE IN COMPLIANCE WITH THE GOVERNING BUILDING CODE.
2. 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.
3. BEFORE BEGINNING THE WORK, THE CONTRACTOR IS RESPONSIBLE FOR MAKING SUCH INVESTIGATIONS CONCERNING PHYSICAL CONDITIONS (SURFACE AND SUBSURFACE) AT OR CONTIGUOUS TO THE SITE WHICH MAY AFFECT PERFORMANCE AND COST OF THE WORK.
4. DIMENSIONS AND DETAILS SHALL BE CHECKED AGAINST EXISTING FIELD CONDITIONS.
5. THE CONTRACTOR SHALL VERIFY AND COORDINATE THE SIZE AND LOCATION OF ALL OPENINGS, SLEEVES AND ANCHOR BOLTS AS REQUIRED BY ALL TRADES.
6. ALL DIMENSIONS, ELEVATIONS, AND OTHER REFERENCES TO EXISTING STRUCTURES, SURFACE, AND SUBSURFACE CONDITIONS ARE APPROXIMATE. NO GUARANTEE IS MADE FOR THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. THE CONTRACTOR SHALL VERIFY AND COORDINATE ALL DIMENSIONS, ELEVATIONS, ANGLES WITH EXISTING CONDITIONS AND WITH ARCHITECTURAL AND SITE DRAWINGS BEFORE PROCEEDING WITH ANY WORK.
7. AS THE WORK PROGRESSES, THE CONTRACTOR SHALL NOTIFY THE OWNER OF ANY CONDITIONS WHICH ARE IN CONFLICT OR OTHERWISE NOT CONSISTENT WITH THE CONSTRUCTION DOCUMENTS AND SHALL NOT PROCEED WITH SUCH WORK UNTIL THE CONFLICT IS SATISFACTORILY RESOLVED.
8. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE SAFETY CODES AND REGULATIONS DURING ALL PHASES OF CONSTRUCTION. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR PROVIDING AND MAINTAINING ADEQUATE SHORING, BRACING, AND BARRICADES AS MAY BE REQUIRED FOR THE PROTECTION OF EXISTING PROPERTY, CONSTRUCTION WORKERS, AND FOR PUBLIC SAFETY.
9. 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. MAINTAIN EXISTING SITE OPERATIONS, COORDINATE WORK WITH NORTHEAST UTILITIES
10. THE STRUCTURE IS DESIGNED TO BE SELF–SUPPORTING AND STABLE AFTER FOUNDATION REMEDIATION WORK IS COMPLETE. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE AND TO ENSURE THE SAFETY OF THE STRUCTURE AND ITS COMPONENT PARTS DURING ERECTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, TEMPORARY BRACING, GUYS OR TIEDOWNS, WHICH MIGHT BE NECESSARY.
11. 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.
12. SHOP DRAWINGS, CONCRETE MIX DESIGNS, TEST REPORTS, AND OTHER SUBMITTALS PERTAINING TO STRUCTURAL WORK SHALL BE FORWARDED TO THE OWNER FOR REVIEW BEFORE FABRICATION AND/OR INSTALLATION IS MADE. SHOP DRAWINGS SHALL INCLUDE ERECTION DRAWINGS AND COMPLETE DETAILS OF CONNECTIONS AS WELL AS MANUFACTURER'S SPECIFICATION DATA WHERE APPROPRIATE. SHOP DRAWINGS SHALL BE CHECKED BY THE CONTRACTOR AND BEAR THE CHECKER'S INITIALS BEFORE BEING SUBMITTED FOR REVIEW.
13. NO DRILLING WELDING OR TAPING ON EVERSOURCE OWNED EQUIPMENT.
14. REFER TO DRAWING T1 FOR ADDITIONAL NOTES AND REQUIREMENTS.

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.

PAINT NOTES

PAINTING SCHEDULE:

1. ANTENNA PANELS:
   A. SHERWIN WILLIAMS POLANE–B
   B. COLOR TO BE MATCHED WITH EXISTING TOWER STRUCTURE.
2. COAXIAL CABLES:
   A. ONE COAT OF DTM BONDING PRIMER (2–5 MILS. DRY FINISH)
   B. TWO COATS OF DTM ACRYLIC PRIMER/FINISH (2.5–5 MILS. DRY FINISH)
   C. COLOR TO BE FIELD MATCHED WITH EXISTING STRUCTURE.

EXAMINATION AND PREPARATION:

1. DO NOT APPLY PAINT IN SNOW, RAIN, FOG OR MIST OR WHEN RELATIVE HUMIDITY EXCEEDS 85%. DO NOT APPLY PAINT TO DAMP OR WET SURFACES.
2. VERIFY THAT SUBSTRATE CONDITIONS ARE READY TO RECEIVE WORK. EXAMINE SURFACE SCHEDULED TO BE FINISHED PRIOR TO COMMENCEMENT OF WORK. REPORT ANY CONDITION THAT MAY POTENTIALLY AFFECT PROPER APPLICATION.
3. TEST SHOP APPLIED PRIMER FOR COMPATIBILITY WITH SUBSEQUENT COVER MATERIALS.
4. PERFORM PREPARATION AND CLEANING PROCEDURE IN STRICT ACCORDANCE WITH COATING MANUFACTURER'S INSTRUCTIONS FOR EACH SUBSTRATE CONDITION.
5. CORRECT DEFECTS AND CLEAN SURFACES WHICH AFFECT WORK OF THIS SECTION. REMOVE EXISTING COATINGS THAT EXHIBIT LOOSE SURFACE DEFECTS.
6. IMPERVIOUS SURFACE: REMOVE MILDEW BY SCRUBBING WITH SOLUTION OF TRI–SODIUM PHOSPHATE AND BLEACH. RINSE WITH CLEAN WATER AND ALLOW SURFACE TO DRY.
7. ALUMINUM SURFACE SCHEDULED FOR PAINT FINISH: REMOVE SURFACE CONTAMINATION BY STEAM OR HIGH–PRESSURE WATER. REMOVE OXIDATION WITH ACID ETCH AND SOLVENT WASHING. APPLY ETCHING PRIMER IMMEDIATELY FOLLOWING CLEANING.
8. FERROUS METALS: CLEAN UNGALVANIZED FERROUS METAL SURFACES THAT HAVE NOT BEEN SHOP COATED; REMOVE OIL, GREASE, DIRT, LOOSE MILL SCALE, AND OTHER FOREIGN SUBSTANCES. USE SOLVENT OR MECHANICAL CLEANING METHODS THAT COMPLY WITH THE STEEL STRUCTURES PAINTING COUNCIL'S (SSPC) RECOMMENDATIONS. TOUCH UP BARE AREAS AND SHOP APPLIED PRIME COATS THAT HAVE BEEN DAMAGED. WIRE BRUSH, CLEAN WITH SOLVENTS RECOMMENDED BY PAINT MANUFACTURER, AND TOUCH UP WITH THE SAME PRIMER AS THE SHOP COAT.
9. GALVANIZED SURFACES: CLEAN GALVANIZED SURFACES WITH NON–PETROLEUM–BASED SOLVENTS SO SURFACE IS FREE OF OIL AND SURFACE CONTAMINANTS. REMOVE PRETREATMENT FROM GALVANIZED SHEET METAL FABRICATED FROM COIL STOCK BY MECHANICAL METHODS.
10. ANTENNA PANELS: REMOVE ALL OIL, DUST, GREASE, DIRT, AND OTHER FOREIGN MATERIAL TO ENSURE ADEQUATE ADHESION. PANELS MUST BE WIPED WITH METHYL ETHYL KETONE (MEK).
11. COAXIAL CABLES: REMOVE ALL OIL, DUST, GREASE. DIRT, AND OTHER FOREIGN MATERIAL TO ENSURE ADEQUATE ADHESION.

CLEANING:

1. COLLECT WASTE MATERIAL, WHICH MAY CONSTITUTE A FIRE HAZARD, PLACE IN CLOSED METAL CONTAINERS AND REMOVE DAILY FROM SITE.

APPLICATION:

1. APPLY PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
2. DO NOT APPLY FINISHES TO SURFACES THAT ARE NOT DRY.
3. APPLY EACH COAT TO UNIFORM FINISH.
4. APPLY EACH COAT OF PAINT SLIGHTLY DARKER THAN PRECEDING COAT UNLESS OTHERWISE APPROVED.
5. SAND METAL LIGHTLY BETWEEN COATS TO ACHIEVE REQUIRED FINISH.
6. VACUUM CLEAN SURFACES FREE OF LOOSE PARTICLES. USE TACK CLOTH JUST PRIOR TO APPLYING NEXT COAT.
7. ALLOW APPLIED COAT TO DRY BEFORE NEXT COAT IS APPLIED.

COMPLETED WORK:

1. SAMPLES: PREPARE 24" X 24" SAMPLE AREA FOR REVIEW.
2. MATCH APPROVED SAMPLES FOR COLOR, TEXTURE AND COVERAGE. REMOVE REFINISH OR REPAINT WORK NOT IN COMPLIANCE WITH SPECIFIED REQUIREMENTS.

ANTENNA SCHEDULE

SECTOR	EXISTING/PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA ℄ HEIGHT	AZIMUTH	(E/P) TMA/DIPLEXER/TRIPLEXER (QTY)	(E/P) RRU (QTY)	FEEDER/LENGTH (QTY)	(E/P) RAYCAP (QTY)
A1	EXISTING	UMTS 850	POWERWAVE (7770)	55 x 11 x 5	130'	30°	(E) POWERWAVE: TMA: LGP21401 (2) | (E) POWERWAVE: DIPLEXER: LGP 21901 (2)		ANDREW: 1–1/4⌀ COAX (2) LENGTH: ±170	
A2	EXISTING	LTE 1900	POWERWAVE (P65–16–XLH–RR)	72 x 12 x 6	130'	30°	(P) KAELUS: DIPLEXER: DBC0061F1V51–2 (1)	(E) RRUS–12 (1)	ANDREW: 1–1/4⌀ COAX (2) LENGTH: ±170	(E) RAYCAP DC6–48–60–18–8C (1)
A3	PROPOSED	LTE 700/850/AWS/5G 850	KATHRIEN (800–10965)	78.7 x 20 x 6.9	130'	30°	(P) KAELUS: DIPLEXER: DBCT108F1V92–1 (2)	(P) B14 4478 (1), (P) 4478 B5 (1), (P) 4426 B66 (1)	FEEDER AND DC POWER	(P) RAYCAP DC6–48–60–18–8C–EV (1)
A4	PROPOSED	LTE 700/WCS	CCI (HPA–65R–BUU–H6)	72 x 14.8 x 9	130'	30°		(E) RRUS–11 (REUSE ONLY) (1), (P) RRUS–32 (1)	FEEDER AND DC POWER	(P) RAYCAP DC6–48–60–0–8C–EV (1)
B1	EXISTING	UMTS 850	POWERWAVE (7770)	55 x 11 x 5	130'	150°	(E) POWERWAVE: TMA: LGP21401 (2) | (E) POWERWAVE: DIPLEXER: LGP 21901 (2)		ANDREW: 1–1/4⌀ COAX (2) LENGTH: ±170	
B2	EXISTING	LTE 1900	POWERWAVE (P65–16–XLH–RR)	72 x 12 x 6	130'	150°	(P) KAELUS: DIPLEXER: DBC0061F1V51–2 (1)	(E) RRUS–12 (1)	ANDREW: 1–1/4⌀ COAX (2) LENGTH: ±170	
B3	PROPOSED	LTE 700/850/AWS/5G 850	KATHRIEN (800–10965)	78.7 x 20 x 6.9	130'	150°	(P) KAELUS: DIPLEXER: DBCT108F1V92–1 (2)	(P) B14 4478 (1), (P) 4478 B5 (1), (P) 4426 B66 (1)	FEEDER AND DC POWER	
B4	PROPOSED	LTE 700/WCS	CCI (HPA–65R–BUU–H6)	72 x 14.8 x 9	130'	150°		(E) RRUS–11 (REUSE ONLY) (1), (P) RRUS–32 (1)	FEEDER AND DC POWER	
C1	EXISTING	UMTS 850	POWERWAVE (7770)	55 x 11 x 5	130'	270°	(E) POWERWAVE: TMA: LGP21401 (2) | (E) POWERWAVE: DIPLEXER: LGP 21901 (2)		ANDREW: 1–1/4⌀ COAX (2) LENGTH: ±170	
C2	EXISTING	LTE 1900	POWERWAVE (P65–16–XLH–RR)	72 x 12 x 6	130'	270°	(P) KAELUS: DIPLEXER: DBC0061F1V51–2 (1)	(E) RRUS–12 (1)	ANDREW: 1–1/4⌀ COAX (2) LENGTH: ±170	
C3	PROPOSED	LTE 700/850/AWS/5G 850	KATHRIEN (800–10965)	78.7 x 20 x 6.9	130'	270°	(P) KAELUS: DIPLEXER: DBCT108F1V92–1 (2)	(P) B14 4478 (1), (P) 4478 B5 (1), (P) 4426 B66 (1)	FEEDER AND DC POWER	
C4	PROPOSED	LTE 700/WCS	CCI (HPA–65R–BUU–H6)	72 x 14.8 x 9	130'	270°		(E) RRUS–11 (REUSE ONLY) (1), (P) RRUS–32 (1)	FEEDER AND DC POWER	

RRU	SIZE (INCHES) (L x W x D)
RRUS–11	19.7 x 17 x 7.2
RRUS–12	20.4 x 18.5 x 7.5
RRUS–32	27.2 x 12.1 x 7
B14 4478	14.9 x 13.1 x 7.3
4478 B5	16.5 x 13.4 x 7.7
4426 B66	15.0 x 13.2 x 5.8

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	10/11/18	DMD	CAG	CONSTRUCTION DRAWINGS – ISSUED FOR CONSTRUCTION

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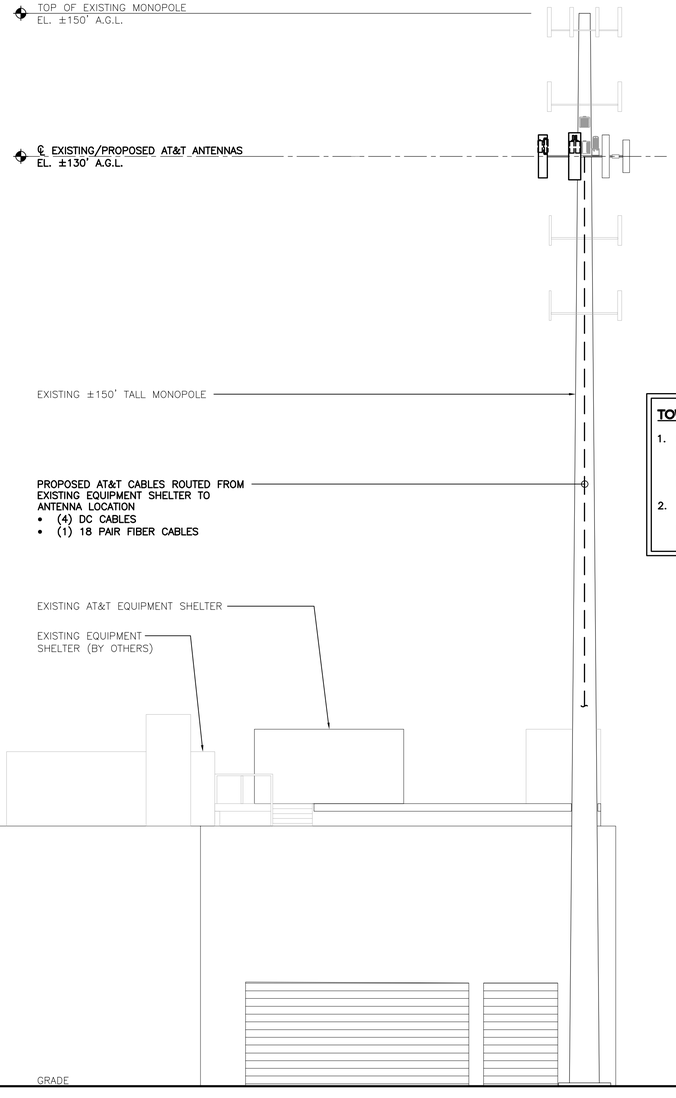
DATE: 08/27/18
SCALE: AS NOTED
JOB NO. 18000.61

NOTES, SPECIFICATIONS & ANTENNA SCHEDULE

N–1

Sheet No. 2 of 8

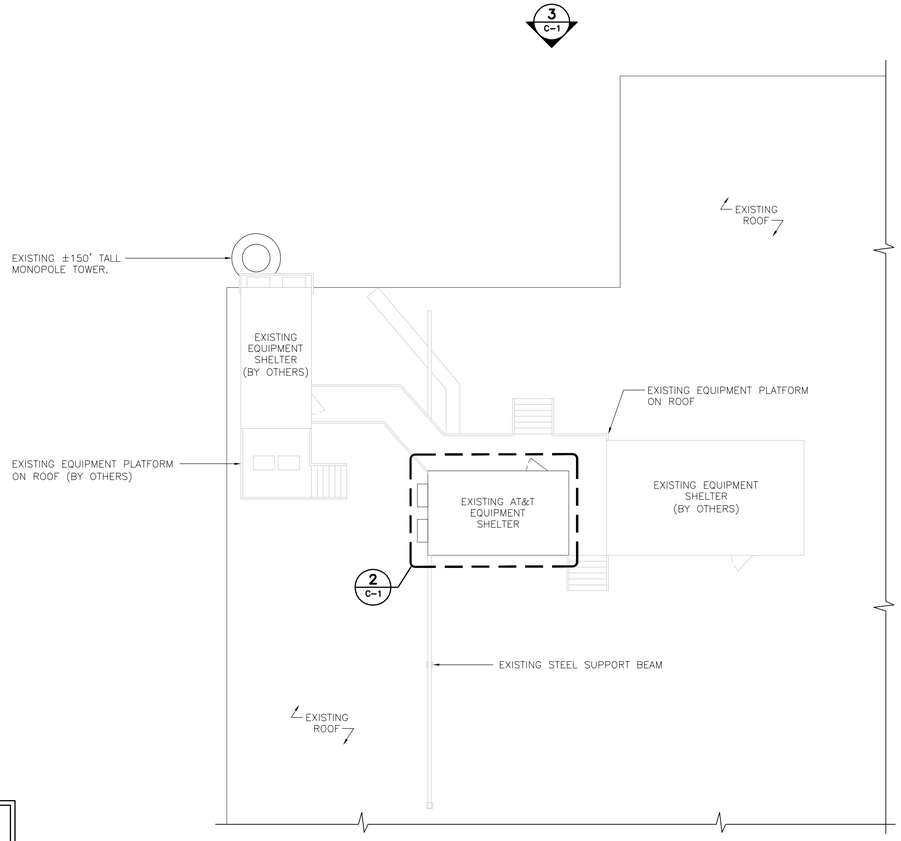


3 C-1 **PARTIAL NORTHWEST ELEVATION - PROPOSED**
SCALE: 1" = 10'

GRAPHIC SCALE
10 0 5 10 20 40
(IN FEET)
1 inch = 10 ft.

TOWER STRUCTURAL NOTES:

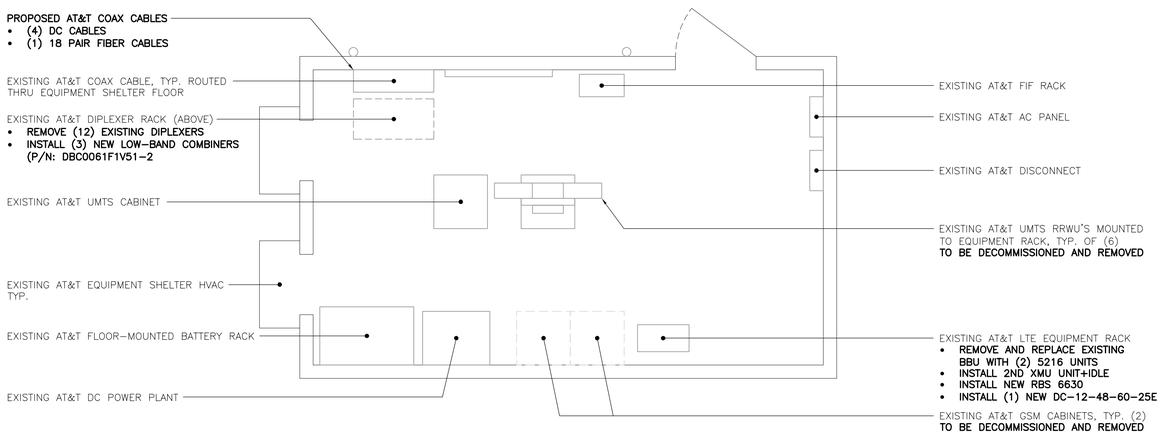
1. REFER TO STRUCTURAL ANALYSIS REPORT PREPARED BY CENTEK ENGINEERING, INC., PROJ. NO. 18000.61, DATED OCTOBER 8, 2018 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. ALL ANTENNAS AND COAX TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY CENTEK ENGINEERING AND FINAL AT&T RF DATA SHEET.



1 C-1 **PARTIAL ROOF/SITE PLAN**
SCALE: 1" = 5'-0"

TRUE NORTH

GRAPHIC SCALE
5 0 2.5 5 10 20
(IN FEET)
1 inch = 5 ft.



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

TRUE NORTH

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
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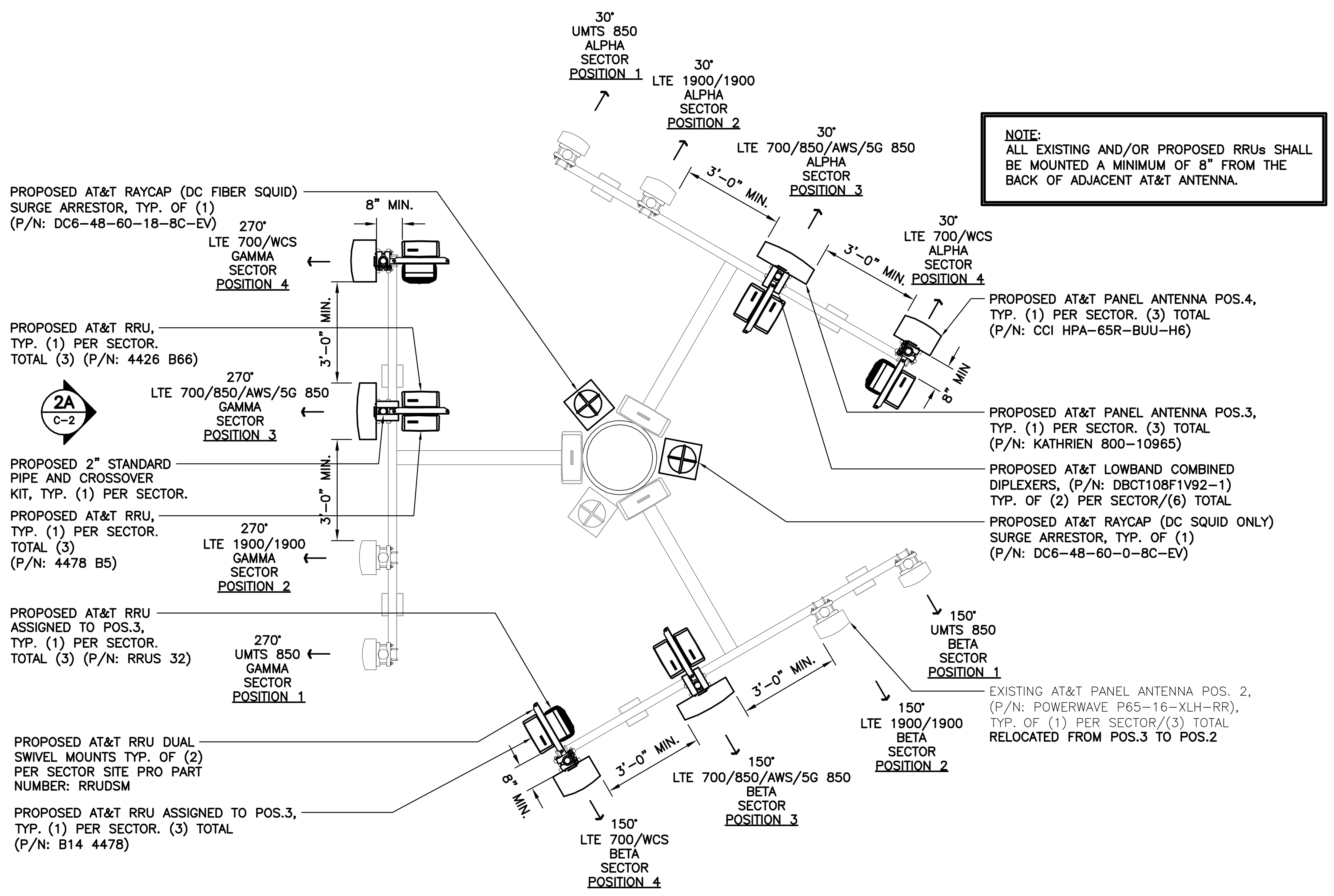
DATE: 08/27/18
SCALE: AS NOTED
JOB NO. 18000.61

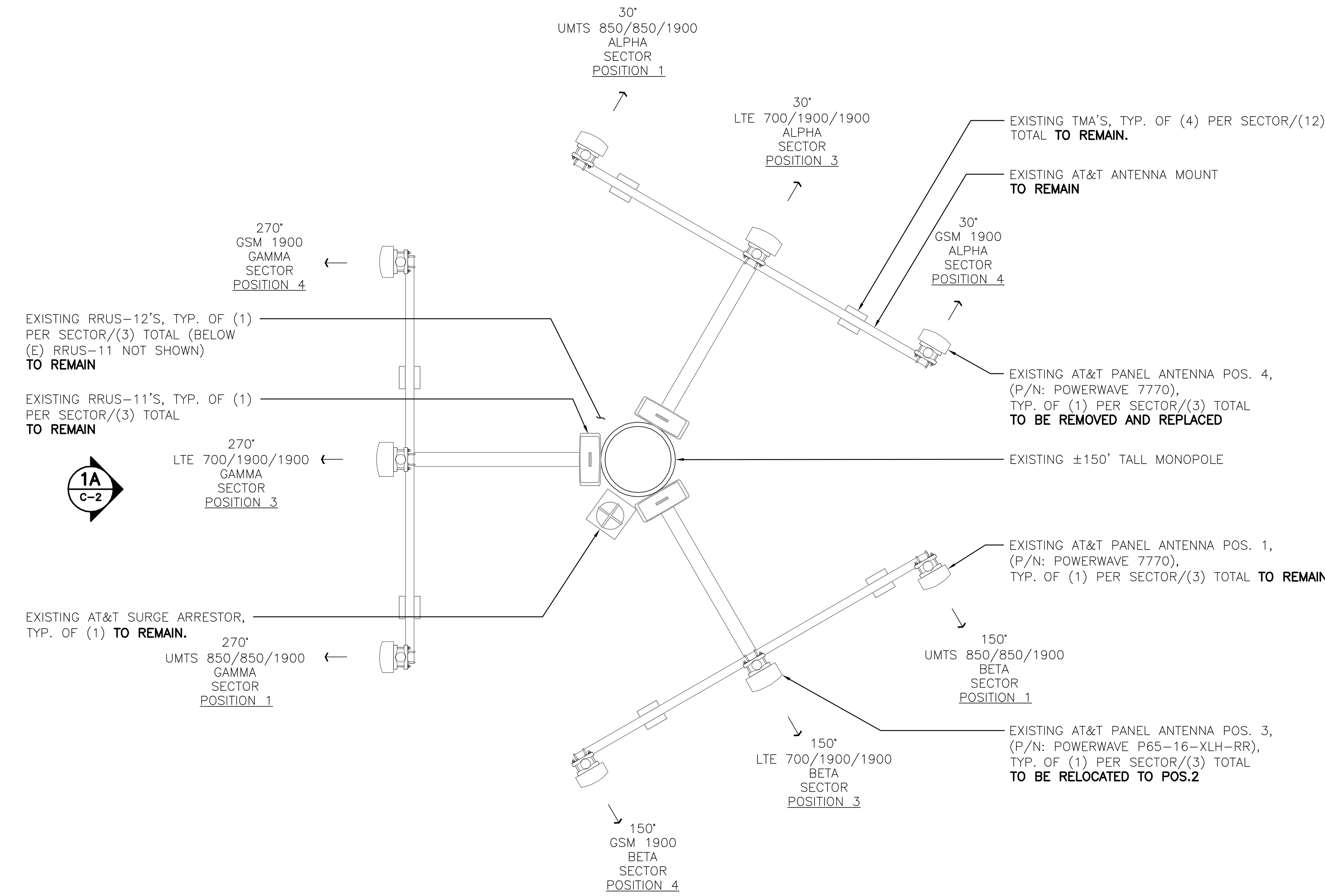
PLANS AND ELEVATION

C-1

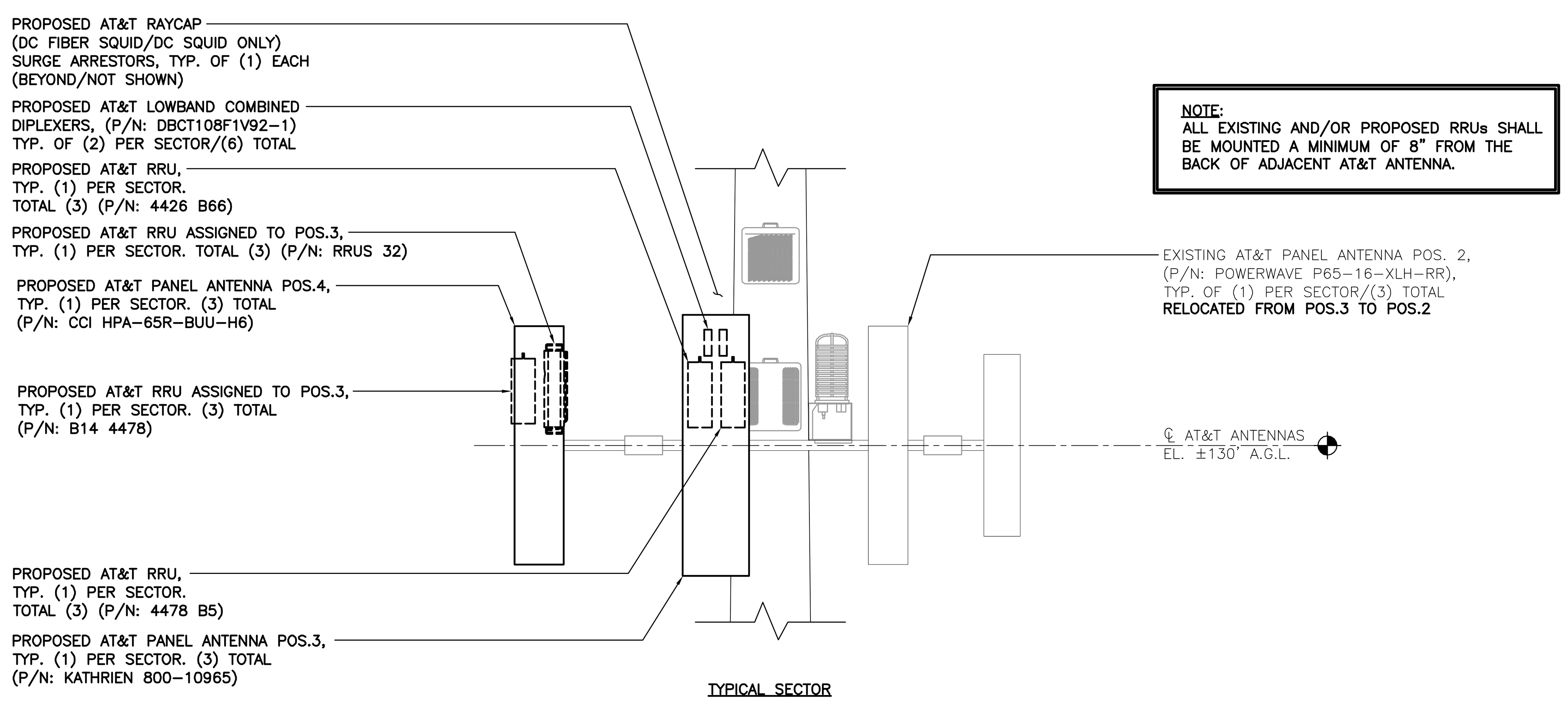
Sheet No. 3 of 8



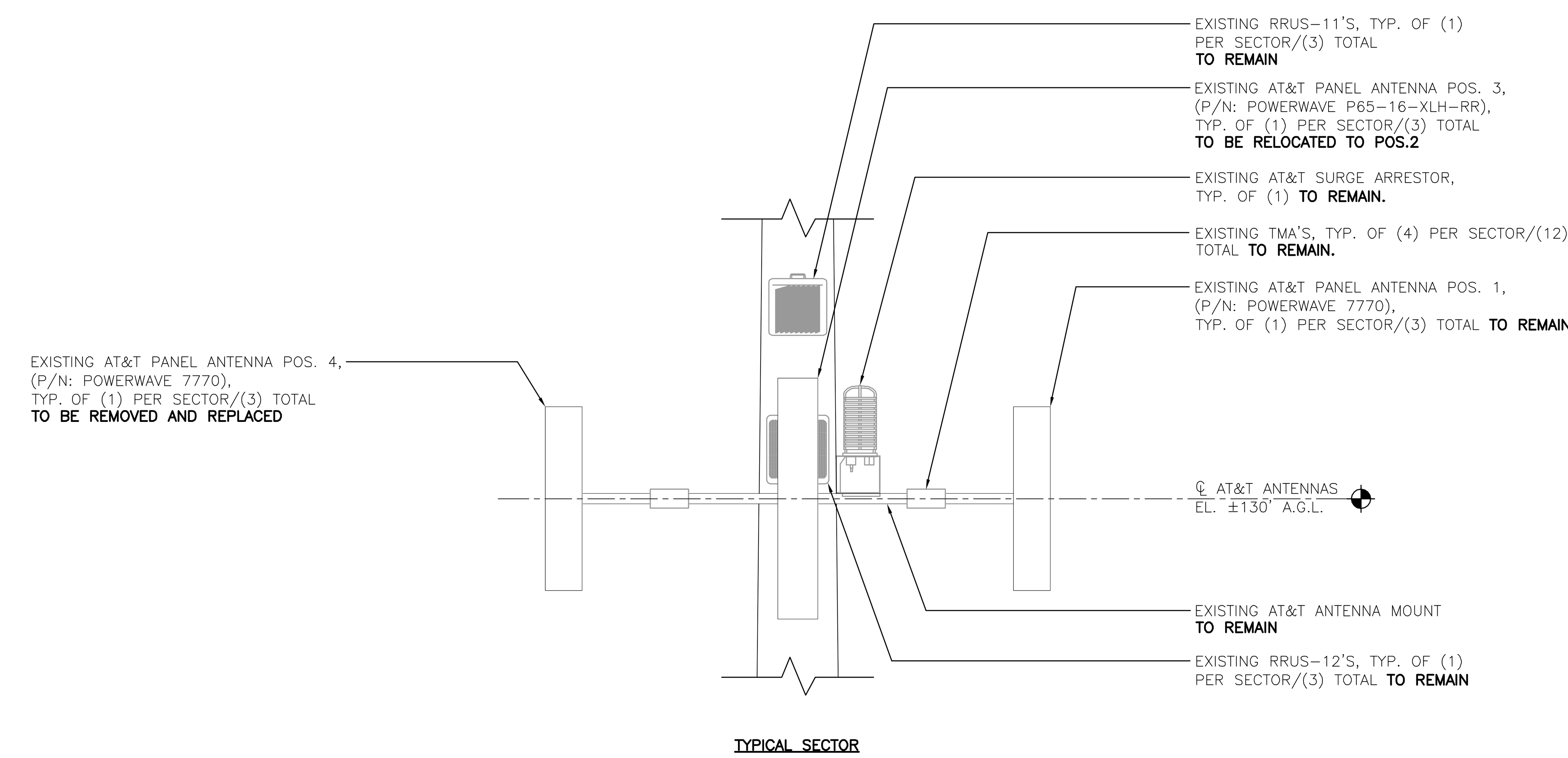
2 / C-2 **PROPOSED ANTENNA PLAN**
SCALE: 3/8" = 1'-0"
TRUE NORTH



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



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



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

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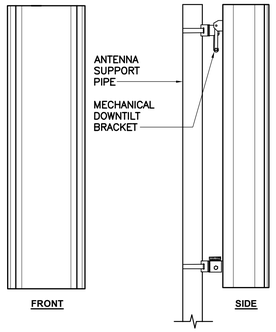
ANTENNA CONFIGURATION DETAILS

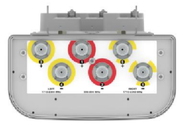
C-2

Sheet No. 4 of 8

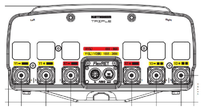


FRONT

SIDE



CCI BOTTOM

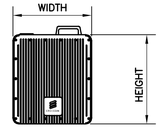


KATHREIN BOTTOM

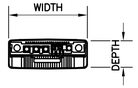
ALPHA/BETA/GAMMA ANTENNA		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: KATHREIN MODEL: 800-10965	78.7"L x 20"W x 6.9"D	108.6 LBS.
MAKE: CCI MODEL: HPA-65R-BUU-H6	72"L x 14.8"W x 9"D	51 LBS.

1 C-3 PROPOSED ANTENNA DETAIL

SCALE: NTS



FRONT VIEW



BOTTOM VIEW

RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERICSSON MODEL: 4426 B66	15.0"L x 13.2"W x 5.8"D	48.5 LBS.	ABOVE: 16" MIN. BELOW: 12" MIN. FRONT: 36" MIN.

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

2 C-3 ERICSSON 4426 B66 DETAIL

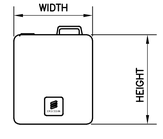
SCALE: 1" = 1'-0"

RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERICSSON MODEL: 4478 B5	16.5"L x 13.4"W x 7.7"D	59.9 LBS.	ABOVE: 16" MIN. BELOW: 12" MIN. FRONT: 36" MIN.

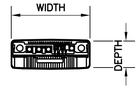
NOTES:
1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.

3 C-3 ERICSSON 4478 B5 DETAIL

NOT TO SCALE



FRONT VIEW



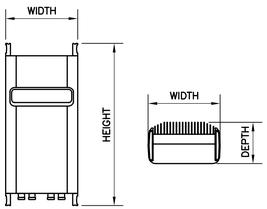
BOTTOM VIEW

RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERICSSON MODEL: B14 4478	14.9"L x 13.1"W x 7.3"D	60 LBS.	ABOVE: 16" MIN. BELOW: 12" MIN. FRONT: 36" MIN.

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

4 C-3 ERICSSON B14 4478 DETAIL

SCALE: 1" = 1'-0"



FRONT VIEW

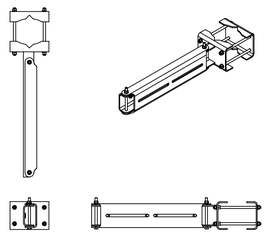
TOP VIEW

RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERICSSON MODEL: RRUS-32	27.17"H x 12.05"W x 7.01"D	52.91 LBS.	ABOVE: 16" MIN. BELOW: 12" MIN. FRONT: 36" MIN.

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

5 C-3 ERICSSON RRUS 32 DETAIL

SCALE: 1" = 1'-0"



RRU DUAL SWIVEL MOUNT		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: SITE PRO 1 PART NO.: RRUDSM	27.75"L x 6.5"W x 4.7"D	39.4 LBS.

7 C-3 RRH DUAL SWIVEL MOUNT DETAIL

NOT TO SCALE

DIPLEXER

DIPLEXER 600-700/850		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: KAELUS MODEL: DBCT108F1V92-1	10.71"H x 6.77"W x 3.52"D	13.9 LBS.

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

6 C-3 KAELUS DBC0061F1V51-2 DETAIL

SCALE: NOT TO SCALE

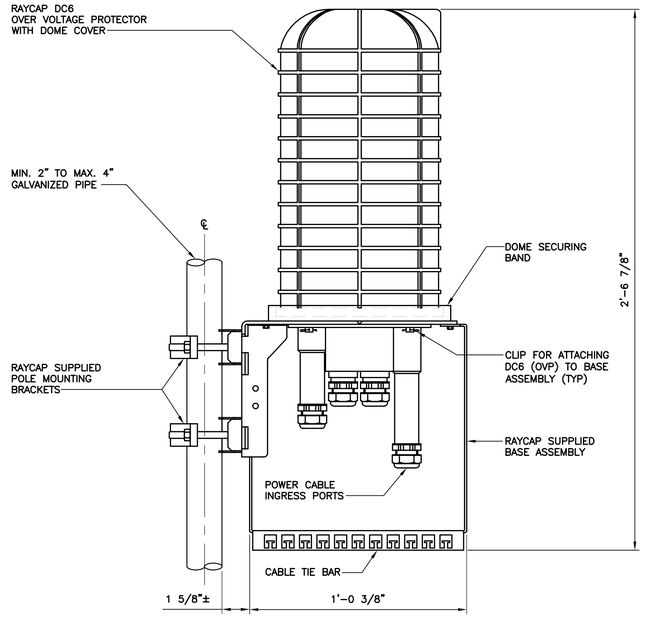
LOW BAND COMBINER

DIPLEXER 700/850		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: KAELUS MODEL: DBC0061F1V51-2	8"H x 6.45"W x 6.2"D	18.3 LBS.

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

8 C-3 KAELUS DBC0061F1V51-2 DETAIL

NOT TO SCALE



SITE TYPE	ARRESTOR MAKE/MODEL	QTY REQUIRED	ARRESTOR LOCATION	WEIGHT
	MAKE: RAYCAP (SQUID ONLY) MODEL: DC6-48-60-0-8C-EV	(1) PER SITE	ADJACENT TO AT&T RRUs.	20 LBS. (WITHOUT MOUNT)
	MAKE: RAYCAP (DC/FIBER SQUID) MODEL: DC6-48-60-18-8C-EV	(1) PER SITE	ADJACENT TO AT&T RRUs.	20 LBS. (WITHOUT MOUNT)

NOTES:
1. CONTRACTOR TO COORDINATE FINAL SURGE ARRESTOR MODEL SELECTION(S) WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.
2. CONTRACTOR TO INSTALL ARRESTOR IN CONFORMANCE WITH MANUFACTURERS RECOMMENDATIONS.
3. RAYCAP VIA AT&T SUPPLIES THE DC6 OVER VOLTAGE PROTECTOR AND PIPE MOUNTING BRACKETS. SUBCONTRACTOR SHALL SUPPLY THE PIPE.

9 C-3 TYPICAL SURGE PROTECTION DETAILS

NOT TO SCALE

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FAIRFIELD, CT 06824

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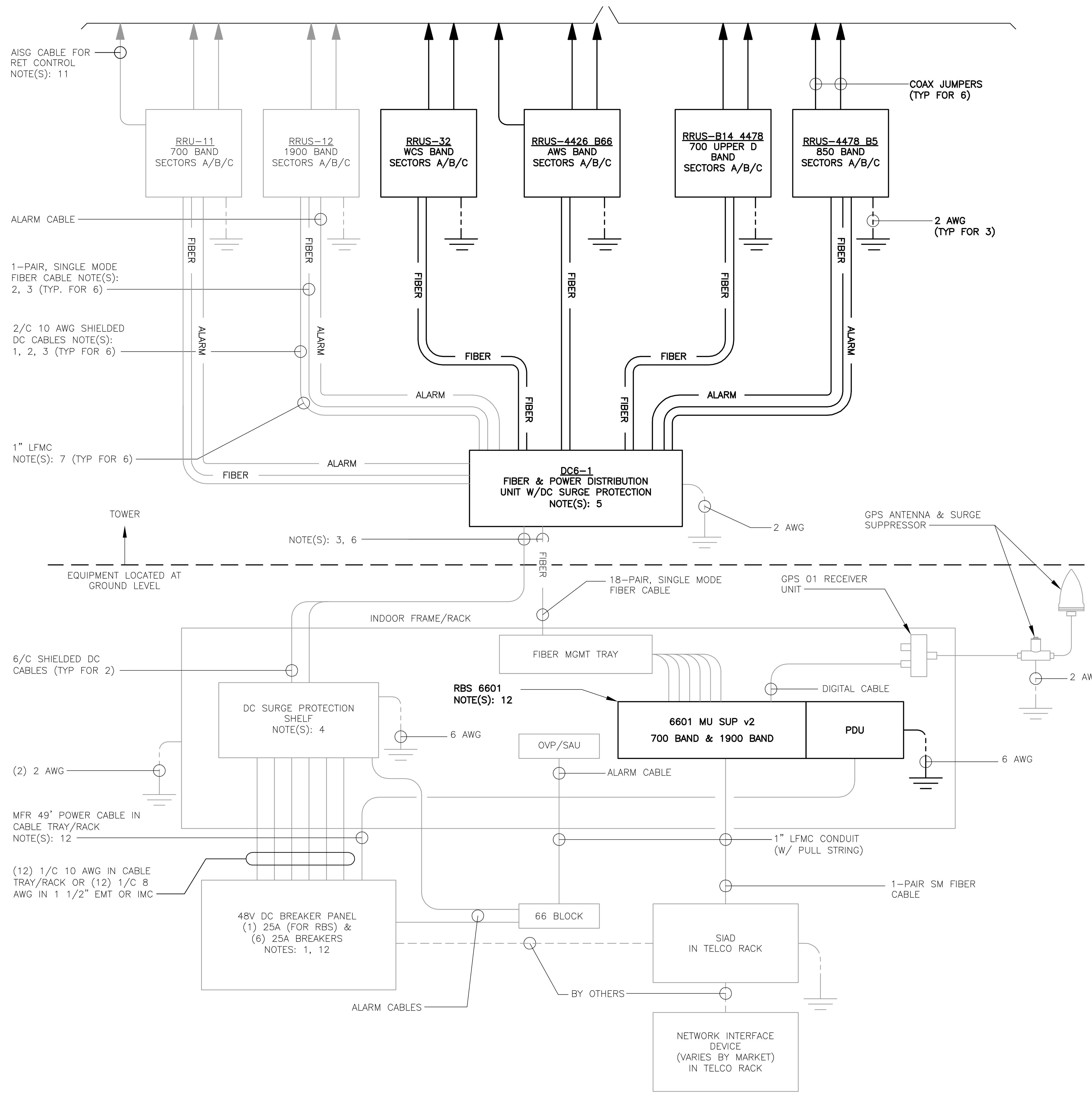
JOB NO. 18000.61

DETAILS

C-3

Sheet No. 5 of 8



1 / E-1 **SCHEMATIC DIAGRAM**

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.
6. SUPPORT FIBER & DC POWER CABLES WITH SNAP-IN HANGERS SPACED NO GREATER THAN 3 FEET APART ON TOWER. SUPPORT FIBER AND DC POWER CABLES INSIDE MONOPOLE WITH CABLE HOISTING GRIPS AT 250 FT MAXIMUM INTERVALS. DRESS CABLES TO PREVENT CONTACT WITH ENTRANCE AND EXIT OPENINGS.
7. CONDUIT TO BE USED ON A TOWER IF THE RRU IS MORE THAN 10' FROM THE DISTRIBUTION UNITS. MAX CABLE LENGTH IS 16 FEET.
8. 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.
9. GROUNDING WIRES SHALL BE COPPER, GREEN THHN/THWN UL LISTED FOR 90°C DRY/75°C WET INSTALLATION. MINIMUM SIZE IS 6 AWG UNLESS NOTED OTHERWISE.
10. FIBER OPTIC CABLES SHALL BE INSTALLED IN FLEXIBLE CONDUIT AS SCOPED BY MARKET.
11. RET CONTROL FROM THE RRU IS AN OPTIONAL METHOD OF CONNECTION. REFER TO RF DATA SHEET FOR APPLICABILITY.
12. RBS 6601 VARIANT 2 REQUIRES A 25A BREAKER AND 10 AWG (MIN.) CONDUCTORS. REPLACE EXISTING 15A OR 20A BREAKERS AND 12 AWG CONDUCTORS WHEN UPGRADING AN EXISTING RBS 6601 VARIANT 1.

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 ELECTRIC 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.

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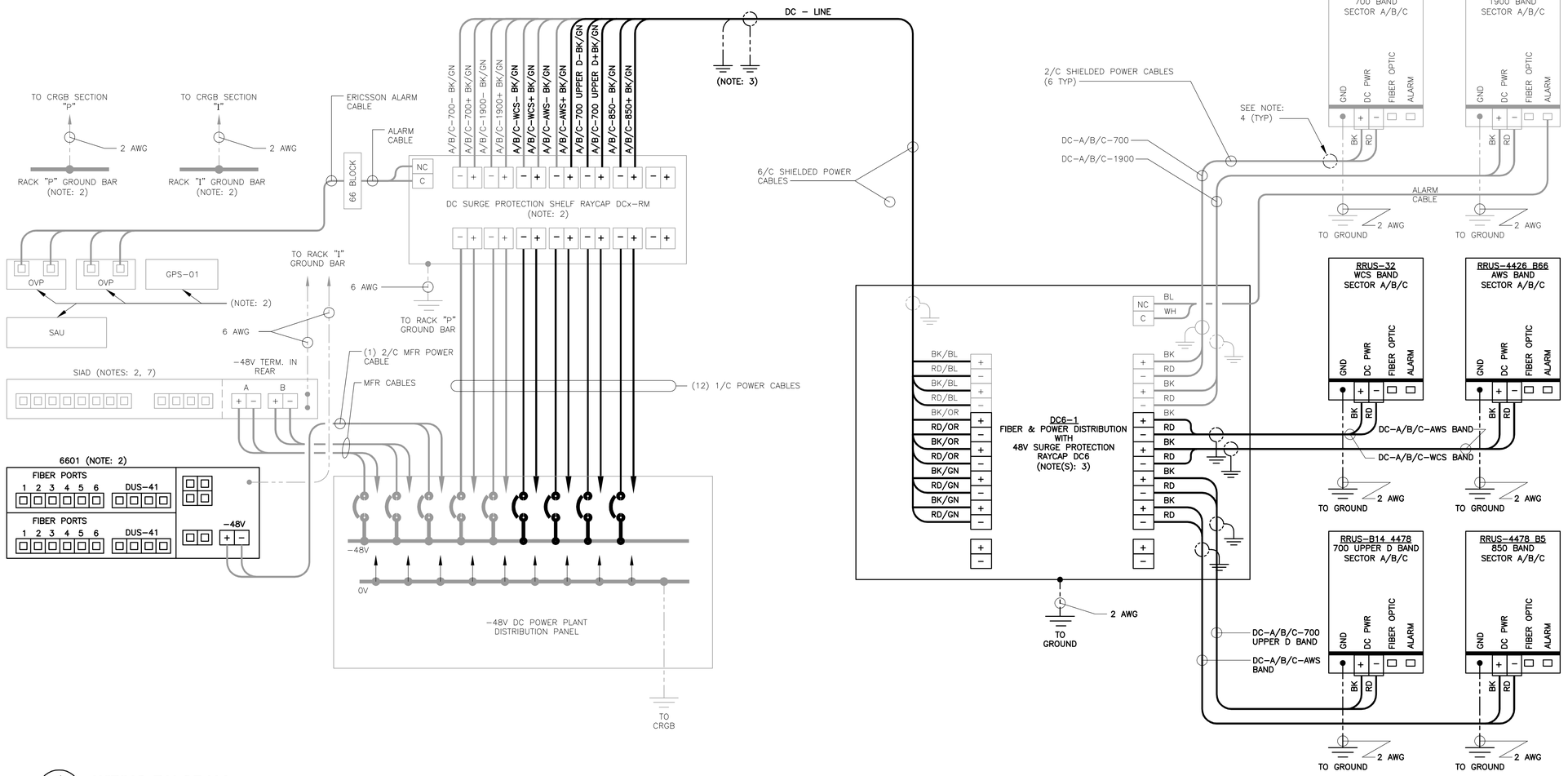
DATE: 08/27/18
SCALE: AS NOTED
JOB NO. 18000.61

SCHEMATIC DIAGRAM AND NOTES

E-1

Sheet No. 6 of 8



1 / E-2 WIRING DIAGRAM

NOT TO SCALE

LTE 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-1900+". CABLE AND WIRE LABELS SHOWN ARE REPRESENTATIVE AND MAY BE MODIFIED AS DIRECTED BY AT&T.
2. INSTALL ON BASEBAND EQUIPMENT RACK.
3. THE BARE GROUND WIRE OF EACH MULTI-CONDUCTOR CABLE SHALL BE CONNECTED TO THE "P" GROUND BAR ON THE RACK. WHEN A SHIELDED CABLE IS USED, THE DRAIN WIRE ALSO SHALL BE CONNECTED TO THE "P" GROUND BAR.
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.

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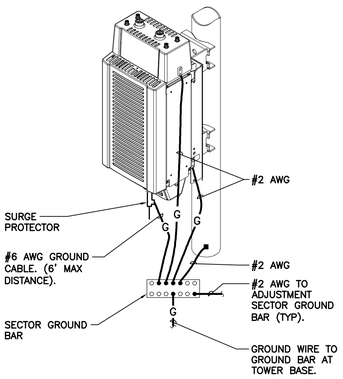
WIRING DIAGRAM

E-2

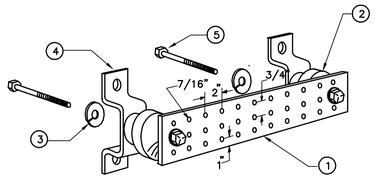
Sheet No. 7 of 8

EACH RRH CABINET SHALL BE GROUNDED IN THE FOLLOWING MANNER:

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



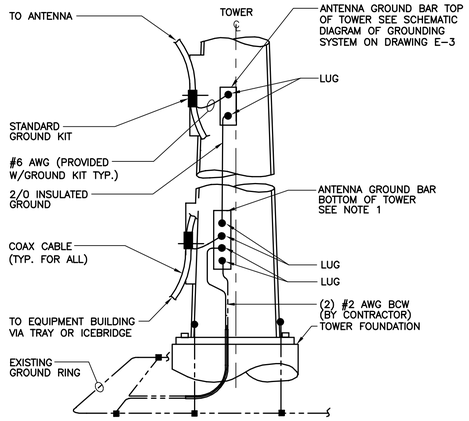
4 E-3 **RRU POLE MOUNT GROUNDING**
NOT TO SCALE



LEGEND

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

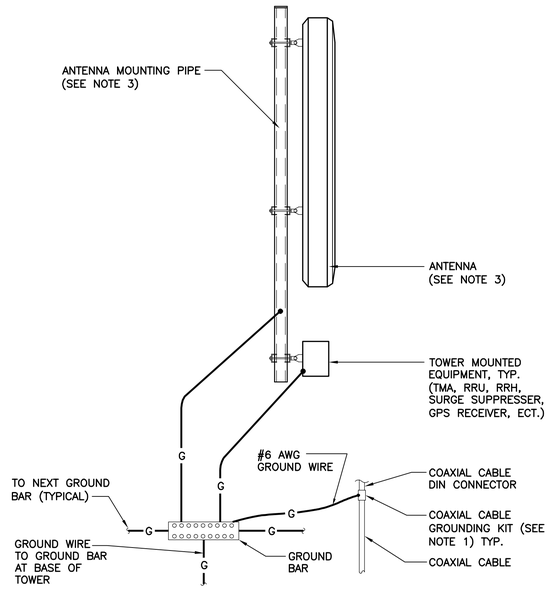
3 E-3 **GROUND BAR DETAIL**
NOT TO SCALE



NOTES:

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

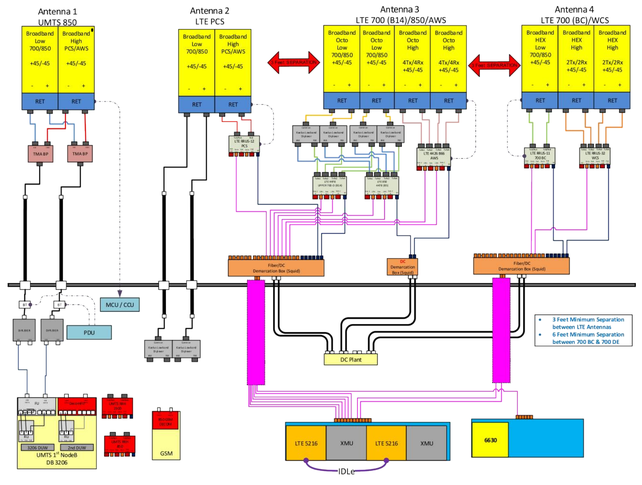
2 E-3 **ANTENNA CABLE GROUNDING - TOWER**
NOT TO SCALE



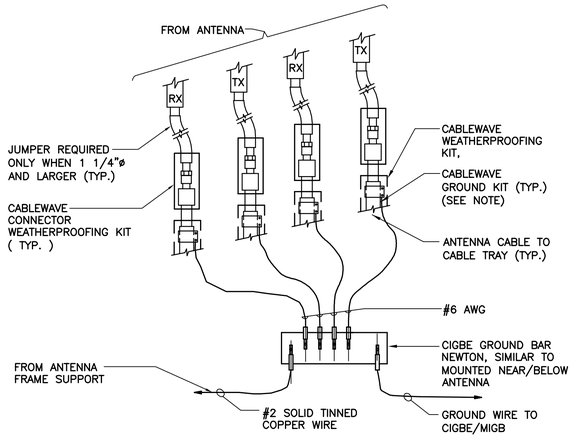
NOTES:

1. BOND COAXIAL CABLE GROUND KITS TO EACH OWNER'S GROUND BAR ALONG ENTIRE COAX RUN FROM ANTENNA TO SHELTER.
2. BOND ALL EQUIPMENT TO GROUND PER NEC AND MANUFACTURERS SPECIFICATIONS.
3. DETAIL IS TYPICAL FOR ALL ANTENNA SECTORS, INCLUDING GPS ANTENNA.

1 E-3 **TYPICAL ANTENNA GROUNDING DETAIL**
NOT TO SCALE



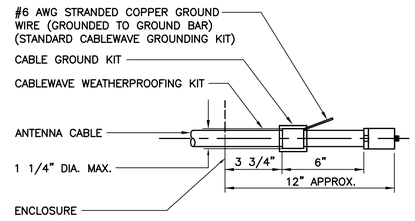
5 E-3 **RF PLUMBING DIAGRAM**
NOT TO SCALE



NOTE:

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

6 E-3 **CONNECTION OF GROUND WIRES TO GROUND BAR**
NOT TO SCALE



NOTE:

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

5 E-3 **ANTENNA CABLE GROUNDING DETAIL**
NOT TO SCALE

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TYPICAL ELECTRICAL DETAILS

E-3
Sheet No. 8 of 8

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Structural Analysis Report

Tower Analysis

AT&T Site #: CT5022

AT&T Site Name: Fairfield

Project: LTE 3C/4C/5C/6C

PACE #: MRCTB031119/ MRCTB031921/ MRCTB031461/MRCTB031662

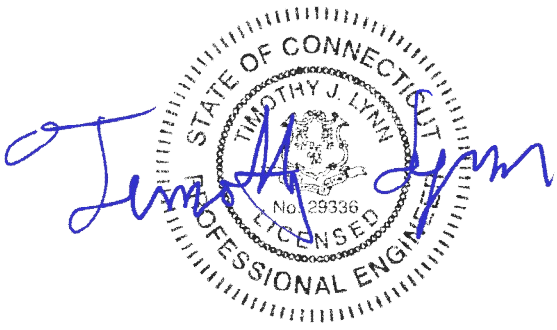
PT #: 2051A0GHC4/ 2051A0GK3V/ 2051A0GGV3/2051A0GJXG

FA #: 10108711

100 Reef Road
Fairfield, CT 06824

Centek Project No. 18000.61

Date: October 8, 2018



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 summarize the results of the non-linear, P-Δ structural analysis of the antenna upgrade proposed by AT&T Mobility on the existing monopole (tower) located in Fairfield, Connecticut.

The host tower is a 145-ft tall, three-section, eighteen sided, tapered monopole, originally designed and manufactured by Valmont Industries, Inc; order no. 11635-94 dated May 19, 1994. The tower geometry, structure member sizes and foundation system information were obtained from the original manufacturers design documents. The tower was reinforced per a previous structural analysis report prepared by KMB Design Group job no. 332.1475 dated February 26, 2014.

Antenna and appurtenance information were obtained from a previous structural analysis report prepared by Destek job no. 1629043 dated October 17, 2016 and a AT&T RF data sheet.

The tower is made up of three (3) tapered vertical sections consisting of A572-65 pole sections. The vertical tower sections are slip joint connected. The diameter of the pole (flat-flat) is 23.61-in at the top and 48.69-in at the base.

Antenna and Appurtenance Summary

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

- UNKNOWN (EXISTING):
  Antennas: Two (2) 4-bay dipole antennas and one (1) 12-ft Omni antenna mounted on (3) T-Arms (Nextel) with an elevation of 143-ft above grade level.
  Coax Cables: Three (3) 1-1/4" ∅ coax cables running on the inside of the existing tower.
- NEXTEL (EXISTING):
  Antennas: Nine (9) 5-ft panel antennas mounted on (3) T-Arms with a RAD center elevation of 143-ft above grade level.
  Coax Cables: Twelve (12) 1-1/4" ∅ coax cables running on the inside of the existing tower.
- UNKNOWN (EXISTING):
  Antennas: One (1) 4-bay dipole antenna mounted to one (1) T-Mobile T-Arm.
  Coax Cables: One (1) 7/8" ∅ coax cable running on the inside of the existing tower.
- T-MOBILE (EXISTING):
  Antennas: Six (6) Ericsson AIR21 panel antennas and three (3) TMAs mounted on (3) T-Arms with a RAD center elevation of 135-ft above grade level.
  Coax Cables: Six (6) 1-5/8" ∅ and six (6) 1-1/4" ∅ coax cables running on the exterior of the existing tower
- UNKNOWN (EXISTING):
  Antennas: One (1) 12-ft Omni antenna mounted to one (1) Sprint T-Arm.
  Coax Cables: One (1) 7/8" ∅ coax cable running on the inside of the existing tower.
- SPRINT (EXISTING/RESERVED):

Antennas: Three (3) RFS APXVSPP18-C-A20 panel antennas, three (3) ALU 1900 MHz RRHs and three (3) ALU 800 MHz RRHs mounted to a low profile platform with a RAD center elevation of 110-ft above grade level.
Coax Cables: Four (4) 1-1/4" ∅ Hybriflex cables running on the exterior of the existing tower.

- AT&T (EXISTING TO REMAIN):
  Antennas: Three (3) Powerwave 7770 panel antennas, three (3) Powerwave P65-16-XLH-RR panel antennas, six (6) LGP21401 TMAs, three (3) Ericsson RRUS-11, three (3) Ericsson RRUS-12 and one (1) Raycap DC6-48-60-18-8F surge arrestor mounted on (3) T-Arms with a RAD center elevation of 127-ft above grade level.
  Coax Cables: Twelve (12) 1-5/8" ∅ coax cables, one (1) fiber cables and two (2) dc control cables running on the inside of the existing tower.
- **AT&T (EXISTING TO REMOVE):**
  Antennas: Three (3) Powerwave 7770 panel antennas and six (6) LGP21401 TMAs mounted on (3) T-Arms with a RAD center elevation of 127-ft above grade level.
- **AT&T (PROPOSED):**
  Antennas: Three (3) Kathrein 800-10965 panel antenna, three (3) CCI HPA-65R-BUU-H6 panel antennas, six (6) Kaelus DBCT108F1V92-1 diplexers, three (3) Ericsson RRUS-32 remote radio heads, six (6) Ericsson 4478 remote radio heads, three (3) Ericsson 4426 B66 remote radio heads, one (1) DC/Fiber squid and one (1) DC squid mounted on (3) T-Arms with a RAD center elevation of 127-ft above grade level.
  Coax Cables: One (1) fiber cable and four (4) dc control cables running on the exterior of the existing tower.

Primary Assumptions Used in the Analysis

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

Analysis

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

The existing tower was analyzed for the controlling basic wind speed (3-second gust) with no ice and the applicable wind and ice combination to determine stresses in members as per guidelines of TIA-222-G-2005 entitled "Structural Standard for Antenna Support Structures and Antennas", the American Institute of Steel Construction (AISC) and the Manual of Steel Construction; Load and Resistance Factor Design (LRFD).

The controlling wind speed is determined by evaluating the local available wind speed data as provided in Appendix N of the CSBC[1] and the wind speed data available in the TIA-222-G-2005 Standard.

Tower Loading

Tower loading was determined by the basic wind speed as applied to projected surface areas with modification factors per TIA-222-G-2005, gravity loads of the tower structure and its components, and the application of 0.75" radial ice on the tower structure and its components.

Basic Wind Speed:	Fairfield County; v = 90-110 mph	*[Annex B of TIA-222-G-2005]*
	Manchester; v = 97 mph	*[Appendix N of the 2016 CT Building Code]*
Load Cases:	Load Case 1; 97 mph wind speed w/ no ice plus gravity load – used in calculation of tower stresses and rotation.	*[Appendix N of the 2016 CT Building Code]*
	Load Case 2; 50 mph wind speed w/ 0.75" radial ice plus gravity load – used in calculation of tower stresses.	*[Annex B of TIA-222-G-2005]*

[1] The 2012 International Building Code as amended by the 2016 Connecticut State Building Code (CSBC).

Tower Capacity

- Calculated stresses were found to be within allowable limits. This tower was found to be at **79.3%** of its total capacity.

Tower Section	Elevation	Stress Ratio (percentage of capacity)	Result
Pole Shaft (L2)	59.08'-90.83'	79.3%	**PASS**

Foundation and Anchors

The existing foundation consists of a 6.5 ∅ x 25.0-ft long reinforced concrete caisson. The sub-grade conditions used in the analysis of the existing foundation were obtained from the aforementioned structural report. The base of the tower is connected to the foundation by means of (16) 2.25"∅, ASTM A615-75 anchor bolts embedded into the concrete foundation structure.

- The tower base reactions developed from the governing Load Case were used in the verification of the foundation and its anchors:

Location	Vector	Proposed Reactions
Base	Shear	46 kips
	Compression	49 kips
	Moment	4451 kip-ft

- The foundation was found to be within allowable limits.

Foundation	Design Limit	Proposed Loading	Result
Reinforced Concrete Caisson	Moment Capacity	62.1%	**PASS**
	Lateral Deflection	0.58 in.	**PASS**

- The anchor bolts and base plate were found to be within allowable limits.

Tower Component	Design Limit	Stress Ratio (percentage of capacity)	Result
Anchor Bolts	Tension	75.7%	**PASS**
Base Plate	Bending	73.4%	**PASS**

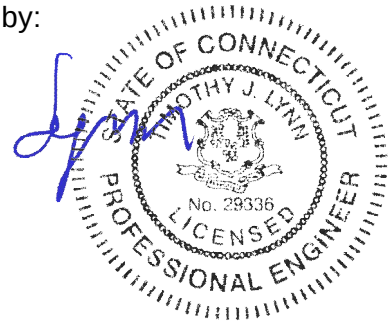
C o n c l u s i o n

This analysis shows that the subject tower **is adequate** to support the proposed modified antenna configuration.

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

Please feel free to call with any questions or comments.

Respectfully Submitted by:



Timothy J. Lynn, PE
Structural Engineer

Standard Conditions for Furnishing of Professional Engineering Services on Existing Structures

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

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

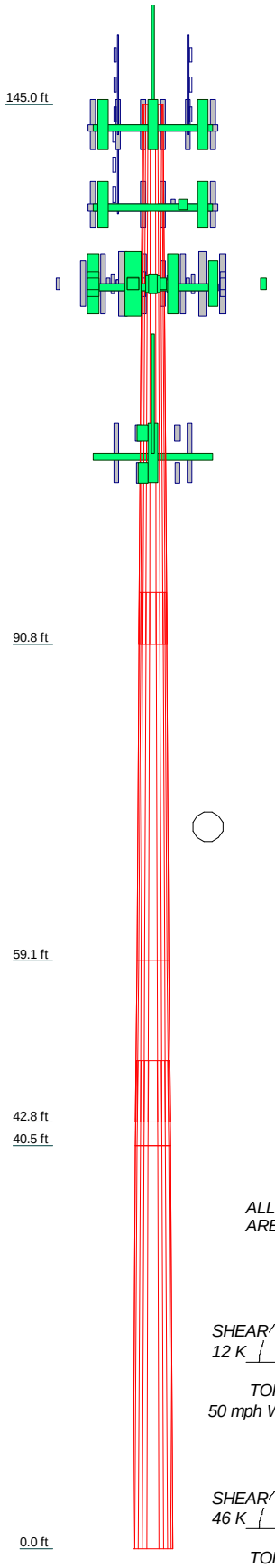
GENERAL DESCRIPTION OF STRUCTURAL ANALYSIS PROGRAM

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

tnxTower Features:

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

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	54.170	12	0.281	5.170	23.610	33.480	A572-65	4.7
2	36.920	12	0.375		31.976	38.686		5.3
3	16.250	12	0.481	6.170	38.686	41.640	53ksi	3.4
4	8.500	12	0.542		39.557	41.316		2.0
5	40.500	12	0.622		41.316	48.690	54ksi 57ksi	12.3
								27.7



ALL REACTIONS ARE FACTORED

AXIAL 80 K

SHEAR 12 K *MOMENT 1188 kip-ft*

TORQUE 0 kip-ft
50 mph WIND - 0.750 in ICE

AXIAL 49 K

SHEAR 46 K *MOMENT 4451 kip-ft*

TORQUE 1 kip-ft
REACTIONS - 97 mph WIND

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod 3/4"x8'	143	HPA-65R-BUU-H6 (ATI - Proposed)	127
10' Dipole	143	RRUS-32 (ATI - Proposed)	127
10' Dipole	143	RRUS-32 (ATI - Proposed)	127
12' x 3" Dia Omni	143	RRUS-32 (ATI - Proposed)	127
(3) 5' Panel Antenna (Nextel)	143	B14 4478 (ATI - Proposed)	127
(3) 5' Panel Antenna (Nextel)	143	B14 4478 (ATI - Proposed)	127
(3) 5' Panel Antenna (Nextel)	143	B14 4478 (ATI - Proposed)	127
Valmont T-Arm (1) (Nextel)	143	4426 B66 (ATI - Proposed)	127
Valmont T-Arm (1) (Nextel)	143	4426 B66 (ATI - Proposed)	127
Valmont T-Arm (1) (Nextel)	143	4426 B66 (ATI - Proposed)	127
(2) AIR21 B2A/B4P (T-Mobile)	135	B14 4478 (ATI - Proposed)	127
(2) AIR21 B2A/B4P (T-Mobile)	135	B14 4478 (ATI - Proposed)	127
(2) AIR21 B2A/B4P (T-Mobile)	135	B14 4478 (ATI - Proposed)	127
ATMAA1412D-1A20 TMA (T-Mobile)	135	(2) DBCT108F1V92-1 (ATI - Proposed)	127
ATMAA1412D-1A20 TMA (T-Mobile)	135		
ATMAA1412D-1A20 TMA (T-Mobile)	135	(2) DBCT108F1V92-1 (ATI - Proposed)	127
Valmont T-Arm (1) (T-Mobile)	135		
Valmont T-Arm (1) (T-Mobile)	135	(2) DBCT108F1V92-1 (ATI - Proposed)	127
Valmont T-Arm (1) (T-Mobile)	135		
10' Dipole	135	DC6-48-60-18-8F Surge Arrestor (ATI - Existing)	127
7770.00 (ATI - Existing)	127	DC6-48-60-18-8F Surge Arrestor (ATI - Proposed)	127
7770.00 (ATI - Existing)	127		
7770.00 (ATI - Existing)	127	DC6-48-60-18-8F Surge Arrestor (ATI - Proposed)	127
P65-16-XLH-RR (ATI - Existing)	127		
P65-16-XLH-RR (ATI - Existing)	127	Valmont T-Arm (1) (ATI - Existing)	127
P65-16-XLH-RR (ATI - Existing)	127	Valmont T-Arm (1) (ATI - Existing)	127
(2) LGP21401 TMA (ATI - Existing)	127	Valmont T-Arm (1) (ATI - Existing)	127
(2) LGP21401 TMA (ATI - Existing)	127	APXVSPP18-C-A20 (Sprint)	110
(2) LGP21401 TMA (ATI - Existing)	127	APXVSPP18-C-A20 (Sprint)	110
RRUS-11 (ATI - Existing)	127	APXVSPP18-C-A20 (Sprint)	110
RRUS-11 (ATI - Existing)	127	FD-RRH 2x50 800 (Sprint)	110
RRUS-11 (ATI - Existing)	127	FD-RRH 2x50 800 (Sprint)	110
RRUS-12 (ATI - Existing)	127	FD-RRH 2x50 800 (Sprint)	110
RRUS-12 (ATI - Existing)	127	FD-RRH 4x45 1900 (Sprint)	110
RRUS-12 (ATI - Existing)	127	FD-RRH 4x45 1900 (Sprint)	110
80010965 (ATI - Proposed)	127	FD-RRH 4x45 1900 (Sprint)	110
80010965 (ATI - Proposed)	127	Valmont 13' Low Profile Platform (Sprint)	110
80010965 (ATI - Proposed)	127		
HPA-65R-BUU-H6 (ATI - Proposed)	127	12' x 3" Dia Omni	110
HPA-65R-BUU-H6 (ATI - Proposed)	127		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi	54ksi	54 ksi	65 ksi
53ksi	53 ksi	65 ksi	57ksi	57 ksi	65 ksi

TOWER DESIGN NOTES

1. Tower designed for Exposure C to the TIA-222-G Standard.
2. Tower designed for a 97 mph basic wind in accordance with the TIA-222-G Standard.
3. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 60 mph wind.
5. Tower Structure Class II.
6. Topographic Category 1 with Crest Height of 0.000 ft
7. TOWER RATING: 79.3%

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

Job: **18000.61 - CT5022**		
Project: **145-ft Valmont Monopole - 100 Reef Rd, Fairfield, CT**		
Client: AT&T	Drawn by: TJL	App'd:
Code: TIA-222-G	Date: 10/08/18	Scale: NTS
Path: J:\Jobs\18000\00.Wifi\61_CT5022\04_Structural\Tower Analysis\Backup Documentation\ER\145' Valmont Monopole_ Fairfield CT.eri		Dwg No. E-1

Tower Input Data

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

Basic wind speed of 97 mph.
Structure Class II.
Exposure Category C.
Topographic Category 1.
Crest Height 0.000 ft.
Nominal ice thickness of 0.750 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

Tapered Pole Section Geometry

Section	*Elevation* *ft*	*Section Length* *ft*	*Splice Length* *ft*	*Number of Sides*	*Top Diameter* *in*	*Bottom Diameter* *in*	*Wall Thickness* *in*	*Bend Radius* *in*	*Pole Grade*
L1	145.000-90.830	54.170	5.170	12	23.610	33.480	0.281	1.124	A572-65 (65 ksi)
L2	90.830-59.080	36.920	0.000	12	31.976	38.686	0.375	1.500	A572-65 (65 ksi)
L3	59.080-42.830	16.250	6.170	12	38.686	41.640	0.481	1.923	53ksi

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L4	42.830-40.500	8.500	0.000	12	39.557	41.316	0.542	2.168	(53 ksi) 54ksi (54 ksi)
L5	40.500-0.000	40.500		12	41.316	48.690	0.622	2.490	57ksi (57 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	24.443	21.109	1466.346	8.352	12.230	119.898	2971.215	10.389	5.574	19.838
	34.661	30.039	4225.938	11.885	17.343	243.673	8562.897	14.784	8.220	29.251
L2	34.077	38.158	4863.800	11.313	16.564	293.644	9855.378	18.780	7.565	20.172
	40.051	46.260	8666.428	13.715	20.039	432.472	17560.534	22.768	9.363	24.968
L3	40.051	59.136	11017.508	13.677	20.039	549.795	22324.458	29.105	9.080	18.888
	43.109	63.709	13775.897	14.735	21.570	638.674	27913.702	31.355	9.871	20.535
L4	42.274	68.103	13231.561	13.967	20.491	645.741	26810.730	33.518	9.148	16.876
	42.774	71.174	15103.388	14.597	21.402	705.707	30603.559	35.030	9.620	17.746
L5	42.774	81.556	17238.368	14.568	21.402	805.464	34929.607	40.139	9.405	15.11
	50.408	96.334	28409.836	17.208	25.221	1126.417	57566.029	47.412	11.381	18.285

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 145.000-90.830				1	1	1			
L2 90.830-59.080				1	1	1			
L3 59.080-42.830				1	1	1			
L4 42.830-40.500				1	1	1			
L5 40.500-0.000				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight klf
HYBRIFLEX 1-1/4" (Sprint)	C	Surface Ar (CaAa)	110.000 - 12.000	4	4	0.000 0.000	1.540		0.001
1 5/8 (T-Mobile)	B	Surface Ar (CaAa)	135.000 - 12.000	6	3	0.000 0.000	1.980		0.001
1 1/4 (T-Mobile)	C	Surface Ar (CaAa)	135.000 - 12.000	6	3	0.000 0.000	1.550		0.001
Fiber Trunk (AT&T - Proposed)	A	Surface Ar (CaAa)	125.000 - 12.000	1	1	0.000 0.000	0.400		0.001
DC Trunk	A	Surface Ar	125.000 - 12.000	4	4	0.000	0.400		0.000

Description	Sector	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight klf
(AT&T - Proposed)		(CaAa)				0.000			

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
1 5/8	A	No	Inside Pole	125.000 - 12.000	12	No Ice	0.000	0.001
(AT&T - Existing)						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
1 1/4	C	No	Inside Pole	143.000 - 12.000	3	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
7/8	C	No	Inside Pole	135.000 - 12.000	1	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
7/8	C	No	Inside Pole	110.000 - 12.000	1	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
1 1/4	C	No	Inside Pole	143.000 - 12.000	12	No Ice	0.000	0.001
(Nextel)						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
Fiber Trunk	A	No	Inside Pole	125.000 - 12.000	1	No Ice	0.000	0.001
(AT&T - Existing)						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
DC Trunk	A	No	Inside Pole	125.000 - 12.000	2	No Ice	0.000	0.000
(AT&T - Existing)						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	145.000-90.830	A	0.000	0.000	6.834	0.000	0.517
		B	0.000	0.000	26.237	0.000	0.276
		C	0.000	0.000	32.348	0.000	0.825
L2	90.830-59.080	A	0.000	0.000	6.350	0.000	0.481
		B	0.000	0.000	18.860	0.000	0.198
		C	0.000	0.000	34.322	0.000	0.639
L3	59.080-42.830	A	0.000	0.000	3.250	0.000	0.246
		B	0.000	0.000	9.652	0.000	0.101
		C	0.000	0.000	17.566	0.000	0.327
L4	42.830-40.500	A	0.000	0.000	0.466	0.000	0.035
		B	0.000	0.000	1.384	0.000	0.015
		C	0.000	0.000	2.519	0.000	0.047
L5	40.500-0.000	A	0.000	0.000	5.700	0.000	0.431
		B	0.000	0.000	16.929	0.000	0.178
		C	0.000	0.000	30.808	0.000	0.574

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	145.000-90.830	A	1.702	0.000	0.000	34.370	0.000	0.872
		B		0.000	0.000	51.590	0.000	1.351
		C		0.000	0.000	67.385	0.000	1.912
L2	90.830-59.080	A	1.628	0.000	0.000	31.936	0.000	0.810
		B		0.000	0.000	37.083	0.000	0.971
		C		0.000	0.000	69.920	0.000	1.663
L3	59.080-42.830	A	1.566	0.000	0.000	15.354	0.000	0.393
		B		0.000	0.000	18.429	0.000	0.469
		C		0.000	0.000	34.684	0.000	0.806
L4	42.830-40.500	A	1.535	0.000	0.000	2.201	0.000	0.056
		B		0.000	0.000	2.642	0.000	0.067
		C		0.000	0.000	4.973	0.000	0.116
L5	40.500-0.000	A	1.430	0.000	0.000	25.177	0.000	0.653
		B		0.000	0.000	31.349	0.000	0.776
		C		0.000	0.000	58.886	0.000	1.339

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	1	HYBRIFLEX 1-1/4"	90.83 - 110.00	1.0000	1.0000
L1	7	1 5/8	90.83 - 135.00	1.0000	1.0000
L1	8	1 1/4	90.83 - 135.00	1.0000	1.0000
L1	11	Fiber Trunk	90.83 - 125.00	1.0000	1.0000
L1	12	DC Trunk	90.83 - 125.00	1.0000	1.0000
L3	1	HYBRIFLEX 1-1/4"	42.83 - 59.08	1.0000	1.0000
L3	7	1 5/8	42.83 - 59.08	1.0000	1.0000
L3	8	1 1/4	42.83 - 59.08	1.0000	1.0000
L3	11	Fiber Trunk	42.83 - 59.08	1.0000	1.0000
L3	12	DC Trunk	42.83 - 59.08	1.0000	1.0000
L5	1	HYBRIFLEX 1-1/4"	12.00 - 40.50	1.0000	1.0000
L5	7	1 5/8	12.00 - 40.50	1.0000	1.0000
L5	8	1 1/4	12.00 - 40.50	1.0000	1.0000
L5	11	Fiber Trunk	12.00 - 40.50	1.0000	1.0000
L5	12	DC Trunk	12.00 - 40.50	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Lightning Rod 3/4"x8'	C	From Face	3.500	0.000	143.000	No Ice	0.600	0.600	0.014
			0.000			1/2" Ice	1.415	1.415	0.020
			4.000			1" Ice	2.246	2.246	0.031
10' Dipole	A	From Face	3.000	0.000	143.000	No Ice	4.000	4.000	0.050

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.000			1/2" Ice	6.000	6.000	0.072
			4.000			1" Ice	8.000	8.000	0.100
10' Dipole	B	From Face	3.000	0.000	143.000	No Ice	4.000	4.000	0.050
			0.000			1/2" Ice	6.000	6.000	0.072
			4.000			1" Ice	8.000	8.000	0.100
12' x 3" Dia Omni	C	From Face	3.000	0.000	143.000	No Ice	3.600	3.600	0.035
			0.000			1/2" Ice	4.833	4.833	0.061
			6.000			1" Ice	6.083	6.083	0.095
(3) 5' Panel Antenna	A	From Face	3.000	0.000	143.000	No Ice	6.556	2.292	0.024
(Nextel)			0.000			1/2" Ice	6.947	2.654	0.057
			0.000			1" Ice	7.345	3.024	0.095
(3) 5' Panel Antenna	B	From Face	3.000	0.000	143.000	No Ice	6.556	2.292	0.024
(Nextel)			0.000			1/2" Ice	6.947	2.654	0.057
			0.000			1" Ice	7.345	3.024	0.095
(3) 5' Panel Antenna	C	From Face	3.000	0.000	143.000	No Ice	6.556	2.292	0.024
(Nextel)			0.000			1/2" Ice	6.947	2.654	0.057
			0.000			1" Ice	7.345	3.024	0.095
Valmont T-Arm (1)	A	From Face	3.000	0.000	143.000	No Ice	10.540	10.540	0.336
(Nextel)			0.000			1/2" Ice	14.450	14.450	0.412
			0.000			1" Ice	18.360	18.360	0.488
Valmont T-Arm (1)	B	From Face	3.000	0.000	143.000	No Ice	10.540	10.540	0.336
(Nextel)			0.000			1/2" Ice	14.450	14.450	0.412
			0.000			1" Ice	18.360	18.360	0.488
Valmont T-Arm (1)	C	From Face	3.000	0.000	143.000	No Ice	10.540	10.540	0.336
(Nextel)			0.000			1/2" Ice	14.450	14.450	0.412
			0.000			1" Ice	18.360	18.360	0.488
(2) AIR21 B2A/B4P	A	From Face	3.000	0.000	135.000	No Ice	6.049	4.356	0.083
(T-Mobile)			0.000			1/2" Ice	6.419	4.705	0.125
			0.000			1" Ice	6.795	5.061	0.172
(2) AIR21 B2A/B4P	B	From Face	3.000	0.000	135.000	No Ice	6.049	4.356	0.083
(T-Mobile)			0.000			1/2" Ice	6.419	4.705	0.125
			0.000			1" Ice	6.795	5.061	0.172
(2) AIR21 B2A/B4P	C	From Face	3.000	0.000	135.000	No Ice	6.049	4.356	0.083
(T-Mobile)			0.000			1/2" Ice	6.419	4.705	0.125
			0.000			1" Ice	6.795	5.061	0.172
ATMAA1412D-1A20 TMA	A	From Face	3.000	0.000	135.000	No Ice	1.000	0.407	0.013
(T-Mobile)			-3.000			1/2" Ice	1.126	0.497	0.021
			0.000			1" Ice	1.259	0.593	0.030
ATMAA1412D-1A20 TMA	B	From Face	3.000	0.000	135.000	No Ice	1.000	0.407	0.013
(T-Mobile)			-3.000			1/2" Ice	1.126	0.497	0.021
			0.000			1" Ice	1.259	0.593	0.030
ATMAA1412D-1A20 TMA	C	From Face	3.000	0.000	135.000	No Ice	1.000	0.407	0.013
(T-Mobile)			-3.000			1/2" Ice	1.126	0.497	0.021
			0.000			1" Ice	1.259	0.593	0.030
Valmont T-Arm (1)	A	From Face	3.000	0.000	135.000	No Ice	10.540	10.540	0.336
(T-Mobile)			0.000			1/2" Ice	14.450	14.450	0.412
			0.000			1" Ice	18.360	18.360	0.488
Valmont T-Arm (1)	B	From Face	3.000	0.000	135.000	No Ice	10.540	10.540	0.336
(T-Mobile)			0.000			1/2" Ice	14.450	14.450	0.412
			0.000			1" Ice	18.360	18.360	0.488
Valmont T-Arm (1)	C	From Face	3.000	0.000	135.000	No Ice	10.540	10.540	0.336
(T-Mobile)			0.000			1/2" Ice	14.450	14.450	0.412
			0.000			1" Ice	18.360	18.360	0.488
10' Dipole	A	From Face	3.000	0.000	135.000	No Ice	4.000	4.000	0.050
			0.000			1/2" Ice	6.000	6.000	0.072
			4.000			1" Ice	8.000	8.000	0.100
7770.00	A	From Face	3.500	0.000	127.000	No Ice	5.508	2.928	0.035

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(AT&T - Existing)			-6.000			1/2" Ice	5.867	3.273	0.068
			0.000			1" Ice	6.233	3.625	0.105
7770.00	B	From Face	3.500	0.000	127.000	No Ice	5.508	2.928	0.035
(AT&T - Existing)			-6.000			1/2" Ice	5.867	3.273	0.068
			0.000			1" Ice	6.233	3.625	0.105
7770.00	C	From Face	3.500	0.000	127.000	No Ice	5.508	2.928	0.035
(AT&T - Existing)			-6.000			1/2" Ice	5.867	3.273	0.068
			0.000			1" Ice	6.233	3.625	0.105
P65-16-XLH-RR	A	From Face	3.500	0.000	127.000	No Ice	8.133	4.700	0.060
(AT&T - Existing)			-2.000			1/2" Ice	8.590	5.147	0.107
			0.000			1" Ice	9.053	5.602	0.161
P65-16-XLH-RR	B	From Face	3.500	0.000	127.000	No Ice	8.133	4.700	0.060
(AT&T - Existing)			-2.000			1/2" Ice	8.590	5.147	0.107
			0.000			1" Ice	9.053	5.602	0.161
P65-16-XLH-RR	C	From Face	3.500	0.000	127.000	No Ice	8.133	4.700	0.060
(AT&T - Existing)			-2.000			1/2" Ice	8.590	5.147	0.107
			0.000			1" Ice	9.053	5.602	0.161
(2) LGP21401 TMA	A	From Face	3.500	0.000	127.000	No Ice	0.817	0.346	0.018
(AT&T - Existing)			-6.000			1/2" Ice	0.937	0.440	0.023
			0.000			1" Ice	1.065	0.540	0.031
(2) LGP21401 TMA	B	From Face	3.500	0.000	127.000	No Ice	0.817	0.346	0.018
(AT&T - Existing)			-6.000			1/2" Ice	0.937	0.440	0.023
			0.000			1" Ice	1.065	0.540	0.031
(2) LGP21401 TMA	C	From Face	3.500	0.000	127.000	No Ice	0.817	0.346	0.018
(AT&T - Existing)			-6.000			1/2" Ice	0.937	0.440	0.023
			0.000			1" Ice	1.065	0.540	0.031
RRUS-11	A	From Face	1.000	0.000	127.000	No Ice	2.566	1.068	0.050
(AT&T - Existing)			0.000			1/2" Ice	2.765	1.211	0.070
			0.000			1" Ice	2.971	1.361	0.092
RRUS-11	B	From Face	1.000	0.000	127.000	No Ice	2.566	1.068	0.050
(AT&T - Existing)			0.000			1/2" Ice	2.765	1.211	0.070
			0.000			1" Ice	2.971	1.361	0.092
RRUS-11	C	From Face	1.000	0.000	127.000	No Ice	2.566	1.068	0.050
(AT&T - Existing)			0.000			1/2" Ice	2.765	1.211	0.070
			0.000			1" Ice	2.971	1.361	0.092
RRUS-12	A	From Face	1.000	0.000	127.000	No Ice	3.145	1.285	0.058
(AT&T - Existing)			0.000			1/2" Ice	3.365	1.438	0.081
			0.000			1" Ice	3.592	1.600	0.108
RRUS-12	B	From Face	1.000	0.000	127.000	No Ice	3.145	1.285	0.058
(AT&T - Existing)			0.000			1/2" Ice	3.365	1.438	0.081
			0.000			1" Ice	3.592	1.600	0.108
RRUS-12	C	From Face	1.000	0.000	127.000	No Ice	3.145	1.285	0.058
(AT&T - Existing)			0.000			1/2" Ice	3.365	1.438	0.081
			0.000			1" Ice	3.592	1.600	0.108
80010965	A	From Face	3.500	0.000	127.000	No Ice	13.814	5.833	0.109
(AT&T - Proposed)			2.000			1/2" Ice	14.347	6.324	0.186
			0.000			1" Ice	14.888	6.821	0.269
80010965	B	From Face	3.500	0.000	127.000	No Ice	13.814	5.833	0.109
(AT&T - Proposed)			2.000			1/2" Ice	14.347	6.324	0.186
			0.000			1" Ice	14.888	6.821	0.269
80010965	C	From Face	3.500	0.000	127.000	No Ice	13.814	5.833	0.109
(AT&T - Proposed)			2.000			1/2" Ice	14.347	6.324	0.186
			0.000			1" Ice	14.888	6.821	0.269
HPA-65R-BUU-H6	A	From Face	3.500	0.000	127.000	No Ice	9.658	6.450	0.051
(AT&T - Proposed)			6.000			1/2" Ice	10.128	6.913	0.114
			0.000			1" Ice	10.606	7.384	0.183
HPA-65R-BUU-H6	B	From Face	3.500	0.000	127.000	No Ice	9.658	6.450	0.051

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert (ft / ft / ft)	Azimuth Adjustment (°)	Placement (ft)		C_AA_A Front (ft^2)	C_AA_A Side (ft^2)	Weight (K)
(AT&T - Proposed)			6.000			1/2" Ice	10.128	6.913	0.114
			0.000			1" Ice	10.606	7.384	0.183
HPA-65R-BUU-H6	C	From Face	3.500	0.000	127.000	No Ice	9.658	6.450	0.051
(AT&T - Proposed)			6.000			1/2" Ice	10.128	6.913	0.114
			0.000			1" Ice	10.606	7.384	0.183
RRUS-32	A	From Face	3.500	0.000	127.000	No Ice	3.314	2.424	0.077
(AT&T - Proposed)			6.000			1/2" Ice	3.558	2.638	0.105
			0.000			1" Ice	3.809	2.860	0.136
RRUS-32	B	From Face	3.500	0.000	127.000	No Ice	3.314	2.424	0.077
(AT&T - Proposed)			6.000			1/2" Ice	3.558	2.638	0.105
			0.000			1" Ice	3.809	2.860	0.136
RRUS-32	C	From Face	3.500	0.000	127.000	No Ice	3.314	2.424	0.077
(AT&T - Proposed)			6.000			1/2" Ice	3.558	2.638	0.105
			0.000			1" Ice	3.809	2.860	0.136
B14 4478	A	From Face	3.500	0.000	127.000	No Ice	1.627	0.906	0.060
(AT&T - Proposed)			6.000			1/2" Ice	1.786	1.033	0.074
			0.000			1" Ice	1.953	1.168	0.091
B14 4478	B	From Face	3.500	0.000	127.000	No Ice	1.627	0.906	0.060
(AT&T - Proposed)			6.000			1/2" Ice	1.786	1.033	0.074
			0.000			1" Ice	1.953	1.168	0.091
B14 4478	C	From Face	3.500	0.000	127.000	No Ice	1.627	0.906	0.060
(AT&T - Proposed)			6.000			1/2" Ice	1.786	1.033	0.074
			0.000			1" Ice	1.953	1.168	0.091
4426 B66	A	From Face	3.500	0.000	127.000	No Ice	1.650	0.727	0.049
(AT&T - Proposed)			2.000			1/2" Ice	1.810	0.844	0.062
			0.000			1" Ice	1.978	0.971	0.077
4426 B66	B	From Face	3.500	0.000	127.000	No Ice	1.650	0.727	0.049
(AT&T - Proposed)			2.000			1/2" Ice	1.810	0.844	0.062
			0.000			1" Ice	1.978	0.971	0.077
4426 B66	C	From Face	3.500	0.000	127.000	No Ice	1.650	0.727	0.049
(AT&T - Proposed)			2.000			1/2" Ice	1.810	0.844	0.062
			0.000			1" Ice	1.978	0.971	0.077
B14 4478	A	From Face	3.500	0.000	127.000	No Ice	1.627	0.906	0.060
(AT&T - Proposed)			2.000			1/2" Ice	1.786	1.033	0.074
			0.000			1" Ice	1.953	1.168	0.091
B14 4478	B	From Face	3.500	0.000	127.000	No Ice	1.627	0.906	0.060
(AT&T - Proposed)			2.000			1/2" Ice	1.786	1.033	0.074
			0.000			1" Ice	1.953	1.168	0.091
B14 4478	C	From Face	3.500	0.000	127.000	No Ice	1.627	0.906	0.060
(AT&T - Proposed)			2.000			1/2" Ice	1.786	1.033	0.074
			0.000			1" Ice	1.953	1.168	0.091
(2) DBCT108F1V92-1	A	From Face	3.500	0.000	127.000	No Ice	0.604	0.320	0.015
(AT&T - Proposed)			6.000			1/2" Ice	0.705	0.400	0.020
			0.000			1" Ice	0.813	0.487	0.027
(2) DBCT108F1V92-1	A	From Face	3.500	0.000	127.000	No Ice	0.604	0.320	0.015
(AT&T - Proposed)			6.000			1/2" Ice	0.705	0.400	0.020
			0.000			1" Ice	0.813	0.487	0.027
(2) DBCT108F1V92-1	A	From Face	3.500	0.000	127.000	No Ice	0.604	0.320	0.015
(AT&T - Proposed)			6.000			1/2" Ice	0.705	0.400	0.020
			0.000			1" Ice	0.813	0.487	0.027
DC6-48-60-18-8F Surge	A	From Face	3.500	0.000	127.000	No Ice	1.909	1.909	0.020
Arrestor			0.000			1/2" Ice	2.098	2.098	0.039
(AT&T - Existing)			0.000			1" Ice	2.294	2.294	0.062
DC6-48-60-18-8F Surge	B	From Face	3.500	0.000	127.000	No Ice	1.909	1.909	0.020
Arrestor			0.000			1/2" Ice	2.098	2.098	0.039
(AT&T - Proposed)			0.000			1" Ice	2.294	2.294	0.062
DC6-48-60-18-8F Surge	C	From Face	3.500	0.000	127.000	No Ice	1.909	1.909	0.020

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Arrestor			0.000			1/2" Ice	2.098	2.098	0.039
(AT&T - Proposed)			0.000			1" Ice	2.294	2.294	0.062
Valmont T-Arm (1)	A	From Face	3.000	0.000	127.000	No Ice	10.540	10.540	0.336
(AT&T - Existing)			0.000			1/2" Ice	14.450	14.450	0.412
			0.000			1" Ice	18.360	18.360	0.488
Valmont T-Arm (1)	B	From Face	3.000	0.000	127.000	No Ice	10.540	10.540	0.336
(AT&T - Existing)			0.000			1/2" Ice	14.450	14.450	0.412
			0.000			1" Ice	18.360	18.360	0.488
Valmont T-Arm (1)	C	From Face	3.000	0.000	127.000	No Ice	10.540	10.540	0.336
(AT&T - Existing)			0.000			1/2" Ice	14.450	14.450	0.412
			0.000			1" Ice	18.360	18.360	0.488
APXVSPP18-C-A20	A	From Face	3.000	0.000	110.000	No Ice	8.024	5.283	0.057
(Sprint)			0.000			1/2" Ice	8.480	5.736	0.107
			0.000			1" Ice	8.943	6.196	0.162
APXVSPP18-C-A20	B	From Face	3.000	0.000	110.000	No Ice	8.024	5.283	0.057
(Sprint)			0.000			1/2" Ice	8.480	5.736	0.107
			0.000			1" Ice	8.943	6.196	0.162
APXVSPP18-C-A20	C	From Face	3.000	0.000	110.000	No Ice	8.024	5.283	0.057
(Sprint)			0.000			1/2" Ice	8.480	5.736	0.107
			0.000			1" Ice	8.943	6.196	0.162
FD-RRH 2x50 800	A	From Face	1.000	0.000	110.000	No Ice	2.058	1.932	0.064
(Sprint)			1.000			1/2" Ice	2.240	2.109	0.086
			2.000			1" Ice	2.429	2.293	0.111
FD-RRH 2x50 800	B	From Face	1.000	0.000	110.000	No Ice	2.058	1.932	0.064
(Sprint)			1.000			1/2" Ice	2.240	2.109	0.086
			2.000			1" Ice	2.429	2.293	0.111
FD-RRH 2x50 800	C	From Face	1.000	0.000	110.000	No Ice	2.058	1.932	0.064
(Sprint)			1.000			1/2" Ice	2.240	2.109	0.086
			2.000			1" Ice	2.429	2.293	0.111
FD-RRH 4x45 1900	A	From Face	1.000	0.000	110.000	No Ice	2.319	2.384	0.060
(Sprint)			1.000			1/2" Ice	2.524	2.590	0.084
			-2.000			1" Ice	2.736	2.804	0.111
FD-RRH 4x45 1900	B	From Face	1.000	0.000	110.000	No Ice	2.319	2.384	0.060
(Sprint)			1.000			1/2" Ice	2.524	2.590	0.084
			-2.000			1" Ice	2.736	2.804	0.111
FD-RRH 4x45 1900	C	From Face	1.000	0.000	110.000	No Ice	2.319	2.384	0.060
(Sprint)			1.000			1/2" Ice	2.524	2.590	0.084
			-2.000			1" Ice	2.736	2.804	0.111
Valmont 13' Low Profile	A	None		0.000	110.000	No Ice	15.700	15.700	1.300
Platform						1/2" Ice	20.100	20.100	1.765
(Sprint)						1" Ice	24.500	24.500	2.230
12' x 3" Dia Omni	C	From Face	3.000	0.000	110.000	No Ice	3.600	3.600	0.035
			0.000			1/2" Ice	4.833	4.833	0.061
			6.000			1" Ice	6.083	6.083	0.095

Tower Pressures - No Ice

G_H = 1.100

Section Elevation ft	z ft	K_Z	q_z ksf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1	116.681	1.307	0.030	133.402	A	0.000	133.402	133.402	100.00	6.834	0.000
145.000-90.83					B	0.000	133.402		100.00	26.237	0.000
0					C	0.000	133.402		100.00	32.348	0.000
L2	74.706	1.19	0.027	98.064	A	0.000	98.064	98.064	100.00	6.350	0.000
90.830-59.080					B	0.000	98.064		100.00	18.860	0.000
					C	0.000	98.064		100.00	34.322	0.000
L3	50.855	1.098	0.025	56.306	A	0.000	56.306	56.306	100.00	3.250	0.000
59.080-42.830					B	0.000	56.306		100.00	9.652	0.000
					C	0.000	56.306		100.00	17.566	0.000
L4	41.663	1.053	0.024	8.257	A	0.000	8.257	8.257	100.00	0.466	0.000
42.830-40.500					B	0.000	8.257		100.00	1.384	0.000
					C	0.000	8.257		100.00	2.519	0.000
L5	20.437	0.906	0.021	157.243	A	0.000	157.243	157.243	100.00	5.700	0.000
40.500-0.000					B	0.000	157.243		100.00	16.929	0.000
					C	0.000	157.243		100.00	30.808	0.000

Tower Pressure - With Ice

G_H = 1.100

Section Elevation ft	z ft	K_Z	q_z ksf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1	116.681	1.307	0.008	1.702	148.768	A	0.000	148.768	148.768	100.00	34.370	0.000
145.000-90.830						B	0.000	148.768		100.00	51.590	0.000
						C	0.000	148.768		100.00	67.385	0.000
L2	74.706	1.19	0.007	1.628	107.070	A	0.000	107.070	107.070	100.00	31.936	0.000
90.830-59.080						B	0.000	107.070		100.00	37.083	0.000
						C	0.000	107.070		100.00	69.920	0.000
L3	50.855	1.098	0.007	1.566	60.548	A	0.000	60.548	60.548	100.00	15.354	0.000
59.080-42.830						B	0.000	60.548		100.00	18.429	0.000
						C	0.000	60.548		100.00	34.684	0.000
L4	41.663	1.053	0.006	1.535	8.865	A	0.000	8.865	8.865	100.00	2.201	0.000
42.830-40.500						B	0.000	8.865		100.00	2.642	0.000
						C	0.000	8.865		100.00	4.973	0.000
L5 40.500-0.000	20.437	0.906	0.006	1.430	166.895	A	0.000	166.895	166.895	100.00	25.177	0.000
						B	0.000	166.895		100.00	31.349	0.000
						C	0.000	166.895		100.00	58.886	0.000

Tower Pressure - Service

G_H = 1.100

Section Elevation ft	z ft	K_Z	q_z ksf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1	116.681	1.307	0.010	133.402	A	0.000	133.402	133.402	100.00	6.834	0.000
145.000-90.83					B	0.000	133.402		100.00	26.237	0.000
0					C	0.000	133.402		100.00	32.348	0.000
L2	74.706	1.19	0.009	98.064	A	0.000	98.064	98.064	100.00	6.350	0.000

Section Elevation ft	z ft	K_Z	q_z ksf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
90.830-59.080					B	0.000	98.064		100.00	18.860	0.000
					C	0.000	98.064		100.00	34.322	0.000
L3	50.855	1.098	0.009	56.306	A	0.000	56.306	56.306	100.00	3.250	0.000
59.080-42.830					B	0.000	56.306		100.00	9.652	0.000
					C	0.000	56.306		100.00	17.566	0.000
L4	41.663	1.053	0.008	8.257	A	0.000	8.257	8.257	100.00	0.466	0.000
42.830-40.500					B	0.000	8.257		100.00	1.384	0.000
					C	0.000	8.257		100.00	2.519	0.000
L5	20.437	0.906	0.007	157.243	A	0.000	157.243	157.243	100.00	5.700	0.000
40.500-0.000					B	0.000	157.243		100.00	16.929	0.000
					C	0.000	157.243		100.00	30.808	0.000

Tower Forces - No Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
L1	1.618	4.714	A	1	1.2	0.030	1	1	133.402	6.796	0.125	A
145.000-90.83			B	1	1.008		1	1	133.402			
0			C	1	1.093		1	1	133.402			
L2	1.318	5.303	A	1	1.2	0.027	1	1	98.064	4.526	0.143	A
90.830-59.080			B	1	1.001		1	1	98.064			
			C	1	1.085		1	1	98.064			
L3	0.675	3.396	A	1	1.2	0.025	1	1	56.306	2.342	0.144	A
59.080-42.830			B	1	1		1	1	56.306			
			C	1	1.043		1	1	56.306			
L4	0.097	2.014	A	1	1.2	0.024	1	1	8.257	0.263	0.113	A
42.830-40.500			B	1	1		1	1	8.257			
			C	1	1.035		1	1	8.257			
L5	1.183	12.258	A	1	1.084	0.021	1	1	157.243	3.922	0.097	A
40.500-0.000			B	1	1		1	1	157.243			
			C	1	1		1	1	157.243			
Sum Weight:	4.891	27.685						OTM	1341.305 kip-ft	17.849		

Tower Forces - No Ice - Wind 45 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
L1	1.618	4.714	A	1	1.2	0.030	1	1	133.402	6.997	0.129	B
145.000-90.83			B	1	1.2		1	1	133.402			
0			C	1	1		1	1	133.402			
L2	1.318	5.303	A	1	1.2	0.027	1	1	98.064	4.989	0.157	B
90.830-59.080			B	1	1.2		1	1	98.064			
			C	1	1		1	1	98.064			
L3	0.675	3.396	A	1	1.2	0.025	1	1	56.306	2.561	0.158	B
59.080-42.830			B	1	1.2		1	1	56.306			
			C	1	1		1	1	56.306			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L4	0.097	2.014	A	1	1.2	0.024	1	1	8.257	0.358	0.154	B
42.830-40.500			B	1	1.2		1	1	8.257			
			C	1	1		1	1	8.257			
L5	1.183	12.258	A	1	1.131	0.021	1	1	157.243	4.342	0.107	B
40.500-0.000			B	1	1.2		1	1	157.243			
			C	1	1		1	1	157.243			
Sum Weight:	4.891	27.685						OTM	1422.969 kip-ft	19.247		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	1.618	4.714	A	1	1.093	0.030	1	1	133.402	6.796	0.125	B
145.000-90.83			B	1	1.2		1	1	133.402			
0			C	1	1.008		1	1	133.402			
L2	1.318	5.303	A	1	1.085	0.027	1	1	98.064	4.526	0.143	B
90.830-59.080			B	1	1.2		1	1	98.064			
			C	1	1.001		1	1	98.064			
L3	0.675	3.396	A	1	1.043	0.025	1	1	56.306	2.342	0.144	B
59.080-42.830			B	1	1.2		1	1	56.306			
			C	1	1		1	1	56.306			
L4	0.097	2.014	A	1	1.035	0.024	1	1	8.257	0.263	0.113	B
42.830-40.500			B	1	1.2		1	1	8.257			
			C	1	1		1	1	8.257			
L5	1.183	12.258	A	1	1	0.021	1	1	157.243	3.922	0.097	B
40.500-0.000			B	1	1.084		1	1	157.243			
			C	1	1		1	1	157.243			
Sum Weight:	4.891	27.685						OTM	1341.305 kip-ft	17.849		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	1.618	4.714	A	1	1	0.030	1	1	133.402	6.997	0.129	C
145.000-90.83			B	1	1.2		1	1	133.402			
0			C	1	1.2		1	1	133.402			
L2	1.318	5.303	A	1	1	0.027	1	1	98.064	4.989	0.157	C
90.830-59.080			B	1	1.2		1	1	98.064			
			C	1	1.2		1	1	98.064			
L3	0.675	3.396	A	1	1	0.025	1	1	56.306	2.561	0.158	C
59.080-42.830			B	1	1.2		1	1	56.306			
			C	1	1.2		1	1	56.306			
L4	0.097	2.014	A	1	1	0.024	1	1	8.257	0.358	0.154	C

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
42.830-40.500			B	1	1.2		1	1	8.257			
			C	1	1.2		1	1	8.257			
L5	1.183	12.258	A	1	1	0.021	1	1	157.243	4.342	0.107	C
40.500-0.000			B	1	1.131		1	1	157.243			
			C	1	1.2		1	1	157.243			
Sum Weight:	4.891	27.685						OTM	1422.969 kip-ft	19.247		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	4.135	8.206	A	1	1.2	0.008	1	1	148.768	2.735	0.050	A
145.000-90.83			B	1	1.2		1	1	148.768			
0			C	1	1.2		1	1	148.768			
L2	3.444	7.725	A	1	1.2	0.007	1	1	107.070	1.824	0.057	A
90.830-59.080			B	1	1.2		1	1	107.070			
			C	1	1.2		1	1	107.070			
L3	1.669	4.726	A	1	1.2	0.007	1	1	60.548	0.887	0.055	A
59.080-42.830			B	1	1.2		1	1	60.548			
			C	1	1.2		1	1	60.548			
L4	0.239	2.205	A	1	1.2	0.006	1	1	8.865	0.124	0.053	A
42.830-40.500			B	1	1.2		1	1	8.865			
			C	1	1.2		1	1	8.865			
L5	2.767	15.625	A	1	1.2	0.006	1	1	166.895	1.703	0.042	A
40.500-0.000			B	1	1.2		1	1	166.895			
			C	1	1.2		1	1	166.895			
Sum Weight:	12.254	38.487						OTM	540.513 kip-ft	7.273		

Tower Forces - With Ice - Wind 45 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	4.135	8.206	A	1	1.2	0.008	1	1	148.768	2.724	0.050	B
145.000-90.83			B	1	1.2		1	1	148.768			
0			C	1	1.2		1	1	148.768			
L2	3.444	7.725	A	1	1.2	0.007	1	1	107.070	1.970	0.062	B
90.830-59.080			B	1	1.2		1	1	107.070			
			C	1	1.2		1	1	107.070			
L3	1.669	4.726	A	1	1.2	0.007	1	1	60.548	0.961	0.059	B
59.080-42.830			B	1	1.2		1	1	60.548			
			C	1	1.2		1	1	60.548			
L4	0.239	2.205	A	1	1.2	0.006	1	1	8.865	0.134	0.057	B
42.830-40.500			B	1	1.2		1	1	8.865			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
			C	1	1.2		1	1	8.865			
L5	2.767	15.625	A	1	1.2	0.006	1	1	166.895	1.818	0.045	B
40.500-0.000			B	1	1.2		1	1	166.895			
			C	1	1.2		1	1	166.895			
Sum Weight:	12.254	38.487						OTM	556.632 kip-ft	7.607		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	4.135	8.206	A	1	1.2	0.008	1	1	148.768	2.735	0.050	B
145.000-90.83			B	1	1.2		1	1	148.768			
0			C	1	1.2		1	1	148.768			
L2	3.444	7.725	A	1	1.2	0.007	1	1	107.070	1.824	0.057	B
90.830-59.080			B	1	1.2		1	1	107.070			
			C	1	1.2		1	1	107.070			
L3	1.669	4.726	A	1	1.2	0.007	1	1	60.548	0.887	0.055	B
59.080-42.830			B	1	1.2		1	1	60.548			
			C	1	1.2		1	1	60.548			
L4	0.239	2.205	A	1	1.2	0.006	1	1	8.865	0.124	0.053	B
42.830-40.500			B	1	1.2		1	1	8.865			
			C	1	1.2		1	1	8.865			
L5	2.767	15.625	A	1	1.2	0.006	1	1	166.895	1.703	0.042	B
40.500-0.000			B	1	1.2		1	1	166.895			
			C	1	1.2		1	1	166.895			
Sum Weight:	12.254	38.487						OTM	540.513 kip-ft	7.273		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	4.135	8.206	A	1	1.2	0.008	1	1	148.768	2.724	0.050	C
145.000-90.83			B	1	1.2		1	1	148.768			
0			C	1	1.2		1	1	148.768			
L2	3.444	7.725	A	1	1.2	0.007	1	1	107.070	1.970	0.062	C
90.830-59.080			B	1	1.2		1	1	107.070			
			C	1	1.2		1	1	107.070			
L3	1.669	4.726	A	1	1.2	0.007	1	1	60.548	0.961	0.059	C
59.080-42.830			B	1	1.2		1	1	60.548			
			C	1	1.2		1	1	60.548			
L4	0.239	2.205	A	1	1.2	0.006	1	1	8.865	0.134	0.057	C
42.830-40.500			B	1	1.2		1	1	8.865			
			C	1	1.2		1	1	8.865			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L5	2.767	15.625	A	1	1.2	0.006	1	1	166.895	1.818	0.045	C
40.500-0.000			B	1	1.2		1	1	166.895			
			C	1	1.2		1	1	166.895			
Sum Weight:	12.254	38.487						OTM	556.632 kip-ft	7.607		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	1.618	4.714	A	1	1.2	0.010	1	1	133.402	2.326	0.043	A
145.000-90.83			B	1	1.008		1	1	133.402			
0			C	1	1.093		1	1	133.402			
L2	1.318	5.303	A	1	1.2	0.009	1	1	98.064	1.550	0.049	A
90.830-59.080			B	1	1.001		1	1	98.064			
			C	1	1.085		1	1	98.064			
L3	0.675	3.396	A	1	1.2	0.009	1	1	56.306	0.802	0.049	A
59.080-42.830			B	1	1		1	1	56.306			
			C	1	1.043		1	1	56.306			
L4	0.097	2.014	A	1	1.2	0.008	1	1	8.257	0.090	0.039	A
42.830-40.500			B	1	1		1	1	8.257			
			C	1	1.035		1	1	8.257			
L5	1.183	12.258	A	1	1.084	0.007	1	1	157.243	1.343	0.033	A
40.500-0.000			B	1	1		1	1	157.243			
			C	1	1		1	1	157.243			
Sum Weight:	4.891	27.685						OTM	459.179 kip-ft	6.110		

Tower Forces - Service - Wind 45 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	1.618	4.714	A	1	1.2	0.010	1	1	133.402	2.395	0.044	B
145.000-90.83			B	1	1.2		1	1	133.402			
0			C	1	1		1	1	133.402			
L2	1.318	5.303	A	1	1.2	0.009	1	1	98.064	1.708	0.054	B
90.830-59.080			B	1	1.2		1	1	98.064			
			C	1	1		1	1	98.064			
L3	0.675	3.396	A	1	1.2	0.009	1	1	56.306	0.877	0.054	B
59.080-42.830			B	1	1.2		1	1	56.306			
			C	1	1		1	1	56.306			
L4	0.097	2.014	A	1	1.2	0.008	1	1	8.257	0.123	0.053	B
42.830-40.500			B	1	1.2		1	1	8.257			
			C	1	1		1	1	8.257			
L5	1.183	12.258	A	1	1.131	0.007	1	1	157.243	1.486	0.037	B

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
40.500-0.000			B	1	1.2		1	1	157.243			
			C	1	1		1	1	157.243			
Sum Weight:	4.891	27.685						OTM	487.135 kip-ft	6.589		

Tower Forces - Service - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	1.618	4.714	A	1	1.093	0.010	1	1	133.402	2.326	0.043	B
145.000-90.83			B	1	1.2		1	1	133.402			
0			C	1	1.008		1	1	133.402			
L2	1.318	5.303	A	1	1.085	0.009	1	1	98.064	1.550	0.049	B
90.830-59.080			B	1	1.2		1	1	98.064			
			C	1	1.001		1	1	98.064			
L3	0.675	3.396	A	1	1.043	0.009	1	1	56.306	0.802	0.049	B
59.080-42.830			B	1	1.2		1	1	56.306			
			C	1	1		1	1	56.306			
L4	0.097	2.014	A	1	1.035	0.008	1	1	8.257	0.090	0.039	B
42.830-40.500			B	1	1.2		1	1	8.257			
			C	1	1		1	1	8.257			
L5	1.183	12.258	A	1	1	0.007	1	1	157.243	1.343	0.033	B
40.500-0.000			B	1	1.084		1	1	157.243			
			C	1	1		1	1	157.243			
Sum Weight:	4.891	27.685						OTM	459.179 kip-ft	6.110		

Tower Forces - Service - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	1.618	4.714	A	1	1	0.010	1	1	133.402	2.395	0.044	C
145.000-90.83			B	1	1.2		1	1	133.402			
0			C	1	1.2		1	1	133.402			
L2	1.318	5.303	A	1	1	0.009	1	1	98.064	1.708	0.054	C
90.830-59.080			B	1	1.2		1	1	98.064			
			C	1	1.2		1	1	98.064			
L3	0.675	3.396	A	1	1	0.009	1	1	56.306	0.877	0.054	C
59.080-42.830			B	1	1.2		1	1	56.306			
			C	1	1.2		1	1	56.306			
L4	0.097	2.014	A	1	1	0.008	1	1	8.257	0.123	0.053	C
42.830-40.500			B	1	1.2		1	1	8.257			
			C	1	1.2		1	1	8.257			
L5	1.183	12.258	A	1	1	0.007	1	1	157.243	1.486	0.037	C
40.500-0.000			B	1	1.131		1	1	157.243			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
Sum Weight:	4.891	27.685	C	1	1.2		1	1 OTM	157.243 487.135 kip-ft	6.589		

Force Totals

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Overturning Moments, M_x kip-ft	Sum of Overturning Moments, M_z kip-ft	Sum of Torques kip-ft
Leg Weight	27.685					
Bracing Weight	0.000					
Total Member Self-Weight	27.685			-0.625	0.266	
Total Weight	40.515			-0.625	0.266	
Wind 0 deg - No Ice		-0.020	-23.227	-2238.311	2.775	-0.395
Wind 30 deg - No Ice		11.242	-19.472	-1876.643	-1082.854	-0.521
Wind 45 deg - No Ice		15.909	-15.893	-1531.638	-1532.795	-0.533
Wind 60 deg - No Ice		19.525	-11.250	-1084.444	-1881.981	-0.508
Wind 90 deg - No Ice		29.056	0.020	1.884	-2700.573	-0.359
Wind 120 deg - No Ice		23.963	13.835	1309.686	-2269.260	-0.113
Wind 135 deg - No Ice		19.063	19.047	1821.677	-1824.085	0.025
Wind 150 deg - No Ice		14.151	24.471	2301.426	-1331.722	0.163
Wind 180 deg - No Ice		0.020	23.227	2237.061	-2.243	0.395
Wind 210 deg - No Ice		-11.242	19.472	1875.393	1083.385	0.521
Wind 225 deg - No Ice		-15.909	15.893	1530.387	1533.327	0.533
Wind 240 deg - No Ice		-19.525	11.250	1083.193	1882.513	0.508
Wind 270 deg - No Ice		-29.056	-0.020	-3.135	2701.105	0.359
Wind 300 deg - No Ice		-23.963	-13.835	-1310.937	2269.792	0.113
Wind 315 deg - No Ice		-19.063	-19.047	-1822.927	1824.617	-0.025
Wind 330 deg - No Ice		-14.151	-24.471	-2302.677	1332.253	-0.163
Member Ice	10.802					
Total Weight Ice	71.295			-1.157	0.790	
Wind 0 deg - Ice		-0.007	-9.956	-990.186	1.617	-0.283
Wind 30 deg - Ice		4.453	-7.714	-770.433	-443.352	-0.303
Wind 45 deg - Ice		6.114	-6.109	-615.009	-613.738	-0.282
Wind 60 deg - Ice		8.418	-4.853	-483.540	-836.377	-0.241
Wind 90 deg - Ice		11.847	0.007	-0.330	-1112.347	-0.115
Wind 120 deg - Ice		9.975	5.759	547.591	-949.669	0.042
Wind 135 deg - Ice		7.774	7.769	745.077	-746.120	0.119
Wind 150 deg - Ice		5.592	9.672	924.974	-534.868	0.188
Wind 180 deg - Ice		0.007	9.956	987.872	-0.038	0.283
Wind 210 deg - Ice		-4.453	7.714	768.119	444.931	0.303
Wind 225 deg - Ice		-6.114	6.109	612.695	615.317	0.282
Wind 240 deg - Ice		-8.418	4.853	481.226	837.956	0.241
Wind 270 deg - Ice		-11.847	-0.007	-1.984	1113.926	0.115
Wind 300 deg - Ice		-9.975	-5.759	-549.905	951.248	-0.042
Wind 315 deg - Ice		-7.774	-7.769	-747.391	747.699	-0.119
Wind 330 deg - Ice		-5.592	-9.672	-927.288	536.447	-0.188
Total Weight	40.515			-0.625	0.266	
Wind 0 deg - Service		-0.007	-7.952	-766.669	1.125	-0.135
Wind 30 deg - Service		3.849	-6.666	-642.856	-370.526	-0.179
Wind 45 deg - Service		5.446	-5.441	-524.748	-524.558	-0.182
Wind 60 deg - Service		6.684	-3.851	-371.657	-644.098	-0.174
Wind 90 deg - Service		9.947	0.007	0.234	-924.332	-0.123

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Overturning Moments, M_x kip-ft	Sum of Overturning Moments, M_z kip-ft	Sum of Torques kip-ft
Wind 120 deg - Service		8.203	4.736	447.943	-776.678	-0.039
Wind 135 deg - Service		6.526	6.521	623.217	-624.278	0.009
Wind 150 deg - Service		4.845	8.377	787.453	-455.723	0.056
Wind 180 deg - Service		0.007	7.952	765.418	-0.593	0.135
Wind 210 deg - Service		-3.849	6.666	641.606	371.058	0.179
Wind 225 deg - Service		-5.446	5.441	523.497	525.090	0.182
Wind 240 deg - Service		-6.684	3.851	370.406	644.629	0.174
Wind 270 deg - Service		-9.947	-0.007	-1.484	924.864	0.123
Wind 300 deg - Service		-8.203	-4.736	-449.194	777.210	0.039
Wind 315 deg - Service		-6.526	-6.521	-624.468	624.809	-0.009
Wind 330 deg - Service		-4.845	-8.377	-788.704	456.255	-0.056

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 45 deg - No Ice
7	0.9 Dead+1.6 Wind 45 deg - No Ice
8	1.2 Dead+1.6 Wind 60 deg - No Ice
9	0.9 Dead+1.6 Wind 60 deg - No Ice
10	1.2 Dead+1.6 Wind 90 deg - No Ice
11	0.9 Dead+1.6 Wind 90 deg - No Ice
12	1.2 Dead+1.6 Wind 120 deg - No Ice
13	0.9 Dead+1.6 Wind 120 deg - No Ice
14	1.2 Dead+1.6 Wind 135 deg - No Ice
15	0.9 Dead+1.6 Wind 135 deg - No Ice
16	1.2 Dead+1.6 Wind 150 deg - No Ice
17	0.9 Dead+1.6 Wind 150 deg - No Ice
18	1.2 Dead+1.6 Wind 180 deg - No Ice
19	0.9 Dead+1.6 Wind 180 deg - No Ice
20	1.2 Dead+1.6 Wind 210 deg - No Ice
21	0.9 Dead+1.6 Wind 210 deg - No Ice
22	1.2 Dead+1.6 Wind 225 deg - No Ice
23	0.9 Dead+1.6 Wind 225 deg - No Ice
24	1.2 Dead+1.6 Wind 240 deg - No Ice
25	0.9 Dead+1.6 Wind 240 deg - No Ice
26	1.2 Dead+1.6 Wind 270 deg - No Ice
27	0.9 Dead+1.6 Wind 270 deg - No Ice
28	1.2 Dead+1.6 Wind 300 deg - No Ice
29	0.9 Dead+1.6 Wind 300 deg - No Ice
30	1.2 Dead+1.6 Wind 315 deg - No Ice
31	0.9 Dead+1.6 Wind 315 deg - No Ice
32	1.2 Dead+1.6 Wind 330 deg - No Ice
33	0.9 Dead+1.6 Wind 330 deg - No Ice
34	1.2 Dead+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 45 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
39	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
40	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp

Comb. No.	Description
41	1.2 Dead+1.0 Wind 135 deg+1.0 Ice+1.0 Temp
42	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
43	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
44	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
45	1.2 Dead+1.0 Wind 225 deg+1.0 Ice+1.0 Temp
46	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
47	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
48	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
49	1.2 Dead+1.0 Wind 315 deg+1.0 Ice+1.0 Temp
50	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
51	Dead+Wind 0 deg - Service
52	Dead+Wind 30 deg - Service
53	Dead+Wind 45 deg - Service
54	Dead+Wind 60 deg - Service
55	Dead+Wind 90 deg - Service
56	Dead+Wind 120 deg - Service
57	Dead+Wind 135 deg - Service
58	Dead+Wind 150 deg - Service
59	Dead+Wind 180 deg - Service
60	Dead+Wind 210 deg - Service
61	Dead+Wind 225 deg - Service
62	Dead+Wind 240 deg - Service
63	Dead+Wind 270 deg - Service
64	Dead+Wind 300 deg - Service
65	Dead+Wind 315 deg - Service
66	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	145 - 90.83	Pole	Max Tension	34	0.000	-0.000	-0.000
			Max. Compression	34	-34.365	0.884	1.351
			Max. Mx	26	-14.152	812.425	1.772
			Max. My	2	-14.681	1.331	733.241
			Max. Vy	26	-26.941	812.425	1.772
			Max. Vx	2	-23.602	1.331	733.241
			Max. Torque	8			1.569
L2	90.83 - 59.08	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	34	-48.637	0.884	1.351
			Max. Mx	26	-23.419	1973.458	3.022
			Max. My	2	-23.932	2.570	1712.256
			Max. Vy	26	-36.002	1973.458	3.022
			Max. Vx	32	-30.663	983.668	1699.498
			Max. Torque	6			0.909
L3	59.08 - 42.83	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	34	-53.073	0.884	1.351
			Max. Mx	26	-26.664	2348.172	3.357
			Max. My	32	-26.707	1168.012	2018.132
			Max. Vy	26	-38.391	2348.172	3.357
			Max. Vx	32	-32.596	1168.012	2018.132
			Max. Torque	6			0.906
L4	42.83 - 40.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	34	-59.218	0.884	1.351
			Max. Mx	26	-31.200	2683.875	3.638
			Max. My	32	-31.242	1332.693	2302.812
			Max. Vy	26	-40.568	2683.875	3.638
			Max. Vx	32	-34.363	1332.693	2302.812

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Torque	6			0.906
L5	40.5 - 0	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	34	-80.298	0.884	1.350
			Max. Mx	26	-48.582	4451.211	4.947
			Max. My	32	-48.583	2195.854	3795.245
			Max. Vy	26	-46.528	4451.211	4.947
			Max. Vx	32	-39.187	2195.854	3795.245
			Max. Torque	6			0.906

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	47	80.298	11.847	0.007
	Max. H_x	26	48.618	46.489	0.032
	Max. H_z	32	48.618	22.642	39.154
	Max. M_x	32	3795.245	22.642	39.154
	Max. M_z	10	4450.537	-46.489	-0.032
	Max. Torsion	6	0.905	-25.454	25.429
	Min. Vert	23	36.464	25.454	-25.429
	Min. H_x	10	48.618	-46.489	-0.032
	Min. H_z	16	48.618	-22.642	-39.154
	Min. M_x	16	-3793.651	-22.642	-39.154
	Min. M_z	26	-4451.211	46.489	0.032
	Min. Torsion	22	-0.905	25.454	-25.429

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	40.515	0.000	0.000	-0.625	0.266	0.000
1.2 Dead+1.6 Wind 0 deg - No Ice	48.618	-0.032	-37.164	-3693.019	4.488	-0.640
0.9 Dead+1.6 Wind 0 deg - No Ice	36.464	-0.032	-37.164	-3662.940	4.364	-0.636
1.2 Dead+1.6 Wind 30 deg - No Ice	48.618	17.987	-31.155	-3096.745	-1787.111	-0.874
0.9 Dead+1.6 Wind 30 deg - No Ice	36.464	17.987	-31.155	-3071.406	-1772.690	-0.862
1.2 Dead+1.6 Wind 45 deg - No Ice	48.618	25.454	-25.429	-2527.385	-2529.644	-0.905
0.9 Dead+1.6 Wind 45 deg - No Ice	36.464	25.454	-25.429	-2506.669	-2509.195	-0.889
1.2 Dead+1.6 Wind 60 deg - No Ice	48.618	31.239	-18.000	-1789.378	-3105.886	-0.874
0.9 Dead+1.6 Wind 60 deg - No Ice	36.464	31.239	-18.000	-1774.654	-3080.758	-0.856
1.2 Dead+1.6 Wind 90 deg - No Ice	48.618	46.489	0.032	3.355	-4450.537	-0.650
0.9 Dead+1.6 Wind 90 deg - No Ice	36.464	46.489	0.032	3.527	-4415.673	-0.628

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
1.2 Dead+1.6 Wind 120 deg - No Ice	48.618	38.340	22.136	2159.240	-3740.957	-0.242
0.9 Dead+1.6 Wind 120 deg - No Ice	36.464	38.340	22.136	2142.327	-3711.389	-0.225
1.2 Dead+1.6 Wind 135 deg - No Ice	48.618	30.501	30.475	3003.834	-3007.685	-0.006
0.9 Dead+1.6 Wind 135 deg - No Ice	36.464	30.501	30.475	2980.089	-2983.789	0.006
1.2 Dead+1.6 Wind 150 deg - No Ice	48.618	22.642	39.154	3793.651	-2195.184	0.230
0.9 Dead+1.6 Wind 150 deg - No Ice	36.464	22.642	39.154	3763.876	-2177.918	0.237
1.2 Dead+1.6 Wind 180 deg - No Ice	48.618	0.032	37.164	3691.425	-3.818	0.640
0.9 Dead+1.6 Wind 180 deg - No Ice	36.464	0.032	37.164	3661.764	-3.869	0.637
1.2 Dead+1.6 Wind 210 deg - No Ice	48.618	-17.987	31.155	3095.153	1787.783	0.874
0.9 Dead+1.6 Wind 210 deg - No Ice	36.464	-17.987	31.155	3070.232	1773.186	0.862
1.2 Dead+1.6 Wind 225 deg - No Ice	48.618	-25.454	25.429	2525.793	2530.317	0.905
0.9 Dead+1.6 Wind 225 deg - No Ice	36.464	-25.454	25.429	2505.495	2509.691	0.889
1.2 Dead+1.6 Wind 240 deg - No Ice	48.618	-31.239	18.000	1787.787	3106.560	0.874
0.9 Dead+1.6 Wind 240 deg - No Ice	36.464	-31.239	18.000	1773.480	3081.255	0.856
1.2 Dead+1.6 Wind 270 deg - No Ice	48.618	-46.489	-0.032	-4.947	4451.211	0.650
0.9 Dead+1.6 Wind 270 deg - No Ice	36.464	-46.489	-0.032	-4.701	4416.171	0.628
1.2 Dead+1.6 Wind 300 deg - No Ice	48.618	-38.340	-22.136	-2160.834	3741.630	0.242
0.9 Dead+1.6 Wind 300 deg - No Ice	36.464	-38.340	-22.136	-2143.503	3711.885	0.225
1.2 Dead+1.6 Wind 315 deg - No Ice	48.618	-30.501	-30.475	-3005.429	3008.357	0.006
0.9 Dead+1.6 Wind 315 deg - No Ice	36.464	-30.501	-30.475	-2981.265	2984.284	-0.006
1.2 Dead+1.6 Wind 330 deg - No Ice	48.618	-22.642	-39.154	-3795.245	2195.854	-0.230
0.9 Dead+1.6 Wind 330 deg - No Ice	36.464	-22.642	-39.154	-3765.052	2178.412	-0.237
1.2 Dead+1.0 Ice+1.0 Temp	80.298	-0.000	-0.000	-1.350	0.884	0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	80.298	-0.007	-9.957	-1058.254	1.854	-0.295
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	80.298	4.454	-7.714	-823.985	-473.911	-0.338
1.2 Dead+1.0 Wind 45 deg+1.0 Ice+1.0 Temp	80.298	6.114	-6.109	-658.161	-656.446	-0.325
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	80.298	8.418	-4.853	-516.979	-893.691	-0.295
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	80.298	11.847	0.007	-0.587	-1186.395	-0.176
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	80.298	9.975	5.759	584.129	-1013.334	-0.004
1.2 Dead+1.0 Wind 135 deg+1.0 Ice+1.0 Temp	80.298	7.774	7.769	795.198	-796.436	0.086
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	80.298	5.592	9.672	987.120	-570.829	0.169

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	80.298	0.007	9.957	1055.302	0.075	0.295
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	80.298	-4.454	7.714	821.033	475.841	0.338
1.2 Dead+1.0 Wind 225 deg+1.0 Ice+1.0 Temp	80.298	-6.114	6.109	655.209	658.377	0.325
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	80.298	-8.418	4.853	514.027	895.622	0.295
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	80.298	-11.847	-0.007	-2.366	1188.326	0.176
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	80.298	-9.975	-5.759	-587.082	1015.264	0.004
1.2 Dead+1.0 Wind 315 deg+1.0 Ice+1.0 Temp	80.298	-7.774	-7.769	-798.151	798.366	-0.086
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	80.298	-5.592	-9.672	-990.073	572.759	-0.168
Dead+Wind 0 deg - Service	40.515	-0.007	-7.952	-787.282	1.165	-0.138
Dead+Wind 30 deg - Service	40.515	3.849	-6.666	-660.197	-380.503	-0.187
Dead+Wind 45 deg - Service	40.515	5.446	-5.441	-538.906	-538.687	-0.193
Dead+Wind 60 deg - Service	40.515	6.684	-3.851	-381.689	-661.448	-0.186
Dead+Wind 90 deg - Service	40.515	9.947	0.007	0.224	-948.429	-0.138
Dead+Wind 120 deg - Service	40.515	8.203	4.736	459.716	-797.115	-0.050
Dead+Wind 135 deg - Service	40.515	6.526	6.521	639.699	-640.802	0.000
Dead+Wind 150 deg - Service	40.515	4.845	8.377	808.098	-467.677	0.051
Dead+Wind 180 deg - Service	40.515	0.007	7.952	785.961	-0.604	0.138
Dead+Wind 210 deg - Service	40.515	-3.849	6.666	658.876	381.064	0.187
Dead+Wind 225 deg - Service	40.515	-5.446	5.441	537.585	539.248	0.193
Dead+Wind 240 deg - Service	40.515	-6.684	3.851	380.368	662.010	0.186
Dead+Wind 270 deg - Service	40.515	-9.947	-0.007	-1.545	948.990	0.138
Dead+Wind 300 deg - Service	40.515	-8.203	-4.736	-461.037	797.676	0.050
Dead+Wind 315 deg - Service	40.515	-6.526	-6.521	-641.021	641.363	-0.000
Dead+Wind 330 deg - Service	40.515	-4.845	-8.377	-809.419	468.239	-0.051

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.000	-40.515	0.000	0.000	40.515	0.000	0.000%
2	-0.032	-48.618	-37.164	0.032	48.618	37.164	0.000%
3	-0.032	-36.464	-37.164	0.032	36.464	37.164	0.000%
4	17.987	-48.618	-31.155	-17.987	48.618	31.155	0.000%
5	17.987	-36.464	-31.155	-17.987	36.464	31.155	0.000%
6	25.454	-48.618	-25.429	-25.454	48.618	25.429	0.000%
7	25.454	-36.464	-25.429	-25.454	36.464	25.429	0.000%
8	31.239	-48.618	-18.000	-31.239	48.618	18.000	0.000%
9	31.239	-36.464	-18.000	-31.239	36.464	18.000	0.000%
10	46.489	-48.618	0.032	-46.489	48.618	-0.032	0.000%
11	46.489	-36.464	0.032	-46.489	36.464	-0.032	0.000%
12	38.340	-48.618	22.136	-38.340	48.618	-22.136	0.000%
13	38.340	-36.464	22.136	-38.340	36.464	-22.136	0.000%
14	30.501	-48.618	30.475	-30.501	48.618	-30.475	0.000%
15	30.501	-36.464	30.475	-30.501	36.464	-30.475	0.000%
16	22.642	-48.618	39.154	-22.642	48.618	-39.154	0.000%
17	22.642	-36.464	39.154	-22.642	36.464	-39.154	0.000%
18	0.032	-48.618	37.164	-0.032	48.618	-37.164	0.000%
19	0.032	-36.464	37.164	-0.032	36.464	-37.164	0.000%
20	-17.987	-48.618	31.155	17.987	48.618	-31.155	0.000%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
21	-17.987	-36.464	31.155	17.987	36.464	-31.155	0.000%
22	-25.454	-48.618	25.429	25.454	48.618	-25.429	0.000%
23	-25.454	-36.464	25.429	25.454	36.464	-25.429	0.000%
24	-31.239	-48.618	18.000	31.239	48.618	-18.000	0.000%
25	-31.239	-36.464	18.000	31.239	36.464	-18.000	0.000%
26	-46.489	-48.618	-0.032	46.489	48.618	0.032	0.000%
27	-46.489	-36.464	-0.032	46.489	36.464	0.032	0.000%
28	-38.340	-48.618	-22.136	38.340	48.618	22.136	0.000%
29	-38.340	-36.464	-22.136	38.340	36.464	22.136	0.000%
30	-30.501	-48.618	-30.475	30.501	48.618	30.475	0.000%
31	-30.501	-36.464	-30.475	30.501	36.464	30.475	0.000%
32	-22.642	-48.618	-39.154	22.642	48.618	39.154	0.000%
33	-22.642	-36.464	-39.154	22.642	36.464	39.154	0.000%
34	0.000	-80.298	0.000	0.000	80.298	0.000	0.000%
35	-0.007	-80.298	-9.956	0.007	80.298	9.957	0.000%
36	4.453	-80.298	-7.714	-4.454	80.298	7.714	0.000%
37	6.114	-80.298	-6.109	-6.114	80.298	6.109	0.000%
38	8.418	-80.298	-4.853	-8.418	80.298	4.853	0.000%
39	11.847	-80.298	0.007	-11.847	80.298	-0.007	0.000%
40	9.975	-80.298	5.759	-9.975	80.298	-5.759	0.000%
41	7.774	-80.298	7.769	-7.774	80.298	-7.769	0.000%
42	5.592	-80.298	9.672	-5.592	80.298	-9.672	0.000%
43	0.007	-80.298	9.956	-0.007	80.298	-9.957	0.000%
44	-4.453	-80.298	7.714	4.454	80.298	-7.714	0.000%
45	-6.114	-80.298	6.109	6.114	80.298	-6.109	0.000%
46	-8.418	-80.298	4.853	8.418	80.298	-4.853	0.000%
47	-11.847	-80.298	-0.007	11.847	80.298	0.007	0.000%
48	-9.975	-80.298	-5.759	9.975	80.298	5.759	0.000%
49	-7.774	-80.298	-7.769	7.774	80.298	7.769	0.000%
50	-5.592	-80.298	-9.672	5.592	80.298	9.672	0.000%
51	-0.007	-40.515	-7.952	0.007	40.515	7.952	0.000%
52	3.849	-40.515	-6.666	-3.849	40.515	6.666	0.000%
53	5.446	-40.515	-5.441	-5.446	40.515	5.441	0.000%
54	6.684	-40.515	-3.851	-6.684	40.515	3.851	0.000%
55	9.947	-40.515	0.007	-9.947	40.515	-0.007	0.000%
56	8.203	-40.515	4.736	-8.203	40.515	-4.736	0.000%
57	6.526	-40.515	6.521	-6.526	40.515	-6.521	0.000%
58	4.845	-40.515	8.377	-4.845	40.515	-8.377	0.000%
59	0.007	-40.515	7.952	-0.007	40.515	-7.952	0.000%
60	-3.849	-40.515	6.666	3.849	40.515	-6.666	0.000%
61	-5.446	-40.515	5.441	5.446	40.515	-5.441	0.000%
62	-6.684	-40.515	3.851	6.684	40.515	-3.851	0.000%
63	-9.947	-40.515	-0.007	9.947	40.515	0.007	0.000%
64	-8.203	-40.515	-4.736	8.203	40.515	4.736	0.000%
65	-6.526	-40.515	-6.521	6.526	40.515	6.521	0.000%
66	-4.845	-40.515	-8.377	4.845	40.515	8.377	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00033557
3	Yes	4	0.00000001	0.00018356
4	Yes	5	0.00000001	0.00040266
5	Yes	5	0.00000001	0.00017340

6	Yes	5	0.00000001	0.00045957
7	Yes	5	0.00000001	0.00019583
8	Yes	5	0.00000001	0.00041693
9	Yes	5	0.00000001	0.00017980
10	Yes	4	0.00000001	0.00030247
11	Yes	4	0.00000001	0.00014943
12	Yes	5	0.00000001	0.00054112
13	Yes	5	0.00000001	0.00021900
14	Yes	5	0.00000001	0.00059521
15	Yes	5	0.00000001	0.00023768
16	Yes	5	0.00000001	0.00055115
17	Yes	5	0.00000001	0.00022186
18	Yes	4	0.00000001	0.00028818
19	Yes	4	0.00000001	0.00015065
20	Yes	5	0.00000001	0.00041469
21	Yes	5	0.00000001	0.00017905
22	Yes	5	0.00000001	0.00045906
23	Yes	5	0.00000001	0.00019567
24	Yes	5	0.00000001	0.00040382
25	Yes	5	0.00000001	0.00017382
26	Yes	4	0.00000001	0.00035905
27	Yes	4	0.00000001	0.00018651
28	Yes	5	0.00000001	0.00054588
29	Yes	5	0.00000001	0.00022087
30	Yes	5	0.00000001	0.00059624
31	Yes	5	0.00000001	0.00023794
32	Yes	5	0.00000001	0.00055532
33	Yes	5	0.00000001	0.00022360
34	Yes	4	0.00000001	0.00000879
35	Yes	5	0.00000001	0.00044189
36	Yes	5	0.00000001	0.00044936
37	Yes	5	0.00000001	0.00045720
38	Yes	5	0.00000001	0.00049264
39	Yes	5	0.00000001	0.00047695
40	Yes	5	0.00000001	0.00055581
41	Yes	5	0.00000001	0.00055679
42	Yes	5	0.00000001	0.00054116
43	Yes	5	0.00000001	0.00043888
44	Yes	5	0.00000001	0.00044913
45	Yes	5	0.00000001	0.00045611
46	Yes	5	0.00000001	0.00049058
47	Yes	5	0.00000001	0.00047881
48	Yes	5	0.00000001	0.00056079
49	Yes	5	0.00000001	0.00056198
50	Yes	5	0.00000001	0.00054706
51	Yes	4	0.00000001	0.00004899
52	Yes	4	0.00000001	0.00016270
53	Yes	4	0.00000001	0.00019391
54	Yes	4	0.00000001	0.00017735
55	Yes	4	0.00000001	0.00005602
56	Yes	4	0.00000001	0.00025252
57	Yes	4	0.00000001	0.00028548
58	Yes	4	0.00000001	0.00026073
59	Yes	4	0.00000001	0.00004858
60	Yes	4	0.00000001	0.00017562
61	Yes	4	0.00000001	0.00019312
62	Yes	4	0.00000001	0.00016286
63	Yes	4	0.00000001	0.00005641
64	Yes	4	0.00000001	0.00025959
65	Yes	4	0.00000001	0.00028786
66	Yes	4	0.00000001	0.00026720

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	145 - 90.83	21.801	63	1.279	0.002
L2	96 - 59.08	9.586	63	0.987	0.001
L3	59.08 - 42.83	3.451	63	0.557	0.000
L4	49 - 40.5	2.392	63	0.446	0.000
L5	40.5 - 0	1.642	63	0.387	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
143.000	Lightning Rod 3/4"x8'	63	21.265	1.271	0.002	51243
135.000	(2) AIR21 B2A/B4P	63	19.129	1.236	0.002	25621
127.000	7770.00	63	17.022	1.198	0.001	14234
110.000	APXVSPP18-C-A20	63	12.755	1.099	0.001	7319

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	145 - 90.83	102.199	26	6.001	0.009
L2	96 - 59.08	44.968	26	4.631	0.003
L3	59.08 - 42.83	16.193	26	2.615	0.001
L4	49 - 40.5	11.221	26	2.093	0.001
L5	40.5 - 0	7.705	26	1.815	0.001

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
143.000	Lightning Rod 3/4"x8'	26	99.689	5.961	0.008	11185
135.000	(2) AIR21 B2A/B4P	26	89.683	5.797	0.007	5591
127.000	7770.00	26	79.817	5.621	0.006	3104
110.000	APXVSPP18-C-A20	26	59.824	5.159	0.004	1593

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	145 - 90.83 (1)	TP33.48x23.61x0.281	54.170	0.000	0.0	29.187	-14.152	1938.370	0.007
L2	90.83 - 59.08 (2)	TP38.686x31.976x0.375	36.920	0.000	0.0	46.260	-23.419	3225.990	0.007
L3	59.08 - 42.83 (3)	TP41.64x38.686x0.481	16.250	0.000	0.0	61.972	-26.664	3724.670	0.007
L4	42.83 - 40.5 (4)	TP41.316x39.557x0.542	8.500	0.000	0.0	71.174	-31.200	4358.390	0.007
L5	40.5 - 0 (5)	TP48.69x41.316x0.622	40.500	0.000	0.0	96.334	-48.582	6226.810	0.008

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	145 - 90.83 (1)	TP33.48x23.61x0.281	812.428	1272.825	0.638	0.000	1272.825	0.000
L2	90.83 - 59.08 (2)	TP38.686x31.976x0.375	1973.458	2513.217	0.785	0.000	2513.217	0.000
L3	59.08 - 42.83 (3)	TP41.64x38.686x0.481	2348.175	3025.850	0.776	0.000	3025.850	0.000
L4	42.83 - 40.5 (4)	TP41.316x39.557x0.542	2683.875	3601.225	0.745	0.000	3601.225	0.000
L5	40.5 - 0 (5)	TP48.69x41.316x0.622	4451.217	6067.441	0.734	0.000	6067.441	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	145 - 90.83 (1)	TP33.48x23.61x0.281	26.941	969.186	0.028	0.654	2580.892	0.000
L2	90.83 - 59.08 (2)	TP38.686x31.976x0.375	36.002	1613.000	0.022	0.651	5096.025	0.000
L3	59.08 - 42.83 (3)	TP41.64x38.686x0.481	38.391	1862.330	0.021	0.651	6135.483	0.000
L4	42.83 - 40.5 (4)	TP41.316x39.557x0.542	40.568	2179.200	0.019	0.651	7302.150	0.000
L5	40.5 - 0 (5)	TP48.69x41.316x0.622	46.528	3113.410	0.015	0.650	12302.916	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	145 - 90.83 (1)	0.007	0.638	0.000	0.028	0.000	0.646 ✔	1.000	4.8.2 ✔
L2	90.83 - 59.08 (2)	0.007	0.785	0.000	0.022	0.000	0.793 ✔	1.000	4.8.2 ✔

Section No.	Elevation ft	Ratio P_u / ϕP_n	Ratio M_{ux} / ϕM_{nx}	Ratio M_{uy} / ϕM_{ny}	Ratio V_u / ϕV_n	Ratio T_u / ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L3	59.08 - 42.83 (3)	0.007	0.776	0.000	0.021	0.000	0.784 ✔	1.000	4.8.2 ✔
L4	42.83 - 40.5 (4)	0.007	0.745	0.000	0.019	0.000	0.753 ✔	1.000	4.8.2 ✔
L5	40.5 - 0 (5)	0.008	0.734	0.000	0.015	0.000	0.742 ✔	1.000	4.8.2 ✔

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	145 - 90.83	Pole	TP33.48x23.61x0.281	1	-14.152	1938.370	64.6	Pass
L2	90.83 - 59.08	Pole	TP38.686x31.976x0.375	2	-23.419	3225.990	79.3	Pass
L3	59.08 - 42.83	Pole	TP41.64x38.686x0.481	3	-26.664	3724.670	78.4	Pass
L4	42.83 - 40.5	Pole	TP41.316x39.557x0.542	4	-31.200	4358.390	75.3	Pass
L5	40.5 - 0	Pole	TP48.69x41.316x0.622	5	-48.582	6226.810	74.2	Pass
							Summary	
						Pole (L2)	79.3	Pass
						RATING =	**79.3**	**Pass**

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Subject:	Anchor Bolt and Baseplate Analysis
Location:	145-FT Monopole Fairfield, CT
Rev. 0: 10/5/18	Prepared by: T.J.L. Checked by: C.A.G. Job No. 18000.61

Anchor Bolt and Base Plate Analysis:

Input Data:

Tower Reactions:

Overturning Moment =	$M_u := 4451 \cdot ft \cdot kips$	(Input From tnxTower)
Shear Force =	$Shear := 46 \cdot kips$	(Input From tnxTower)
Axial Force =	$R_u := 49 \cdot kips$	(Input From tnxTower)

Anchor Bolt Data:

ASTMA615 Grade 75

Number of Anchor Bolts =	$N := 16$	(User Input)
Diameter of Bolt Circle =	$D_{BC} := 56.91 \cdot in$	(User Input)
Bolt Ultimate Strength =	$F_u := 100 \cdot ksi$	(User Input)
Bolt Yield 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)
Top of Concrete to Bot Leveling Nut =	$l_{ar} := 2 \cdot in$	(User Input)
Anchor Rod Force Correction Factor =	$n_c = 1.02$	Table 2-1 Addendum 3

Base Plate Data:

ASTMA572 Grade 60

Plate Yield Strength =	$F_{yf} := 60 \cdot ksi$	(User Input)
Base Plate Thickness =	$t_{TP} := 2.75 \cdot in$	(User Input)
Base Plate Diameter =	$D_{OD} := 62.9 \cdot in$	(User Input)
Outer Pole Diameter =	$D_T := 48.69 \cdot in$	(User Input)
Pole Wall Thickness =	$t_T := 0.4375 \cdot in$	(User Input)
Pole Design Yield Strength =	$F_{yp} := 65 \cdot ksi$	(User Input)
	$\eta := 0.5$	For Ungrouted Base Plate per TIA-222-G Section 4.9.9

Anchor Bolt Analysis:

Gross Area of Bolt = $A_g := \frac{\pi}{4} \cdot D^2 = 3.976 \cdot in^2$

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

Tensile Root Diameter = $d_{rt} := D - \frac{0.9743 \cdot in}{n} = 2.033 \cdot in$

Plastic Section Modulus = $Z := \frac{d_{rt}^3}{6} = 1.401 \cdot in^3$

Maximum Anchor Rod Force = $P_u := \frac{n_c \cdot \pi \cdot M_u}{N \cdot D_{BC}} + \frac{R_u}{N} = 191 \cdot kips$

Maximum Shear Force = $V_u := \frac{Shear}{N} = 2.9 \cdot kips$

Design Tensile Strength = $\Phi R_{nt} := 0.8 \cdot F_u \cdot A_n = 259.815 \cdot k$

Bolt % of Capacity = $\frac{\left(P_u + \frac{V_u}{\eta} \right)}{\Phi R_{nt}} \cdot 100 = 75.7$

Condition1 = $Condition1 := if\left[\frac{\left(P_u + \frac{V_u}{\eta} \right)}{\Phi R_{nt}} \le 1.00, "OK", "Overstressed" \right]$

Condition1 = "OK"

Design Shear Strength = $\Phi R_{nv} := 0.75 \cdot 0.45 \cdot F_u \cdot A_g = 134.193 \cdot k$

Design Flexural Strength = $\Phi R_{nm} := 0.9 \cdot F_y \cdot Z = 94.597 \cdot in \cdot k$

$M_u := \begin{cases} 0 & \text{if } l_{ar} < D \\ 0.65 \cdot l_{ar} \cdot V_u & \text{otherwise} \end{cases} = 0 \cdot in \cdot k$

Bolt % of Capacity = $\left[\left(\frac{V_u}{\Phi R_{nv}} \right)^2 + \left(\frac{P_u}{\Phi R_{nt}} + \frac{M_u}{\Phi R_{nm}} \right)^2 \right] \cdot 100 = 54.1$

Condition2 = $Condition2 := if\left[\left(\frac{V_u}{\Phi R_{nv}} \right)^2 + \left(\frac{P_u}{\Phi R_{nt}} + \frac{M_u}{\Phi R_{nm}} \right)^2 \le 1.00, "OK", "Overstressed" \right]$

Condition2 = "OK"

Base Plate Analysis:

Strength Resistance Factor for Yielding due to Bending = $\phi_b := 0.9$

Strength Resistance Factor for Yielding due to Shear = $\phi_v := 1.0$

Outside Fillet Horizontal Leg Dimension = $w_1 := 0.25 \cdot in$

Effective Pole Outside Diameter = $D_e := D_T + w_1 = 48.94 \cdot in$

Effective Base Plate Outside Diameter = $D_{oe} := \begin{cases} D_{OD} & \text{if } D_{OD} \le \left(D_{BC} + 6 \cdot t_{TP}\right) \\ \left(D_{BC} + 6 \cdot t_{TP}\right) & \text{otherwise} \end{cases} = 62.9 \cdot in$

Half-Angle Between Radial Lines Extending from Pole Centerline Through Midpoints Between Adjacent Anchor Rods = $\theta_1 := \frac{\pi}{N} = 0.196$

Angle Defining Limiting Effective Base Plate Width Based on Plate Thickness = $\theta_2 := \operatorname{asin}\left(\frac{12 \cdot t_{TP}}{D_{BC}}\right) = 0.619$

Angle Defining Limiting Effective Base Plate Width Based on Distance Between Anchor Rod Bolt Circle and Effective Pole Outside Diameter = $\theta_3 := \operatorname{acos}\left(\frac{D_{BC} + D_e}{2 \cdot D_{BC}}\right) = 0.376$

Governing Angle Defining Effective Base Plate Width Resisting Bending = $\theta := \min\left(\theta_1, \theta_2, \theta_3\right) = 0.196$

Effective Moment Arm of Anchor Rod Force = $x := 0.5 \cdot \left(D_{BC} - D_e\right) = 3.985 \cdot in$

Effective Base Plate Width Resisting Bending from Transverse Bend Line = $B_{et} := D_{BC} \cdot \sin(\theta) = 11.103 \cdot in$

Effective Base Plate Width Resisting Bending from Radial Bend Lines = $B_{er} := \left(D_{oe} - D_e\right) \cdot \sin(\theta) = 2.723 \cdot in$

Total Effective Base Plate Width Resisting Bending = $B_{eff} := B_{et} + B_{er} = 13.826 \cdot in$

Required Base Plate Thickness = $t_{TP.Req} := \sqrt{\frac{4 \cdot P_u \cdot x}{\phi_b \cdot F_{yf} \cdot B_{eff}}} = 2.02 \cdot in$

Plate Bending Stress % of Capacity = $\frac{t_{TP.Req}}{t_{TP}} = 73.4 \cdot \%$

Condition2 = $Condition3 := if\left(\frac{t_{TP.Req}}{t_{TP}} < 1.00, "Ok", "Overstressed"\right)$

Condition3 = "Ok"

Required Base Plate Thickness = $t_{TP.Req} := \frac{\phi_b \cdot t_T \cdot F_{yp}}{\phi_v \cdot 0.6 \cdot F_{yf}} = 0.711 \cdot in$

Plate Bending Stress % of Capacity = $\frac{t_{TP.Req}}{t_{TP}} = 25.9 \cdot \%$

Condition2 = $Condition4 := if\left(\frac{t_{TP.Req}}{t_{TP}} < 1.00, "Ok", "Overstressed"\right)$

Condition4 = "Ok"

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Subject:	CAISSON FOUNDATION
Location:	145-ft Monopole Fairfield, CT
Rev. 0: 10/5/18	Prepared by: TJL Checked by: C.F.C. Job No. 18000.61

Caisson Foundation:

Input Data:

Shear Force =	$S := 46k$	*USER INPUT-FROM tnxTower*
Overturning Moment =	$M := 4451ft \cdot k$	*USER INPUT-FROM tnxTower*
Applied Axial Load =	$A1 := 49k$	*USER INPUT-FROM tnxTower*
Bending Moment =	$Mu := 4630ft \cdot k$	*USER INPUT--FROM LPILE*
Moment Capacity =	$Mn := 8293ft \cdot k$	*USER INPUT--FROM LPILE*
Foundation Diameter =	$d := 6.5ft$	*USER INPUT*
Overall Length of Caisson =	$L_c := 25ft$	*USER INPUT*
Depth From Top of Caisson to Grade =	$L_{pag} := 1.0ft$	*USER INPUT*
Number of Rebar =	$n := 34$	*USER INPUT*
Area of Rebar =	$Ar := 1.560in^2$	*USER INPUT*
Rebar Yield Strength =	$fy := 60ksi$	*USER INPUT*
Concrete Comp Strength =	$f'c := 3ksi$	*USER INPUT*

Check Moment Capacity:

Factor of Safety = $FS := \frac{0.9Mn}{Mu} = 1.612$

Factor of Safety Required = $FS_{reqd} := 1.0$

$FOSCheck := if(FS \geq FS_{reqd}, "OK", "NO GOOD")$

FOSCheck = "OK"

LPILE Plus for Windows, Version 5.0 (5.0.47)

Analysis of Individual Piles and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method

This program is licensed to:

TJL
Centek Engineering

Files Used for Analysis

Path to file locations: J:\Jobs\1800000.WI\61_CT5022\04_Structural\Tower Analysis\Backup Documentation\L-Pile\
Name of input data file: Fairfield Caisson.lpd
Name of output file: Fairfield Caisson.lpo
Name of plot output file: Fairfield Caisson.lpp
Name of runtime file: Fairfield Caisson.lpr

Time and Date of Analysis

Date: October 5, 2018 Time: 10:59:45

Problem Title

18000.61 - CT5022

Program Options

Units Used in Computations - US Customary Units: Inches, Pounds

Basic Program Options:

Analysis Type 3:
- Computation of Nonlinear Bending Stiffness and Ultimate Bending Moment Capacity with Pile Response Computed Using Nonlinear EI

Computation Options:
- Only internally-generated p-y curves used in analysis
- Analysis does not use p-y multipliers (individual pile or shaft action only)
- Analysis assumes no shear resistance at pile tip
- Analysis for fixed-length pile or shaft only
- Analysis includes computation of foundation stiffness matrix elements
- Output summary table of values for pile-head deflection, maximum bending moment, and shear force only
- Analysis assumes no soil movements acting on pile
- No additional p-y curves to be computed at user-specified depths

Solution Control Parameters:
- Number of pile increments = 100
- Maximum number of iterations allowed = 100
- Deflection tolerance for convergence = 1.0000E-04 in
- Maximum allowable deflection = 1.0000E+02 in

Printing Options:
- Only summary tables of pile-head deflection, maximum bending moment, and maximum shear force are to be printed in output file.

Pile Structural Properties and Geometry

Pile Length = 300.00 in

Depth of ground surface below top of pile = 12.00 in

Slope angle of ground surface = 0.00 deg.

Structural properties of pile defined using 2 points

Point No.	Point Depth in	Pile Diameter in	Moment of Inertia in**4	Pile Area Sq.in	Modulus of Elasticity lbs/Sq.in
1	0.0000	78.00000000	1816972.	4778.0000	3122018.
2	300.0000	78.00000000	1816972.	4778.0000	3122018.

Please note that because this analysis makes computations of ultimate moment capacity and pile response using nonlinear bending stiffness

that the above values of moment of inertia and modulus of are not used for any computations other than total stress due to combined axial loading and bending.

Soil and Rock Layering Information

The soil profile is modelled using 3 layers

Layer 1 is sand, p-y criteria by Reese et al., 1974
Distance from top of pile to top of layer = 12.000 in
Distance from top of pile to bottom of layer = 48.000 in
p-y subgrade modulus k for top of soil layer = 0.000 lbs/in**3
p-y subgrade modulus k for bottom of layer = 0.000 lbs/in**3

NOTE: Internal default values for p-y subgrade modulus will be computed for the above soil layer.

Layer 2 is sand, p-y criteria by Reese et al., 1974
Distance from top of pile to top of layer = 48.000 in
Distance from top of pile to bottom of layer = 114.000 in
p-y subgrade modulus k for top of soil layer = 0.000 lbs/in**3
p-y subgrade modulus k for bottom of layer = 0.000 lbs/in**3

NOTE: Internal default values for p-y subgrade modulus will be computed for the above soil layer.

Layer 3 is sand, p-y criteria by Reese et al., 1974
Distance from top of pile to top of layer = 114.000 in
Distance from top of pile to bottom of layer = 300.000 in
p-y subgrade modulus k for top of soil layer = 0.000 lbs/in**3
p-y subgrade modulus k for bottom of layer = 0.000 lbs/in**3

NOTE: Internal default values for p-y subgrade modulus will be computed for the above soil layer.

(Depth of lowest layer extends 0.00 in below pile tip)

Effective Unit Weight of Soil vs. Depth

Effective unit weight of soil with depth defined using 6 points

Point	Depth X	Eff. Unit Weight

No.	in	lbs/in**3
1	12.00	0.05800
2	48.00	0.05800
3	48.00	0.06900
4	114.00	0.06900
5	114.00	0.06100
6	300.00	0.06100

Shear Strength of Soils

Shear strength parameters with depth defined using 6 points

Point No.	Depth X in	Cohesion c lbs/in**2	Angle of Friction Deg.	E50 or k_rm	RQD %
1	12.000	0.00000	30.00	------	------
2	48.000	0.00000	30.00	------	------
3	48.000	0.00000	35.00	------	------
4	114.000	0.00000	35.00	------	------
5	114.000	0.00000	30.00	------	------
6	300.000	0.00000	30.00	------	------

Notes:

(1) Cohesion = uniaxial compressive strength for rock materials.
(2) Values of E50 are reported for clay strata.
(3) Default values will be generated for E50 when input values are 0.
(4) RQD and k_rm are reported only for weak rock strata.

Loading Type

Static loading criteria was used for computation of p-y curves.

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 2

Load Case Number 1

Pile-head boundary conditions are Shear and Moment (BC Type 1)
Shear force at pile head = 46000.000 lbs
Bending moment at pile head = 53412000.000 in-lbs
Axial load at pile head = 49000.000 lbs

Non-zero moment at pile head for this load case indicates the pile-head may rotate under the applied pile-head loading, but is not a free-head (zero moment) condition.

Load Case Number 2

Pile-head boundary conditions are Shear and Moment (BC Type 1)
Shear force at pile head = 18000.000 lbs
Bending moment at pile head = 20460000.000 in-lbs
Axial load at pile head = 49000.000 lbs

Non-zero moment at pile head for this load case indicates the pile-head may rotate under the applied pile-head loading, but is not a free-head (zero moment) condition.

Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

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Number of sections = 1

Pile Section No. 1

The sectional shape is a circular drilled shaft (bored pile).

Outside Diameter = 78.0000 in

Material Properties:

Compressive Strength of Concrete = 3.000 kip/in**2
Yield Stress of Reinforcement = 60. kip/in**2
Modulus of Elasticity of Reinforcement = 29000. kip/in**2
Number of Reinforcing Bars = 34
Area of Single Bar = 1.56000 in**2
Number of Rows of Reinforcing Bars = 17
Area of Steel = 53.040 in**2

Area of Shaft = 4778.362 in**2
Percentage of Steel Reinforcement = 1.110 percent
Cover Thickness (edge to bar center) = 3.000 in

Unfactored Axial Squash Load Capacity = 15231.97 kip

Distribution and Area of Steel Reinforcement

Row Number	Area of Reinforcement in**2	Distance to Centroidal Axis in
1	3.120	35.846
2	3.120	34.626
3	3.120	32.226
4	3.120	28.729
5	3.120	24.253
6	3.120	18.952
7	3.120	13.005
8	3.120	6.615
9	3.120	0.000
10	3.120	-6.615
11	3.120	-13.005
12	3.120	-18.952
13	3.120	-24.253
14	3.120	-28.729
15	3.120	-32.226
16	3.120	-34.626
17	3.120	-35.846

Axial Thrust Force = 49000.00 lbs

Bending Moment in-lbs	Bending Stiffness lb-in2	Bending Curvature rad/in	Maximum Strain in/in	Neutral Axis Position inches	Max. Concrete Stress psi	Max. Steel Stress psi
5578775.	6.694529E+12	8.333333E-07	0.00003561	42.72646514	109.23428	956.34497
11092157.	6.655294E+12	0.00000167	0.00006823	40.93923882	207.09391	1826.30734
16539788.	6.615915E+12	0.00000250	0.00010084	40.33467105	302.88617	2695.62985
21924317.	6.577295E+12	0.00000333	0.00013353	40.05858520	396.93179	3567.48484

21924317.	5.261836E+12	0.00000417	0.00009822	23.57349953	291.94259 6195.47914
21924317.	4.384863E+12	0.00000500	0.00011623	23.24644491	343.41374 7481.99789
21924317.	3.758454E+12	0.00000583	0.00013407	22.98316982	393.79037 8773.53491
21924317.	3.288648E+12	0.00000667	0.00015194	22.79026678	443.67218 10064.19162
21924317.	2.923242E+12	0.00000750	0.00016983	22.64431331	493.05683 11353.96046
21924317.	2.630918E+12	0.00000833	0.00018776	22.53125963	541.94205 12642.83292
21924317.	2.391744E+12	0.00000917	0.00020572	22.44216308	590.32545 13930.80105
21924317.	2.192432E+12	0.00001000	0.00022371	22.37106344	638.20467 15217.85640
21924317.	2.023783E+12	0.00001083	0.00024173	22.31383458	685.57728 16503.99050
22358828.	1.916471E+12	0.00001167	0.00025979	22.26753125	732.44089 17789.19420
23873372.	1.909870E+12	0.00001250	0.00027787	22.22999159	778.79297 19073.45905
25385346.	1.903901E+12	0.00001333	0.00029599	22.19959536	824.63102 20356.77619
26894732.	1.898452E+12	0.00001417	0.00031415	22.17510590	869.95253 21639.13579
28401507.	1.893434E+12	0.00001500	0.00033233	22.15555850	914.75488 22920.52925
29905654.	1.888778E+12	0.00001583	0.00035055	22.14019534	959.03551 24200.94624
31407149.	1.884429E+12	0.00001667	0.00036881	22.12840739	1002.79171 25480.37776
32905968.	1.880341E+12	0.00001750	0.00038709	22.11970183	1046.02073 26758.81472
34402096.	1.876478E+12	0.00001833	0.00040542	22.11368117	1088.72001 28036.24498
35895505.	1.872809E+12	0.00001917	0.00042378	22.11001065	1130.88666 29312.65995
37386172.	1.869309E+12	0.00002000	0.00044217	22.10841367	1172.51782 30588.04967
38874075.	1.865956E+12	0.00002083	0.00046060	22.10866007	1213.61070 31862.40287
40359196.	1.862732E+12	0.00002167	0.00047906	22.11055693	1254.16254 33135.70713
41841502.	1.859622E+12	0.00002250	0.00049756	22.11393222	1294.17010 34407.95503
43320976.	1.856613E+12	0.00002333	0.00051610	22.11864880	1333.63067 35679.13218
44797588.	1.853693E+12	0.00002417	0.00053468	22.12458113	1372.54104

36949.22933					
46271319.	1.850853E+12	0.00002500	0.00055329	22.13162693	1410.89830
38218.23247					
47742138.	1.848083E+12	0.00002583	0.00057194	22.13969091	1448.69916
39486.13230					
49210024.	1.845376E+12	0.00002667	0.00059063	22.14869633	1485.94060
40752.91430					
50674942.	1.842725E+12	0.00002750	0.00060936	22.15856883	1522.61916
42018.56956					
52136876.	1.840125E+12	0.00002833	0.00062813	22.16925260	1558.73186
43283.08104					
53595787.	1.837570E+12	0.00002917	0.00064694	22.18068722	1594.27503
44546.44106					
55051658.	1.835055E+12	0.00003000	0.00066578	22.19283083	1629.24562
45808.63158					
56504452.	1.832577E+12	0.00003083	0.00068467	22.20563695	1663.63994
47069.64276					
57954147.	1.830131E+12	0.00003167	0.00070360	22.21907070	1697.45464
48329.45861					
59400703.	1.827714E+12	0.00003250	0.00072258	22.23309490	1730.68595
49588.06866					
62284305.	1.822955E+12	0.00003417	0.00076065	22.26281002	1795.38448
52101.60381					
65155011.	1.818279E+12	0.00003583	0.00079889	22.29458007	1857.70577
54610.13108					
68012552.	1.813668E+12	0.00003750	0.00083731	22.32824001	1917.61878
57113.53199					
70856667.	1.809106E+12	0.00003917	0.00087591	22.36366430	1975.09179
59611.67510					
73223410.	1.793226E+12	0.00004083	0.00091255	22.34810588	2027.03024
60000.00000					
75173396.	1.768786E+12	0.00004250	0.00094741	22.29199514	2074.09783
60000.00000					
76774623.	1.738293E+12	0.00004417	0.00098070	22.20458159	2116.91154
60000.00000					
78274681.	1.707811E+12	0.00004583	0.00101361	22.11503640	2157.22683
60000.00000					
79531316.	1.674343E+12	0.00004750	0.00104737	22.04995278	2196.58599
60000.00000					
80756715.	1.642509E+12	0.00004917	0.00107877	21.94107637	2231.23397
60000.00000					
81826795.	1.609707E+12	0.00005083	0.00110929	21.82213917	2263.17202
60000.00000					
82735711.	1.575918E+12	0.00005250	0.00113888	21.69299707	2292.49241
60000.00000					
83640077.	1.544125E+12	0.00005417	0.00116857	21.57352290	2320.32042
60000.00000					
84539832.	1.514146E+12	0.00005583	0.00119834	21.46287748	2346.64184
60000.00000					

85303904.	1.483546E+12	0.00005750	0.00122722	21.34288260	2370.60551
60000.00000					
85945710.	1.452604E+12	0.00005917	0.00125527	21.21577218	2392.42529
60000.00000					
86583844.	1.423296E+12	0.00006083	0.00128340	21.09697679	2412.89067
60000.00000					
87218272.	1.395492E+12	0.00006250	0.00131162	20.98585251	2431.98959
60000.00000					
87848928.	1.369074E+12	0.00006417	0.00133992	20.88181588	2449.70942
60000.00000					
88323472.	1.341622E+12	0.00006583	0.00136933	20.79999992	2466.62531
60000.00000					
88998598.	1.318498E+12	0.00006750	0.00139903	20.72634092	2482.12276
60000.00000					
89419426.	1.292811E+12	0.00006917	0.00142514	20.60443524	2494.37416
60000.00000					
89837466.	1.268294E+12	0.00007083	0.00145133	20.48931500	2505.43816
60000.00000					
90252697.	1.244865E+12	0.00007250	0.00147759	20.38052925	2515.30433
60000.00000					
90665093.	1.222451E+12	0.00007417	0.00150393	20.27766654	2523.96195
60000.00000					
91074595.	1.200984E+12	0.00007583	0.00153034	20.18034562	2531.39991
60000.00000					
91481186.	1.180402E+12	0.00007750	0.00155684	20.08822712	2537.60708
60000.00000					
91884819.	1.160650E+12	0.00007917	0.00158341	20.00099489	2542.57195
60000.00000					
92262740.	1.141395E+12	0.00008083	0.00160977	19.91472504	2546.24737
60000.00000					
92523761.	1.121500E+12	0.00008250	0.00163473	19.81491914	2548.57751
60000.00000					
92782441.	1.102366E+12	0.00008417	0.00165976	19.71989492	2549.80110
60000.00000					
93037642.	1.083934E+12	0.00008583	0.00168486	19.62938967	2548.29685
60000.00000					
93289320.	1.066164E+12	0.00008750	0.00171003	19.54315004	2544.07194
60000.00000					
93429864.	1.047812E+12	0.00008917	0.00173875	19.49999884	2547.11397
60000.00000					
93840076.	1.033102E+12	0.00009083	0.00176654	19.44813976	2549.12842
60000.00000					
94079859.	1.017080E+12	0.00009250	0.00179122	19.36458036	2549.92973
60000.00000					
94317282.	1.001599E+12	0.00009417	0.00181601	19.28510758	2547.71362
60000.00000					
94552886.	9.866388E+11	0.00009583	0.00184089	19.20929602	2543.92017
60000.00000					
94787318.	9.721776E+11	0.00009750	0.00186583	19.13673654	2545.18100

60000.00000					
95020559.	9.581905E+11	0.00009917	0.00189084	19.06727341	2547.48986
60000.00000					
95483378.	9.315452E+11	0.00010250	0.00194105	18.93706200	2549.87303
60000.00000					
95788982.	9.050927E+11	0.00010583	0.00198858	18.78972307	2545.56815
60000.00000					
96063136.	8.799677E+11	0.00010917	0.00203577	18.64825138	2543.73062
60000.00000					
96334894.	8.563102E+11	0.00011250	0.00208314	18.51678237	2547.75113
60000.00000					
96604194.	8.339930E+11	0.00011583	0.00213069	18.39448151	2549.76034
60000.00000					
96869700.	8.128926E+11	0.00011917	0.00217850	18.28115818	2547.02829
60000.00000					
97272542.	7.940616E+11	0.00012250	0.00222950	18.20000008	2540.74370
60000.00000					
97452962.	7.744606E+11	0.00012583	0.00228515	18.16009399	2545.18967
60000.00000					
97702311.	7.564050E+11	0.00012917	0.00233195	18.05383274	2548.19994
60000.00000					
97950207.	7.392468E+11	0.00013250	0.00237891	17.95400825	2549.76425
60000.00000					
98195714.	7.229132E+11	0.00013583	0.00242607	17.86064377	2547.87911
60000.00000					
98439012.	7.073462E+11	0.00013917	0.00247344	17.77319303	2542.99136
60000.00000					
98637105.	6.921902E+11	0.00014250	0.00251947	17.68051198	2538.33661
60000.00000					
98741707.	6.770860E+11	0.00014583	0.00256554	17.59230807	2540.94138
60000.00000					
98845585.	6.626520E+11	0.00014917	0.00261172	17.50874868	2544.65004
60000.00000					
98948733.	6.488442E+11	0.00015250	0.00265800	17.42954090	2547.39850
60000.00000					
99051135.	6.356223E+11	0.00015583	0.00270440	17.35441509	2549.17289
60000.00000					
99152785.	6.229494E+11	0.00015917	0.00275090	17.28312716	2549.95902
60000.00000					
99235737.	6.106815E+11	0.00016250	0.00279889	17.22391543	2546.90289
60000.00000					
99304040.	5.988183E+11	0.00016583	0.00284804	17.17408803	2542.46218
60000.00000					
99371705.	5.874189E+11	0.00016917	0.00289729	17.12681535	2538.00392
60000.00000					
99438725.	5.764564E+11	0.00017250	0.00294664	17.08196023	2533.52780
60000.00000					
99505096.	5.659058E+11	0.00017583	0.00299609	17.03939715	2538.43578
60000.00000					

99570787.	5.557439E+11	0.00017917	0.00304566	16.99900523	2542.52820
60000.00000					
99635805.	5.459496E+11	0.00018250	0.00309532	16.96067986	2545.74431
60000.00000					
99700112.	5.365028E+11	0.00018583	0.00314510	16.92431644	2548.07068
60000.00000					
99700112.	5.270490E+11	0.00018917	0.00319692	16.89999899	2549.57549
60000.00000					
99700112.	5.179227E+11	0.00019250	0.00325325	16.89999899	2548.72475
60000.00000					
99700112.	5.091070E+11	0.00019583	0.00330958	16.89999899	2543.78412
60000.00000					
99780008.	5.009875E+11	0.00019917	0.00336592	16.89999899	2538.84350
60000.00000					
99986637.	4.937612E+11	0.00020250	0.00342225	16.89999899	2533.90288
60000.00000					
1.000887E+08	4.862611E+11	0.00020583	0.00347567	16.88582370	2529.47405
60000.00000					
1.001234E+08	4.786774E+11	0.00020917	0.00352854	16.86952373	2533.51884
60000.00000					
1.001573E+08	4.713287E+11	0.00021250	0.00358157	16.85443023	2538.30585
60000.00000					
1.001907E+08	4.642041E+11	0.00021583	0.00363474	16.84051296	2542.30014
60000.00000					
1.002234E+08	4.572932E+11	0.00021917	0.00368808	16.82773706	2545.48376
60000.00000					
1.002555E+08	4.505864E+11	0.00022250	0.00374158	16.81607696	2547.83810
60000.00000					
1.002804E+08	4.440463E+11	0.00022583	0.00379439	16.80172500	2549.29959
60000.00000					
1.002804E+08	4.375874E+11	0.00022917	0.00384379	16.77291879	2549.90409
60000.00000					

Unfactored (Nominal) Moment Capacity at Concrete Strain of 0.003 = 99510.27327 in-kip

Axial Thrust Force = 49000.00 lbs

Bending Moment in-lbs	Bending Stiffness lb-in2	Bending Curvature rad/in	Maximum Strain in/in	Neutral Axis Position inches	Max. Concrete Stress psi	Max. Steel Stress psi
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5578775.	6.694529E+12	8.333333E-07	0.00003561	42.72646514	109.23428
956.34497					
11092157.	6.655294E+12	0.00000167	0.00006823	40.93923882	207.09391
1826.30734					
16539788.	6.615915E+12	0.00000250	0.00010084	40.33467105	302.88617
2695.62985					
21924317.	6.577295E+12	0.00000333	0.00013353	40.05858520	396.93179
3567.48484					
21924317.	5.261836E+12	0.00000417	0.00009822	23.57349953	291.94259
6195.47914					
21924317.	4.384863E+12	0.00000500	0.00011623	23.24644491	343.41374
7481.99789					
21924317.	3.758454E+12	0.00000583	0.00013407	22.98316982	393.79037
8773.53491					
21924317.	3.288648E+12	0.00000667	0.00015194	22.79026678	443.67218
10064.19162					
21924317.	2.923242E+12	0.00000750	0.00016983	22.64431331	493.05683
11353.96046					
21924317.	2.630918E+12	0.00000833	0.00018776	22.53125963	541.94205
12642.83292					
21924317.	2.391744E+12	0.00000917	0.00020572	22.44216308	590.32545
13930.80105					
21924317.	2.192432E+12	0.00001000	0.00022371	22.37106344	638.20467
15217.85640					
21924317.	2.023783E+12	0.00001083	0.00024173	22.31383458	685.57728
16503.99050					
22358828.	1.916471E+12	0.00001167	0.00025979	22.26753125	732.44089
17789.19420					
23873372.	1.909870E+12	0.00001250	0.00027787	22.22999159	778.79297
19073.45905					
25385346.	1.903901E+12	0.00001333	0.00029599	22.19959536	824.63102
20356.77619					
26894732.	1.898452E+12	0.00001417	0.00031415	22.17510590	869.95253
21639.13579					
28401507.	1.893434E+12	0.00001500	0.00033233	22.15555850	914.75488
22920.52925					
29905654.	1.888778E+12	0.00001583	0.00035055	22.14019534	959.03551
24200.94624					
31407149.	1.884429E+12	0.00001667	0.00036881	22.12840739	1002.79171
25480.37776					
32905968.	1.880341E+12	0.00001750	0.00038709	22.11970183	1046.02073
26758.81472					
34402096.	1.876478E+12	0.00001833	0.00040542	22.11368117	1088.72001
28036.24498					
35895505.	1.872809E+12	0.00001917	0.00042378	22.11001065	1130.88666
29312.65995					
37386172.	1.869309E+12	0.00002000	0.00044217	22.10841367	1172.51782
30588.04967					
38874075.	1.865956E+12	0.00002083	0.00046060	22.10866007	1213.61070

31862.40287					
40359196.	1.862732E+12	0.00002167	0.00047906	22.11055693	1254.16254
33135.70713					
41841502.	1.859622E+12	0.00002250	0.00049756	22.11393222	1294.17010
34407.95503					
43320976.	1.856613E+12	0.00002333	0.00051610	22.11864880	1333.63067
35679.13218					
44797588.	1.853693E+12	0.00002417	0.00053468	22.12458113	1372.54104
36949.22933					
46271319.	1.850853E+12	0.00002500	0.00055329	22.13162693	1410.89830
38218.23247					
47742138.	1.848083E+12	0.00002583	0.00057194	22.13969091	1448.69916
39486.13230					
49210024.	1.845376E+12	0.00002667	0.00059063	22.14869633	1485.94060
40752.91430					
50674942.	1.842725E+12	0.00002750	0.00060936	22.15856883	1522.61916
42018.56956					
52136876.	1.840125E+12	0.00002833	0.00062813	22.16925260	1558.73186
43283.08104					
53595787.	1.837570E+12	0.00002917	0.00064694	22.18068722	1594.27503
44546.44106					
55051658.	1.835055E+12	0.00003000	0.00066578	22.19283083	1629.24562
45808.63158					
56504452.	1.832577E+12	0.00003083	0.00068467	22.20563695	1663.63994
47069.64276					
57954147.	1.830131E+12	0.00003167	0.00070360	22.21907070	1697.45464
48329.45861					
59400703.	1.827714E+12	0.00003250	0.00072258	22.23309490	1730.68595
49588.06866					
62284305.	1.822955E+12	0.00003417	0.00076065	22.26281002	1795.38448
52101.60381					
65155011.	1.818279E+12	0.00003583	0.00079889	22.29458007	1857.70577
54610.13108					
68012552.	1.813668E+12	0.00003750	0.00083731	22.32824001	1917.61878
57113.53199					
70856667.	1.809106E+12	0.00003917	0.00087591	22.36366430	1975.09179
59611.67510					
73223410.	1.793226E+12	0.00004083	0.00091255	22.34810588	2027.03024
60000.00000					
75173396.	1.768786E+12	0.00004250	0.00094741	22.29199514	2074.09783
60000.00000					
76774623.	1.738293E+12	0.00004417	0.00098070	22.20458159	2116.91154
60000.00000					
78274681.	1.707811E+12	0.00004583	0.00101361	22.11503640	2157.22683
60000.00000					
79531316.	1.674343E+12	0.00004750	0.00104737	22.04995278	2196.58599
60000.00000					
80756715.	1.642509E+12	0.00004917	0.00107877	21.94107637	2231.23397
60000.00000					

81826795.	1.609707E+12	0.00005083	0.00110929	21.82213917	2263.17202
60000.00000					
82735711.	1.575918E+12	0.00005250	0.00113888	21.69299707	2292.49241
60000.00000					
83640077.	1.544125E+12	0.00005417	0.00116857	21.57352290	2320.32042
60000.00000					
84539832.	1.514146E+12	0.00005583	0.00119834	21.46287748	2346.64184
60000.00000					
85303904.	1.483546E+12	0.00005750	0.00122722	21.34288260	2370.60551
60000.00000					
85945710.	1.452604E+12	0.00005917	0.00125527	21.21577218	2392.42529
60000.00000					
86583844.	1.423296E+12	0.00006083	0.00128340	21.09697679	2412.89067
60000.00000					
87218272.	1.395492E+12	0.00006250	0.00131162	20.98585251	2431.98959
60000.00000					
87848928.	1.369074E+12	0.00006417	0.00133992	20.88181588	2449.70942
60000.00000					
88323472.	1.341622E+12	0.00006583	0.00136933	20.79999992	2466.62531
60000.00000					
88998598.	1.318498E+12	0.00006750	0.00139903	20.72634092	2482.12276
60000.00000					
89419426.	1.292811E+12	0.00006917	0.00142514	20.60443524	2494.37416
60000.00000					
89837466.	1.268294E+12	0.00007083	0.00145133	20.48931500	2505.43816
60000.00000					
90252697.	1.244865E+12	0.00007250	0.00147759	20.38052925	2515.30433
60000.00000					
90665093.	1.222451E+12	0.00007417	0.00150393	20.27766654	2523.96195
60000.00000					
91074595.	1.200984E+12	0.00007583	0.00153034	20.18034562	2531.39991
60000.00000					
91481186.	1.180402E+12	0.00007750	0.00155684	20.08822712	2537.60708
60000.00000					
91884819.	1.160650E+12	0.00007917	0.00158341	20.00099489	2542.57195
60000.00000					
92262740.	1.141395E+12	0.00008083	0.00160977	19.91472504	2546.24737
60000.00000					
92523761.	1.121500E+12	0.00008250	0.00163473	19.81491914	2548.57751
60000.00000					
92782441.	1.102366E+12	0.00008417	0.00165976	19.71989492	2549.80110
60000.00000					
93037642.	1.083934E+12	0.00008583	0.00168486	19.62938967	2548.29685
60000.00000					
93289320.	1.066164E+12	0.00008750	0.00171003	19.54315004	2544.07194
60000.00000					
93429864.	1.047812E+12	0.00008917	0.00173875	19.49999884	2547.11397
60000.00000					
93840076.	1.033102E+12	0.00009083	0.00176654	19.44813976	2549.12842

60000.00000
94079859. 1.017080E+12 0.00009250 0.00179122 19.36458036 2549.92973
60000.00000
94317282. 1.001599E+12 0.00009417 0.00181601 19.28510758 2547.71362
60000.00000
94552886. 9.866388E+11 0.00009583 0.00184089 19.20929602 2543.92017
60000.00000
94787318. 9.721776E+11 0.00009750 0.00186583 19.13673654 2545.18100
60000.00000
95020559. 9.581905E+11 0.00009917 0.00189084 19.06727341 2547.48986
60000.00000
95483378. 9.315452E+11 0.00010250 0.00194105 18.93706200 2549.87303
60000.00000
95788982. 9.050927E+11 0.00010583 0.00198858 18.78972307 2545.56815
60000.00000
96063136. 8.799677E+11 0.00010917 0.00203577 18.64825138 2543.73062
60000.00000
96334894. 8.563102E+11 0.00011250 0.00208314 18.51678237 2547.75113
60000.00000
96604194. 8.339930E+11 0.00011583 0.00213069 18.39448151 2549.76034
60000.00000
96869700. 8.128926E+11 0.00011917 0.00217850 18.28115818 2547.02829
60000.00000
97272542. 7.940616E+11 0.00012250 0.00222950 18.20000008 2540.74370
60000.00000
97452962. 7.744606E+11 0.00012583 0.00228515 18.16009399 2545.18967
60000.00000
97702311. 7.564050E+11 0.00012917 0.00233195 18.05383274 2548.19994
60000.00000
97950207. 7.392468E+11 0.00013250 0.00237891 17.95400825 2549.76425
60000.00000
98195714. 7.229132E+11 0.00013583 0.00242607 17.86064377 2547.87911
60000.00000
98439012. 7.073462E+11 0.00013917 0.00247344 17.77319303 2542.99136
60000.00000
98637105. 6.921902E+11 0.00014250 0.00251947 17.68051198 2538.33661
60000.00000
98741707. 6.770860E+11 0.00014583 0.00256554 17.59230807 2540.94138
60000.00000
98845585. 6.626520E+11 0.00014917 0.00261172 17.50874868 2544.65004
60000.00000
98948733. 6.488442E+11 0.00015250 0.00265800 17.42954090 2547.39850
60000.00000
99051135. 6.356223E+11 0.00015583 0.00270440 17.35441509 2549.17289
60000.00000
99152785. 6.229494E+11 0.00015917 0.00275090 17.28312716 2549.95902
60000.00000
99235737. 6.106815E+11 0.00016250 0.00279889 17.22391543 2546.90289
60000.00000

99304040.	5.988183E+11	0.00016583	0.00284804	17.17408803	2542.46218
60000.00000					
99371705.	5.874189E+11	0.00016917	0.00289729	17.12681535	2538.00392
60000.00000					
99438725.	5.764564E+11	0.00017250	0.00294664	17.08196023	2533.52780
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99505096.	5.659058E+11	0.00017583	0.00299609	17.03939715	2538.43578
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99570787.	5.557439E+11	0.00017917	0.00304566	16.99900523	2542.52820
60000.00000					
99635805.	5.459496E+11	0.00018250	0.00309532	16.96067986	2545.74431
60000.00000					
99700112.	5.365028E+11	0.00018583	0.00314510	16.92431644	2548.07068
60000.00000					
99700112.	5.270490E+11	0.00018917	0.00319692	16.89999899	2549.57549
60000.00000					
99700112.	5.179227E+11	0.00019250	0.00325325	16.89999899	2548.72475
60000.00000					
99700112.	5.091070E+11	0.00019583	0.00330958	16.89999899	2543.78412
60000.00000					
99780008.	5.009875E+11	0.00019917	0.00336592	16.89999899	2538.84350
60000.00000					
99986637.	4.937612E+11	0.00020250	0.00342225	16.89999899	2533.90288
60000.00000					
1.000887E+08	4.862611E+11	0.00020583	0.00347567	16.88582370	2529.47405
60000.00000					
1.001234E+08	4.786774E+11	0.00020917	0.00352854	16.86952373	2533.51884
60000.00000					
1.001573E+08	4.713287E+11	0.00021250	0.00358157	16.85443023	2538.30585
60000.00000					
1.001907E+08	4.642041E+11	0.00021583	0.00363474	16.84051296	2542.30014
60000.00000					
1.002234E+08	4.572932E+11	0.00021917	0.00368808	16.82773706	2545.48376
60000.00000					
1.002555E+08	4.505864E+11	0.00022250	0.00374158	16.81607696	2547.83810
60000.00000					
1.002804E+08	4.440463E+11	0.00022583	0.00379439	16.80172500	2549.29959
60000.00000					
1.002804E+08	4.375874E+11	0.00022917	0.00384379	16.77291879	2549.90409
60000.00000					

Unfactored (Nominal) Moment Capacity at Concrete Strain of 0.003 = 99510.27327 in-kip

---

Computed Values of Load Distribution and Deflection

Fairfield Caisson.lpo
for Lateral Loading for Load Case Number 1

Pile-head boundary conditions are Shear and Moment (Pile-head Condition Type 1)
Specified shear force at pile head = 46000.000 lbs
Specified moment at pile head = 53412000.000 in-lbs
Specified axial load at pile head = 49000.000 lbs

Output Verification:

Computed forces and moments are within specified convergence limits.

Computed Values of Load Distribution and Deflection
for Lateral Loading for Load Case Number 2

Pile-head boundary conditions are Shear and Moment (Pile-head Condition Type 1)
Specified shear force at pile head = 18000.000 lbs
Specified moment at pile head = 20460000.000 in-lbs
Specified axial load at pile head = 49000.000 lbs

Output Verification:

Computed forces and moments are within specified convergence limits.

Summary of Pile Response(s)

Definition of Symbols for Pile-Head Loading Conditions:

Type 1 = Shear and Moment, y = pile-head displacment in
Type 2 = Shear and Slope, M = Pile-head Moment lbs-in
Type 3 = Shear and Rot. Stiffness, V = Pile-head Shear Force lbs
Type 4 = Deflection and Moment, S = Pile-head Slope, radians
Type 5 = Deflection and Slope, R = Rot. Stiffness of Pile-head in-lbs/rad

Load Type	Pile-Head Condition 1	Pile-Head Condition 2	Axial Load lbs	Pile-Head Deflection in	Maximum Moment in-lbs	Maximum Shear lbs

```
  1  V=    46000. M=  5.34E+07  49000.0000      2.9346  5.5557E+07    -363808.
  1  V=    18000. M=  2.05E+07  49000.0000   0.5833337  2.1288E+07    -127405.
```

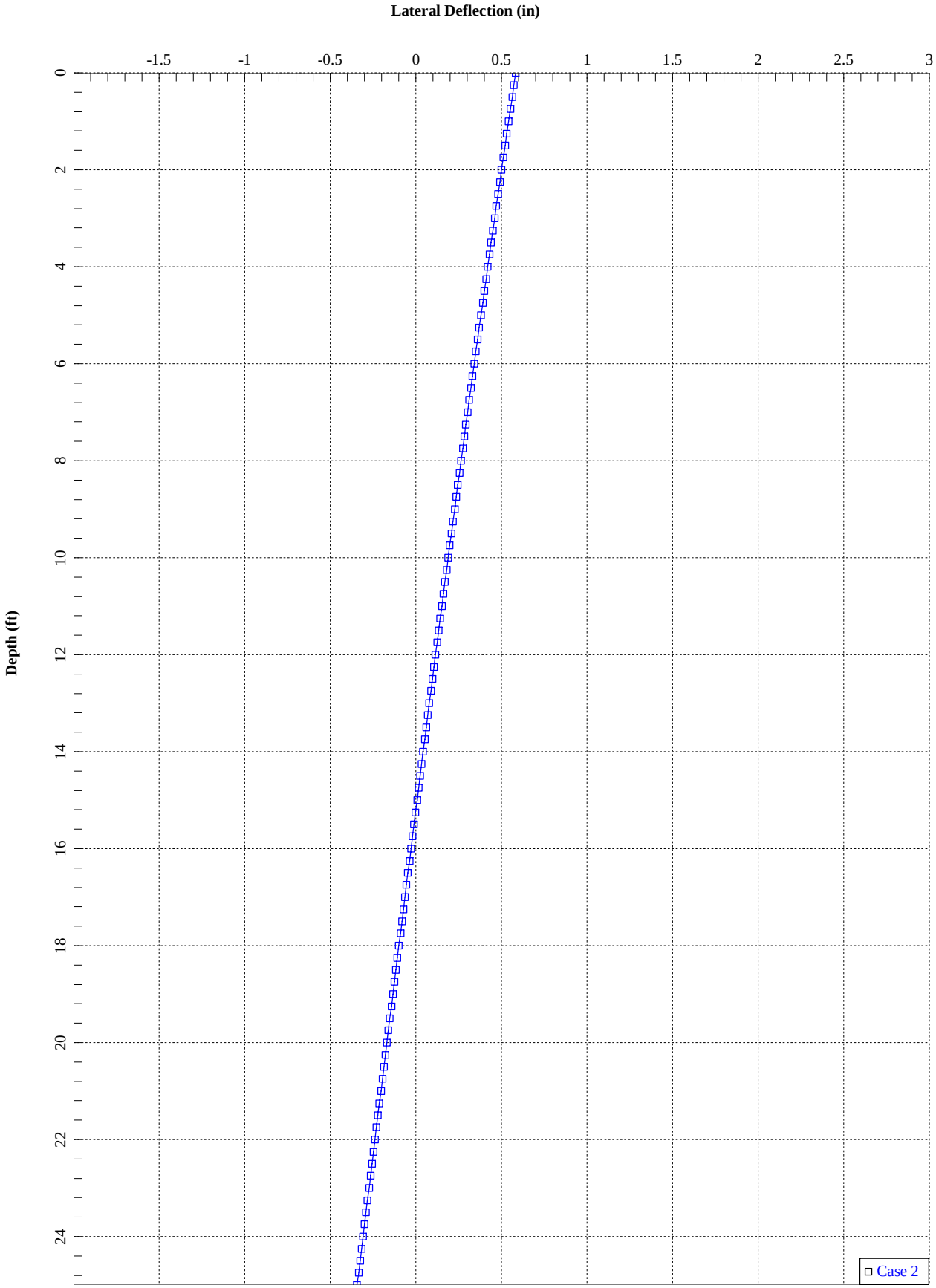
Computed Pile-head Stiffness Matrix Members
K22, K23, K32, K33 for Superstructure

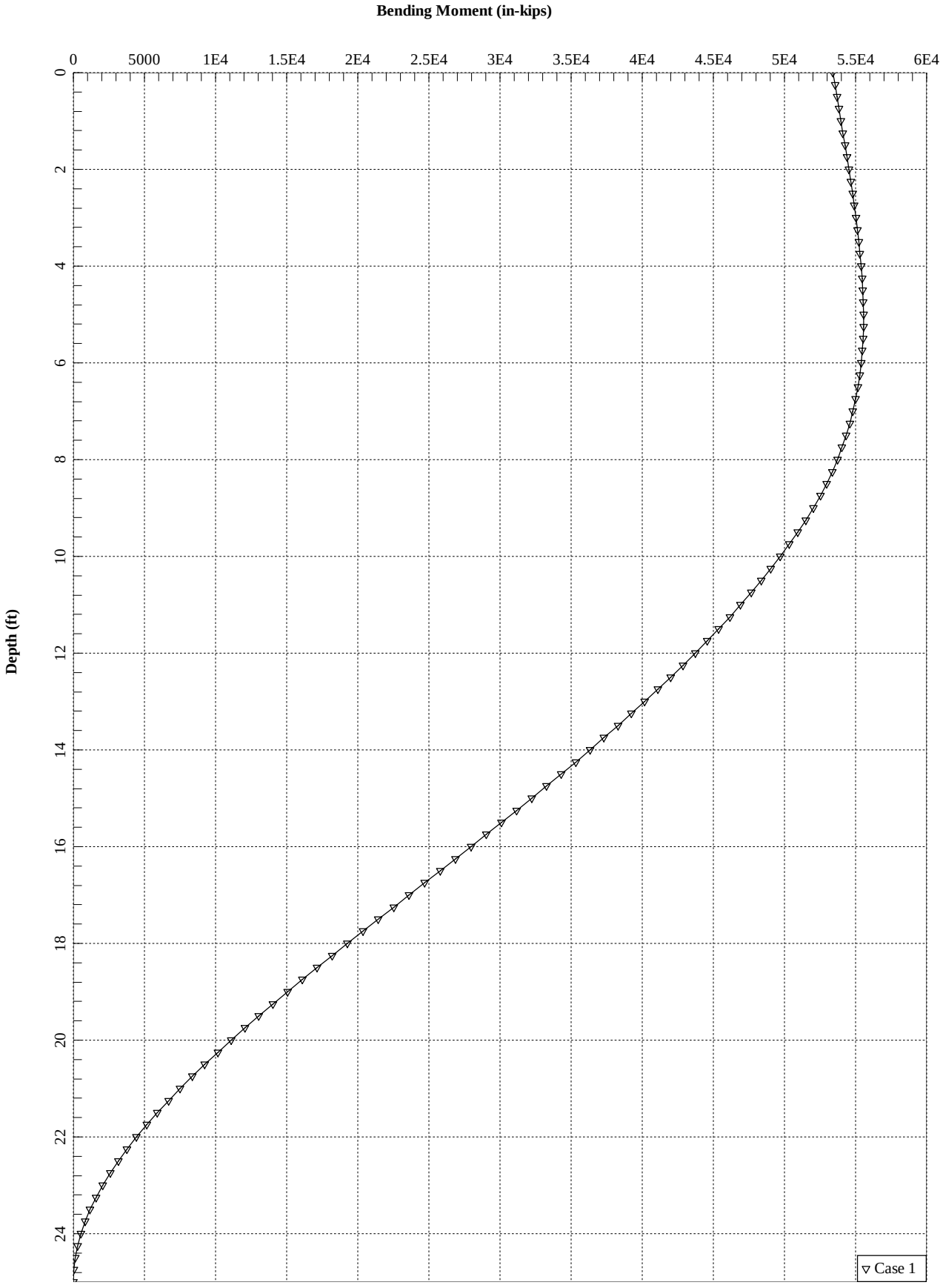
Top y in	Shear React. lbs	Mom. React. in-lbs	K22 lbs/in	K32 in-lbs/in
0.00464115	4600.00007	742884.24565	991132.67306	1.600645E+08
0.01397127	13847.37980	2236304.	991132.67306	1.600645E+08
0.02214394	21947.57772	3544459.	991132.67306	1.600645E+08
0.02794254	27694.75960	4472609.	991132.67306	1.600645E+08
0.03244028	32152.62020	5192538.	991132.67306	1.600645E+08
0.03611540	35794.95752	5780754.	991127.24593	1.600634E+08
0.03922408	38874.50984	6278022.	991087.78249	1.600553E+08
0.04191800	41542.13940	6708724.	991033.40196	1.600440E+08
0.04429483	43895.15543	7088598.	990976.90061	1.600322E+08
0.04642137	46000.00000	7428386.	990922.98353	1.600208E+08

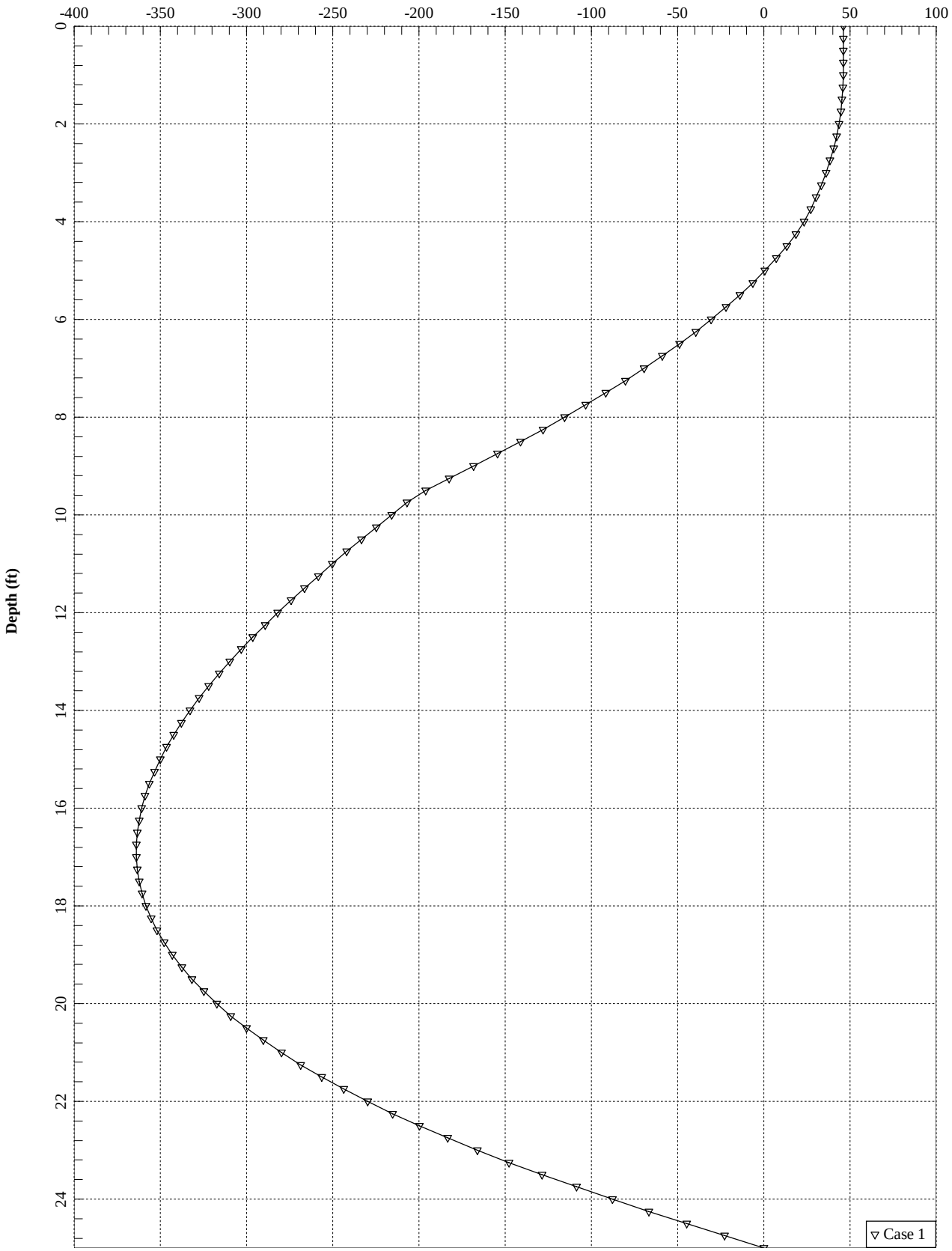
Top Rota. rad	Shear React. lbs	Mom. React. in-lbs	K23 lbs/rad	K33 in-lbs/rad
0.00016320	26122.66984	5341200.	1.600645E+08	3.272777E+10
0.00049253	78649.13691	16078614.	1.596826E+08	3.264466E+10
0.00081750	124742.85298	25484000.	1.525904E+08	3.117305E+10
0.00151103	160775.71864	32157228.	1.064015E+08	2.128168E+10
0.00188060	189080.76255	37333386.	1.005427E+08	1.985183E+10
0.00216240	212162.74119	41562615.	98114338.	1.922057E+10
0.00239548	231687.02065	45138377.	96718515.	1.884317E+10
0.00259896	248728.02514	48235842.	95702874.	1.855966E+10
0.00277335	263636.39014	50968001.	95060481.	1.837775E+10
0.00292495	276836.85689	53412000.	94646809.	1.826085E+10

K22 = abs(Shear Reaction/Top y)
K23 = abs(Shear Reaction/Top Rotation)
K32 = abs(Moment Reaction/Top y)
K33 = abs(Moment Reaction/Top Rotation)

The analysis ended normally.


Lateral Deflection (in)
-1.5
-1
-0.5
0
0.5
1
1.5
2
2.5
3
Depth (ft)
0
2
4
6
8
10
12
14
16
18
20
22
24
Case 2


Bending Moment (in-kips)
0
5000
1E4
1.5E4
2E4
2.5E4
3E4
3.5E4
4E4
4.5E4
5E4
5.5E4
6E4
Depth (ft)
0
2
4
6
8
10
12
14
16
18
20
22
24
Case 1


Shear Force (kips)
-400
-350
-300
-250
-200
-150
-100
-50
0
50
100
Depth (ft)
0
2
4
6
8
10
12
14
16
18
20
22
24
Case 1

Section 1 - RFDS GENERAL INFORMATION

RFDS NAME:	CTL05022	**DATE:**	04/03/2018	**RF DESIGN ENG:**	Mohammad Minhaj Hussain
ISSUE:	Bronze Standard	**Approved? (Y/N):**	Yes	**RF DESIGN PHONE:**	510-493-3024
REVISION:	Final	**RF MANAGER:**	John Benedetto	**RF DESIGN EMAIL:**	mh705r@att.com
INITIATIVE /PROJECT:	LTE 3C[WCS], LTE 4C[AWS J], LTE 5C[700 UPPER D], LTE 6C[850 A(L)].Note: PDs will be updated with 5G 6630 info during final RFDS.				

RF PERF ENG:		**RFDS PROGRAM TYPE:**	2018 LTE Next Carrier		
RF PERF PHONE:		**RFDS TECHNOLOGY:**	LTE		
RF PERF EMAIL:		**STATE/STATUS:**	Final/Approved		
RFDS VERSION:	2.00	**RFDS ID:**	2287777		
GSM FREQUENCY:		**Created By:**	mh705r	**Updated By:**	om636a
UMTS FREQUENCY:	850, 1900	**Date Created:**	3/19/2018 11:47:25 AM	**Date Updated:**	7/24/2018 5:19:42 PM
LTE FREQUENCY:	700, 850, 1900, AWS, WCS				
5G FREQUENCY:	850				
I-PLAN JOB # 1:	NER-RCTB-17-07891	**IPLAN PRD GRP || SUB GRP #1:**	LTE Next Carrier || LTE 3C		
I-PLAN JOB # 2:	NER-RCTB-18-02582	**IPLAN PRD GRP || SUB GRP #2:**	LTE Next Carrier || LTE 4C		
I-PLAN JOB # 3:	NER-RCTB-18-03248	**IPLAN PRD GRP || SUB GRP #3:**	LTE Next Carrier || LTE 5C		
I-PLAN JOB # 4:	NER-RCTB-18-03359	**IPLAN PRD GRP || SUB GRP #4:**	LTE Next Carrier || LTE 6C		
I-PLAN JOB # 5:		**IPLAN PRD GRP || SUB GRP #5:**			
I-PLAN JOB # 6:		**IPLAN PRD GRP || SUB GRP #6:**			
I-PLAN JOB # 7:		**IPLAN PRD GRP || SUB GRP #7:**			
I-PLAN JOB # 8:		**IPLAN PRD GRP || SUB GRP #8:**			

Section 2 - LOCATION INFORMATION

USID:	4522	**FA LOCATION CODE:**	10108711	**LOCATION NAME:**	FAIRFIELD
REGION:	NORTHEAST	**MARKET CLUSTER:**	NEW ENGLAND	**MARKET:**	CONNECTICUT
ADDRESS:	100 REEF ROAD	**CITY:**	FAIRFIELD	**STATE:**	CT
ZIP CODE:	06824	**COUNTY:**	FAIRFIELD	**LONG (DEC. DEG.):**	-73.2577989
LATITUDE (D-M-S):	41d 8m22.89084s	**LONGITUDE (D-M-S):**	-73d -15m-28.07604s	**LAT (DEC. DEG.):**	41.1396919
DIRECTIONS, ACCESS AND EQUIPMENT LOCATION:	FAIRFIELD5022I-95 NORTH (NEW ENGLAND THRUWAY). TO EXIT 21 (MILL PLAIN RD).MAKE RIGHT AT END OF EXIT. FOLLOW UNDER THE RAILROAD TRACKS MAKE LEFT ONTO BOSTON POST ROAD (RT.1). FOLLOW TO REEF RD, MAKE RIGHT FOLLOW TO THE INTERSECTION OF REEF RD AND NICHOLS ST (FAIRFIELD POLICE STATION). SHELTER ON THE ROOF. DEMARC IS IN BASEMENT TELCO ROOM.ACCESS:ALL SPAN IS OUTSIDE IN THE FENCED AREA BY THE BASE OF TE MONOPOLE TRACCESS FOR SITE DOORCONTACT: EILEEN KENNELLY, RISK MANAGER LOCATED AT: 725 OLD POST ROAD FAIRFIELD, CT 06824 PHONE: 203-256-3077 FAX: 203-256-3059 EMAIL=EKENNELLY@TOWN.FAIRFIELD.CT.USSECURITY: NOT NEEDEDPOWER COMPANY: UNITED ILLUMINATING (1-800-722-5584)FIRE: FAIRFIELD FIRE DEPARTMENT (203-245-4700)POLICE: FAIRFIELD POLICE DEPARTMENT (203-245-4800)T-1 CIRCUIT NUMBERS HCGS 730823 AND HCGS 730824 (UMTS) GSM HCGS 685850 ET -42 HCGS 726652 ET-238 HCGS722955 / HCGS664617 (850 SP)SNET: (800) 448-1008 AND (203) 420-3131 (24 HR REPAIR)TRCCESS NO 7079620BATTERY: LECENT 1R SERIES 11 121R125LP KS 23997 (12 BATT)				

ORACLE PTN # 1:	2051A0GHC4	**PACE JOB # 1:**	MRCTB031119		
ORACLE PTN # 2:	2051A0GK3V	**PACE JOB # 2:**	MRCTB031921		
ORACLE PTN # 3:	2051A0GGV3	**PACE JOB # 3:**	MRCTB031461		
ORACLE PTN # 4:	2051A0GJXG	**PACE JOB # 4:**	MRCTB031662		
ORACLE PTN # 5:		**PACE JOB # 5:**			
ORACLE PTN # 6:		**PACE JOB # 6:**			
ORACLE PTN # 7:		**PACE JOB # 7:**			
ORACLE PTN # 8:		**PACE JOB # 8:**			
BORDER CELL WITH CONTOUR COORD:		**SEARCH RING NAME:**			
AM STUDY REQ'D (Y/N):	No	**SEARCH_RING_ID:**			
FREQ COORD:		**BTA:**		**MSA / RSA:**	
OPS DISTRICT:	CT-South	**LAC(GSM):**			
OPS ZONE:	NE_CT_S_FRFD_SE_CS	**LAC(UMTS):**	05989		
RF DISTRICT:	NPO Triage	**BSC(GSM):**			
RF ZONE:	Hotseat	**RNC(UMTS):**	BRPTCT04CRBR06		
PARENT NAME(GSM):		**MME POOL ID(LTE):**	FF01		
PARENT NAME(UMTS):	BRIDGEPORT RNC06 ERICSSON 3820				

Section 3 - LICENSE COVERAGE/FILING INFORMATION

CGSA - NO FILING TRIGGERED (Yes/No):	No	**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):	Yes	**CGSA SCORECARD UPDATED:**			

CGSA CALL SIGNS:	

Section 4 - TOWER/REGULATORY INFORMATION

STRUCTURE AT&T OWNED?:	No	**GROUND ELEVATION (ft):**		**STRUCTURE TYPE:**	ROOFTOP
ADDITIONAL REGULATORY?:	No	**HEIGHT OVERALL (ft):**	158.00	**FCC ASR NUMBER:**	NR
SUB-LEASE RIGHTS?:	No	**STRUCTURE HEIGHT (ft):**	150.00		
LIGHTING TYPE:	NOT REQUIRED				

MARKET LOCATION 700 MHz Band:	
MARKET LOCATION 850 MHz Band:	
MARKET LOCATION 1900 MHz Band:	
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 - RBS GENERAL INFORMATION - existing

	UMTS 1ST RBS	UMTS 2ND RBS	LTE 1ST RBS	LTE 2ND RBS	5G 1ST RBS							
RBS ID:	172410	222799	360183									
CTS COMMON ID:	CTU5022	CTV5022	CTL05022									
CELL ID / BCF:	CTU5022	CTU5022	CTL05022									
BTA/TID:	321V	321U	321L									
4-9 DIGIT SITE ID:	5022	5022	5022									
COW OR TOY?:	No	No	No									
CELL SITE TYPE:	SECTORIZED	SECTORIZED	SECTORIZED									
SITE TYPE:	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL									
BTS LOCATION ID:	INTERNAL	INTERNAL	INTERNAL									
BASE STATION TYPE:	BASE	OVERLAY	BASE									
EQUIPMENT NAME:	FAIRFIELD	FAIRFIELD	FAIRFIELD									
DISASTER PRIORITY:	1	1	3									

Section 6 - RBS GENERAL INFORMATION - final

	UMTS 1ST RBS	UMTS 2ND RBS	LTE 1ST RBS	LTE 2ND RBS	5G 1ST RBS							
RBS ID:	172410	222799	360183	RFDS_38176064	RFDS_38176091							
CTS COMMON ID:	CTU5022	CTV5022	CTL05022	CTL04022R	CTN0005022							
CELL ID / BCF:	CTU5022	CTU5022	CTL05022	CTL04022R	CTN0005022							
BTA/TID:	321V	321U	321L	321L	321L							
4-9 DIGIT SITE ID:	5022	5022	5022	04022	005022							
COW OR TOY?:	No	No	No	No	No							
CELL SITE TYPE:	SECTORIZED	SECTORIZED	SECTORIZED	SECTORIZED	SECTORIZED							
SITE TYPE:	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL							
BTS LOCATION ID:	INTERNAL	INTERNAL	INTERNAL	INTERNAL	INTERNAL							
BASE STATION TYPE:	BASE	OVERLAY	BASE	BASE	BASE							
EQUIPMENT NAME:	FAIRFIELD	FAIRFIELD	FAIRFIELD	FAIRFIELD	FAIRFIELD							
DISASTER PRIORITY:	1	1	3	3	3							

Section 7 - RBS SPECIFIC INFORMATION - existing

	UMTS 1ST RBS	UMTS 2ND RBS	LTE 1ST RBS	LTE 2ND RBS	5G 1ST RBS							
RAC:												
EQUIPMENT VENDOR:	ERICSSON	ERICSSON	ERICSSON									
EQUIPMENT TYPE:	3206 INDOOR	3206 INDOOR	6601 INDOOR MU									
BASEBAND CONFIGURATION:												
LOCATION:												
CABINET LOCATION:												
MARKET STATE CODE:			CT									
AGPS:	Yes	Yes	Yes									
NODE B NUMBER:	0	0	5022									

Section 7 - RBS SPECIFIC INFORMATION - final

	UMTS 1ST RBS	UMTS 2ND RBS	LTE 1ST RBS	LTE 2ND RBS	5G 1ST RBS							
RAC:												
EQUIPMENT VENDOR:	ERICSSON	ERICSSON	ERICSSON	ERICSSON	ERICSSON							
EQUIPMENT TYPE:	3206 INDOOR	3206 INDOOR	6601 INDOOR MU	6601 INDOOR MU	6630							
BASEBAND CONFIGURATION:				2x6601 / 2x5216 / 2xXMU03 + IDLe	xxxxx / 1x6630 / xxxxx							
LOCATION:												
CABINET LOCATION:												
MARKET STATE CODE:			CT	CT	CT							
AGPS:	Yes	Yes	Yes	Yes	Yes							
NODE B NUMBER:	0	0	5022	4022	5022							

Section 8 - RBS/SECTOR ASSOCIATION - existing

	UMTS 1ST RBS	UMTS 2ND RBS	LTE 1ST RBS	LTE 2ND RBS	5G 1ST RBS														
CTS Common ID	CTU5022	CTV5022	CTL05022																
Soft Sector IDs	CTU50224	CTV50221	CTL05022_7A_1																
	CTU50225	CTV50222	CTL05022_7B_1																
	CTU50226	CTV50223	CTL05022_7C_1																
	CTU50227	CTV5022A	CTL05022_9A_1																
	CTU50228	CTV5022B	CTL05022_9A_2																
	CTU50229	CTV5022C	CTL05022_9B_1																
			CTL05022_9B_2																
			CTL05022_9C_1																
			CTL05022_9C_2																

Section 8 - RBS/SECTOR ASSOCIATION - final

	UMTS 1ST RBS	UMTS 2ND RBS	LTE 1ST RBS	LTE 2ND RBS	5G 1ST RBS														
CTS Common ID	CTU5022	CTV5022	CTL05022	CTL04022R	CTN0005022														
Soft Sector IDs		CTV50221	CTL05022_3A_1	CTL04022_2A_2	CTN0005022_8A_1														
		CTV50222	CTL05022_3B_1	CTL04022_2B_2	CTN0005022_8B_1														
		CTV50223	CTL05022_3C_1	CTL04022_2C_2	CTN0005022_8C_1														
			CTL05022_7A_1	CTL04022_7A_3_F															
			CTL05022_7B_1	CTL04022_7B_3_F															
			CTL05022_7C_1	CTL04022_7C_3_F															
			CTL05022_9A_1	CTL04022_8A_1															
			CTL05022_9A_2	CTL04022_8B_1															
			CTL05022_9B_1	CTL04022_8C_1															
			CTL05022_9B_2																
			CTL05022_9C_1																
			CTL05022_9C_2																

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 WCS	LTE 2ND 1900	LTE 4TH 1900	LTE 4TH AWS	LTE 5TH 700	5G 1ST 850												
USEID (excluding Hard Sector)	4522.850.3G.1	4522.1900.3G.1	4522.850.3G.2	4522.1900.3G.2																					
SECTOR A **SOFT SECTOR ID**	CTV50221	CTU50227	CTV5022A	CTU50224	CTL05022_7A_1		CTL05022_9A_1		CTL05022_9A_2																
SECTOR B	CTV50222	CTU50228	CTV5022B	CTU50225	CTL05022_7B_1		CTL05022_9B_1		CTL05022_9B_2																
SECTOR C	CTV50223	CTU50229	CTV5022C	CTU50226	CTL05022_7C_1		CTL05022_9C_1		CTL05022_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 WCS	LTE 2ND 1900	LTE 4TH 1900	LTE 4TH AWS	LTE 5TH 700	5G 1ST 850												
USEID (excluding Hard Sector)	4522.850.3G.1																								
SECTOR A **SOFT SECTOR ID**	CTV50221				CTL05022_7A_1	CTL04022_8A_1	CTL05022_9A_1	CTL05022_3A_1		CTL05022_9A_2	CTL04022_2A_2	CTL04022_7A_3_F	CTN0005022_8A_1													
SECTOR B	CTV50222				CTL05022_7B_1	CTL04022_8B_1	CTL05022_9B_1	CTL05022_3B_1		CTL05022_9B_2	CTL04022_2B_2	CTL04022_7B_3_F	CTN0005022_8B_1													
SECTOR C	CTV50223				CTL05022_7C_1	CTL04022_8C_1	CTL05022_9C_1	CTL05022_3C_1		CTL05022_9C_2	CTL04022_2C_2	CTL04022_7C_3_F	CTN0005022_8C_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 WCS	LTE 2ND 1900	LTE 4TH 1900	LTE 4TH AWS	LTE 5TH 700	5G 1ST 850												
USEID (excluding Hard Sector)	4522.850.3G.1	4522.1900.3G.1	4522.850.3G.2	4522.1900.3G.2																					
SECTOR A CELL NUMBER					15		8		178																
SECTOR B					16		9		179																
SECTOR C					17		10		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 WCS	LTE 2ND 1900	LTE 4TH 1900	LTE 4TH AWS	LTE 5TH 700	5G 1ST 850												
USEID (excluding Hard Sector)	4522.850.3G.1																								
SECTOR A CELL NUMBER					15	1	8	149		178	192	171	1												
SECTOR B					16	2	9	150		179	193	172	2												
SECTOR C					17	3	10	151		180	194	173	3												
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 WCS	LTE 2ND 1900	LTE 4TH 1900	LTE 4TH AWS	LTE 5TH 700	5G 1ST 850													
SECTOR A	CID/SAC	50221	50227	40221	50224																						
SECTOR B		50222	50228	40222	50225																						
SECTOR C		50223	50229	40223	50226																						
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 WCS	LTE 2ND 1900	LTE 4TH 1900	LTE 4TH AWS	LTE 5TH 700	5G 1ST 850													
SECTOR A	CID/SAC	50221																									
SECTOR B		50222																									
SECTOR C		50223																									
SECTOR D																											
SECTOR E																											
SECTOR F																											
OMNI																											

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

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL	7770		P65-16-XLH-RR	7770			
ANTENNA VENDOR	Powerwave		Powerwave	Powerwave			
ANTENNA SIZE (H x W x D)	55X11X5		72X12X6	55X11X5			
ANTENNA WEIGHT	35		64	35			
AZIMUTH	30		30	30			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)	130		130	130			
ANTENNA TIP HEIGHT	132		133	132			
MECHANICAL DOWNTILT	0		2	0			
FEEDER AMOUNT	2		FIBER	2			
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)	2 Powerwave 7020		Built In	2 Powerwave 7020			
SURGE ARRESTOR (QTY/MODEL)			1 DC Fiber Squid				
DIPLEXER (QTY/MODEL)	2 LGP 21901			2 LGP 21901			
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)	1 Powerwave 7070		LTE RRH				
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)	2 Pwav LGP21401 Single 1900 w/ 850BP (850)			2 Pwav LGP21401 Single 1900 w/ 850BP (850)			
CURRENT INJECTORS FOR TMA (QTY/MODEL)	2 Polyphaser 1000860			2 Polyphaser 1000860			
PDU FOR TMAS (QTY/MODEL)	1 Powerwave 12104			1 Powerwave 12104			
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)			1 RRUS-11 (REUSE ONLY)				
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)			1 RRUS-12				
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (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			CTV50221	CTV50221		UMTS 850	7770.00.850.06	13.5	30	6	None	Andrew 1-1/4 (850)	170.043535						242.66			
	PORT 2			CTV50221	CTV50221		UMTS 850	7770.00.850.06	13.5	30	6	BOTTOM	Andrew 1-1/4 (850)	170.043535						242.66			
	PORT 4			CTU50227	CTU50227		UMTS 1900	7770.00.1900.08	15.5	30	8	None	Andrew 1-1/4 (850)	170.043535						529.66			
ANTENNA POSITION 3	PORT 1			CTL05022_7A_1	CTL05022_7A_1		LTE 700	P65-16-XLH-RR_716MHz_08DT	14.8	30	8	TOP	FIBER	0						1475.7065			
	PORT 3			CTL05022_9A_1	CTL05022_9A_1		LTE 1900	P65-16-XLH-RR_1930MHz_06DT	16.3	30	6	TOP	FIBER	0						2421.029			
	PORT 4			CTL05022_9A_2	CTL05022_9A_2		LTE 1900	P65-16-XLH-	16.3	30	6	TOP	FIBER	0						2421.029			

								RR_1930MHz_06DT															
ANTENNA POSITION 4	**PORT 3**			321P50221	321P50221	DECOM	GSM 1900	7770.00.1900.08	16.79	30	8	None	Andrew 1-1/4 (1900)	170.043535						529.66			

Section 15B - CURRENT TOWER CONFIGURATION - SECTOR B

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL	7770		P65-16-XLH-RR	7770			
ANTENNA VENDOR	Powerwave		Powerwave	Powerwave			
ANTENNA SIZE (H x W x D)	55X11X5		72X12X6	55X11X5			
ANTENNA WEIGHT	35		64	35			
AZIMUTH	150		150	150			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)	130		130	130			
ANTENNA TIP HEIGHT	132		133	132			
MECHANICAL DOWNTILT	0		0	0			
FEEDER AMOUNT	2		FIBER	2			
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)	2 Powerwave 7020		Built In	2 Powerwave 7020			
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)	2 LGP 21901			2 LGP 21901			
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)			LTE RRH				
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)	2 Pwav LGP21401 Single 1900 w/ 850BP (850)			2 Pwav LGP21401 Single 1900 w/ 850BP (850)			
CURRENT INJECTORS FOR TMA (QTY/MODEL)	2 Polyphaser 1000860			2 Polyphaser 1000860			
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)			1 RRUS-11 (REUSE ONLY)				
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)			1 RRUS-12				
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (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			CTV50222	CTV50222		UMTS 850	7770.00.850.00	13.5	150	0	None	Andrew 1-1/4 (850)	170.043535						242.66			
	PORT 2			CTV50222	CTV50222		UMTS 850	7770.00.850.00	13.5	150	0	BOTTOM	Andrew 1-1/4 (850)	170.043535						242.66			
	PORT 4			CTU50228	CTU50228		UMTS 1900	7770.00.1900.00	15.5	150	0	None	Andrew 1-1/4 (850)	170.043535						529.66			
ANTENNA POSITION 3	PORT 1			CTL05022_7B_1	CTL05022_7B_1		LTE 700	P65-16-XLH-RR_716MHz_02DT	14.8	150	2	TOP	FIBER	0						1475.7065			
	PORT 3			CTL05022_9B_1	CTL05022_9B_1		LTE 1900	P65-16-XLH-RR_1930MHz_03DT	16.3	150	3	TOP	FIBER	0						2421.029			
	PORT 4			CTL05022_9B_2	CTL05022_9B_2		LTE 1900	P65-16-XLH-	16.3	150	3	TOP	FIBER	0						2421.029			

								RR_1930MHz_03DT															
ANTENNA POSITION 4	**PORT 3**			321P50222	321P50222	DECOM	GSM 1900	7770.00.1900.00	16.79	150	0	None	Andrew 1-1/4 (1900)	170.043535						529.66			

Section 15C - CURRENT TOWER CONFIGURATION - SECTOR C

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL	7770		P65-16-XLH-RR	7770			
ANTENNA VENDOR	Powerwave		Powerwave	Powerwave			
ANTENNA SIZE (H x W x D)	55X11X5		72X12X6	55X11X5			
ANTENNA WEIGHT	35		64	35			
AZIMUTH	270		270	270			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)	130		130	130			
ANTENNA TIP HEIGHT	132		133	132			
MECHANICAL DOWNTILT	0		2	0			
FEEDER AMOUNT	2		FIBER	2			
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)	2 Powerwave 7020		Built In	2 Powerwave 7020			
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)	2 LGP 21901			2 LGP 21901			
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)			LTE RRH				
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)	2 Pwav LGP21401 Single 1900 w/ 850BP (850)			2 Pwav LGP21401 Single 1900 w/ 850BP (850)			
CURRENT INJECTORS FOR TMA (QTY/MODEL)	2 Polyphaser 1000860			2 Polyphaser 1000860			
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)			1 RRUS-11 (REUSE ONLY)				
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)			1 RRUS-12				
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (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			CTV50223	CTV50223		UMTS 850	7770.00.850.01	13.5	270	1	None	Andrew 1-1/4 (850)	170.043535						242.66			
	PORT 2			CTV50223	CTV50223		UMTS 850	7770.00.850.01	13.5	270	1	BOTTOM	Andrew 1-1/4 (850)	170.043535						242.66			
	PORT 4			CTU50229	CTU50229		UMTS 1900	7770.00.1900.08	15.5	270	8	None	Andrew 1-1/4 (850)	170.043535						529.66			
ANTENNA POSITION 3	PORT 1			CTL05022_7C_1	CTL05022_7C_1		LTE 700	P65-16-XLH-RR_716MHz_08DT	14.8	270	8	TOP	FIBER	0						1475.7065			
	PORT 3			CTL05022_9C_1	CTL05022_9C_1		LTE 1900	P65-16-XLH-RR_1930MHz_06DT	16.3	270	6	TOP	FIBER	0						2421.029			
	PORT 4			CTL05022_9C_2	CTL05022_9C_2		LTE 1900	P65-16-XLH-	16.3	270	6	TOP	FIBER	0						2421.029			

								RR_1930MHz_06DT															
ANTENNA POSITION 4	**PORT 3**			321P50223	321P50223	DECOM	GSM 1900	7770.00.1900.08	16.79	270	8	None	Andrew 1-1/4 (1900)	170.043535						529.66			

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			800-10965	HPA-65R-BUU-H6			
ANTENNA VENDOR			Kathrien	CCI			
ANTENNA SIZE (H x W x D)			78.7X20X6.9	72X14.8X9			
ANTENNA WEIGHT			108.6	51			
AZIMUTH			30	30			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)			130	130			
ANTENNA TIP HEIGHT			133	133			
MECHANICAL DOWNTILT			2	0			
FEEDER AMOUNT			FIBER	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)			36				
Antenna RET Motor (QTY/MODEL)			Built In		Built In		
SURGE ARRESTOR (QTY/MODEL)			1 DC Squid Only	1	DC Fiber Squid		
DIPLEXER (QTY/MODEL)			2 DBCT108F1V92-1				
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)			LTE RRH		LTE RRH		
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)			1 B14 4478				
RRH - 850 band (QTY/MODEL)			1 4478 B5				
RRH - 1900 band (QTY/MODEL)							
RRH - AWS band (QTY/MODEL)			1 4426 B66				
RRH - WCS band (QTY/MODEL)				1	RRUS-32		
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	SOW:-Follow Antenna/RRH Positions as per PDs-Replace and Add LTE Antennas.-Add LTE RRHs and LBCs.-Remove and Replace existing GSM line elements with LBC.-Add 1xDC Squid Only and 1xDC/Fiber Squid.-Replace exisitng BBU with 2x5216, Add 2nd XMU+IDLE cable.- Add 1x6630.						
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 3	PORT 1			CTL04022_7A_3_F	CTL04022_7A_3_F		LTE 700	80010965_777MHz_08DT	15.3	30	8	TOP	FIBER	0						2951.413		5	
	PORT 2			CTL04022_8A_1	CTL04022_8A_1		LTE 850	80010965_849MHz_08DT	15.5	30	8	TOP	FIBER	0						1000		5	
	PORT 3			CTL04022_2A_2	CTL04022_2A_2		LTE AWS	80010965_2355MHz_03DT	18.1	30	3	TOP	FIBER	0						3837.0724		6	
	PORT 5			CTN0005022_8A_1	CTN0005022_8A_1		LTE 850	80010965_849MHz_08DT	15.5	30	8	TOP	FIBER	0						1000		5	

ANTENNA POSITION 4	**PORT 3**			CTL05022_3A_1	CTL05022_3A_1		LTE WCS	HPA-65R-BUU-H6_2360MHz_03DT	17.45	30	3	TOP	FIBER	0						1285.2866		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			800-10965	HPA-65R-BUU-H6			
ANTENNA VENDOR			Kathrien	CCI			
ANTENNA SIZE (H x W x D)			78.7X20X6.9	72X14.8X9			
ANTENNA WEIGHT			108.6	51			
AZIMUTH			150	150			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)			130	130			
ANTENNA TIP HEIGHT			133	133			
MECHANICAL DOWNTILT			0	0			
FEEDER AMOUNT			FIBER	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)			36				
Antenna RET Motor (QTY/MODEL)			Built In	Built In			
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)			2 DBCT108F1V92-1				
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)			LTE RRH	LTE RRH			
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)			1 B14 4478				
RRH - 850 band (QTY/MODEL)			1 4478 B5				
RRH - 1900 band (QTY/MODEL)							
RRH - AWS band (QTY/MODEL)			1 4426 B66				
RRH - WCS band (QTY/MODEL)				1 RRUS-32			
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	SOW:-Follow Antenna/RRH Positions as per PDs-Replace and Add LTE Antennas.-Add LTE RRHs and LBCs.-Remove and Replace existing GSM line elements with LBC.-Add 1xDC Squid Only and 1xDC/Fiber Squid.-Replace exisitng BBU with 2x5216, Add 2nd XMU+IDLE cable.- Add 1x6630.						
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 3	PORT 1			CTL04022_7B_3_F	CTL04022_7B_3_F		LTE 700	80010965_777MHz_02DT	15.3	150	2	TOP	FIBER	0						2951.413		13	
	PORT 2			CTL04022_8B_1	CTL04022_8B_1		LTE 850	80010965_849MHz_02DT	15.4	150	2	TOP	FIBER	0						1000		13	
	PORT 3			CTL04022_2B_2	CTL04022_2B_2		LTE AWS	80010965_2355MHz_03DT	18.1	150	3	TOP	FIBER	0						3837.0724		14	
	PORT 5			CTN0005022_8B_1	CTN0005022_8B_1		LTE 850	80010965_849MHz_02DT	15.4	150	2	TOP	FIBER	0						1000		13	

ANTENNA POSITION 4	**PORT 3**			CTL05022_3B_1	CTL05022_3B_1		LTE WCS	HPA-65R-BUU-H6_2360MHz_03DT	17.45	150	3	TOP	FIBER	0						1285.2866		16	

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

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
Existing Antenna?							
ANTENNA MAKE - MODEL			800-10965	HPA-65R-BUU-H6			
ANTENNA VENDOR			Kathrien	CCI			
ANTENNA SIZE (H x W x D)			78.7X20X6.9	72X14.8X9			
ANTENNA WEIGHT			108.6	51			
AZIMUTH			270	270			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)			130	130			
ANTENNA TIP HEIGHT			133	133			
MECHANICAL DOWNTILT			2	0			
FEEDER AMOUNT			FIBER	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)			36				
Antenna RET Motor (QTY/MODEL)			Built In	Built In			
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)			2 DBCT108F1V92-1				
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)			LTE RRH	LTE RRH			
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)			1 B14 4478				
RRH - 850 band (QTY/MODEL)			1 4478 B5				
RRH - 1900 band (QTY/MODEL)							
RRH - AWS band (QTY/MODEL)			1 4426 B66				
RRH - WCS band (QTY/MODEL)				1 RRUS-32			
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	SOW:-Follow Antenna/RRH Positions as per PDs-Replace and Add LTE Antennas.-Add LTE RRHs and LBCs.-Remove and Replace existing GSM line elements with LBC.-Add 1xDC Squid Only and 1xDC/Fiber Squid.-Replace exisitng BBU with 2x5216, Add 2nd XMU+IDLE cable.- Add 1x6630.						
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 3	PORT 1			CTL04022_7C_3_F	CTL04022_7C_3_F		LTE 700	80010965_777MHz_08DT	15.3	270	8	TOP	FIBER	0						2951.413		21	
	PORT 2			CTL04022_8C_1	CTL04022_8C_1		LTE 850	80010965_849MHz_08DT	15.5	270	8	TOP	FIBER	0						1000		21	
	PORT 3			CTL04022_2C_2	CTL04022_2C_2		LTE AWS	80010965_2355MHz_03DT	18.1	270	3	TOP	FIBER	0						3837.0724		22	
	PORT 5			CTN0005022_8C_1	CTN0005022_8C_1		LTE 850	80010965_849MHz_08DT	15.5	270	8	TOP	FIBER	0						1000		21	

ANTENNA POSITION 4	**PORT 3**			CTL05022_3C_1	CTL05022_3C_1		LTE WCS	HPA-65R-BUU-H6_2360MHz_03DT	17.45	270	3	TOP	FIBER	0						1285.2866		24	

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	7770		P65-16-XLH-RR		800-10965		HPA-65R-BUU-H6							
ANTENNA VENDOR	Powerwave		Powerwave		Kathrien		CCI							
ANTENNA SIZE (H x W x D)	55X11X5		72X12X6		78.7X20X6.9		72X14.8X9							
ANTENNA WEIGHT	35		64		108.6		51							
AZIMUTH	30		30		30		30							
MAGNETIC DECLINATION														
RADIATION CENTER (feet)	130		130		130		130							
ANTENNA TIP HEIGHT	132		133		133		133							
MECHANICAL DOWNTILT	0		2		2		2							
FEEDER AMOUNT	2		Fiber+2 Coax		FIBER		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)						36								
Antenna RET Motor (QTY/MODEL)	2	Powerwave 7020		Built In		Built In		Built In						
SURGE ARRESTOR (QTY/MODEL)			1	DC Fiber Squid	1	DC Squid Only	1	DC Fiber Squid						
DIPLEXER (QTY/MODEL)	2	LGP 21901	1	DBC0061F1V51-2	2	DBCT108F1V92-1								
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)	1	Powerwave 7070		LTE RRH		LTE RRH		LTE RRH						
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)	2	Pwav LGP21401 Single 1900 w/ 850BP (850)												
CURRENT INJECTORS FOR TMA (QTY/MODEL)	2	Polyphaser 1000860												
PDU FOR TMAS (QTY/MODEL)	1	Powerwave 12104												
FILTER (QTY/MODEL)														
SQUID (QTY/MODEL)														
FIBER TRUNK (QTY/MODEL)														
DC TRUNK (QTY/MODEL)														
REPEATER (QTY/MODEL)														
RRH - 700 band (QTY/MODEL)					1	B14 4478	1	RRUS-11 (REUSE ONLY)						
RRH - 850 band (QTY/MODEL)					1	4478 B5								
RRH - 1900 band (QTY/MODEL)			1	RRUS-12										
RRH - AWS band (QTY/MODEL)					1	4426 B66								
RRH - WCS band (QTY/MODEL)							1	RRUS-32						
Additional RRH #1 - any band (QTY/MODEL)														
Additional RRH #2 - any band (QTY/MODEL)														
Additional Component 1 (QTY/MODEL)														
Additional Component 2 (QTY/MODEL)														
Additional Component 3 (QTY/MODEL)														
Local Market Note 1	SOW:-Follow Antenna/RRH Positions as per PDs-Replace and Add LTE Antennas.-Add LTE RRHs and LBCs.-Remove and Replace existing GSM line elements with LBC.-Add 1xDC Squid Only and 1xDC/Fiber Squid.-Replace exisitng BBU with 2x5216, Add 2nd XMU+IDLE cable.- Add 1x6630.													
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	4522.A.850.3G.1		CTV50221	CTV50221		UMTS 850	7770.00.850.06	13.5	30	6	None	Andrew 1-1/4 (850)	170.043535						242.66		1	
ANTENNA POSITION 2	PORT 3	4522.A.1900.4G.1		CTL05022_9A_1	CTL05022_9A_1		LTE 1900	P65-16-XLH-RR_1930MHz_06DT	16.3	30	6	TOP	FIBER	0						3664.3757		4	
	PORT 4	4522.A.1900.4G.tmp4		CTL05022_9A_2	CTL05022_9A_2		LTE 1900	P65-16-XLH-RR_1930MHz_06DT	16.3	30	6	TOP	FIBER	0						3664.3757		4	
ANTENNA POSITION 3	PORT 1	4522.A.700.4G.tmp5		CTL04022_7A_3_F	CTL04022_7A_3_F		LTE 700	80010965_777MHz_08DT	15.3	30	8	TOP	FIBER	0						2951.413		5	
	PORT 2	4522.A.850.4G.tmp1		CTL04022_8A_1	CTL04022_8A_1		LTE 850	80010965_849MHz_0	15.5	30	8	TOP	FIBER	0						1000		5	

								8DT															
	PORT 3	4522.A.AWS.4G.tmp4		CTL04022_2A_2	CTL04022_2A_2		LTE AWS	80010965_2355MHz_03DT	18.1	30	3	TOP	FIBER	0						3837.0724		6	
	PORT 5	4522.A.850.5G.tmp1		CTN0005022_8A_1	CTN0005022_8A_1		5G 850	80010965_849MHz_08DT	15.5	30	8	TOP	FIBER	0						1000		5	
ANTENNA POSITION 4	**PORT 1**	4522.A.700.4G.1		CTL05022_7A_1	CTL05022_7A_1		LTE 700	HPA-65R-BUU-H6_719MHz_08DT	13.97	30	8	TOP	FIBER	0						1475.7065		7	
	PORT 3	4522.A.WCS.4G.tmp1		CTL05022_3A_1	CTL05022_3A_1		LTE WCS	HPA-65R-BUU-H6_2360MHz_03DT	17.45	30	3	TOP	FIBER	0						1285.2866		8	

Section 17B - FINAL TOWER CONFIGURATION - SECTOR B

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL	7770	P65-16-XLH-RR	800-10965	HPA-65R-BUU-H6			
ANTENNA VENDOR	Powerwave	Powerwave	Kathrien	CCI			
ANTENNA SIZE (H x W x D)	55X11X5	72X12X6	78.7X20X6.9	72X14.8X9			
ANTENNA WEIGHT	35	64	108.6	51			
AZIMUTH	150	150	150	150			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)	130	130	130	130			
ANTENNA TIP HEIGHT	132	133	133	133			
MECHANICAL DOWNTILT	0	0	0	0			
FEEDER AMOUNT	2	Fiber+2 Coax	FIBER	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)			36				
Antenna RET Motor (QTY/MODEL)	2 Powerwave 7020	Built In	Built In	Built In			
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)	2 LGP 21901	1 DBC0061F1V51-2	2 DBCT108F1V92-1				
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)		LTE RRH	LTE RRH	LTE RRH			
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)	2 Pwav LGP21401 Single 1900 w/ 850BP (850)						
CURRENT INJECTORS FOR TMA (QTY/MODEL)	2 Polyphaser 1000860						
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)			1 B14 4478	1 RRUS-11 (REUSE ONLY)			
RRH - 850 band (QTY/MODEL)			1 4478 B5				
RRH - 1900 band (QTY/MODEL)	1	RRUS-12					
RRH - AWS band (QTY/MODEL)			1 4426 B66				
RRH - WCS band (QTY/MODEL)				1 RRUS-32			
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	SOW:-Follow Antenna/RRH Positions as per PDs-Replace and Add LTE Antennas.-Add LTE RRHs and LBCs.-Remove and Replace existing GSM line elements with LBC.-Add 1xDC Squid Only and 1xDC/Fiber Squid.-Replace exisitng BBU with 2x5216, Add 2nd XMU+IDLE cable.- Add 1x6630.						
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	4522.B.850.3G.1		CTV50222	CTV50222		UMTS 850	7770.00.850.00	13.5	150	0	None	Andrew 1-1/4 (850)	170.043535						242.66		9	
ANTENNA POSITION 2	PORT 3	4522.B.1900.4G.1		CTL05022_9B_1	CTL05022_9B_1		LTE 1900	P65-16-XLH-RR_1930MHz_03DT	16.3	150	3	TOP	FIBER	0						3664.3757		12	
	PORT 4	4522.B.1900.4G.tmp4		CTL05022_9B_2	CTL05022_9B_2		LTE 1900	P65-16-XLH-RR_1930MHz_03DT	16.3	150	3	TOP	FIBER	0						3664.3757		12	
ANTENNA POSITION 3	PORT 1	4522.B.700.4G.tmp5		CTL04022_7B_3_F	CTL04022_7B_3_F		LTE 700	80010965_777MHz_02DT	15.3	150	2	TOP	FIBER	0						2951.413		13	
	PORT 2	4522.B.850.4G.tmp1		CTL04022_8B_1	CTL04022_8B_1		LTE 850	80010965_849MHz_0	15.4	150	2	TOP	FIBER	0						1000		13	

								2DT															
	PORT 3	4522.B.AWS.4G.tmp4		CTL04022_2B_2	CTL04022_2B_2		LTE AWS	80010965_2355MHz_03DT	18.1	150	3	TOP	FIBER	0						3837.0724		14	
	PORT 5	4522.B.850.5G.tmp1		CTN0005022_8B_1	CTN0005022_8B_1		5G 850	80010965_849MHz_02DT	15.4	150	2	TOP	FIBER	0						1000		13	
ANTENNA POSITION 4	**PORT 1**	4522.B.700.4G.1		CTL05022_7B_1	CTL05022_7B_1		LTE 700	HPA-65R-BUU-H6_719MHz_02DT	14.28	150	2	TOP	FIBER	0						1475.7065		15	
	PORT 3	4522.B.WCS.4G.tmp1		CTL05022_3B_1	CTL05022_3B_1		LTE WCS	HPA-65R-BUU-H6_2360MHz_03DT	17.45	150	3	TOP	FIBER	0						1285.2866		16	

Section 17C - FINAL TOWER CONFIGURATION - SECTOR C

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL	7770	P65-16-XLH-RR	800-10965	HPA-65R-BUU-H6			
ANTENNA VENDOR	Powerwave	Powerwave	Kathrien	CCI			
ANTENNA SIZE (H x W x D)	55X11X5	72X12X6	78.7X20X6.9	72X14.8X9			
ANTENNA WEIGHT	35	64	108.6	51			
AZIMUTH	270	270	270	270			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)	130	130	130	130			
ANTENNA TIP HEIGHT	132	133	133	133			
MECHANICAL DOWNTILT	0	2	2	2			
FEEDER AMOUNT	2	Fiber+2 Coax	FIBER	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)			36				
Antenna RET Motor (QTY/MODEL)	2 Powerwave 7020	Built In	Built In	Built In			
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)	2 LGP 21901	1 DBC0061F1V51-2	2 DBCT108F1V92-1				
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)		LTE RRH	LTE RRH	LTE RRH			
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)	2 Pwav LGP21401 Single 1900 w/ 850BP (850)						
CURRENT INJECTORS FOR TMA (QTY/MODEL)	2 Polyphaser 1000860						
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)			1 B14 4478	1 RRUS-11 (REUSE ONLY)			
RRH - 850 band (QTY/MODEL)			1 4478 B5				
RRH - 1900 band (QTY/MODEL)	1	RRUS-12					
RRH - AWS band (QTY/MODEL)			1 4426 B66				
RRH - WCS band (QTY/MODEL)				1 RRUS-32			
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	SOW:-Follow Antenna/RRH Positions as per PDs-Replace and Add LTE Antennas.-Add LTE RRHs and LBCs.-Remove and Replace existing GSM line elements with LBC.-Add 1xDC Squid Only and 1xDC/Fiber Squid.-Replace exisitng BBU with 2x5216, Add 2nd XMU+IDLE cable.- Add 1x6630.						
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	4522.C.850.3G.1		CTV50223	CTV50223		UMTS 850	7770.00.850.01	13.5	270	1	None	Andrew 1-1/4 (850)	170.043535						242.66		17	
ANTENNA POSITION 2	PORT 3	4522.C.1900.4G.1		CTL05022_9C_1	CTL05022_9C_1		LTE 1900	P65-16-XLH-RR_1930MHz_06DT	16.3	270	6	TOP	FIBER	0						3664.3757		20	
	PORT 4	4522.C.1900.4G.tmp4		CTL05022_9C_2	CTL05022_9C_2		LTE 1900	P65-16-XLH-RR_1930MHz_06DT	16.3	270	6	TOP	FIBER	0						3664.3757		20	
ANTENNA POSITION 3	PORT 1	4522.C.700.4G.tmp5		CTL04022_7C_3_F	CTL04022_7C_3_F		LTE 700	80010965_777MHz_08DT	15.3	270	8	TOP	FIBER	0						2951.413		21	
	PORT 2	4522.C.850.4G.tmp1		CTL04022_8C_1	CTL04022_8C_1		LTE 850	80010965_849MHz_0	15.5	270	8	TOP	FIBER	0						1000		21	

								8DT															
	PORT 3	4522.C.AWS.4G.tmp4		CTL04022_2C_2	CTL04022_2C_2		LTE AWS	80010965_2355MHz_03DT	18.1	270	3	TOP	FIBER	0						3837.0724		22	
	PORT 5	4522.C.850.5G.tmp1		CTN0005022_8C_1	CTN0005022_8C_1		5G 850	80010965_849MHz_08DT	15.5	270	8	TOP	FIBER	0						1000		21	
ANTENNA POSITION 4	**PORT 1**	4522.C.700.4G.1		CTL05022_7C_1	CTL05022_7C_1		LTE 700	HPA-65R-BUU-H6_719MHz_08DT	13.97	270	8	TOP	FIBER	0						1475.7065		23	
	PORT 3	4522.C.WCS.4G.tmp1		CTL05022_3C_1	CTL05022_3C_1		LTE WCS	HPA-65R-BUU-H6_2360MHz_03DT	17.45	270	3	TOP	FIBER	0						1285.2866		24	

Diagram - Sector	A	Diagram File Name - CT5022_A_B_C_LTE_Rev.1.vsd					
Atoll Site Name -	CTL05022	Location Name -	FAIRFIELD	Market -	CONNECTICUT	Market Cluster -	NEW ENGLAND

Comments: "Important Note: For detailed radio to antenna wiring refer to the latest field notice - Antenna_Radio Connection Drawings Playbook v6.0_Ericsson"

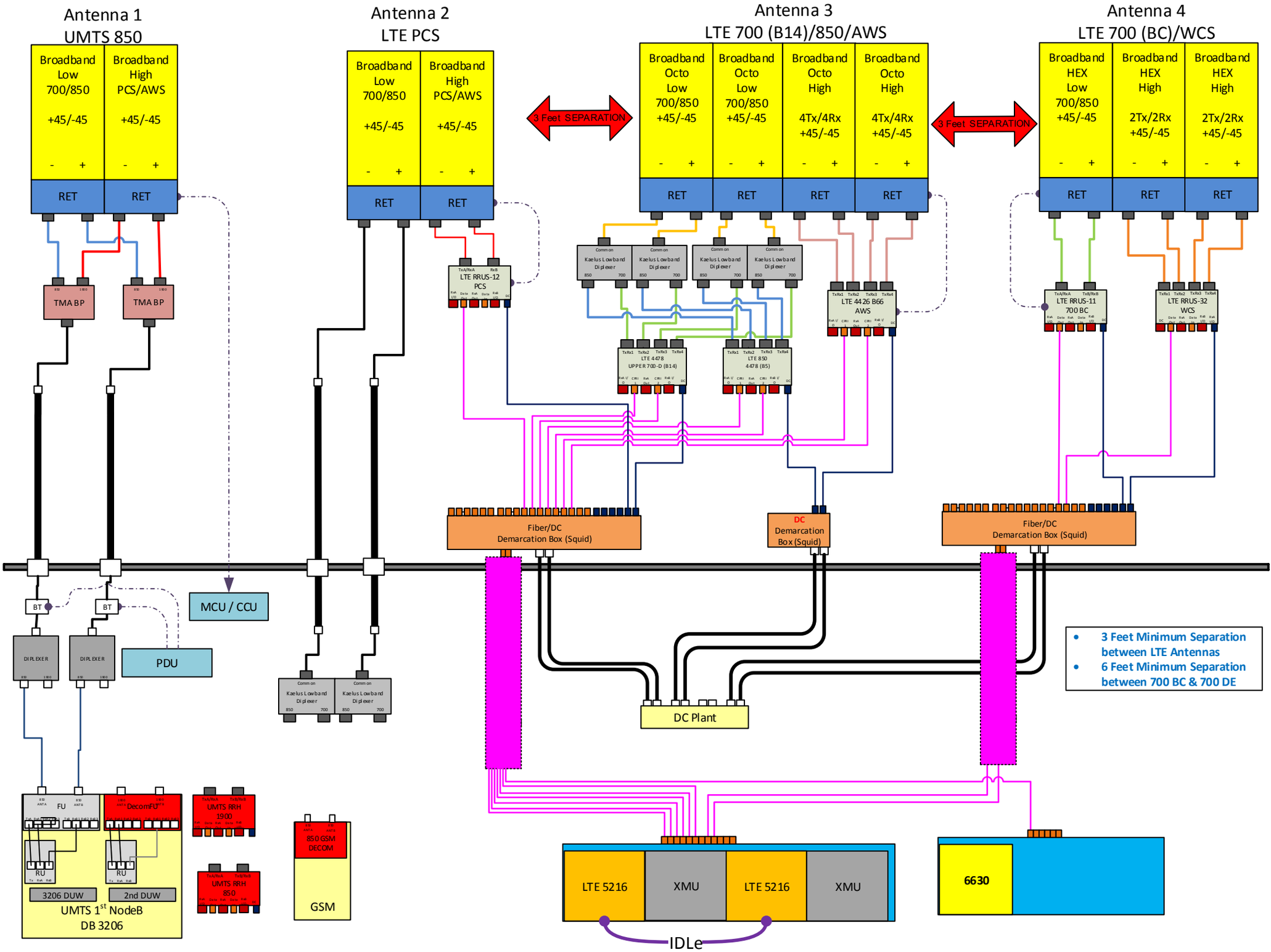


Diagram - Sector	B	Diagram File Name - CT5022_A_B_C_LTE_Rev.1.vsd					
Atoll Site Name -	CTL05022	Location Name -	FAIRFIELD	Market -	CONNECTICUT	Market Cluster -	NEW ENGLAND

Comments: "Important Note: For detailed radio to antenna wiring refer to the latest field notice - Antenna_Radio Connection Drawings Playbook v6.0_Ericsson"

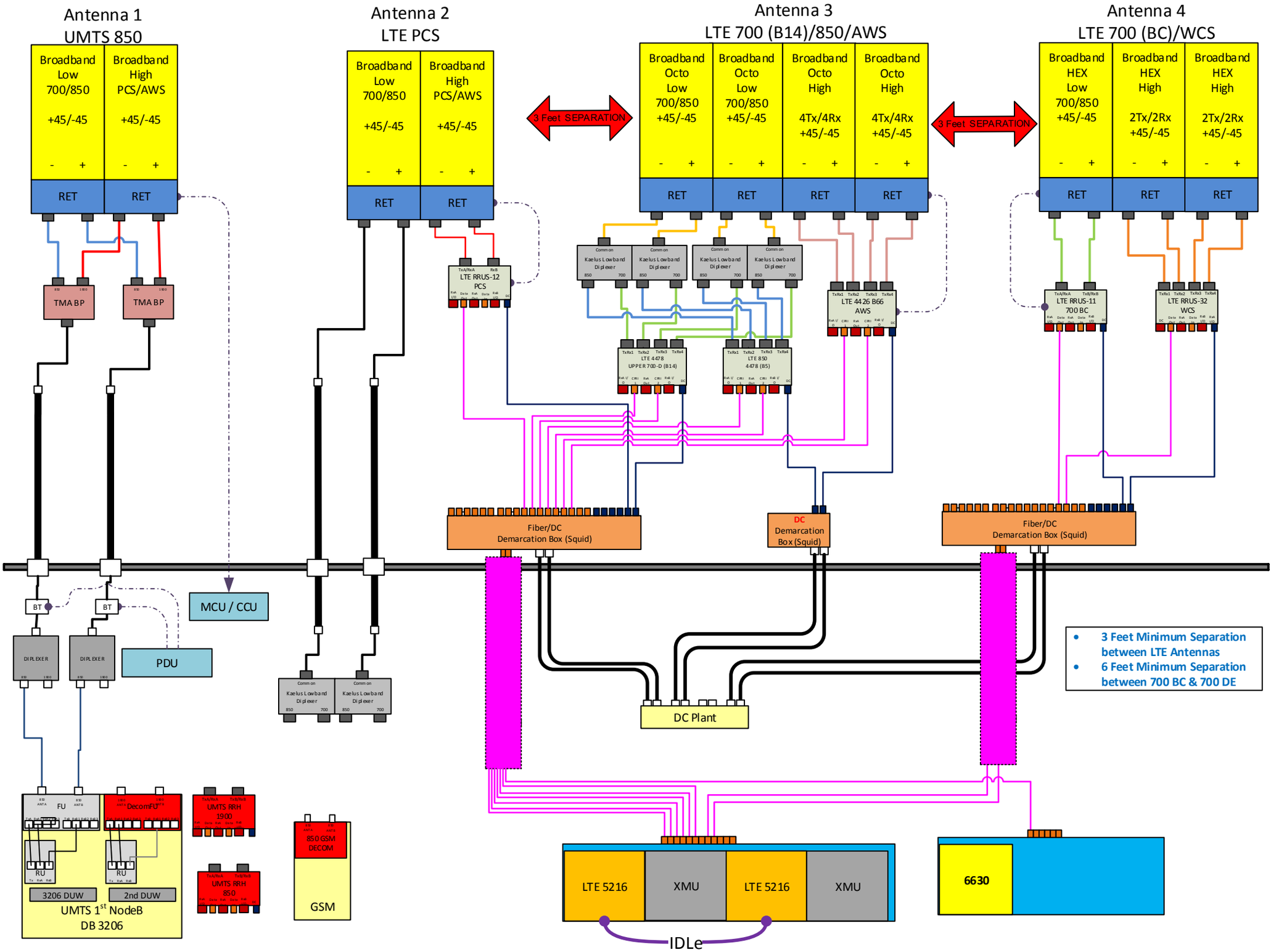
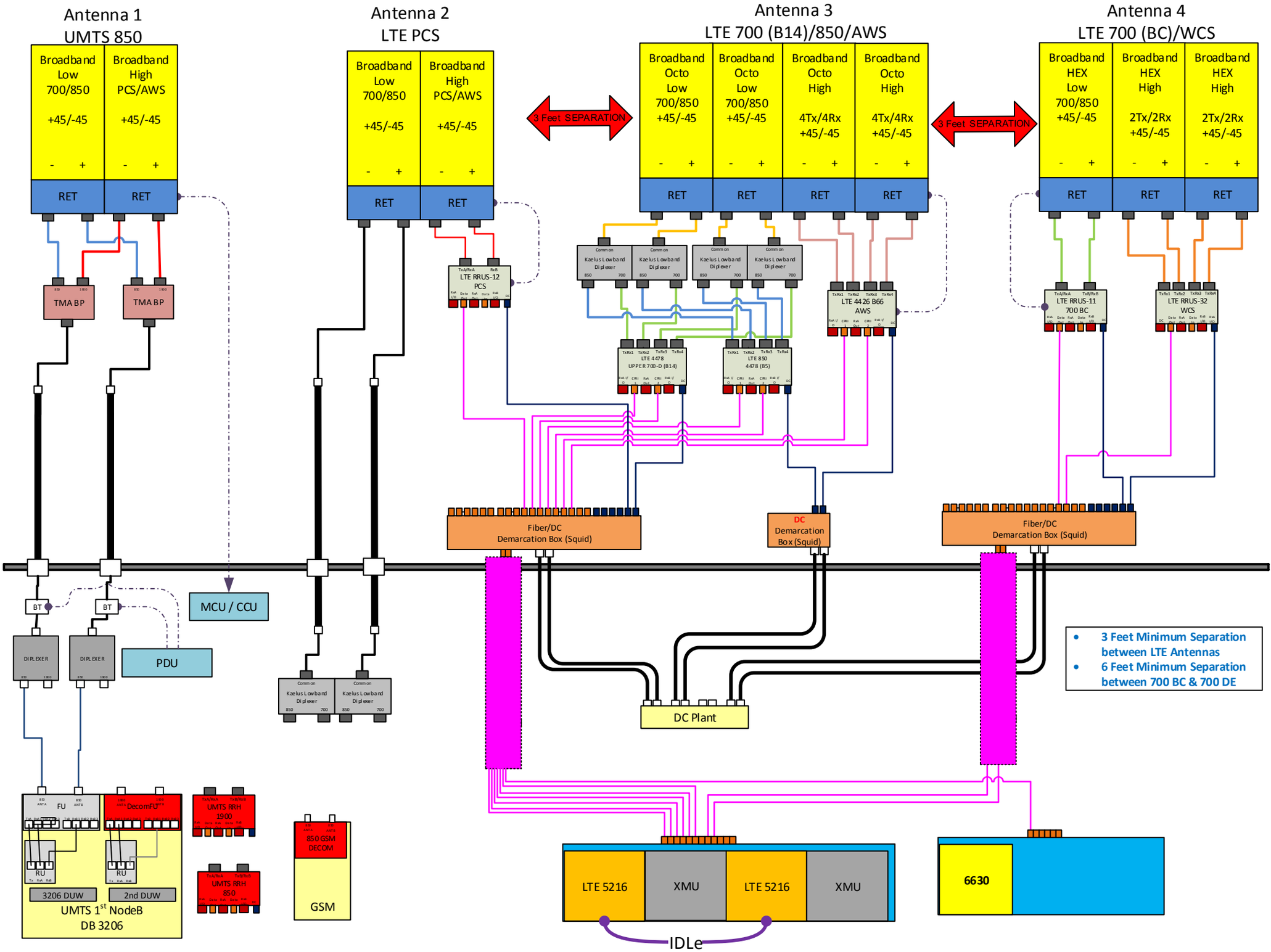


Diagram - Sector	C	Diagram File Name - CT5022_A_B_C_LTE_Rev.1.vsd					
Atoll Site Name -	CTL05022	Location Name -	FAIRFIELD	Market -	CONNECTICUT	Market Cluster -	NEW ENGLAND

Comments: "Important Note: For detailed radio to antenna wiring refer to the latest field notice - Antenna_Radio Connection Drawings Playbook v6.0_Ericsson"



NOTES			
Date Time (Eastern)	Version	ATTUID	Note
3/19/2018 12:30:29 PM	1.00	mh705r	LTE Preliminary SOW RFDS Created.
7/23/2018 2:57:59 PM	2.00	om636a	RFDS VERSION incremented.
7/23/2018 2:58:04 PM	2.00	om636a	Final RF Approved. Possible CIQ erros resolved
7/24/2018 4:39:03 PM	2.00	om636a	Final RF Approved. Possible CIQ erros resolved

WORKFLOW SUMMARY							
Date	FROM State / Status	FROM ATTUID	TO State / Status	TO ATTUID	Operation	Comments	PACE Status
05/05/2018	Preliminary In Progress	mh705r	Preliminary Submitted for Approval	RC475S	Promote	LTE Preliminary RFDS	NER-RCTB-17-07891 MRCTB031119 SUCCESS 05/05/2018 12:20:17 AM NER-RCTB-18-02582 MRCTB031921 SUCCESS 05/05/2018 12:20:17 AM NER-RCTB-18-03248 MRCTB031461 SUCCESS 05/05/2018 12:20:17 AM NER-RCTB-18-03359 MRCTB031662 SUCCESS 05/05/2018 12:20:17 AM
05/09/2018	Preliminary Submitted for Approval	RC475S	Preliminary Approved	DC5778	Promote		
07/09/2018	Preliminary Approved	DC5778	Final RF Approval	OM636A	Promote	Please promote to final, – Change DBC model to DBCT108F1V92-1	
07/24/2018	Final RF Approval	OM636A	Final Approved	dc5778	Promote	Final RFDS	NER-RCTB-17-07891 MRCTB031119 SUCCESS 07/24/2018 5:20:27 PM NER-RCTB-18-02582 MRCTB031921 SUCCESS 07/24/2018 5:20:27 PM NER-RCTB-18-03248 MRCTB031461 SUCCESS 07/24/2018 5:20:27 PM NER-RCTB-18-03359 MRCTB031662 SUCCESS 07/24/2018 5:20:27 PM

8-Port Antenna	R1	R2	Y1	Y2
Frequency Range	698–960	698–960	1695–2690	1695–2690
Dual Polarization	X	X	X	X
HPBW	65°	65°	65°	65°
Adjust. Electr. DT	2°–12°	2°–12°	2.5°–12°	2.5°–12°

set by *FlexRET*

KATHREIN

AISG Antenna Interface Standards Group

8-Port Antenna 698–960/698–960/1695–2690/1695–2690 65°/65°/65°/65° 15.5/15.5/18/18dBi 2°–12°/2°–12°/2.5°–12°/2.5°–12°T

Type No.		80010965			
Left side, lowband		R1, connector 1–2			
		698–960			
Frequency Range	MHz	698 – 806	790 – 862	824 – 894	880 – 960
Gain at mid Tilt	dBi	14.8	15.4	15.6	15.9
Gain over all Tilts	dBi	14.8 ± 0.6	15.4 ± 0.4	15.6 ± 0.2	15.8 ± 0.2
Horizontal Pattern:					
Azimuth Beamwidth	°	62 ± 3.9	61 ± 3.2	60 ± 2.7	60 ± 2.1
Front-to-Back Ratio, Total Power, ± 30°	dB	> 22	> 25	> 27	> 25
Vertical Pattern:					
Elevation Beamwidth	°	11.9 ± 0.8	11.0 ± 0.8	10.5 ± 0.4	10.2 ± 0.4
Electrical Downtilt continuously adjustable	°	2.0 – 12.0			
Tilt Accuracy	°	< 0.7	< 0.7	< 0.7	< 0.7
First Upper Side Lobe Suppression	dB	> 14	> 14	> 15	> 14
Cross Polar Isolation	dB	> 30			
Port to Port Isolation	dB	> 27 (R1 // R2) > 30 (R1 // Y1, Y2)			
Max. Effective Power per Port	W	400 (at 50 °C ambient temperature)			
Max. Effective Power Port 1–2	W	800 (at 50 °C ambient temperature)			

Values based on NGMN-P-BASTA (version 9.6) requirements.

936.5306/b.1 ngmn 04.24.02.03 Subject to alteration.

Kathrein USA Greenway Plaza II, 2400 Lakeside Blvd., Suite 650, Richardson TX 75082
Phone: 214.238.8800 Fax: 214.238.8801 Email: info@kathrein.com

Electrical specifications, all systems		
Impedance	Ω	50
VSWR		< 1.5
Return Loss	dB	> 14
Interband Isolation	dB	> 27
Passive Intermodulation	dBc	< –153 (2 x 43 dBm carrier)
Polarization	°	+45, –45
Max. Effective Power for the Antenna	W	1200 (at 50 °C ambient temperature)

Values based on NGMN-P-BASTA (version 9.6) requirements.

Mechanical specifications		
Input		8 x 4.3-10 female
Connector Position		bottom
Adjustment Mechanism		FlexRET, continuously adjustable
Wind load (at Rated Wind Speed: 150 km/h) (93 mph)	N | lbf	Frontal: 1130 | 254 Maximal: 1140 | 256
Max. Wind Velocity	km/h mph	241 150
Height / Width / Depth	mm inches	1999 / 508 / 175 78.7 / 20.0 / 6.9
Category of Mounting Hardware		XH (X-Heavy)
Weight	kg lb	44.3 / 49.3 (clamps incl.) 97.6 / 108.6 (clamps incl.)
Packing Size	mm inches	2200 / 542 / 268 86.6 / 21.3 / 10.6
Scope of Supply		Panel, FlexRET and clamps for 55–115 mm | 2.2–4.5 inches diameter

Accessories (order separately if required)

Type No.	Description	Remarks mm | inches	Weight approx. kg | lb	Units per antenna
85010097	2 clamps	Mast diameter: 110 – 220 | 4.3 – 8.7	9.4 | 20.7	1
85010099	1 downtilt kit	Downtilt angle: 0° – 13°	10.6 | 23.4	1
86010154	Site Sharing Adapter	3-way (see figure below)	0.7 | 1.5	
86010155	Site Sharing Adapter	6-way (see figure below)	1.4 | 3.1	
86010162	Gender Adapter	Solely to be used in combination with the FlexRET module 86010153V01	0.045 | 0.099	1
86010163	Port Extender		0.16 | 0.35	1

Accessories (included in the scope of supply)

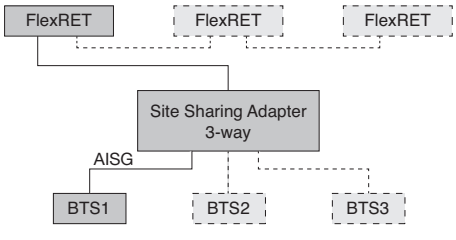
85010096	2 clamps	Mast diameter: 55 – 115 | 2.2 – 4.5	5.0 | 11.0	1
86010153V01	FlexRET			1

For downtilt mounting use the clamps for an appropriate mast diameter together with the downtilt kit.
Wall mounting: No additional mounting kit needed.

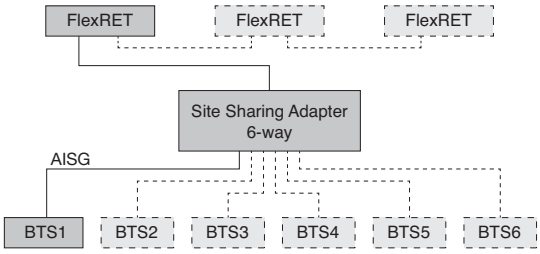
Material: **Reflector screen:** Aluminum.
Fiberglass housing: It covers totally the internal antenna components. The special design reduces the sealing areas to a minimum and guarantees the best weather protection. Fiberglass material guarantees optimum performance with regards to stability, stiffness, UV resistance and painting. The color of the radome is light grey.
All nuts and bolts: Stainless steel or hot-dip galvanized steel.

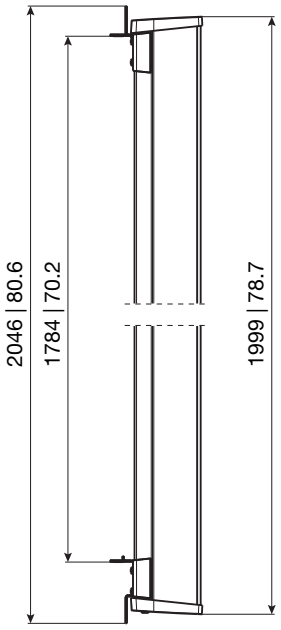
Grounding: The metal parts of the antenna including the mounting kit and the inner conductors are DC grounded.

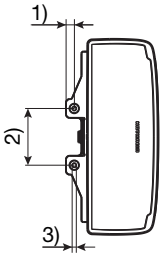
Configuration example with Site Sharing Adapter 86010154



Configuration example with Site Sharing Adapter 86010155







1) 22 | 0.9
2) 150 | 5.9
3) ∅ 11 | 0.4

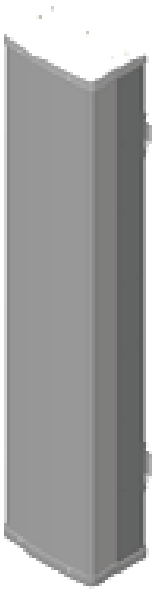
All dimensions in mm | inches

936.5306/b.1 ngmn 04.24.02.03 Subject to alteration.

For more information please refer to the respective data sheets.

HexPort Multi-Band Antenna

Model HPA-65R-BUU-H6



The CCI Hexport Multi-Band Antenna Array is an industry first 6-port antenna with full WCS Band Coverage. With four high band ports and two low band ports, our hexport antenna is ready for 4X4 high band MIMO.

Modern networks demand high performance, consequently CCI has incorporated several new and innovative design techniques to provide an antenna with excellent side-lobe performance, sharp elevation beams, and high front to back ratio.

Multiple networks can now be connected to a single antenna, reducing tower loading and leasing expense, while decreasing deployment time and installation cost.

Full band capability for 700 MHz , Cellular 850 MHz, PCS 1900 MHz, AWS 1710/2170 MHz and WCS 2300 MHz coverage in a single enclosure.

Hexport Multi-Band Antenna Array

Benefits

- **Includes WCS Band**
- **Reduces tower loading**
- **Frees up space for tower mounted E-nodes**
- **Single radome with six ports**
- **All Band design simplifies radio assignments**
- **Sharp elevation beam eases network planning**

Features

- High Band Ports include WCS Band
- Four High Band ports with two Low Band ports in one antenna
- Sharp elevation beam
- Excellent elevation side-lobe performance
- Excellent MIMO performance due to array spacing
- Excellent PIM Performance
- A multi-network solution in one radome

Applications

- 4x4 MIMO on High Band and 2x2 MIMO on Low Band
- Adding additional capacity without adding additional antennas
- Adding WCS Band without increasing antenna count

ISO 9001:2008
Quality Management Systems
Système de Qualité
www.ca.sgs.com

HexPort Multi-Band Antenna

Model HPA-65R-BUU-H6

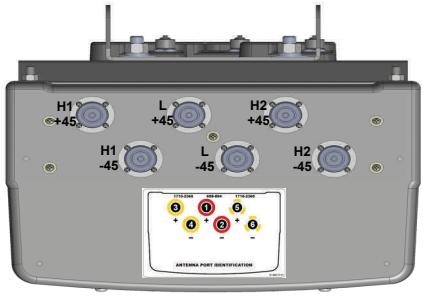
HPA-65R Multi-Band Antenna

Electrical Specifications

Frequency Range	2 X Low Band Ports which cover the full range from 698-894 MHz		4 X High Band Ports which cover the full range from 1710-2360 MHz			
	698-806 MHz	824-894 MHz	1850-1990 MHz	1710-1755/2110-2170 MHz		2305-2360 MHz
Gain	14.1 dBi	14.8 dBi	16.9 dBi	16.3 dBi	17.2 dBi	17.4 dBi
Azimuth Beamwidth (-3dB)	66°	65°	61°	66°	62°	57°
Elevation Beamwidth (-3dB)	12.5°	10.5°	5.7°	6.3°	5.1°	4.5°
Electrical Downtilt	0° to 10°	0° to 10°	0° to 8°	0° to 8°	0° to 8°	0° to 8°
Elevation Sidelobes (1st Upper)	< -17 dB	< -19 dB	< -19 dB	< -18 dB	< -18 dB	< -17 dB
Front-to-Back Ratio @180°	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB
Front-to-Back Ratio over ± 20°	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB
Cross-Polar Discrimination (at Peak)	> 25 dB	> 20 dB	> 25 dB	> 25 dB	> 25 dB	> 25 dB
Cross-Polar Discrimination (at ± 60°)	> 17 dB	> 14 dB	> 17 dB	> 17 dB	> 17 dB	> 17 dB
Cross-Polar Port-to-Port Isolation	> 25 dB	> 25 dB	> 26 dB	> 25 dB	> 26 dB	> 26 dB
VSWR	< 1.5:1	< 1.5:1	< 1.5:1	< 1.5:1	< 1.5:1	< 1.5:1
Passive Intermodulation (2x20W)	≤ -150dBc	≤ -150dBc	≤ -150dBc	≤ -150dBc	≤ -150dBc	≤ -150dBc
Input Power	500 Watts CW	500 Watts CW	300 Watts CW	300 Watts CW	300 Watts CW	300 Watts CW
Polarization	Dual Pol 45°	Dual Pol 45°	Dual Pol 45°	Dual Pol 45°	Dual Pol 45°	Dual Pol 45°
Input Impedance	50 Ohms	50 Ohms	50 Ohms	50 Ohms	50 Ohms	50 Ohms
Lightning Protection	DC Ground	DC Ground	DC Ground	DC Ground	DC Ground	DC Ground

Mechanical Specifications

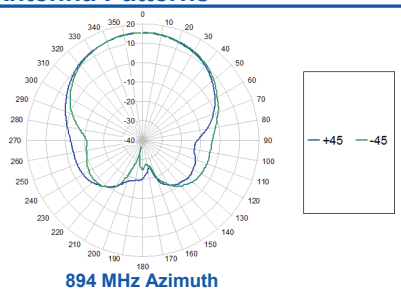
Dimensions (LxWxD)	72.0 x 14.8 x 9.0 inches (1828 x 376 x 229 mm)
Survival Wind Speed	> 150 mph
Front Wind Load	247 lbs (1099 N) @ 100 mph (161 kph)
Side Wind Load	165 lbs (735 N) @ 100 mph (161 kph)
Equivalent Flat Plate Area	9.7 ft^2 (0.90 m^2)
Weight (without Mounting)	51 lbs (23 kg)
RET System Weight	5.0 lbs (2.3 kg)
Connector	6; 7-16 DIN female long neck
Mounting Pole	2-5 inches (5-12 cm)



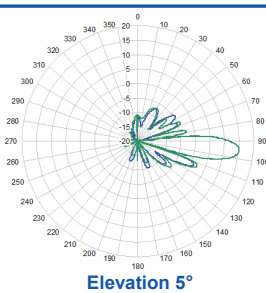
Bottom View

Rear View

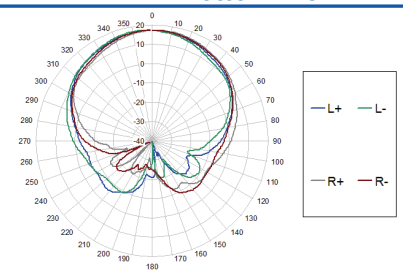
Antenna Patterns*



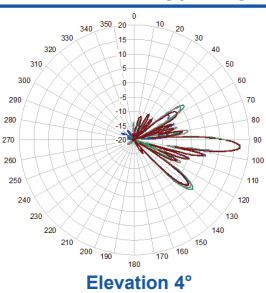
894 MHz Azimuth



Elevation 5°



1920 MHz Azimuth



Elevation 4°

*Typical antenna patterns. For detail information on antenna pattern, please contact us at info@cciproducts.com. All specifications are subject to change without notice.

Radio 4478

4T4R low band platform

- 4TX/4RX, FDD LTE
- , 600MHz, B5, B12, B13, B14
- 4x40W, Full-band IBW
- 2x 2.5/5/10Gbps CPRI
- Weight < 60 lb (27.2kg)
  - 380Hx335Wx186D mm (24 l)
  - Two handles Dimensions: 14.9"L x 13.1"W x 7.3"D
- -48 VDC
- AISG TMA & RET support
- 2 external alarms
- IP65, -40 to +55˚C

PERFORMANCE EVOLUTION

MIMO // Cloud RAN // Gigabit speeds

- Dimensions now confirmed to be the same for all bands
- Handle design has changed based on usability analysis
- 600MHz availability on track for October 2017

Radio Frequency Emissions Analysis Report

AT&T Existing Facility

Site ID: CT5022

FA#: 10108711

Fairfield
100 Reef Road
Fairfield, CT 06824

December 20, 2018

Centerline Communications Project Number: 950006-163

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**10.13 %**

December 20, 2018

AT&T Mobility – New England
Attn: John Benedetto, RF Manager
550 Cochituate Road
Suite 550 – 13&14
Framingham, MA 06040

Emissions Analysis for Site: **CT5022 – Fairfield**

Centerline Communications, LLC ("Centerline") was directed to analyze the proposed AT&T facility located at **100 Reef Road, Fairfield, CT**, for the purpose of determining whether the emissions from the Proposed AT&T Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general population may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general population would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 700 and 850 MHz Bands are approximately 467 $\mu W/cm^2$ and 567 $\mu W/cm^2$ respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 2300 MHz (WCS) bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were performed for the proposed AT&T Wireless antenna facility located at **100 Reef Road, Fairfield, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. All power values expressed and analyzed are maximum power levels expected to be used on all radios.

All emissions values for additional carriers were taken from the Connecticut Siting Council (CSC) active MPE database. Values in this database are provided by the individual carriers themselves

For each sector the following channel counts, frequency bands and power levels were utilized as shown in *Table 1*:

Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
UMTS	850 MHz	2	30
LTE	1900 MHz (PCS)	4	40
LTE	700 MHz (Band 14)	4	40
LTE	850 MHz	2	40
LTE	2100 MHz (AWS)	4	30
5G	850 MHz	2	25
LTE	700 MHz	2	40
LTE	2300 MHz (WCS)	4	30

Table 1: Channel Data Table

The following antennas listed in *Table 2* were used in the modeling for transmission in the 700 MHz, 850 MHz, 1900 MHz (PCS), 2100 MHz (AWS) and 2300 MHz (WCS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	Powerwave 7770	130
A	2	Powerwave P65-16-XLH-RR	130
A	3	Kathrein 800-10965	130
A	4	CCI HPA-65R-BUU-H6	130
B	1	Powerwave 7770	130
B	2	Powerwave P65-16-XLH-RR	130
B	3	Kathrein 800-10965	130
B	4	CCI HPA-65R-BUU-H6	130
C	1	Powerwave 7770	130
C	2	Powerwave P65-16-XLH-RR	130
C	3	Kathrein 800-10965	130
C	4	CCI HPA-65R-BUU-H6	130

Table 2: Antenna Data

All calculations were done with respect to uncontrolled / general population threshold limits.

RESULTS

Per the calculations completed for the proposed AT&T configurations *Table 3* shows resulting emissions power levels and percentages of the FCC's allowable general population limit.

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	Powerwave 7770	850 MHz	11.4	2	60	828.23	0.34
Antenna A2	Powerwave P65-16-XLH-RR	1900 MHz (PCS)	15.1	4	160	5,177.50	1.21
Antenna A3	Kathrein 800-10965	700 MHz / 850 MHz / 2100 MHz (AWS)	12.65 / 13.45 / 15.95	12	410	10,544.86	3.77
Antenna A4	CCI HPA-65R-BUU-H6	700 MHz / 2300 MHz (WCS)	11.95 / 15.25	6	200	5,272.99	1.57
						Sector A Composite MPE%	**6.88**
Antenna B1	Powerwave 7770	850 MHz	11.4	2	60	828.23	0.34
Antenna B2	Powerwave P65-16-XLH-RR	1900 MHz (PCS)	15.1	4	160	5,177.50	1.21
Antenna B3	Kathrein 800-10965	700 MHz / 850 MHz / 2100 MHz (AWS)	12.65 / 13.45 / 15.95	12	410	10,544.86	3.77
Antenna B4	CCI HPA-65R-BUU-H6	700 MHz / 2300 MHz (WCS)	11.95 / 15.25	6	200	5,272.99	1.57
						Sector B Composite MPE%	**6.88**
Antenna C1	Powerwave 7770	850 MHz	11.4	2	60	828.23	0.34
Antenna C2	Powerwave P65-16-XLH-RR	1900 MHz (PCS)	15.1	4	160	5,177.50	1.21
Antenna C3	Kathrein 800-10965	700 MHz / 850 MHz / 2100 MHz (AWS)	12.65 / 13.45 / 15.95	12	410	10,544.86	3.77
Antenna C4	CCI HPA-65R-BUU-H6	700 MHz / 2300 MHz (WCS)	11.95 / 15.25	6	200	5,272.99	1.57
						Sector C Composite MPE%	**6.88**

Table 3: AT&T Emissions Levels

The Following table (*table 4*) shows all additional carriers on site and their MPE% as recorded in the CSC active MPE database for this facility along with the newly calculated maximum AT&T MPE contributions per this report. FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. For this site, all three sectors have the same configuration yielding the same results on all three sectors. *Table 5* below shows a summary for each AT&T Sector as well as the composite MPE value for the site.

Site Composite MPE%	
Carrier	**MPE%**
AT&T – Max Per Sector Value	**6.88 %**
T-Mobile	0.02 %
Clearwire	0.10 %
Sprint	1.28 %
MetroPCS	1.83 %
Nextel	0.00 %
FCI900	0.01 %
Fairfield	0.01 %
Site Total MPE %:	**10.13 %**

Table 4: All Carrier MPE Contributions

AT&T Sector A Total:	6.88 %
AT&T Sector B Total:	6.88 %
AT&T Sector C Total:	6.88 %
Site Total:	10.13 %

Table 5: Site MPE Summary

FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. *Table 6* below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated AT&T sector(s). For this site, all three sectors have the same configuration yielding the same results on all three sectors.

AT&T _ Frequency Band / Technology Max Power Values (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
AT&T 850 MHz UMTS – Antenna 1	2	414.12	130	1.94	850 MHz	567	0.34%
AT&T 1900 MHz (PCS) LTE – Antenna 2	4	1,294.37	130	12.11	1900 MHz (PCS)	1000	1.21%
AT&T 700 MHz LTE – Antenna 3	4	736.31	130	6.89	700 MHz	467	1.47%
AT&T 850 MHz LTE – Antenna 3	2	885.24	130	4.14	850 MHz	567	0.73%
AT&T 2100 MHz (AWS) LTE – Antenna 3	4	1,180.65	130	11.04	2100 MHz (AWS)	1000	1.10%
AT&T 850 MHz 5G – Antenna 3	2	553.27	130	2.59	850 MHz	567	0.46%
AT&T 700 MHz LTE – Antenna 4	2	626.70	130	2.93	700 MHz	467	0.63%
AT&T 2300 MHz (WCS) LTE – Antenna 4	4	1,004.90	130	9.40	2300 MHz (WCS)	1000	0.94%
						Total:	**6.88%**

Table 6: AT&T Maximum Sector MPE Power Values

Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general population exposure to RF Emissions.

The anticipated maximum composite contributions from the AT&T facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

AT&T Sector	Power Density Value (%)
Sector A:	6.88 %
Sector B:	6.88 %
Sector C:	6.88 %
AT&T Maximum Total (per sector):	6.88 %
Site Total:	10.13 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **10.13 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.

Scott Heffernan
RF Engineering Director
Centerline Communications, LLC
95 Ryan Drive, Suite 1
Raynham, MA 02767

Nora Oliver

From: UPS Quantum View <pkginfo@ups.com>
Sent: Monday, January 28, 2019 10:49 AM
To: Nora Oliver
Subject: UPS Delivery Notification, Tracking Number 1Z87026W0299058672

Follow Up Flag: Follow up
Flag Status: Flagged

Your package has been delivered.

Delivery Date: Monday, 01/28/2019
Delivery Time: 10:42 AM

At the request of QUALTEK USA,LLC this notice alerts you that the status of the shipment listed below has changed.

Shipment Detail

Tracking Number:	1Z87026W0299058672
Ship To:	Attn: Michael Tetreau Town of Fairfield 725 OLD POST RD FAIRFIELD, CT 06824 US
UPS Service:	UPS 2ND DAY AIR
Number of Packages:	1
Weight:	1.0 LBS
Delivery Location:	RECEPTION RECEP
Reference Number 1:	CT5022CSCNotice

Download the UPS mobile app

Nora Oliver

From: UPS Quantum View <pkginfo@ups.com>
Sent: Monday, January 28, 2019 10:49 AM
To: Nora Oliver
Subject: UPS Delivery Notification, Tracking Number 1Z87026W0295959689

Follow Up Flag: Follow up
Flag Status: Flagged

Your package has been delivered.

Delivery Date: Monday, 01/28/2019
Delivery Time: 10:41 AM

At the request of QUALTEK USA,LLC this notice alerts you that the status of the shipment listed below has changed.

Shipment Detail

Tracking Number:	1Z87026W0295959689
Ship To:	Attn: Jim Wendt Town of Fairfield 725 OLD POST RD FAIRFIELD, CT 06824 US
UPS Service:	UPS 2ND DAY AIR
Number of Packages:	1
Weight:	1.0 LBS
Delivery Location:	RECEPTION RECEP
Reference Number 1:	CT5022CSCNotice

Download the UPS mobile app