EMPIRE telecom

September 29, 2016

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

Regarding:	Notice of Exempt Modification – Remote Radio Head Swap
Property Address:	50 Plantation Road, East Windsor, CT
AT&T Site:	CT1140

Dear Ms. Bachman:

AT&T currently maintains a wireless telecommunications facility on an existing 135-foot water tank at the above-referenced address, latitude 41.8756389 longitude -72.5647850. Said water tank is owned by Plantation Properties LLC, and is managed by American Tower Corporation. The existing equipment shelter measures approximately 12' x 20', totaling 250 square feet.

AT&T desires to modify its existing telecommunications facility by swapping three (3) remote-radio heads ("RRHs"). The centerline height of said antennas is and will remain at 114 feet. Antennas are pipe mounted.

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 First Selectman Robert Maynard, Town of East Windsor, the water tank and landowner Plantation Properties, LLC, and the manager of the water tank, American Tower Corporation.

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 proposed modifications will not result in an increase in the height of the existing structure. The antennas to be swapped will be installed at the existing height of 114 feet on the 135-foot water tank.

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 decibel or more, or to levels that exceed state and local criteria.

Sarah Snell • Empire Telecom USA, LLC • 16 Esquire Road Billerica, MA 01862 • 978-608-8416 • ssnell@empiretelecomm.com

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 (attached) for AT&T's modified facility is herein provided.

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

6. The water tank and its foundation can support AT&T's proposed modifications (please see attached structural analysis completed by Centek Engineering dated September 27, 2016).

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

Sincerely,

Sarah Snell

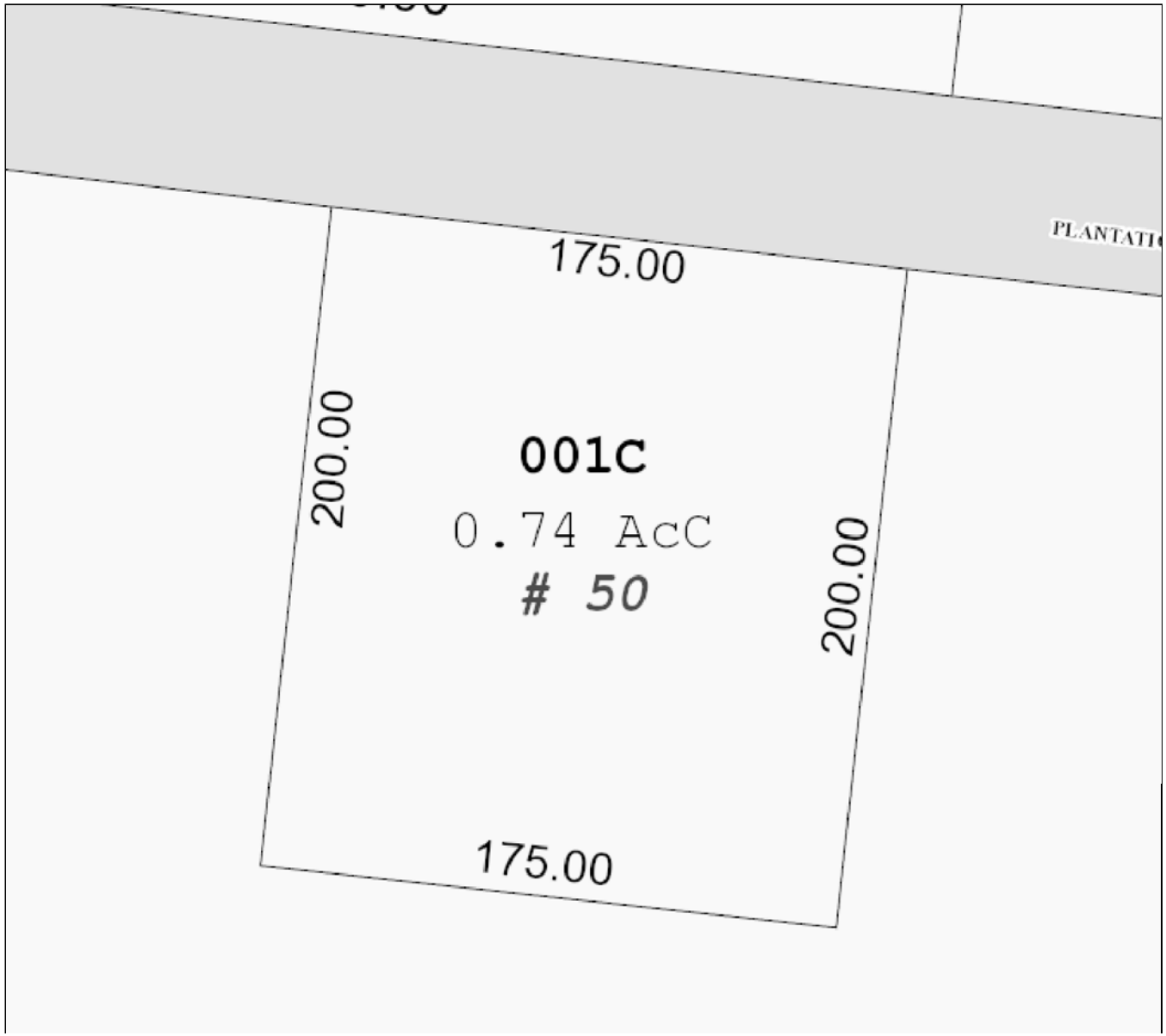
Sarah Snell
Site Acquisition Specialist

cc: First Selectman Robert Maynard, Town of East Windsor
Plantation Properties LLC (Water tank and Landowner)
American Tower Corporation (Site Manager)

Town of East Windsor

Geographic Information System (GIS)

Revised date July 2012
Date Printed: 9/29/2016



MAP DISCLAIMER - NOTICE OF LIABILITY

This map is for assessment purposes only. It is not for legal description or conveyances. All information is subject to verification by any user. The Town of East Windsor and its mapping contractors assume no legal responsibility for the information contained herein.

Approximate Scale: 1 inch = 50 feet

WIRELESS COMMUNICATIONS FACILITY
CT1140 - LTE 2C
EAST WINDSOR
50 PLANTATION ROAD
EAST WINDSOR, CT 06016

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2003 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2005 CONNECTICUT SUPPLEMENT AND 2009 AMENDMENTS, INCLUDING THE TIA/EIA-222 REVISION "F" "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES." 2005 CONNECTICUT FIRE SAFETY CODE AND 2009 AMENDMENTS, 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

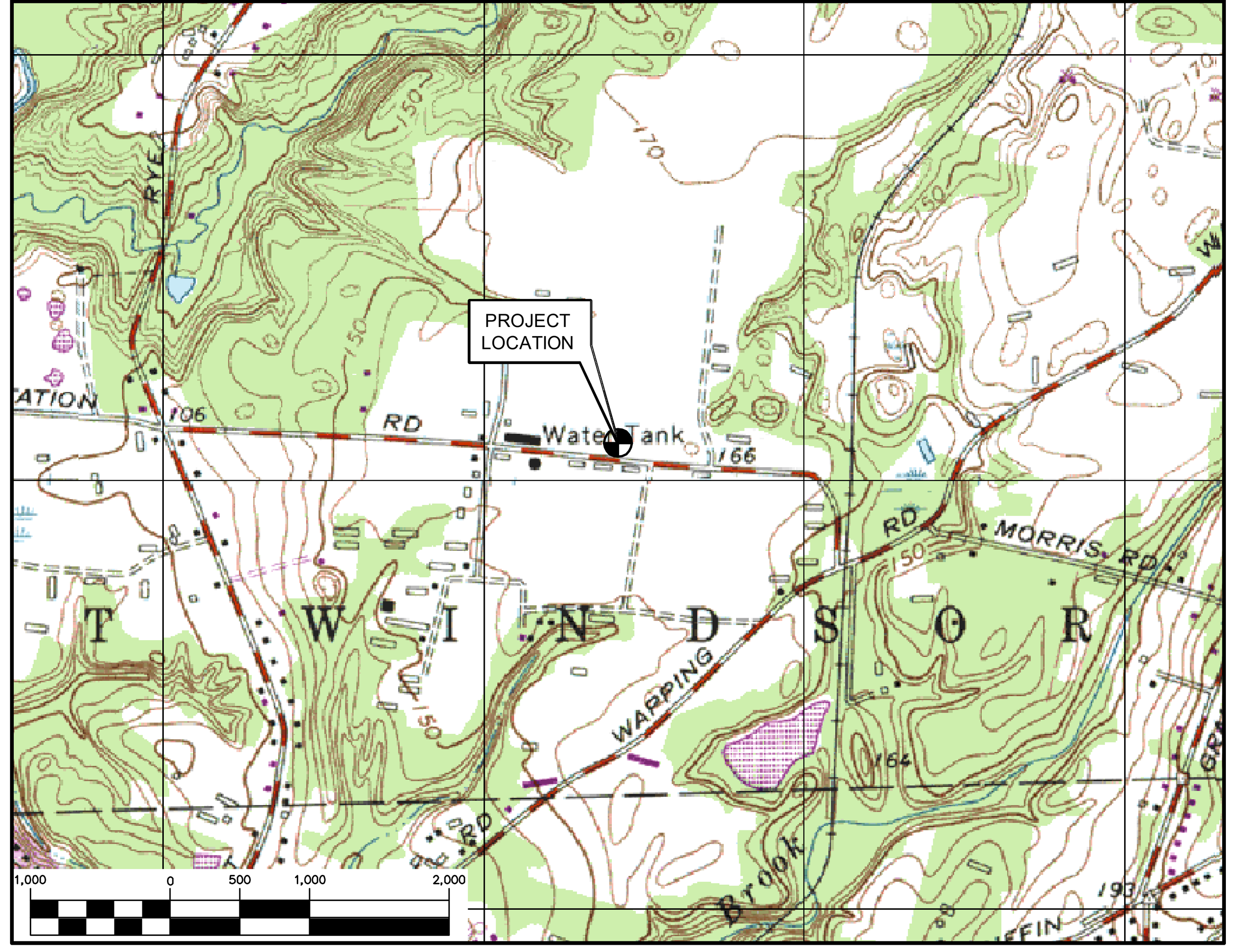
TO: 50 PLANTATION ROAD
EAST WINDSOR, CONNECTICUT

1.	HEAD NORTHEAST ON ENTERPRISE DR TOWARD CAPITAL BLVD	0.3 MI
2.	TURN LEFT ONTO CAPITAL BLVD	0.2 MI
3.	TURN LEFT ONTO STATE HWY 441	0.2 MI
4.	TURN LEFT TO MERGE ONTO I-91 N	0.4 MI
5.	MERGE ONTO I-91 N	12.3 MI
6.	TAKE EXIT 35A-35B FOR I-291 TOWARD MANCHESTER	0.7 MI
7.	MERGE ONTO I-291 E	2.2 MI
8.	TAKE EXIT 4 FIR U.S 5 N	0.4 MI
9.	USE THE LEFT 2 LANES TO TURN LEFT ONTO US-5 N	3.9 MI
10.	TURN RIGHT ONTO CT-194 E	0.3 MI
11.	TURN LEFT ONTO RYE ST	2.2 MI
12.	TURN RIGHT ONTO PLANTATION RD	0.5 MI

VICINITY MAP

SCALE: 1" = 1000'

NORTH



PROJECT SUMMARY

1. THE PROPOSED SCOPE OF WORK CONSISTS OF A MODIFICATION TO THE EXISTING UNMANNED TELECOMMUNICATIONS FACILITY INCLUDING THE FOLLOWING:
   A. INSTALL (3) NEW RRUS-12'S BEHIND EXISTING ANTENNAS
   B. REMOVE EXISTING FC12 FIBER MANAGEMENT BOX, AND (3) DC2 SECTOR SURGE ARRESTOR BOXES ALONG WITH RESPECTIVE POWER AND FIBER CABLING.
   C. INSTALL (3) NEW DC6 SECTOR SURGE ARRESTOR BOXES, (3) FIBER TRUNKS, AND (6) DC CONDUCTOR LINES.

PROJECT INFORMATION

AT&T SITE NUMBER:	CT1140
AT&T SITE NAME:	EAST WINDSOR
SITE ADDRESS:	50 PLANTATION RD EAST WINDSOR, CT 06016
LESSEE/APPLICANT:	AT&T MOBILITY 500 ENTERPRISE DRIVE, SUITE 3A ROCKY HILL, CT 06067
ENGINEER:	CENTEK ENGINEERING, INC. 63-2 NORTH BRANFORD RD. BRANFORD, CT. 06405
PROJECT COORDINATES:	LATITUDE: 41°-52'-32.28" N LONGITUDE: 72°-33'-53.41" W GROUND ELEVATION: ±161' AMSL SITE COORDINATES AND GROUND ELEVATION REFERENCED FROM GOOGLE EARTH.

SHEET INDEX

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REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
1	9/23/16	CAG	HMR	CONSTRUCTION DOCUMENTS - REV'D PER EMPIRE CM
0	09/07/16	KAWJR	CAG	CONSTRUCTION DOCUMENTS - ISSUED FOR CLIENT REVIEW

PROFESSIONAL ENGINEER SEAL

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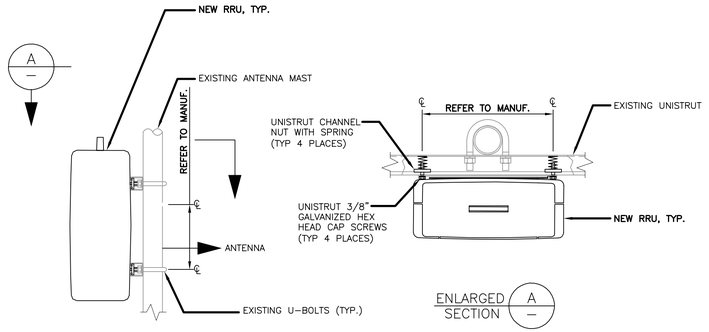
AT&T MOBILITY
WIRELESS COMMUNICATIONS FACILITY
EAST WINDSOR
CT1140 - LTE 2C
50 PLANTATION ROAD
EAST WINDSOR, CT 06016

DATE: 08/22/16
SCALE: AS NOTED
JOB NO. 16071.15

TITLE SHEET

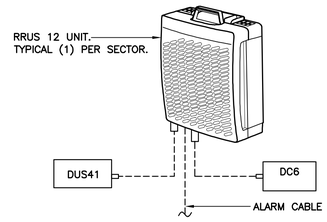
T-1



TYPICAL RRU SECTOR MOUNT

1 N-1 TYPICAL RRH MOUNTING DETAILS

SCALE: NOT TO SCALE

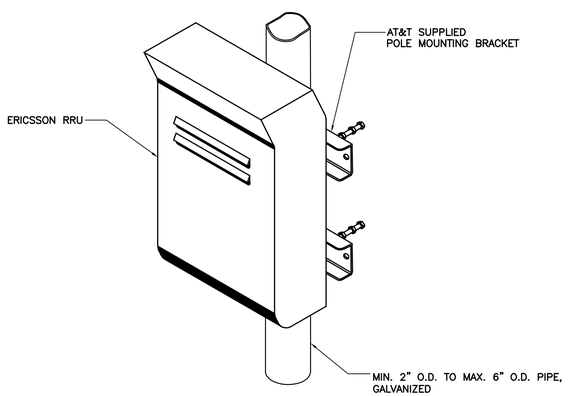


RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERICSSON MODEL: RRUS 12	20.4"L x 18.5"W x 7.5"D	50 LBS.	ABOVE: 16" MIN. BELOW: 12" MIN. FRONT: 36" MIN.

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

2 N-1 ERICSSON RRUS 12 DETAIL

SCALE: 1" = 1'-0"



ISOMETRIC VIEW

NOTES:

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

3 N-1 TYPICAL RRUS MOUNTING DETAILS

SCALE: NTS

NOTES AND SPECIFICATIONS

DESIGN BASIS:

GOVERNING CODE: 2003 INTERNATIONAL BUILDING (IBC) AS MODIFIED BY THE 2005 CT STATE BUILDING CODE AND 2009 AMENDMENTS.

1. DESIGN CRITERIA:
   - WIND LOAD: PER EIA/TIA 222 F-96 (ANTENNA MOUNTS): 80 MPH (FASTEST MILE), EQUIVALENT TO 100 MPH (3 SECOND GUST)
   - BUILDING CLASSIFICATION: II (BASED ON IBC TABLE 1604.5)
   - BASIC WIND SPEED (OTHER STRUCTURE): 95 MPH (3 SECOND GUST) (EXPOSURE B/IMPORTANCE FACTOR 1.0 BASED ON ASCE 7-02) PER 2003 INTERNATIONAL BUILDING CODE (IBC) AS MODIFIED BY THE 2005 CONNECTICUT SUPPLEMENT AND 2009 AMENDMENT.
   - SEISMIC LOAD (DOES NOT CONTROL): PER ASCE 7-02 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 CL&P OWNED EQUIPMENT.
14. REFER TO DRAWING T1 FOR ADDITIONAL NOTES AND REQUIREMENTS.

STRUCTURAL STEEL

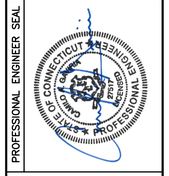
1. ALL STRUCTURAL STEEL IS DESIGNED BY ALLOWABLE STRESS DESIGN (ASD)

   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.

REV.	DATE	DRAWN BY	CHK'D	DESCRIPTION
1	9/23/16	CAG	HMR	CONSTRUCTION DOCUMENTS - REV'D PER EMPIRE CM
0	09/07/16	KAWJR	CAG	CONSTRUCTION DOCUMENTS - ISSUED FOR CLIENT REVIEW

PROFESSIONAL ENGINEER SEAL



at&t

EMPIRE telecom

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www.CentekEng.com

AT&T MOBILITY

WIRELESS COMMUNICATIONS FACILITY

EAST WINDSOR

CT1140 - LTE 2C

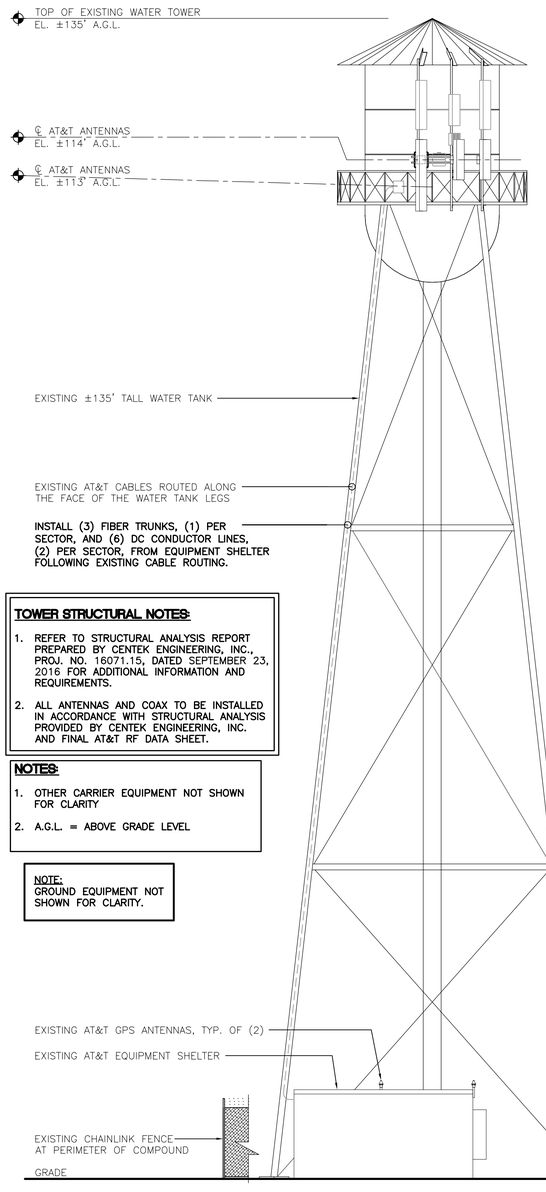
50 PLANTATION ROAD
EAST WINDSOR, CT 06016

DATE: 08/22/16
SCALE: AS NOTED
JOB NO. 16071.15

NOTES AND SPECIFICATIONS

N-1

Sheet No. 2 of 7



TOWER STRUCTURAL NOTES:

1. REFER TO STRUCTURAL ANALYSIS REPORT PREPARED BY CENTEK ENGINEERING, INC., PROJ. NO. 16071.15, DATED SEPTEMBER 23, 2016 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. ALL ANTENNAS AND COAX TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY CENTEK ENGINEERING, INC. AND FINAL AT&T RF DATA SHEET.

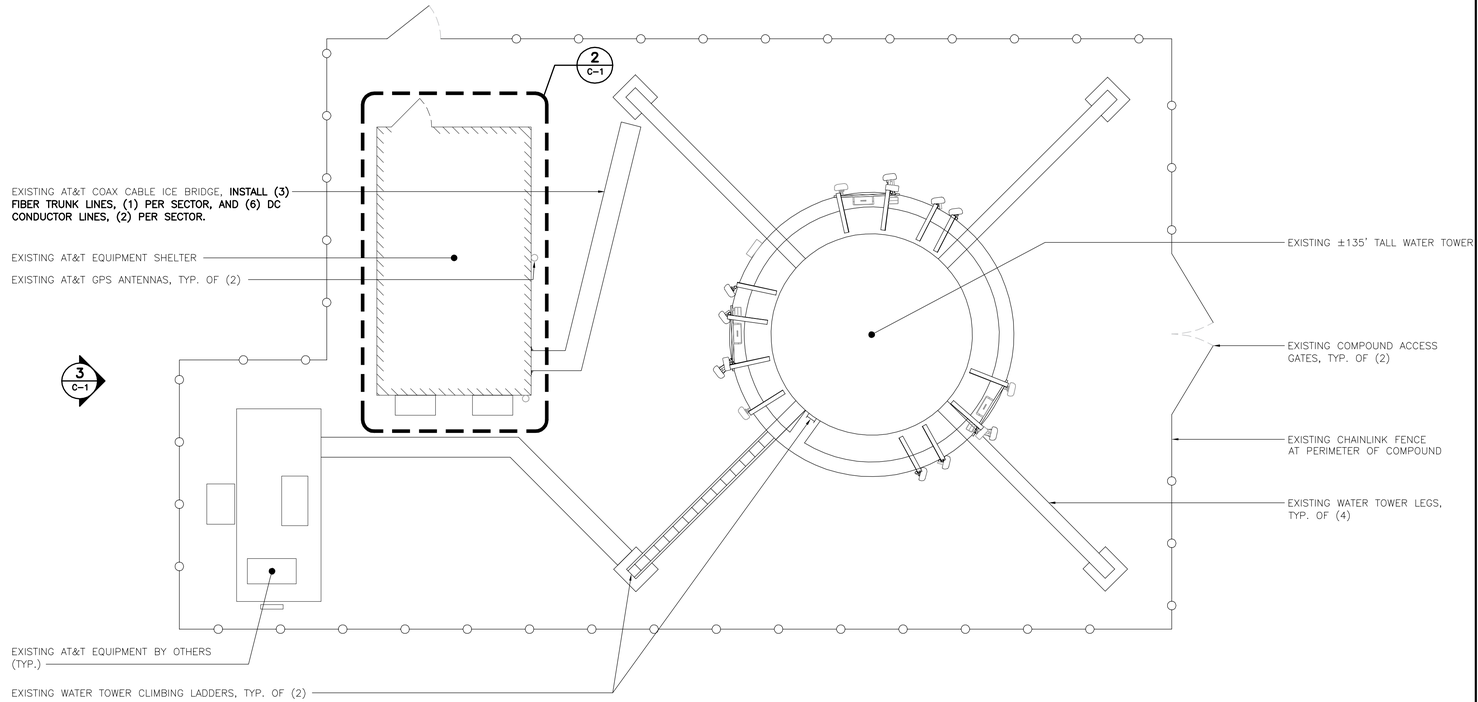
NOTES:

1. OTHER CARRIER EQUIPMENT NOT SHOWN FOR CLARITY
2. A.G.L. = ABOVE GRADE LEVEL

NOTE:
GROUND EQUIPMENT NOT SHOWN FOR CLARITY.

3 / C-1 **SOUTH TOWER ELEVATION**
SCALE: 1/8" = 1'-0"

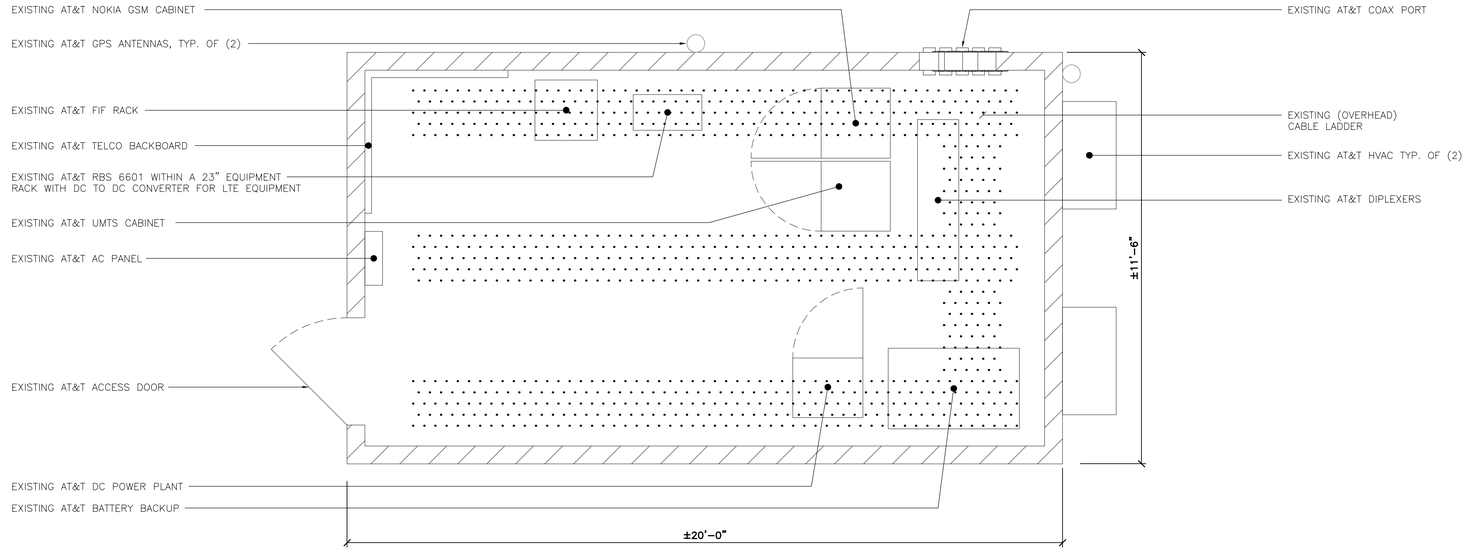
GRAPHIC SCALE
8 0 4 8 16 32
(IN FEET)
1 inch = 8 ft.



1 / C-1 **COMPOUND PLAN**
SCALE: 3/16" = 1'-0"

TRUE NORTH

NOTE:
HOUSE + CARRIER EQUIPMENT UNDER WATER TOWER NOT SHOWN



2 / C-1 **EQUIPMENT ROOM PLAN**
SCALE: 1/2" = 1'-0"

TRUE NORTH

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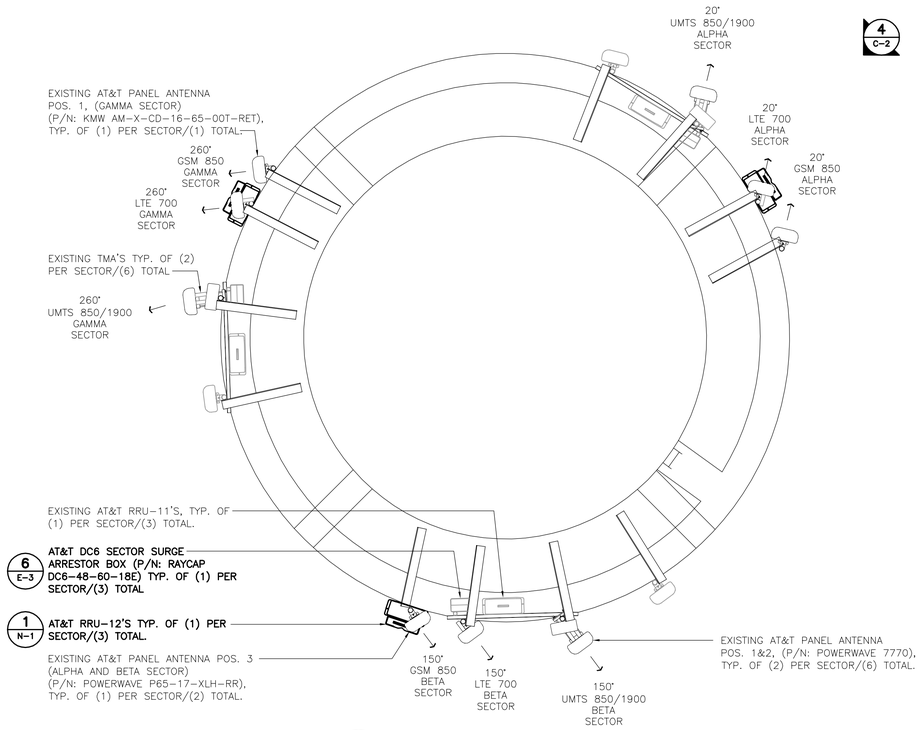
DATE: 08/22/16
SCALE: AS NOTED
JOB NO. 16071.15

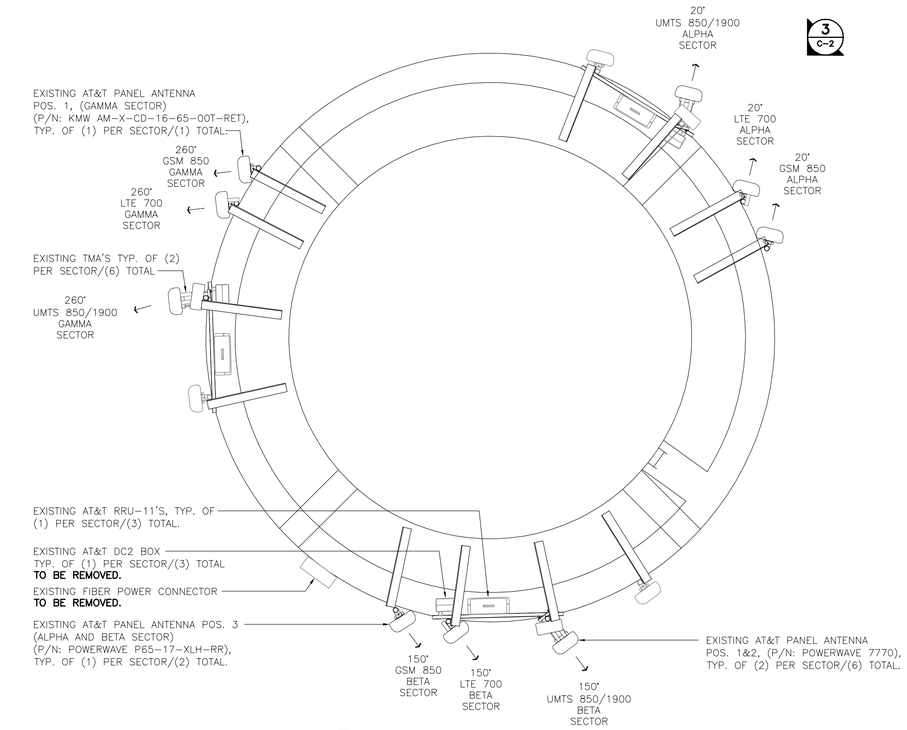
PLANS, ELEVATION AND DETAILS

C-1

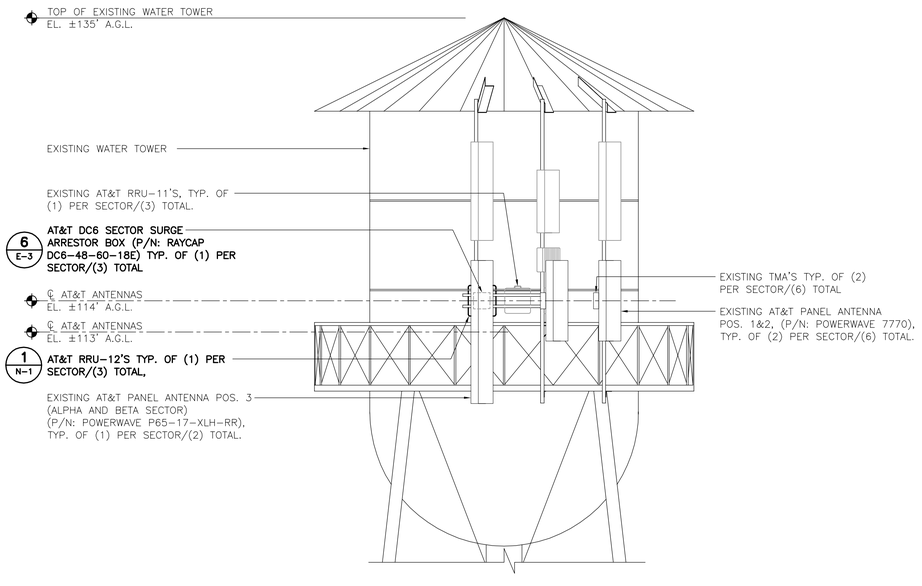
Sheet No. 3 of 7



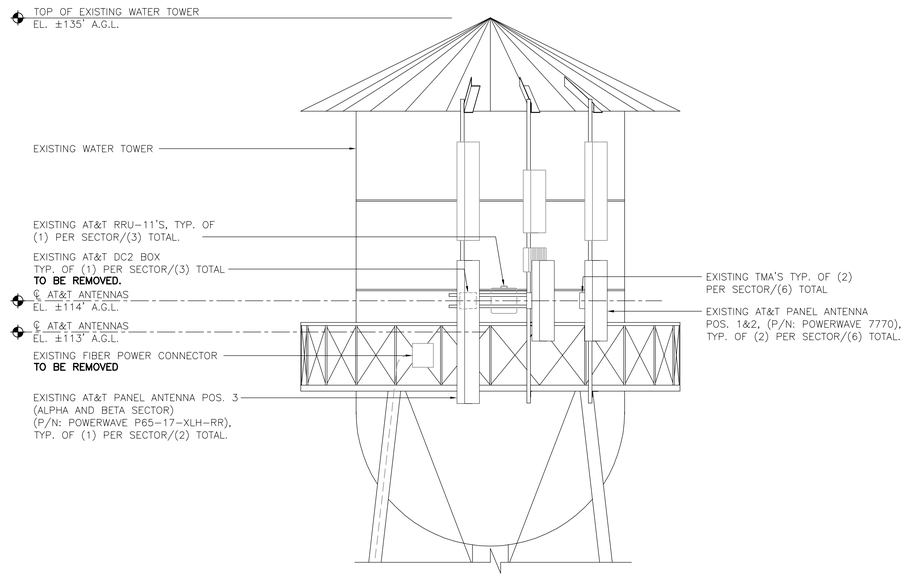
2 C-2 **PROPOSED ANTENNA PLAN**
SCALE: 3/8" = 1'-0" NORTH



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



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



3 C-2 **EXISTING ANTENNA ELEVATION**
SCALE: 1=4" = 1'-0"

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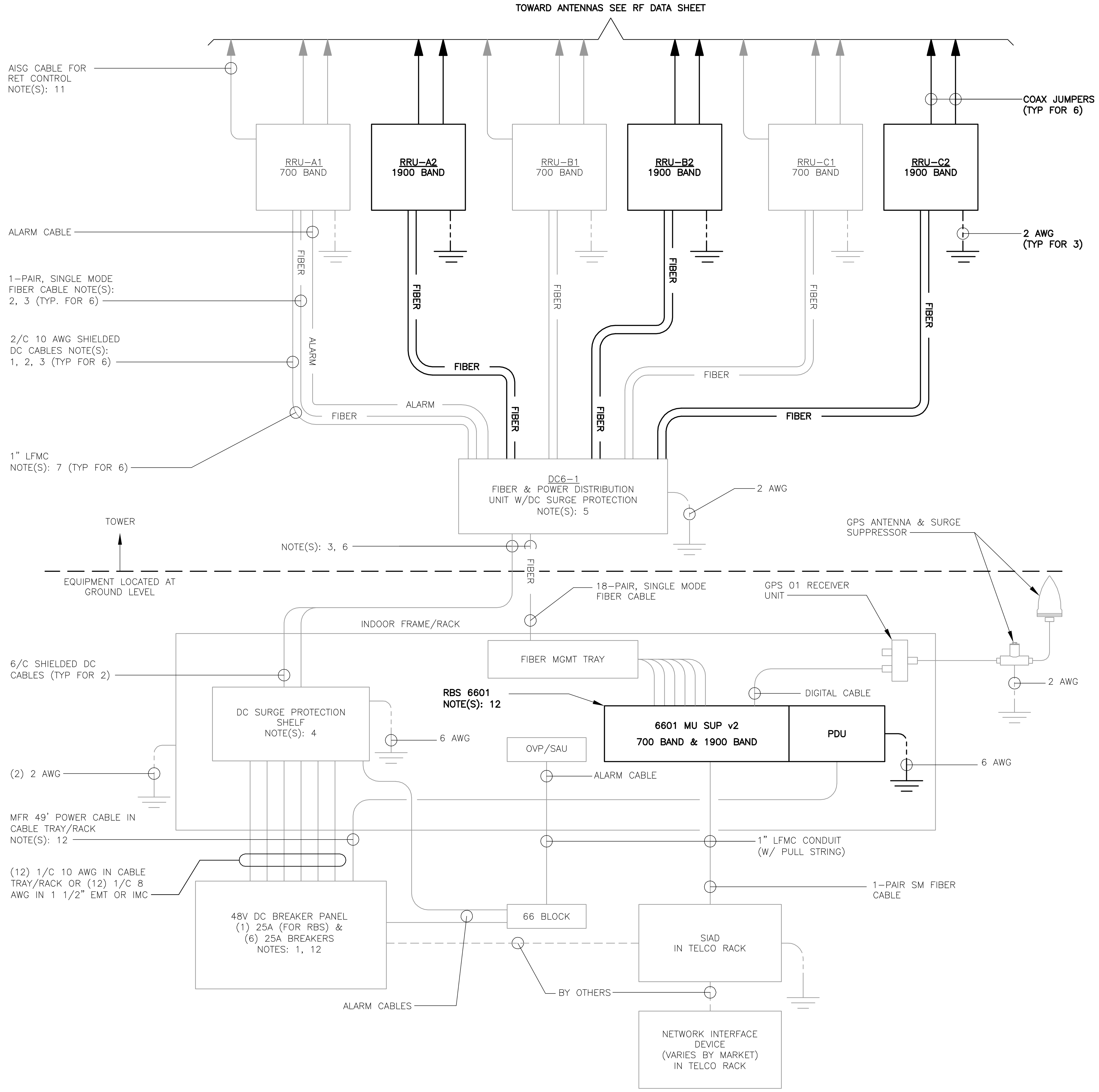
LTE 2C
EQUIPMENT
DETAILS

C-2

Sheet No. 4 of 7



1 E–1 **LTE SCHEMATIC DIAGRAM**

NOT TO SCALE

LTE 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 ELECTRICAL CODE AND REQUIREMENTS PER LOCAL INSPECTOR HAVING JURISDICTION.
19. EACH EQUIPMENT GROUND CONDUCTOR SHALL BE SIZED IN ACCORDANCE WITH THE N.E.C. ARTICLE 250–122. (MIN. #12 AWG).
20. CONTRACTOR SHALL PROVIDE A CELLULAR GROUNDING SYSTEM WITH THE MAXIMUM AC RESISTANCE TO GROUND OF 5 OHM BETWEEN ANY POINT ON THE GROUNDING SYSTEM AS MEASURED BY 3–POINT GROUNDING TEST. (REFER TO SECTION 16960).

TESTS BY INDEPENDENT ELECTRICAL TESTING FIRM

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

TEST 1: RESISTANCE TO GROUND TEST ON THE CELLULAR GROUNDING SYSTEM.

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

1. TESTING PROCEDURE INCLUDING THE MAKE AND MODEL OF TEST EQUIPMENT.
2. CERTIFICATION OF TESTING EQUIPMENT CALIBRATION WITHIN SIX (6) MONTHS OF DATE OF TESTING. INCLUDE CERTIFICATION LAB ADDRESS AND TELEPHONE NUMBER.
3. GRAPHICAL DESCRIPTION OF TESTING METHOD ACTUALLY IMPLEMENTED.

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

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

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

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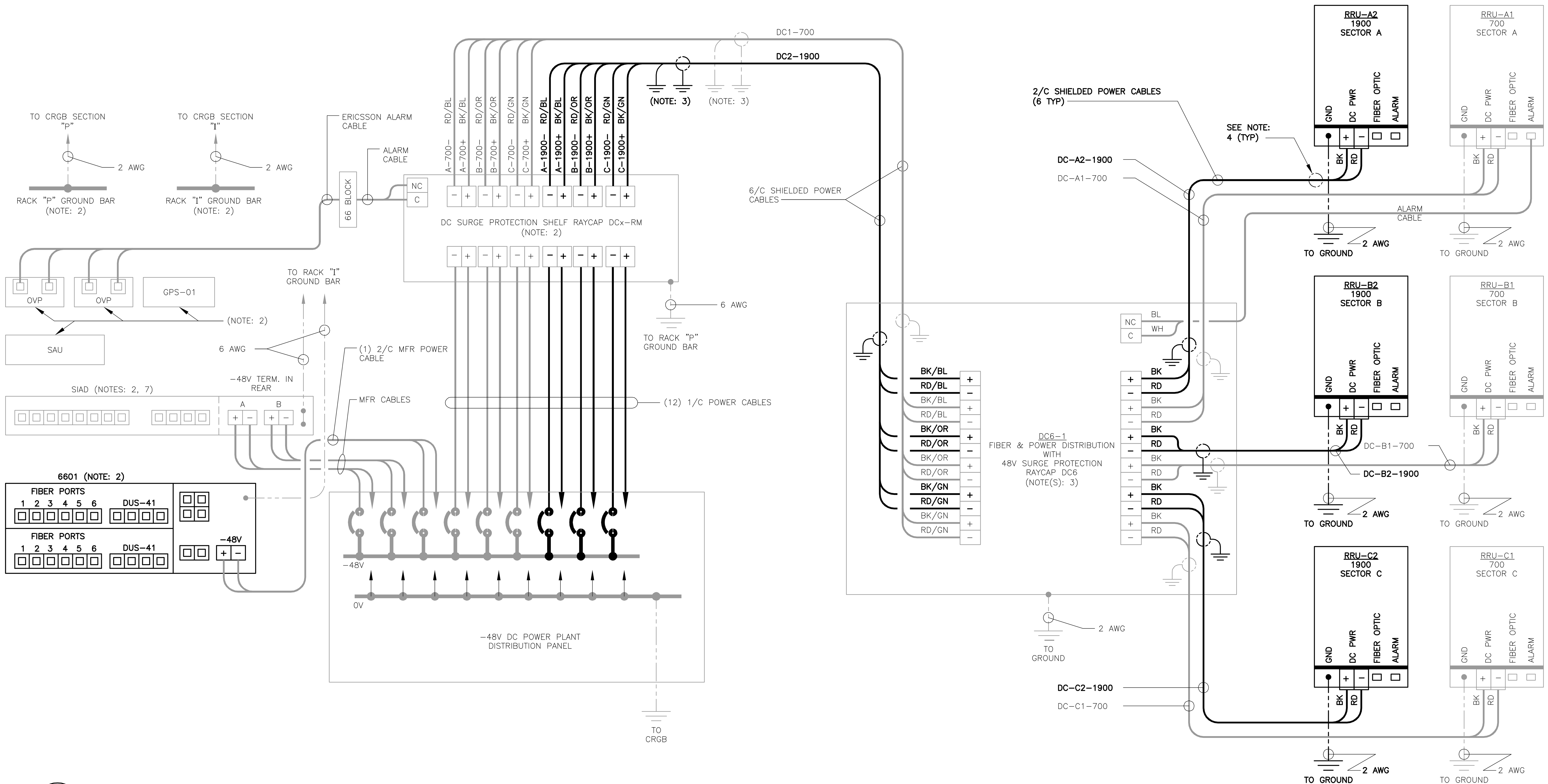
LTE SCHEMATIC DIAGRAM AND NOTES

E–1



1 E-2 LTE 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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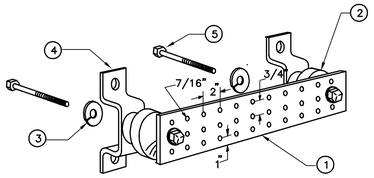
LTE WIRING DIAGRAM

E-2

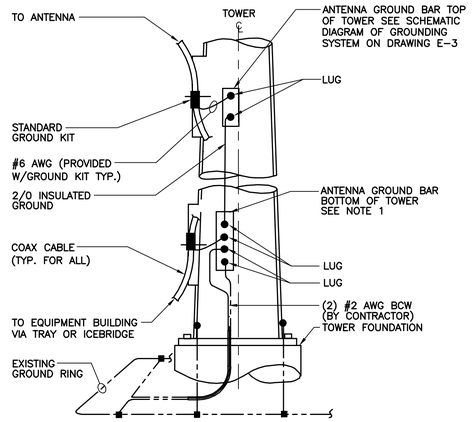
Sheet No. 6 of 7



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.

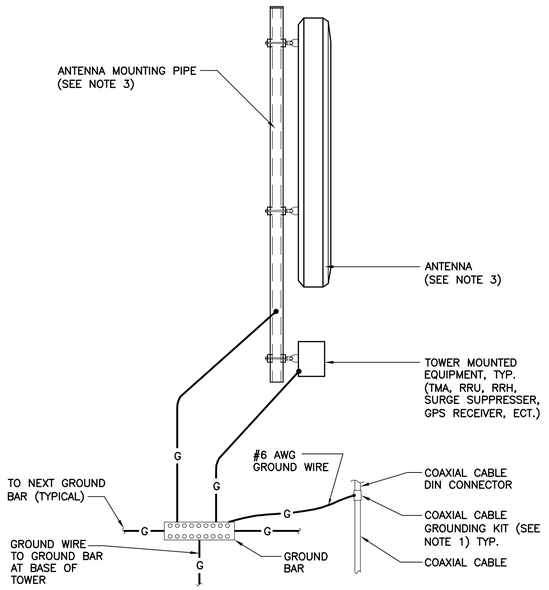
3 E-3 GROUND BAR DETAIL
NOT TO SCALE



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.

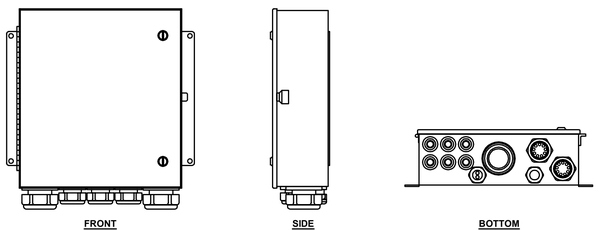
2 E-3 ANTENNA CABLE GROUNDING - TOWER
NOT TO SCALE



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.

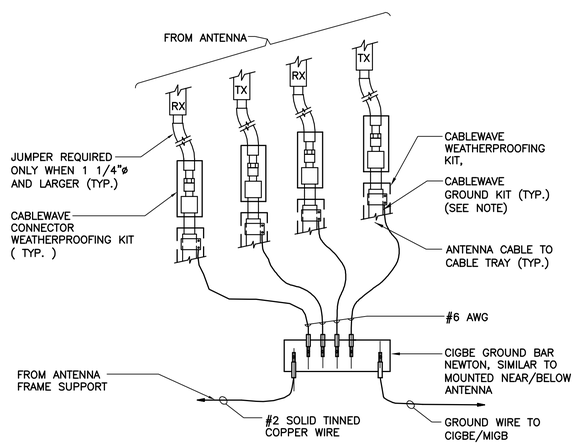
1 E-3 TYPICAL ANTENNA GROUNDING DETAIL
NOT TO SCALE



SURGE ARRESTOR			
ARRESTOR MAKE/MODEL	QTY REQUIRED	ARRESTOR LOCATION	WEIGHT
MAKE: RAYCAP MODEL: DC6-48-60-18E	THREE (3)	ADJACENT TO AT&T ANTENNAS AND RRHs.	43.5 LBS.

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.

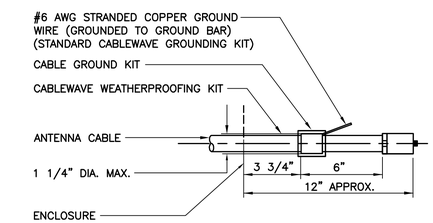
3 E-3 SURGE ARRESTOR DETAIL
NOT TO SCALE



NOTE:

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

5 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.

4 E-3 ANTENNA CABLE GROUNDING DETAIL
NOT TO SCALE

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TYPICAL ELECTRICAL DETAILS

E-3

Sheet No. 7 of 7

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Structural Analysis Report

135-ft Existing Water Tank

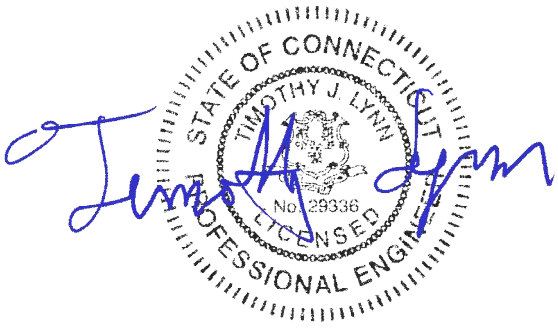
Proposed AT&T Mobilty
Antenna Upgrade

AT&T Site Ref: CT1140

50 Plantation Road
East Windsor, CT

CENTEK Project No. 16071.15

Date: September 27, 2016



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Introduction

The purpose of this report is to summarize the results of the non-linear, P-Δ structural analysis of the antenna upgrade proposed by AT&T on the existing water tank located in East Windsor, Connecticut.

The host structure is a 135-ft tall steel water tank with AT&T's existing/proposed equipment pipe mounted to the water tank. The analysis of the proposed upgrade is limited to the local supports of antennas/appurtenances.

Antenna and appurtenance information was taken from a RF data sheet and visual verification from grade by Centek personnel on June 23, 2016.

Antenna and Appurtenance Summary

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

- AT&T (Existing to Remain):
  Appurtenances: Six (6) Powerwave 7770 panel antennas, two (2) Powerwave P65-17-XLH-RR panel antennas, one (1) KMW AM-X-CD-16-65-00T panel antenna, twelve (12) Powerwave LGP21401 TMA's and three (3) Ericsson RRUS-11 remote radio heads pipe mounted to the water tank with a RAD center elevation of 114-ft above grade.
- AT&T (EXISTING TO REMOVE):
  Antennas: Three (3) 9E/10E surge arrestors pipe mounted to the water tank with a RAD center elevation of 114-ft above grade.
- **AT&T (Proposed):**
  Appurtenances: Three (3) Ericsson RRUS-12 remote radio heads and three (3) Raycap DC-6 surge arrestors pipe mounted to the water tank with a RAD center elevation of 114-ft above grade.

Analysis

The existing antenna support mounts were analyzed using a comprehensive computer program titled Risa3D. The program analyzes the antenna mounts, considering the worst case loading condition. The antenna support mounts were considered to be loaded by concentric forces along the pipe masts, and the model assumes that the members are subjected to bending, axial, and shear forces.

Structure Loading

Loading was determined per the requirements of the 2012 International Building Code as modified by the 2016 CT State Building Code and ASCE 7-10 "Minimum Design Loads for Buildings and Other Structures".

Wind Speed:	East Windsor; v = 125 mph (Risk Category 2)	*[Appendix N of the 2016 CSBC]*

Results

Frame stresses were calculated utilizing the structural analysis software Risa-3D.

- Calculated stresses were found to be within allowable limits.

Component	Stress Ratio (percentage of capacity)	Result
3.0 Sch 40 Pipe (M2)	48.1%	**PASS**

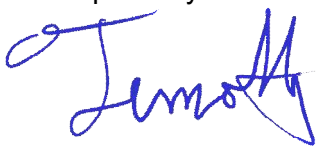
Conclusion

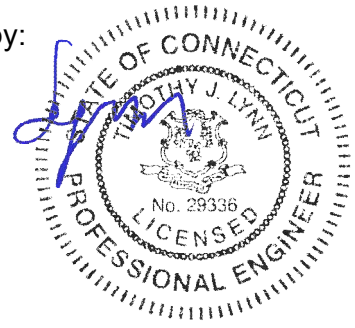
This analysis shows that the subject antenna mount **is adequate** to support the proposed modified antenna configuration.

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 ~ RISA-3D

- RISA-3D Structural Analysis Program is an integrated structural analysis and design software package for buildings, bridges, tower structures, etc.

Modeling Features:

- Comprehensive CAD-like graphic drawing/editing capabilities that let you draw, modify and load elements as well as snap, move, rotate, copy, mirror, scale, split, merge, mesh, delete, apply, etc.
- Versatile drawing grids (orthogonal, radial, skewed)
- Universal snaps and object snaps allow drawing without grids
- Versatile general truss generator
- Powerful graphic select/unselect tools including box, line, polygon, invert, criteria, spreadsheet selection, with locking
- Saved selections to quickly recall desired selections
- Modification tools that modify single items or entire selections
- Real spreadsheets with cut, paste, fill, math, sort, find, etc.
- Dynamic synchronization between spreadsheets and views so you can edit or view any data in the plotted views or in the spreadsheets
- Simultaneous view of multiple spreadsheets
- Constant in-stream error checking and data validation
- Unlimited undo/redo capability
- Generation templates for grids, disks, cylinders, cones, arcs, trusses, tanks, hydrostatic loads, etc.
- Support for all units systems & conversions at any time
- Automatic interaction with RISASection libraries
- Import DXF, RISA-2D, STAAD and ProSteel 3D files
- Export DXF, SDNF and ProSteel 3D files

Analysis Features:

- Static analysis and P-Delta effects
- Multiple simultaneous dynamic and response spectra analysis using Gupta, CQC or SRSS mode combinations
- Automatic inclusion of mass offset (5% or user defined) for dynamic analysis
- Physical member modeling that does not require members to be broken up at intermediate joints
- State of the art 3 or 4 node plate/shell elements
- High-end automatic mesh generation — draw a polygon with any number of sides to create a mesh of well-formed quadrilateral (NOT triangular) elements.
- Accurate analysis of tapered wide flanges - web, top and bottom flanges may all taper independently
- Automatic rigid diaphragm modeling
- Area loads with one-way or two-way distributions
- Multiple simultaneous moving loads with standard AASHTO loads and custom moving loads for bridges, cranes, etc.
- Torsional warping calculations for stiffness, stress and design
- Automatic Top of Member offset modeling
- Member end releases & rigid end offsets
- Joint master-slave assignments
- Joints detachable from diaphragms
- Enforced joint displacements

- 1-Way members, for tension only bracing, slipping, etc.
- 1-Way springs, for modeling soils and other effects
- Euler members that take compression up to their buckling load, then turn off.
- Stress calculations on any arbitrary shape
- Inactive members, plates, and diaphragms allows you to quickly remove parts of structures from consideration
- Story drift calculations provide relative drift and ratio to height
- Automatic self-weight calculations for members and plates
- Automatic subgrade soil spring generator

Graphics Features:

- Unlimited simultaneous model view windows
- Extraordinary “true to scale” rendering, even when drawing
- High-speed redraw algorithm for instant refreshing
- Dynamic scrolling stops right where you want
- Plot & print virtually everything with color coding & labeling
- Rotate, zoom, pan, scroll and snap views
- Saved views to quickly restore frequent or desired views
- Full render or wire-frame animations of deflected model and dynamic mode shapes with frame and speed control
- Animation of moving loads with speed control
- High quality customizable graphics printing

Design Features:

- Designs concrete, hot rolled steel, cold formed steel and wood
- ACI 1999/2002, BS 8110-97, CSA A23.3-94, IS456:2000,EC 2-1992 with consistent bar sizes through adjacent spans
- Exact integration of concrete stress distributions using parabolic or rectangular stress blocks
- Concrete beam detailing (Rectangular, T and L)
- Concrete column interaction diagrams
- Steel Design Codes: AISC ASD 9th, LRFD 2nd & 3rd, HSS Specification, CAN/CSA-S16.1-1994 & 2004, BS 5950-1-2000, IS 800-1984, Euro 3-1993 including local shape databases
- AISI 1999 cold formed steel design
- NDS 1991/1997/2001 wood design, including Structural Composite Lumber, multi-ply, full sawn
- Automatic spectra generation for UBC 1997, IBC 2000/2003
- Generation of load combinations: ASCE, UBC, IBC, BOCA, SBC, ACI
- Unbraced lengths for physical members that recognize connecting elements and full lengths of members
- Automatic approximation of K factors
- Tapered wide flange design with either ASD or LRFD codes
- Optimization of member sizes for all materials and all design codes, controlled by standard or user-defined lists of available sizes and criteria such as maximum depths
- Automatic calculation of custom shape properties
- Steel Shapes: AISC, HSS, CAN, ARBED, British, Euro, Indian, Chilean
- Light Gage Shapes: AISI, SSMA, Dale / Incor, Dietrich, Marino\WARE
- Wood Shapes: Complete NDS species/grade database
- Full seamless integration with RISAFoot (Ver 2 or better) for advanced footing design and detailing
- Plate force summation tool

Results Features:

- Graphic presentation of color-coded results and plotted designs
- Color contours of plate stresses and forces with quadratic smoothing, the contours may also be animated
- Spreadsheet results with sorting and filtering of: reactions, member & joint deflections, beam & plate forces/stresses, optimized sizes, code designs, concrete reinforcing, material takeoffs, frequencies and mode shapes
- Standard and user-defined reports
- Graphic member detail reports with force/stress/deflection diagrams and detailed design calculations and expanded diagrams that display magnitudes at any dialed location
- Saved solutions quickly restore analysis and design results.

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

Subject:	Wind Load on Rooftop Antennas to ASCE 7-10
Location:	East Windsor, CT
Rev. 0: 9/27/16	Prepared by: T.J.L; Checked by: C.F.C. Job No. 16071.15

Design Wind Load on Other Structures: (Based on IBC 2012, CSBC 2016 and ASCE 7-10)

Wind Speed =	$V := 125$ mph	(User Input)	(CSBC Appendix N)
Risk Category =	$BC := II$	(User Input)	(IBC Table 1604.5)
Exposure Category =	$Exp := C$	(User Input)	
Height Above Grade =	$Z := 114$ ft	(User Input)	
Structure Type =	$Structuretype := Square\_Chimney$	(User Input)	
Structure Height =	$Height := 8$ ft	(User Input)	
Horizontal Dimension of Structure =	$Width := 1$ ft	(User Input)	

Terrain Exposure Constants:

Nominal Height of the Atmospheric Boundary Layer = (Table 26.9-1)

$$zg := \begin{cases} 1200 & \text{if } Exp = B = 900 \\ 900 & \text{if } Exp = C \\ 700 & \text{if } Exp = D \end{cases}$$

3-Sec Gust Speed Power Law Exponent = (Table 26.9-1)

$$\alpha := \begin{cases} 7 & \text{if } Exp = B = 9.5 \\ 9.5 & \text{if } Exp = C \\ 11.5 & \text{if } Exp = D \end{cases}$$

Integral Length Scale Factor = (Table 26.9-1)

$$l := \begin{cases} 320 & \text{if } Exp = B = 500 \\ 500 & \text{if } Exp = C \\ 650 & \text{if } Exp = D \end{cases}$$

Integral Length Scale Power Law Exponent = (Table 26.9-1)

$$E := \begin{cases} \frac{1}{3} & \text{if } Exp = B = 0.2 \\ \frac{1}{5} & \text{if } Exp = C \\ \frac{1}{8} & \text{if } Exp = D \end{cases}$$

Turbulence Intensity Factor = (Table 26.9-1)

$$c := \begin{cases} 0.3 & \text{if } Exp = B = 0.2 \\ 0.2 & \text{if } Exp = C \\ 0.15 & \text{if } Exp = D \end{cases}$$

Exposure Constant = (Table 26.9-1)

$$Z_{min} := \begin{cases} 30 & \text{if } Exp = B = 15 \\ 15 & \text{if } Exp = C \\ 7 & \text{if } Exp = D \end{cases}$$

Exposure Coefficient = (Table 29.3-1)

$$K_z := \begin{cases} 2.01\left(\frac{Z}{zg}\right)^{\left(\frac{2}{\alpha}\right)} & \text{if } 15 \le Z \le zg = 1.3 \\ 2.01\left(\frac{15}{zg}\right)^{\left(\frac{2}{\alpha}\right)} & \text{if } Z < 15 \end{cases}$$

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Location:	East Windsor, CT
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Topographic Factor =	$K_{zt} := 1$	(Eq. 26.8-2)
Wind Directionality Factor =	$K_d = 0.9$	(Table 26.6-1)
Velocity Pressure =	$q_z := 0.00256 \cdot K_z \cdot K_{zt} \cdot K_d \cdot V^2 = 46.84$	(Eq. 29.3-1)
Peak Factor for Background Response =	$g_Q := 3.4$	(Sec 26.9.4)
Peak Factor for Wind Response =	$g_v := 3.4$	(Sec 26.9.4)
Equivalent Height of Structure =	$z := \begin{cases} Z_{min} & \text{if } Z_{min} > 0.6 \cdot Height \\ 0.6 \cdot Height & \text{otherwise} \end{cases} = 15$	(Sec 26.9.4)
Intensity of Turbulence =	$I_z := c \cdot \left(\frac{33}{z}\right)^{\left(\frac{1}{6}\right)} = 0.228$	(Eq. 26.9-7)
Integral Length Scale of Turbulence =	$L_Z := l \cdot \left(\frac{z}{33}\right)^{E} = 427.057$	(Eq. 26.9-9)
Background Response Factor =	$Q := \sqrt{\frac{1}{1 + 0.63\left(\frac{Width + Height}{L_Z}\right)^{0.63}}} = 0.973$	(Eq. 26.9-8)
Gust Response Factor =	$G := 0.925 \cdot \left[\frac{\left(1 + 1.7 \cdot g_Q \cdot I_z \cdot Q\right)}{1 + 1.7 \cdot g_v \cdot I_z}\right] = 0.911$	(Eq. 26.9-6)
Force Coefficient =	$C_f = 1.433$	(Fig 29.5-1 - 29.5-3)
Wind Force =	$F := q_z \cdot G \cdot C_f = 61$	psf

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Location:	East Windsor, CT
Rev. 0: 9/27/16	Prepared by: T.J.L; Checked by: C.F.C. Job No. 16071.15

Development of Wind & Ice Load on Antennas

Proposed Antenna Data: (AT&T)

Antenna Model =	Powerwave 7770		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 55$	in	(User Input)
Antenna Width =	$W_{ant} := 11$	in	(User Input)
Antenna Thickness =	$T_{ant} := 5$	in	(User Input)
Antenna Weight =	$WT_{ant} := 35$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)

Wind Load (Front)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 4.2$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 4.2$	sf
Total Antenna Wind Force =	$F_{ant} := F \cdot A_{ant} = 257$	lbs

Wind Load (Side)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot T_{ant}}{144} = 1.9$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 1.9$	sf
Total Antenna Wind Force =	$F_{ant} := F \cdot A_{ant} = 117$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 35$	lbs

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Development of Wind & Ice Load on Antennas

Proposed Antenna Data: (AT&T)

Antenna Model =	Powerwave P65-17-XLH-RR		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 96$	in	(User Input)
Antenna Width =	$W_{ant} := 12$	in	(User Input)
Antenna Thickness =	$T_{ant} := 6$	in	(User Input)
Antenna Weight =	$WT_{ant} := 62$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)

Wind Load (Front)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 8$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 8$	sf
Total Antenna Wind Force =	$F_{ant} := F \cdot A_{ant} = 489$	lbs

Wind Load (Side)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot T_{ant}}{144} = 4$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 4$	sf
Total Antenna Wind Force =	$F_{ant} := F \cdot A_{ant} = 245$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 62$	lbs

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Development of Wind & Ice Load on Antennas

Proposed Antenna Data: (AT&T)

Antenna Model =	KMW AM-X-CD-16-65-00T		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 72$	in	(User Input)
Antenna Width =	$W_{ant} := 11.8$	in	(User Input)
Antenna Thickness =	$T_{ant} := 5.9$	in	(User Input)
Antenna Weight =	$WT_{ant} := 37$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)

Wind Load (Front)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 5.9$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 5.9$	sf
Total Antenna Wind Force =	$F_{ant} := F \cdot A_{ant} = 361$	lbs

Wind Load (Side)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot T_{ant}}{144} = 3$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 3$	sf
Total Antenna Wind Force =	$F_{ant} := F \cdot A_{ant} = 180$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 37$	lbs

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Development of Wind & Ice Load on TMAs

Proposed TMA Data: (AT&T)

TMA Model =	Powerwave LGP-21401		
TMA Shape =	Flat		(User Input)
TMA Height =	$L_{TMA} := 14.4$	in	(User Input)
TMA Width =	$W_{TMA} := 9.2$	in	(User Input)
TMA Thickness =	$T_{TMA} := 2.6$	in	(User Input)
TMA Weight =	$WT_{TMA} := 14$	lbs	(User Input)
Number of TMAs =	$N_{TMA} := 2$		(User Input)

Wind Load (Front)

Surface Area for One TMA =	$SA_{TMA} := \frac{L_{TMA} \cdot W_{TMA}}{144} = 0.9$	sf
TMA Projected Surface Area =	$A_{TMA} := SA_{TMA} \cdot N_{TMA} = 1.8$	sf
Total TMA Wind Force =	$F_{TMA} := F \cdot A_{TMA} = 113$	lbs

Wind Load (Side)

Surface Area for One TMA =	$SA_{TMA} := \frac{L_{TMA} \cdot T_{TMA}}{144} = 0.3$	sf
TMA Projected Surface Area =	$A_{TMA} := SA_{TMA} \cdot N_{TMA} = 0.5$	sf
Total TMA Wind Force =	$F_{TMA} := F \cdot A_{TMA} = 32$	lbs

Gravity Load (without ice)

Weight of All TMAs =	$WT_{TMA} \cdot N_{TMA} = 28$	lbs

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Development of Wind & Ice Load on RRHs

Proposed RRH Data: (AT&T)

RRH Model =	Ericsson RRUS-11		
RRH Shape =	Flat		(User Input)
RRH Height =	$L_{RRH} := 17.8$	in	(User Input)
RRH Width =	$W_{RRH} := 17.3$	in	(User Input)
RRH Thickness =	$T_{RRH} := 7.2$	in	(User Input)
RRH Weight =	$WT_{RRH} := 50$	lbs	(User Input)
Number of RRHs =	$N_{RRH} := 1$		(User Input)

Wind Load (Front)

Surface Area for One RRH =	$SA_{RRH} := \frac{L_{RRH} \cdot W_{RRH}}{144} = 2.1$	sf
RRH Projected Surface Area =	$A_{RRH} := SA_{RRH} \cdot N_{RRH} = 2.1$	sf
Total RRH Wind Force =	$F_{RRH} := F \cdot A_{RRH} = 131$	lbs

Wind Load (Side)

Surface Area for One RRH =	$SA_{RRH} := \frac{L_{RRH} \cdot T_{RRH}}{144} = 0.9$	sf
RRH Projected Surface Area =	$A_{RRH} := SA_{RRH} \cdot N_{RRH} = 0.9$	sf
Total RRH Wind Force =	$F_{RRH} := F \cdot A_{RRH} = 54$	lbs

Gravity Load (without ice)

Weight of All RRHs =	$WT_{RRH} \cdot N_{RRH} = 50$	lbs

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Development of Wind & Ice Load on RRHs

Proposed RRH Data: (AT&T)

RRH Model =	Ericsson RRUS-12		
RRH Shape =	Flat		(User Input)
RRH Height =	$L_{RRH} := 20.4$	in	(User Input)
RRH Width =	$W_{RRH} := 18.5$	in	(User Input)
RRH Thickness =	$T_{RRH} := 7.5$	in	(User Input)
RRH Weight =	$WT_{RRH} := 50$	lbs	(User Input)
Number of RRHs =	$N_{RRH} := 1$		(User Input)

Wind Load (Front)

Surface Area for One RRH =	$SA_{RRH} := \frac{L_{RRH} \cdot W_{RRH}}{144} = 2.6$	sf
RRH Projected Surface Area =	$A_{RRH} := SA_{RRH} \cdot N_{RRH} = 2.6$	sf
Total RRH Wind Force =	$F_{RRH} := F \cdot A_{RRH} = 160$	lbs

Wind Load (Side)

Surface Area for One RRH =	$SA_{RRH} := \frac{L_{RRH} \cdot T_{RRH}}{144} = 1.1$	sf
RRH Projected Surface Area =	$A_{RRH} := SA_{RRH} \cdot N_{RRH} = 1.1$	sf
Total RRH Wind Force =	$F_{RRH} := F \cdot A_{RRH} = 65$	lbs

Gravity Load (without ice)

Weight of All RRHs =	$WT_{RRH} \cdot N_{RRH} = 50$	lbs

Development of Wind & Ice Load on Surge Arrestors

Proposed Surge Arrestor Data: (AT&T)

Surge Arrestor Model =	Raycap DC-6		
Surge Arrestor Shape =	Flat		(User Input)
Surge Arrestor Height =	$L_{SA} := 23.5$	in	(User Input)
Surge Arrestor Width =	$W_{SA} := 9.7$	in	(User Input)
Surge Arrestor Thickness =	$T_{SA} := 9.7$	in	(User Input)
Surge Arrestor Weight =	$WT_{SA} := 20$	lbs	(User Input)
Number of Surge Arrestors =	$N_{SA} := 1$		(User Input)

Wind Load (Front)

Surface Area for One Surge Arrestor =	$SA_{SA} := \frac{L_{SA} \cdot W_{SA}}{144} = 1.6$	sf
Surge Arrestor Projected Surface Area =	$A_{SA} := SA_{SA} \cdot N_{SA} = 1.6$	sf
Total Surge Arrestor Wind Force =	$F_{SA} := F \cdot A_{SA} = 97$	lbs

Wind Load (Side)

Surface Area for One Surge Arrestor =	$SA_{SA} := \frac{L_{SA} \cdot T_{SA}}{144} = 1.6$	sf
Surge Arrestor Projected Surface Area =	$A_{SA} := SA_{SA} \cdot N_{SA} = 1.6$	sf
Total Surge Arrestor Wind Force =	$F_{SA} := F \cdot A_{SA} = 97$	lbs

Gravity Load (without ice)

Weight of All Surge Arrestors =	$WT_{SA} \cdot N_{SA} = 20$	lbs

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Location: East Windsor, CT

Rev. 0: 9/27/16

Prepared by: T.J.L; Checked by: C.F.C.
Job No. 16071.15

Design Wind Load on Other Structures: (Based on IBC 2012, CSBC 2016 and ASCE 7-10)

Wind Speed =	$V := 125$ mph	(User Input)	(CSBC Appendix N)
Risk Category =	$BC := II$	(User Input)	(IBC Table 1604.5)
Exposure Category =	$Exp := C$	(User Input)	
Height Above Grade =	$Z := 125$ ft	(User Input)	
Structure Type =	$Structuretype := Square\_Chimney$	(User Input)	
Structure Height =	$Height := 6$ ft	(User Input)	
Horizontal Dimension of Structure =	$Width := 1$ ft	(User Input)	

Terrain Exposure Constants:

Nominal Height of the Atmospheric Boundary Layer =

$$zg := \begin{cases} 1200 & \text{if } Exp = B = 900 \\ 900 & \text{if } Exp = C \\ 700 & \text{if } Exp = D \end{cases}$$ (Table 26.9-1)

3-Sec Gust Speed Power Law Exponent =

$$\alpha := \begin{cases} 7 & \text{if } Exp = B = 9.5 \\ 9.5 & \text{if } Exp = C \\ 11.5 & \text{if } Exp = D \end{cases}$$ (Table 26.9-1)

Integral Length Scale Factor =

$$l := \begin{cases} 320 & \text{if } Exp = B = 500 \\ 500 & \text{if } Exp = C \\ 650 & \text{if } Exp = D \end{cases}$$ (Table 26.9-1)

Integral Length Scale Power Law Exponent =

$$E := \begin{cases} \frac{1}{3} & \text{if } Exp = B = 0.2 \\ \frac{1}{5} & \text{if } Exp = C \\ \frac{1}{8} & \text{if } Exp = D \end{cases}$$ (Table 26.9-1)

Turbulence Intensity Factor =

$$c := \begin{cases} 0.3 & \text{if } Exp = B = 0.2 \\ 0.2 & \text{if } Exp = C \\ 0.15 & \text{if } Exp = D \end{cases}$$ (Table 26.9-1)

Exposure Constant =

$$Z_{min} := \begin{cases} 30 & \text{if } Exp = B = 15 \\ 15 & \text{if } Exp = C \\ 7 & \text{if } Exp = D \end{cases}$$ (Table 26.9-1)

Exposure Coefficient =

$$K_z := \begin{cases} 2.01\left(\frac{Z}{zg}\right)^{\left(\frac{2}{\alpha}\right)} & \text{if } 15 \le Z \le zg = 1.33 \\ 2.01\left(\frac{15}{zg}\right)^{\left(\frac{2}{\alpha}\right)} & \text{if } Z < 15 \end{cases}$$ (Table 29.3-1)

Topographic Factor =	$K_{zt} := 1$	(Eq. 26.8-2)
Wind Directionality Factor =	$K_d = 0.9$	(Table 26.6-1)
Velocity Pressure =	$q_z := 0.00256 \cdot K_z \cdot K_{zt} \cdot K_d \cdot V^2 = 47.75$	(Eq. 29.3-1)
Peak Factor for Background Response =	$g_Q := 3.4$	(Sec 26.9.4)
Peak Factor for Wind Response =	$g_v := 3.4$	(Sec 26.9.4)
Equivalent Height of Structure =	$z := \begin{cases} Z_{min} & \text{if } Z_{min} > 0.6 \cdot Height \\ 0.6 \cdot Height & \text{otherwise} \end{cases} = 15$	(Sec 26.9.4)
Intensity of Turbulence =	$I_z := c \cdot \left(\frac{33}{z}\right)^{\left(\frac{1}{6}\right)} = 0.228$	(Eq. 26.9-7)
Integral Length Scale of Turbulence =	$L_Z := l \cdot \left(\frac{z}{33}\right)^{E} = 427.057$	(Eq. 26.9-9)
Background Response Factor =	$Q := \sqrt{\frac{1}{1 + 0.63\left(\frac{Width + Height}{L_Z}\right)^{0.63}}} = 0.977$	(Eq. 26.9-8)
Gust Response Factor =	$G := 0.925 \cdot \left[\frac{\left(1 + 1.7 \cdot g_Q \cdot I_z \cdot Q\right)}{1 + 1.7 \cdot g_v \cdot I_z}\right] = 0.913$	(Eq. 26.9-6)
Force Coefficient =	$C_f = 1.383$	(Fig 29.5-1 - 29.5-3)
Wind Force =	$F := q_z \cdot G \cdot C_f = 60$	psf

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Subject:	Wind Load on Rooftop Antennas to ASCE 7-10
Location:	East Windsor, CT
Rev. 0: 9/27/16	Prepared by: T.J.L; Checked by: C.F.C. Job No. 16071.15

Development of Wind & Ice Load on Antennas

Proposed Antenna Data: (Clearwire)

Antenna Model =	LLPX310R		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 42.1$	in	(User Input)
Antenna Width =	$W_{ant} := 11.8$	in	(User Input)
Antenna Thickness =	$T_{ant} := 4.5$	in	(User Input)
Antenna Weight =	$WT_{ant} := 30$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)

Wind Load (Front)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 3.4$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 3.4$	sf
Total Antenna Wind Force =	$F_{ant} := F \cdot A_{ant} = 208$	lbs

Wind Load (Side)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot T_{ant}}{144} = 1.3$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 1.3$	sf
Total Antenna Wind Force =	$F_{ant} := F \cdot A_{ant} = 79$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 30$	lbs

Development of Wind & Ice Load on Antennas

Proposed Antenna Data: (Sprint)

Antenna Model =	RFS APXV18-206517		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 72$	in	(User Input)
Antenna Width =	$W_{ant} := 6.8$	in	(User Input)
Antenna Thickness =	$T_{ant} := 3.15$	in	(User Input)
Antenna Weight =	$WT_{ant} := 27$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)

Wind Load (Front)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 3.4$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 3.4$	sf
Total Antenna Wind Force =	$F_{ant} := F \cdot A_{ant} = 205$	lbs

Wind Load (Side)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot T_{ant}}{144} = 1.6$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 1.6$	sf
Total Antenna Wind Force =	$F_{ant} := F \cdot A_{ant} = 95$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 27$	lbs

Development of Wind & Ice Load on Antennas

Proposed Antenna Data: (Sprint)

Antenna Model =	RFS APXVSPP18		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 72$	in	(User Input)
Antenna Width =	$W_{ant} := 11.8$	in	(User Input)
Antenna Thickness =	$T_{ant} := 7$	in	(User Input)
Antenna Weight =	$WT_{ant} := 60$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)

Wind Load (Front)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 5.9$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 5.9$	sf
Total Antenna Wind Force =	$F_{ant} := F \cdot A_{ant} = 356$	lbs

Wind Load (Side)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot T_{ant}}{144} = 3.5$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 3.5$	sf
Total Antenna Wind Force =	$F_{ant} := F \cdot A_{ant} = 211$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 60$	lbs

Development of Wind & Ice Load on Antennas

Proposed Antenna Data: (Clearwire)

Antenna Model =	5-ft Microwave Dish		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 60$	in	(User Input)
Antenna Width =	$W_{ant} := 60$	in	(User Input)
Antenna Thickness =	$T_{ant} := 12$	in	(User Input)
Antenna Weight =	$WT_{ant} := 150$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)

Wind Load (Front)

Surface Area for One Antenna =	$SA_{ant} := \frac{\frac{\pi}{4} \cdot W_{ant}^2}{144} = 19.6$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 19.6$	sf
Total Antenna Wind Force =	$F_{ant} := F \cdot A_{ant} = 1184$	lbs

Wind Load (Side)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot T_{ant}}{144} = 5$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 5$	sf
Total Antenna Wind Force =	$F_{ant} := F \cdot A_{ant} = 302$	lbs

Gravity Load (without ice)

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

Development of Wind & Ice Load on RRHs

Proposed RRH Data: (sprint)

RRH Model =	Remote Radio Head		
RRH Shape =	Flat		(User Input)
RRH Height =	$L_{RRH} := 20$	in	(User Input)
RRH Width =	$W_{RRH} := 20$	in	(User Input)
RRH Thickness =	$T_{RRH} := 6$	in	(User Input)
RRH Weight =	$WT_{RRH} := 50$	lbs	(User Input)
Number of RRHs =	$N_{RRH} := 1$		(User Input)

Wind Load (Front)

Surface Area for One RRH =	$SA_{RRH} := \frac{L_{RRH} \cdot W_{RRH}}{144} = 2.8$	sf
RRH Projected Surface Area =	$A_{RRH} := SA_{RRH} \cdot N_{RRH} = 2.8$	sf
Total RRH Wind Force =	$F_{RRH} := F \cdot A_{RRH} = 168$	lbs

Wind Load (Side)

Surface Area for One RRH =	$SA_{RRH} := \frac{L_{RRH} \cdot T_{RRH}}{144} = 0.8$	sf
RRH Projected Surface Area =	$A_{RRH} := SA_{RRH} \cdot N_{RRH} = 0.8$	sf
Total RRH Wind Force =	$F_{RRH} := F \cdot A_{RRH} = 50$	lbs

Gravity Load (without ice)

Weight of All RRHs =	$WT_{RRH} \cdot N_{RRH} = 50$	lbs

Development of Wind & Ice Load on RRHs

Proposed RRH Data: (sprint)

RRH Model =	Remote Radio Head		
RRH Shape =	Flat		(User Input)
RRH Height =	$L_{RRH} := 12$	in	(User Input)
RRH Width =	$W_{RRH} := 12$	in	(User Input)
RRH Thickness =	$T_{RRH} := 6$	in	(User Input)
RRH Weight =	$WT_{RRH} := 25$	lbs	(User Input)
Number of RRHs =	$N_{RRH} := 1$		(User Input)

Wind Load (Front)

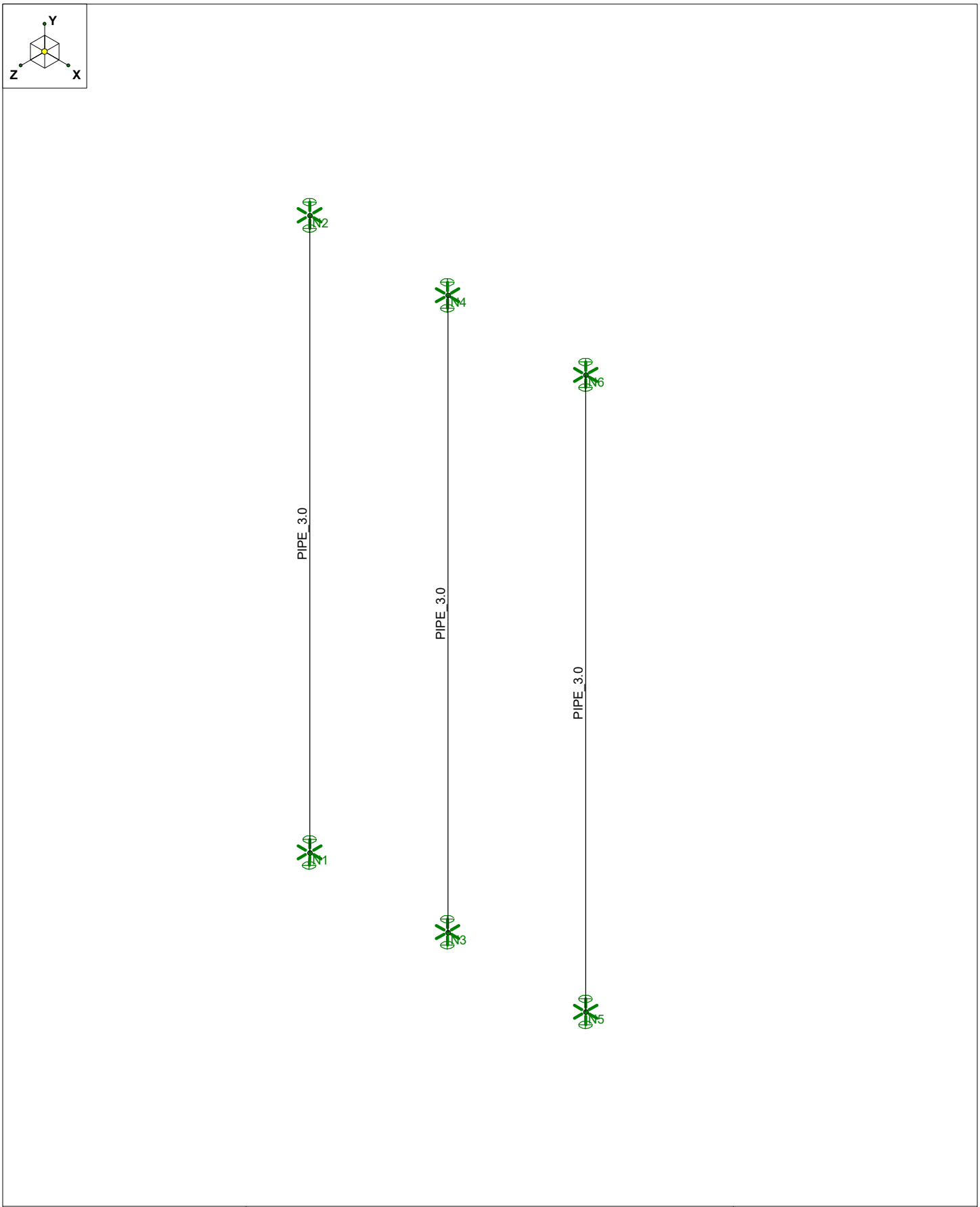
Surface Area for One RRH =	$SA_{RRH} := \frac{L_{RRH} \cdot W_{RRH}}{144} = 1$	sf
RRH Projected Surface Area =	$A_{RRH} := SA_{RRH} \cdot N_{RRH} = 1$	sf
Total RRH Wind Force =	$F_{RRH} := F \cdot A_{RRH} = 60$	lbs

Wind Load (Side)

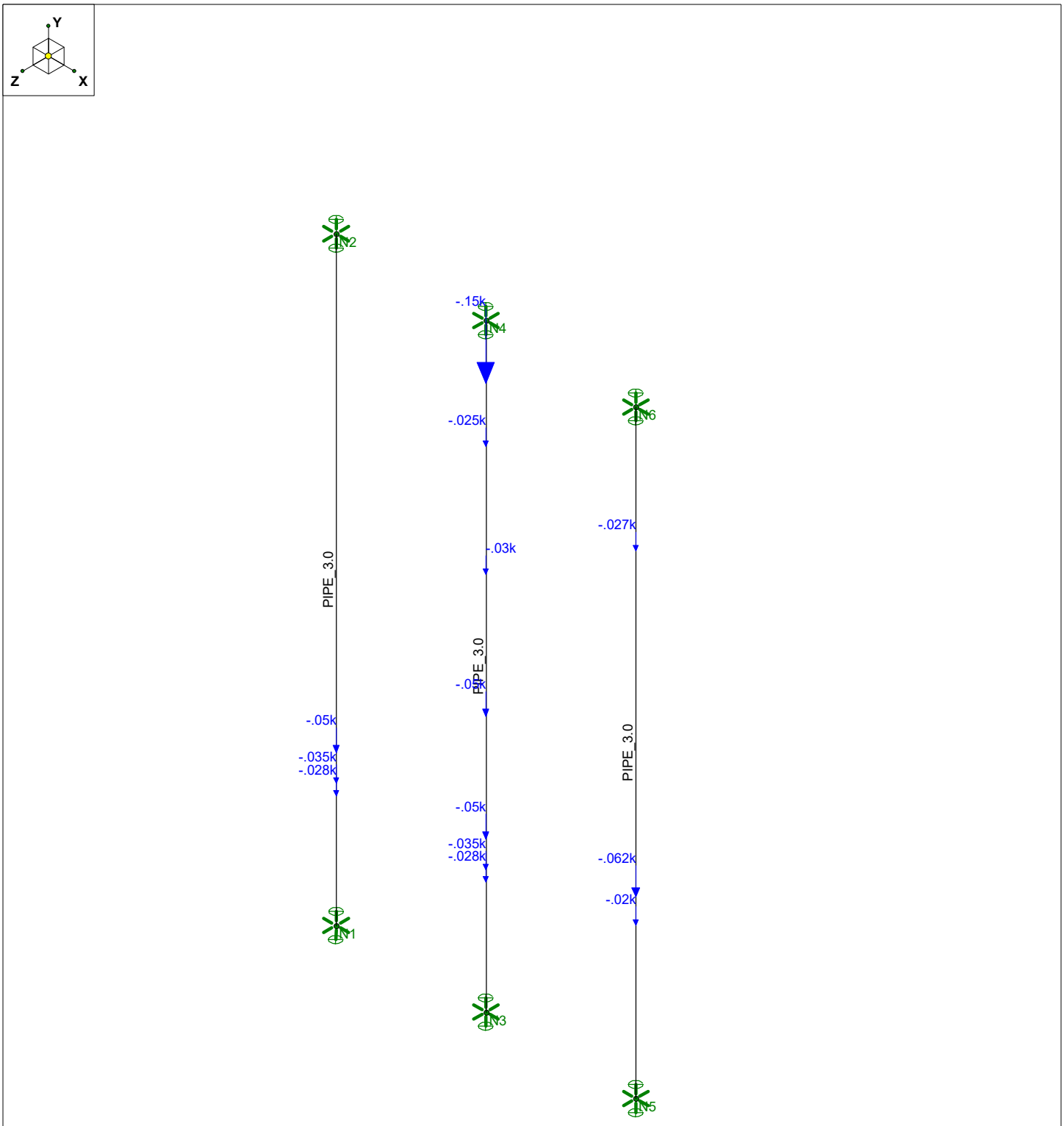
Surface Area for One RRH =	$SA_{RRH} := \frac{L_{RRH} \cdot T_{RRH}}{144} = 0.5$	sf
RRH Projected Surface Area =	$A_{RRH} := SA_{RRH} \cdot N_{RRH} = 0.5$	sf
Total RRH Wind Force =	$F_{RRH} := F \cdot A_{RRH} = 30$	lbs

Gravity Load (without ice)

Weight of All RRHs =	$WT_{RRH} \cdot N_{RRH} = 25$	lbs



Centek Engineering		
TJL	CT1140 East Windsor	Sept 27, 2016 at 4:45 PM
16071.15	Member Framing	16071.15 CT1140 East Windsor - A...

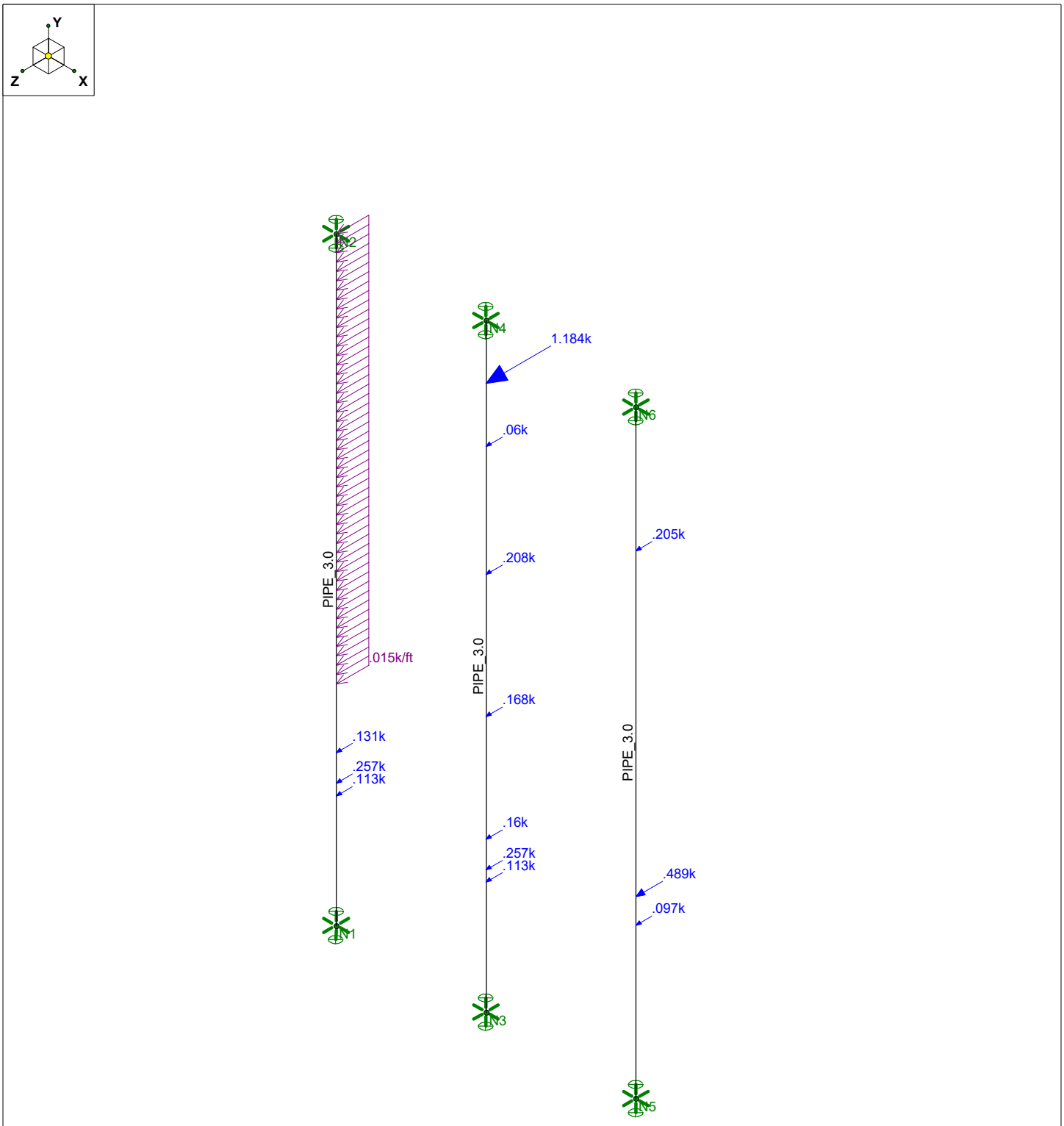


Loads: BLC 2, Weight of Equipment

Centek Engineering		
TJL	CT1140 East Windsor	Sept 27, 2016 at 4:46 PM
16071.15	BLC #2 - Weight of Equipment	16071.15 CT1140 East Windsor - A...

Loads: BLC 3, Wind X-Direction

Centek Engineering		
TJL	CT1140 East Windsor	Sept 27, 2016 at 4:46 PM
16071.15	BLC #3 - Wind X-Direction	16071.15 CT1140 East Windsor - A...



Loads: BLC 4, Wind Z-Direction

Centek Engineering		
TJL	CT1140 East Windsor	Sept 27, 2016 at 4:46 PM
16071.15	BLC #4 - Wind Z-Direction	16071.15 CT1140 East Windsor - A...

Global

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Increase Nailing Capacity for Wind?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automaticly Iterate Stiffness for Walls?	Yes
Maximum Iteration Number for Wall Stiffness	3
Gravity Acceleration (ft/sec^2)	32.2
Wall Mesh Size (in)	24
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 14th(360-10): ASD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 14th(360-10): ASD
Cold Formed Steel Code	None
Wood Code	None
Wood Temperature	< 100F
Concrete Code	ACI 318-05
Masonry Code	ACI 530-11: Strength
Aluminum Code	AA ADM1-10: ASD - Building

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	Yes
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

Global, Continued

Seismic Code	ASCE 7-10
Seismic Base Elevation (ft)	Not Entered
Add Base Weight?	Yes
Ct Z	.02
Ct X	.02
T Z (sec)	Not Entered
T X (sec)	Not Entered
R Z	3
R X	3
Ct Exp. Z	.75
Ct Exp. X	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Seismic Detailing Code	ASCE 7-05
Om Z	1
Om X	1
Rho Z	1
Rho X	1

Footing Overturning Safety Factor	1
Check Concrete Bearing	No
Footing Concrete Weight (k/ft^3)	.145
Footing Concrete f'c (ksi)	4
Footing Concrete Ec (ksi)	3644
Lamda	1
Footing Steel fy (ksi)	60
Minimum Steel	0.0018
Maximum Steel	0.0075
Footing Top Bar	#6
Footing Top Bar Cover (in)	1.5
Footing Bottom Bar	#6
Footing Bottom Bar Cover (in)	3
Pedestal Bar	#6
Pedestal Bar Cover (in)	1.5
Pedestal Ties	#4

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1...	Density[k/ft^3]	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3

Hot Rolled Steel Design Parameters

	Label	Shape	Lengt...	Lbyy[ft]	Lbzz[ft]	Lcomp t...	Lcomp b...	L-torqu...	Kyy	Kzz	Cb	Function
1	M1	Antenna Mast	16									Lateral
2	M2	Antenna Mast	16									Lateral
3	M3	Antenna Mast	16									Lateral

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Antenna Mast	PIPE_3.0	Column	Pipe	A53 Gr.B	Typical	2.07	2.85	2.85	5.69

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design R...
1	M1	N1	N2			Antenna Mast	Column	Pipe	A53 Gr.B	Typical
2	M2	N3	N4			Antenna Mast	Column	Pipe	A53 Gr.B	Typical
3	M3	N5	N6			Antenna Mast	Column	Pipe	A53 Gr.B	Typical

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From D...
1	N1	0	0	0	0	
2	N2	0	16	0	0	
3	N3	4	0	0	0	
4	N4	4	16	0	0	
5	N5	8	0	0	0	
6	N6	8	16	0	0	

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]	Footing
1	N1	Reaction	Reaction	Reaction		Reaction		
2	N2	Reaction	Reaction	Reaction		Reaction		
3	N3	Reaction	Reaction	Reaction		Reaction		
4	N4	Reaction	Reaction	Reaction		Reaction		
5	N5	Reaction	Reaction	Reaction		Reaction		
6	N6	Reaction	Reaction	Reaction		Reaction		

Member Point Loads (BLC 2 : Weight of Equipment)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M1	Y	-.035	3.292
2	M2	Y	-.035	3.292
3	M2	Y	-.05	6.833
4	M2	Y	-.03	10.125
5	M2	Y	-.025	13.083
6	M2	Y	-.15	14.542
7	M3	Y	-.062	4.666
8	M3	Y	-.027	12.666
9	M1	Y	-.028	3

Member Point Loads (BLC 2 : Weight of Equipment) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
10	M2	Y	-.028	3
11	M1	Y	-.05	4
12	M2	Y	-.05	4
13	M3	Y	-.02	4

Member Point Loads (BLC 3 : Wind X-Direction)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M1	X	.117	3.292
2	M2	X	.117	3.292
3	M2	X	.05	6.833
4	M2	X	.079	10.125
5	M2	X	.03	13.083
6	M2	X	.302	14.542
7	M3	X	.245	4.666
8	M3	X	.095	12.666
9	M1	X	.032	3
10	M2	X	.032	3
11	M1	X	.065	4
12	M2	X	.054	4
13	M3	X	.097	4

Member Point Loads (BLC 4 : Wind Z-Direction)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M1	Z	.257	3.292
2	M2	Z	.257	3.292
3	M2	Z	.168	6.833
4	M2	Z	.208	10.125
5	M2	Z	.06	13.083
6	M2	Z	1.184	14.542
7	M3	Z	.489	4.666
8	M3	Z	.205	12.666
9	M1	Z	.113	3
10	M2	Z	.113	3
11	M2	Z	.16	4
12	M1	Z	.131	4
13	M3	Z	.097	4

Member Distributed Loads (BLC 3 : Wind X-Direction)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
1	M1	X	.015	.015	0	0
2	M2	X	.015	.015	0	0
3	M3	X	.015	.015	0	0

Member Distributed Loads (BLC 4 : Wind Z-Direction)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	.015	.015	5.583	16

Basic Load Cases

	BLC Description	Category	X Gra...	Y Gravity	Z Gra...	Joint	Point	Distrib..	Area(...	Surfa...
1	Self	DL		-1						
2	Weight of Equipment	DL					13			
3	Wind X-Direction	WLX					13	3		
4	Wind Z-Direction	WLZ					13	1		

Load Combinations

	Description	Sol...	PDelta	SR..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact...
1	IBC 16-8	Yes	Y		DL	1														
2	IBC 16-9	Yes	Y		DL	1	LL	1	LLS	1										
3	IBC 16-10 (a)	Yes	Y		DL	1														
4	IBC 16-12 (a) (a)	Yes	Y		DL	1	W...	.6												
5	IBC 16-12 (a) (b)	Yes	Y		DL	1	W...	.6												
6	IBC 16-12 (a) (c)	Yes	Y		DL	1	W...	-.6												
7	IBC 16-12 (a) (d)	Yes	Y		DL	1	W...	-.6												
8	IBC 16-13 (a) (a)	Yes	Y		DL	1	W...	.45	LL	.75	LLS	.75								
9	IBC 16-13 (a) (b)	Yes	Y		DL	1	W...	.45	LL	.75	LLS	.75								
10	IBC 16-13 (a) (c)	Yes	Y		DL	1	W...	-.45	LL	.75	LLS	.75								
11	IBC 16-13 (a) (d)	Yes	Y		DL	1	W...	-.45	LL	.75	LLS	.75								
12	IBC 16-15 (a)	Yes	Y		DL	.6	W...	.6												
13	IBC 16-15 (b)	Yes	Y		DL	.6	W...	.6												
14	IBC 16-15 (c)	Yes	Y		DL	.6	W...	-.6												
15	IBC 16-15 (d)	Yes	Y		DL	.6	W...	-.6												

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N1	max	.173	6	.144	1	.267	7	0	1	0	1	0	1
2		min	-.173	4	.087	12	-.267	5	0	1	0	1	0	1
3	N2	max	.1	6	.081	1	.127	7	0	1	0	1	0	1
4		min	-.1	4	.049	12	-.127	5	0	1	0	1	0	1
5	N3	max	.222	6	.202	1	.424	7	0	1	0	1	0	1
6		min	-.222	4	.121	12	-.424	5	0	1	0	1	0	1
7	N4	max	.32	6	.278	1	.866	7	0	1	0	1	0	1
8		min	-.32	4	.167	12	-.866	5	0	1	0	1	0	1
9	N5	max	.232	6	.121	1	.277	7	0	1	0	1	0	1
10		min	-.232	4	.073	12	-.277	5	0	1	0	1	0	1
11	N6	max	.175	6	.101	1	.197	7	0	1	0	1	0	1
12		min	-.175	4	.06	12	-.197	5	0	1	0	1	0	1
13	Totals:	max	1.221	6	.928	1	2.159	7						
14		min	-1.221	4	.557	12	-2.159	5						

Envelope Joint Displacements

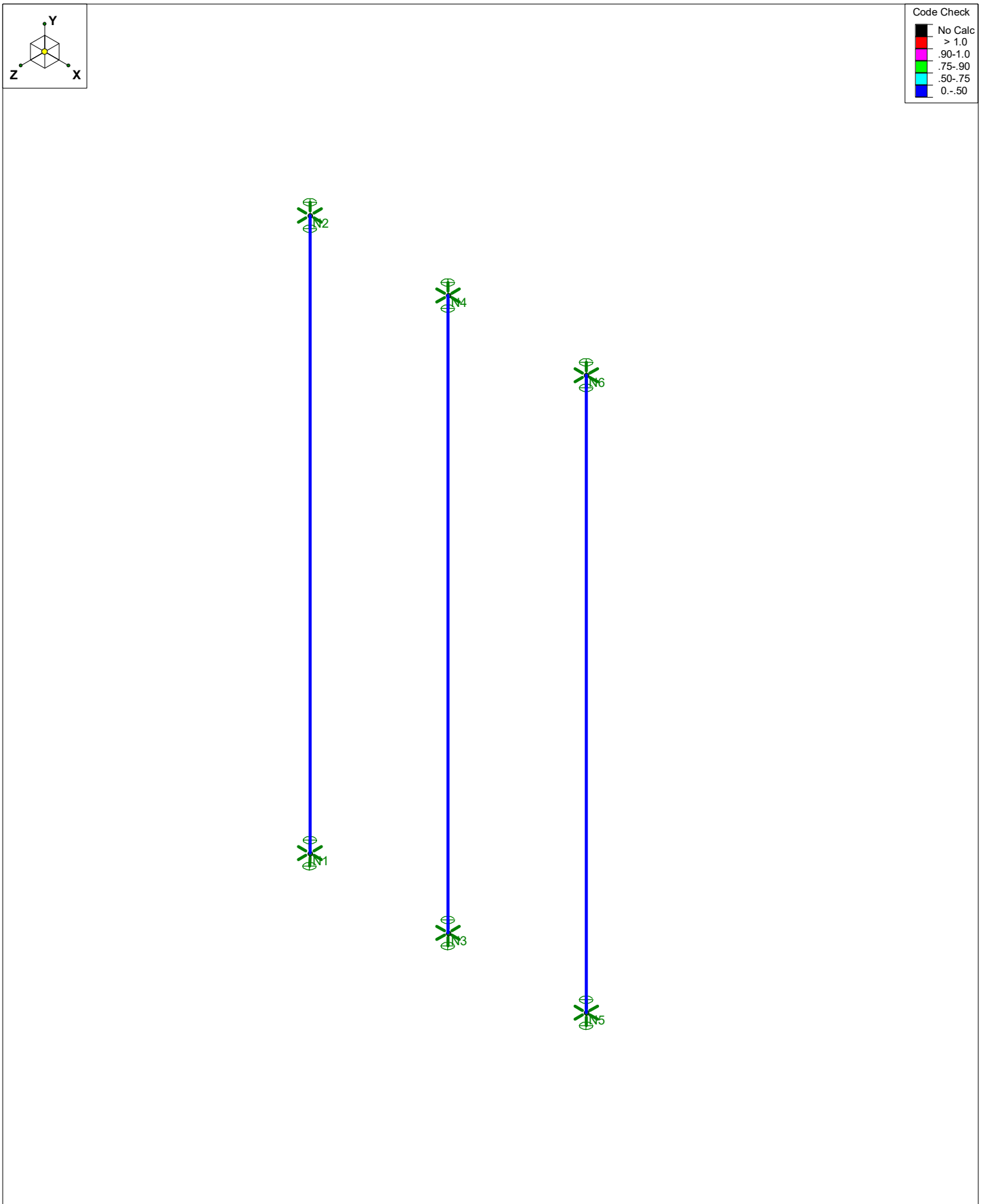
	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation...	LC	Y Rotation...	LC	Z Rotation...	LC
1	N1	max	0	4	0	12	0	5	1.057e-2	5	0	1	6.941e-3	6
2		min	0	6	0	1	0	7	-1.057e-2	7	0	1	-6.941e-3	4
3	N2	max	0	4	0	12	0	5	8.253e-3	7	0	1	5.802e-3	4
4		min	0	6	0	1	0	7	-8.253e-3	5	0	1	-5.802e-3	6

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation...	LC	Y Rotation...	LC	Z Rotation...	LC
5	N3	max	0	4	0	12	0	5	2.271e-2	5	0	1	1.103e-2	6
6		min	0	6	0	1	0	7	-2.271e-2	7	0	1	-1.103e-2	4
7	N4	max	0	4	0	12	0	5	2.507e-2	7	0	1	1.142e-2	4
8		min	0	6	0	1	0	7	-2.507e-2	5	0	1	-1.142e-2	6
9	N5	max	0	4	0	12	0	5	1.368e-2	5	0	1	1.1e-2	6
10		min	0	6	0	1	0	7	-1.368e-2	7	0	1	-1.1e-2	4
11	N6	max	0	4	0	12	0	5	1.192e-2	7	0	1	9.822e-3	4
12		min	0	6	0	1	0	7	-1.192e-2	5	0	1	-9.822e-3	6

Envelope AISC 14th(360-10): ASD Steel Code Checks

	Member	Shape	Code Check	Loc...	LC	Sh...	Loc[ft]	Dir	LC	Pnc/o...	Pnt/...	Mny...	Mnz.....		Eqn
1	M1	PIPE_3.0	.233	3.833	5	.021	0		5	11.62	43.3..	3.825	3.825	1	H1...
2	M2	PIPE_3.0	.481	10	5	.067	14.667		5	11.62	43.3..	3.825	3.825	1	H1...
3	M3	PIPE_3.0	.328	4.667	5	.021	0		5	11.62	43.3..	3.825	3.825	1	H1...



Centek Engineering	CT1140 East Windsor	
TJL		Sept 27, 2016 at 4:45 PM
16071.15		16071.15 CT1140 East Windsor - A...

Section 1 - RFDS GENERAL INFORMATION

RFDS NAME:	CTV1140	DATE:	03/17/2016	RF DESIGN ENG:	Md Mateen	RF PERF ENG:		RFDS PROGRAM TYPE:	2017 LTE Next Carrier
ISSUE:	Q&D	Approved? (Y/N):	Yes	RF DESIGN PHONE:		RF PERF PHONE:		RFDS TECHNOLOGY:	LTE 2C
REVISION:	Final	RF MANAGER:	Cameron Syme	RF DESIGN EMAIL:	MM093Q@ATT.COM	RF PERF EMAIL:		State:	As Built
INITIATIVE /PROJECT:	LTE 2C 1900 A3-A4 Q&D- RRUS-12					TRIDENT:		Status:	In Progress
						GSM FREQUENCY:		RFDS ID:	1125633
						UMTS FREQUENCY:	850, 1900	RFDS Version:	1.00
						LTE FREQUENCY:	700, 1900	Created By:	mm093q
								Date Created:	3/17/2016 12:33:43 PM
								Date Updated:	6/22/2016 5:49:52 PM
								Updated By:	mm093q
						I-PLAN JOB # 1:	NER-RCTB-12-04301	IPLAN PRD GRP || SUB GRP #1:	LTE Next Carrier || LTE 2C
						I-PLAN JOB # 2:		IPLAN PRD GRP || SUB GRP #2:	
						I-PLAN JOB # 3:		IPLAN PRD GRP || SUB GRP #3:	
						I-PLAN JOB # 4:		IPLAN PRD GRP || SUB GRP #4:	

Section 2 - LOCATION INFORMATION

USID:	87435	FA LOCATION CODE:	10113267	LOCATION NAME:	EAST WINDSOR WATER TANK	ORACLE PTN # 1:		PACE JOB # 1:	MRCTB018202
REGION:	NORTHEAST	MARKET CLUSTER:	NEW ENGLAND	MARKET:	CONNECTICUT	ORACLE PTN # 2:		PACE JOB # 2:	
ADDRESS:	50 PLANTATION ROAD	CITY:	EAST WINDSOR	STATE:	CT	ORACLE PTN # 3:		PACE JOB # 3:	
ZIP CODE:	06016	COUNTY:	HARTFORD	MSA / RSA:		ORACLE PTN # 4:		PACE JOB # 4:	
LATITUDE (D-M-S):	41d 52m32.30004s	LONGITUDE (D-M-S):	-72d -33m-53.226s	LAT (DEC. DEG.):	41.8756389	SEARCH RING NAME:			
DIRECTIONS, ACCESS AND EQUIPMENT LOCATION:	I-91 NORTH. MERGE ONTO CT-15-15 NORTH VIA EXIT 29 TOWARD EAST HARTFORD/BOSTON. CT-15 NORTH BECOMES I-84 EAST.TAKE I-84 AND GET ON ROUTE 291-STAY ON ROUTE 291 AND THEN GET OFF EXIT 4 ,AT THE BOTTOM OF THE EXIT TAKE A LEFT ONTO ROUTE 5-JOHN FITCH BLVD. FOLLOW THIS FOR ABOUT 3 MILES AND YOU WILL COME TO A TRAFICC LIGHT MAKE A SHARP RIGHT ONTO SULLIVAN AVENUE.,YOU WILL STAY ON SULLIVAN AVENUE FOR ABOUT A HALF MILE,THEN TURN SLIGHT LEFT ONTO RYE STREET.,STAY OF RYE STREET FOR ABOUT 3 MILES AND ON YOUR RIGHT HAND SIDE YOU WILL SEE PLANTATION ROAD,TAKE A , SLIGHT RIGHT ONTO PLANTATION ROAD.FOLLOW UNTIL YOU SEE WATER TANK ON YOUR RIGHT HAND SIDE,GROUND LEVEL SHELTERGROUND BAR ALARMS WIRED UP:10/13/15CIPHER LOCK CONTRACTOR CODE;3534CODE HAS BEEN CHANGED ALSO TO MASTER CODELTE RADIOS:ON WATERTANKLTE ALARMS ACTIVATED:5/1/14UMTSON FIBER: LOCATED IN A CABINET BY THE SPRINT EQUIPENT IN THE COMPOUND COMBO 5000,BIEGE CABINET.GSM:HCGS:730790 UMTS;ON FIBERMETER: 89-109-397NORTHEAST UTILITIES					SEARCH RING ID:		CASPR INITIATIVE # 1:	
						BTA:		CASPR INITIATIVE # 2:	
						LONG (DEC. DEG.):	-72.5647850	CASPR INITIATIVE # 3:	
						BORDER CELL WITH CONTOUR COORD:		CASPR INITIATIVE # 4:	
						AM STUDY REQ'D (Y/N):	No		
						FREQ COORD:			

Section 3 - LICENSE COVERAGE/FILING INFORMATION

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

Section 4 - TOWER/REGULATORY INFORMATION

STRUCTURE AT&T OWNED?:	Yes	GROUND ELEVATION (ft):		STRUCTURE TYPE:	WATER TANK	MARKET LOCATION 700 MHz Band:			
ADDITIONAL REGULATORY?:	Yes	HEIGHT OVERALL (ft):	134.00	FCC ASR NUMBER:		MARKET LOCATION 850 MHz Band:			
SUB-LEASE RIGHTS?:	Yes	STRUCTURE HEIGHT (ft):	134.00			MARKET LOCATION 1900 MHz Band:			
LIGHTING TYPE:	VOLUNTARY RED LIGHT					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	EAST WINDSOR POLICE DEPARTMENT	1337		INTRADO_MIAMI		0				
SECTOR B	EAST WINDSOR POLICE DEPARTMENT	1337		INTRADO_MIAMI		0				
SECTOR C	EAST WINDSOR POLICE DEPARTMENT	1337		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	EAST WINDSOR POLICE DEPARTMENT	1337		INTRADO_MIAMI		0				
SECTOR B	EAST WINDSOR POLICE DEPARTMENT	1337		INTRADO_MIAMI		0				
SECTOR C	EAST WINDSOR POLICE DEPARTMENT	1337		INTRADO_MIAMI		0				
SECTOR D										
SECTOR E										
SECTOR F										
OMNI										

Section 6 - RBS GENERAL INFORMATION - existing

	GSM 1ST RBS	UMTS 1ST RBS	UMTS 2ND RBS	LTE 1ST RBS								
RBS ID:	161791	208891	336065	366955								
CTS COMMON ID:	184G1140	CTV1140	CTU1140	CTL01140								
CELL ID / BCF:	184G1140	CTV1140	CTV1140	CTL01140								
BTA/TID:	184G	184U	184W	184L								
4-DIGIT SITE ID:	1140	1140	1140	1140								
COW OR TOY?:	No	No	No	No								
CELL SITE TYPE:	SECTORIZED	SECTORIZED	SECTORIZED	SECTORIZED								
SITE TYPE:	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL								
BTS LOCATION ID:	GROUND	INTERNAL	INTERNAL	INTERNAL								
ORIGINATING CO:	CINGULAR	CINGULAR	CINGULAR	CINGULAR								
CELLULAR NETWORK:	GOLD	GOLD	GOLD	GOLD								
OPS DISTRICT:	CT-NORTH	CT-NORTH	CT-NORTH	CT-NORTH								
RF DISTRICT:	NPO TRIAGE	MIDDLETOWN	NPO TRIAGE	NPO TRIAGE								
OPS ZONE:	NE_CT_N_TLDN_N__CS	NE_CT_N_TLDN_N__CS	NE_CT_N_TLDN_N_CS	NE_CT_N_TLDN_N_CS								
RF ZONE:	HOTSEAT	BCT05	BCT05	HOTSEAT								
BASE STATION TYPE:	BASE	BASE	OVERLAY	BASE								
EQUIPMENT NAME:	EAST WINDSOR WATER TANK	EAST WINDSOR WATER TANK	EAST WINDSOR WATER TANK	EAST WINDSOR WATER TANK								
DISASTER PRIORITY:	1	1	3	3								

Section 6 - RBS GENERAL INFORMATION - final

	GSM 1ST RBS	UMTS 1ST RBS	UMTS 2ND RBS	LTE 1ST RBS								
RBS ID:	161791	208891	336065	366955								
CTS COMMON ID:	184G1140	CTV1140	CTU1140	CTL01140								
CELL ID / BCF:	184G1140	CTV1140	CTV1140	CTL01140								
BTA/TID:	184G	184U	184W	184L								
4-DIGIT SITE ID:	1140	1140	1140	1140								
COW OR TOY?:	No	No	No	No								
CELL SITE TYPE:	SECTORIZED	SECTORIZED	SECTORIZED	SECTORIZED								
SITE TYPE:	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL								
BTS LOCATION ID:	GROUND	INTERNAL	INTERNAL	INTERNAL								
ORIGINATING CO:	CINGULAR	CINGULAR	CINGULAR	CINGULAR								
CELLULAR NETWORK:	GOLD	GOLD	GOLD	GOLD								
OPS DISTRICT:	CT-North	CT-North	CT-North	CT-North								
RF DISTRICT:	NPO Triage	Middletown	NPO Triage	NPO Triage								
OPS ZONE:	NE_CT_N_TLDN_N_CS	NE_CT_N_TLDN_N_CS	NE_CT_N_TLDN_N_CS	NE_CT_N_TLDN_N_CS								
RF ZONE:	Hotseat	BCT05	BCT05	Hotseat								
BASE STATION TYPE:	BASE	BASE	OVERLAY	BASE								
EQUIPMENT NAME:	EAST WINDSOR WATER TANK	EAST WINDSOR WATER TANK	EAST WINDSOR WATER TANK	EAST WINDSOR WATER TANK								
DISASTER PRIORITY:	1	1	3	3								

Section 7 - RBS SPECIFIC INFORMATION - existing

	GSM 1ST RBS	UMTS 1ST RBS	UMTS 2ND RBS	LTE 1ST RBS								
MSC:												
BSC/RNC/MME POOL ID:	MIDDLETOWN-GSM MTSO-BSC-5	MIDDLETOWN RNC04	MIDDLETOWN RNC04	FF01								
LAC:	05005	05993	05993									
RAC:												
EQUIPMENT VENDOR:	NOKIA	ERICSSON	ERICSSON	ERICSSON								
EQUIPMENT TYPE:	ULTRASITE	3206 INDOOR	3206 INDOOR	6601 INDOOR MU								
BASEBAND CONFIGURATION:												
LOCATION:												
CABINET LOCATION:												
MARKET STATE CODE:				CT								
AGPS:	Yes	Yes	Yes	Yes								
NODE B NUMBER:	0	0	0	1140								
PARENT NAME:	MIDDLETOWN-GSM MTSO-BSC-5	MIDDLETOWN RNC04	MIDDLETOWN RNC04	FF01								

Section 7 - RBS SPECIFIC INFORMATION - final

	GSM 1ST RBS	UMTS 1ST RBS	UMTS 2ND RBS	LTE 1ST RBS								
MSC:												
BSC/RNC/MME POOL ID:	BCT05	MDTWCTNICR0R04	MDTWCTNICR0R04	FF01								
LAC:	05005	05993	05993									
RAC:												
EQUIPMENT VENDOR:	NOKIA	ERICSSON	ERICSSON	ERICSSON								
EQUIPMENT TYPE:	ULTRASITE	3206 INDOOR	3206 INDOOR	6601 INDOOR MU								
BASEBAND CONFIGURATION:												
LOCATION:												
CABINET LOCATION:												
MARKET STATE CODE:				CT								
AGPS:	Yes	Yes	Yes	Yes								
NODE B NUMBER:	0	0	0	1140								
PARENT NAME:	MIDDLETOWN-GSM MTSO-BSC-5	MIDDLETOWN RNC04	MIDDLETOWN RNC04									

Section 8 - RBS/SECTOR ASSOCIATION - existing

	GSM 1ST RBS	UMTS 1ST RBS	UMTS 2ND RBS	LTE 1ST RBS																
CTS Common ID	184G1140	CTV1140	CTU1140	CTL01140																
Soft Sector IDs	184G11401	CTV11401	CTU11407	CTL01140_7A_1																
	184G11402	CTV11402	CTU11408	CTL01140_7B_1																
	184G11403	CTV11403	CTU11409	CTL01140_7C_1																

Section 8 - RBS/SECTOR ASSOCIATION - final

	GSM 1ST RBS	UMTS 1ST RBS	UMTS 2ND RBS	LTE 1ST RBS																
CTS Common ID	184G1140	CTV1140	CTU1140	CTL01140																
Soft Sector IDs	184G11401	CTV11401	CTU11407	CTL01140_7A_1																
	184G11402	CTV11402	CTU11408	CTL01140_7B_1																
	184G11403	CTV11403	CTU11409	CTL01140_7C_1																
				CTL01140_9A_1																
				CTL01140_9B_1																
				CTL01140_9C_1																

Section 9 - SOFT SECTOR ID - existing

	GSM 1ST 850	UMTS 1ST 850	UMTS 1ST 1900	LTE 1ST 700	LTE 1ST 1900																					
USEID (excluding Hard Sector)	87435.850.25G.1	87435.850.3G.1	87435.1900.3G.2																							
SECTOR A **SOFT SECTOR ID**	184G11401	CTV11401	CTU11407	CTL01140_7A_1																						
SECTOR B	184G11402	CTV11402	CTU11408	CTL01140_7B_1																						
SECTOR C	184G11403	CTV11403	CTU11409	CTL01140_7C_1																						
SECTOR D																										
SECTOR E																										
SECTOR F																										
OMNI																										

Section 9 - SOFT SECTOR ID - final

	GSM 1ST 850	UMTS 1ST 850	UMTS 1ST 1900	LTE 1ST 700	LTE 1ST 1900																					
USEID (excluding Hard Sector)	87435.850.25G.1	87435.850.3G.1	87435.1900.3G.2																							
SECTOR A **SOFT SECTOR ID**	184G11401	CTV11401	CTU11407	CTL01140_7A_1	CTL01140_9A_1																					
SECTOR B	184G11402	CTV11402	CTU11408	CTL01140_7B_1	CTL01140_9B_1																					
SECTOR C	184G11403	CTV11403	CTU11409	CTL01140_7C_1	CTL01140_9C_1																					
SECTOR D																										
SECTOR E																										
SECTOR F																										
OMNI																										

Section 9 - Cell Number - existing

	GSM 1ST 850	UMTS 1ST 850	UMTS 1ST 1900	LTE 1ST 700	LTE 1ST 1900																					
USEID (excluding Hard Sector)	87435.850.25 G.1	87435.850.3G .1	87435.1900.3 G.2																							
SECTOR A CELL NUMBER				15																						
SECTOR B				16																						
SECTOR C				17																						
SECTOR D																										
SECTOR E																										
SECTOR F																										
OMNI																										

Section 9 - Cell Number - final

	GSM 1ST 850	UMTS 1ST 850	UMTS 1ST 1900	LTE 1ST 700	LTE 1ST 1900																					
USEID (excluding Hard Sector)	87435.850.25 G.1	87435.850.3G .1	87435.1900.3 G.2																							
SECTOR A CELL NUMBER				15	8																					
SECTOR B				16	9																					
SECTOR C				17	10																					
SECTOR D																										
SECTOR E																										
SECTOR F																										
OMNI																										

Section 10 - CID/SAC - existing

		GSM 1ST 850	UMTS 1ST 850	UMTS 1ST 1900	LTE 1ST 700	LTE 1ST 1900																						
SECTOR A	CID/SAC	11401	11401	11407																								
SECTOR B		11402	11402	11408																								
SECTOR C		11403	11403	11409																								
SECTOR D																												
SECTOR E																												
SECTOR F																												
OMNI																												

Section 10 - CID/SAC - final

		GSM 1ST 850	UMTS 1ST 850	UMTS 1ST 1900	LTE 1ST 700	LTE 1ST 1900																						
SECTOR A	CID/SAC	11401	11401	11407																								
SECTOR B		11402	11402	11408																								
SECTOR C		11403	11403	11409																								
SECTOR D																												
SECTOR E																												
SECTOR F																												
OMNI																												

Section 15A - CURRENT SECTOR/CELL INFORMATION - SECTOR A (OR OMNI)

ANTENNA COMMON FIELDS	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		P65-17-XLH-RR	7770			
ANTENNA VENDOR	Powerwave		Powerwave	Powerwave			
ANTENNA SIZE (H x W x D)	55X11X5		96X12X6	55X11X5			
ANTENNA WEIGHT	35		70	35			
AZIMUTH	20		20	20			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)	114		112	114			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT	0		0	0			
FEEDER AMOUNT	2			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 Kathrein 860-10025		Internal	2 Kathrein 860-10025			
SURGE ARRESTOR (QTY/MODEL)			1 DC/Fiber Squid				
DIPLEXER (QTY/MODEL)	2 Powerwave / LGP 21901			2 Powerwave / LGP 21901			
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)	1 Kathrein / 860-10006		LTE RRH				
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)	2 Powerwave LGP 21401 (DB - 850 Bypass)			2 Powerwave LGP 21401 (DB - 850 Bypass)			
CURRENT INJECTORS FOR TMA (QTY/MODEL)	2 Polyphaser 1000860			2 Polyphaser 1000860			
PDU FOR TMAS (QTY/MODEL)	1 LGP 12104 (1900 AND 850 Bypass TMA)						
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)			1 RRUS-11				
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)							
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
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		87435.A.850.3G.1	CTV11401	CTV11401		UMTS 850	7770.00.850.04	13.5		4	None	Andrew 1-5/8 (850)	180.046089	NO			NO					
	PORT 3		87435.A.1900.3G.2	CTU11407	CTU11407		UMTS 1900	7770.00.1900.02	15.5		2	None	Andrew 1-5/8 (1900)	180.046089	NO			NO					
ANTENNA POSITION 3	PORT 1	87435.A.700.4G.1	87435.A.700.4G.1	CTL01140_7A_1	CTL01140_7A_1		LTE 700	P65-17-XLH-RR_716MHz_02DT	16.39		2	TOP	FIBER	0	NO								
ANTENNA POSITION 4	PORT 1		87435.A.850.25G.1	184G11401			GSM 850	7770.00.850.04	13.5		4	None	Andrew 1-5/8 (850)	180.046089	NO			NO	11.22	132.73			

Section 15B - CURRENT SECTOR/CELL INFORMATION - SECTOR B

ANTENNA COMMON FIELDS	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		P65-17-XLH-RR	7770			
ANTENNA VENDOR	Powerwave		Powerwave	Powerwave			
ANTENNA SIZE (H x W x D)	55X11X5		96X12X6	55X11X5			
ANTENNA WEIGHT	35		70	35			
AZIMUTH	150		150	150			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)	114		112	114			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT	0		0	0			
FEEDER AMOUNT	2			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 Kathrein 860-10025		Internal	2 Kathrein 860-10025			
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)	2 Powerwave / LGP 21901			2 Powerwave / LGP 21901			
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)			LTE RRH				
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)	2 Powerwave LGP 21401 (DB - 850 Bypass)			2 Powerwave LGP 21401 (DB - 850 Bypass)			
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)							
RRH - 700 band (QTY/MODEL)			1 RRUS-11				
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)							
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
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		87435.B.850.3G.1	CTV11402	CTV11402		UMTS 850	7770.00.850.06	13.5		6	None	Andrew 1-5/8 (850)	180.046089	NO			NO					
	PORT 3		87435.B.1900.3G.2	CTU11408	CTU11408		UMTS 1900	7770.00.1900.02	15.5		2	None	Andrew 1-5/8 (1900)	180.046089	NO			NO					
ANTENNA POSITION 3	PORT 1	87435.B.700.4G.1	87435.B.700.4G.1	CTL01140_7B_1	CTL01140_7B_1		LTE 700	P65-17-XLH-RR_716MHz_02DT	16.39		2	TOP	FIBER	0	NO								
ANTENNA POSITION 4	PORT 1		87435.B.850.25G.1	184G11402			GSM 850	7770.00.850.06	13.5		6	None	Andrew 1-5/8 (850)	180.046089	NO			NO	11.22	132.73			

Section 15C - CURRENT SECTOR/CELL INFORMATION - SECTOR C

ANTENNA COMMON FIELDS	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL	7770		AM-X-CD-16-65-00T-RET	7770			
ANTENNA VENDOR	Powerwave		KMW	Powerwave			
ANTENNA SIZE (H x W x D)	55X11X5		72X11.8X5.9	55X11X5			
ANTENNA WEIGHT	35		48.5	35			
AZIMUTH	260		270	270			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)	114		113	114			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT	0		0	0			
FEEDER AMOUNT	2			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 Kathrein 860-10025		Internal	2 Kathrein 860-10025			
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)	2 Powerwave / LGP 21901			2 Powerwave / LGP 21901			
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)			LTE RRH				
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)	2 Powerwave LGP 21401 (DB - 850 Bypass)			2 Powerwave LGP 21401 (DB - 850 Bypass)			
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)							
RRH - 700 band (QTY/MODEL)			1 RRUS-11				
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)							
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
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		87435.C.850.3G.1	CTV11403	CTV11403		UMTS 850	7770.00.850.08	13.5		8	None	Andrew 1-5/8 (850)	180.046089	NO			NO					
	PORT 3		87435.C.1900.3G.2	CTU11409	CTU11409		UMTS 1900	7770.00.1900.02	15.5		2	None	Andrew 1-5/8 (1900)	180.046089	NO			NO					
ANTENNA POSITION 3	PORT 1	87435.C.700.4G.1	87435.C.700.4G.1	CTL01140_7C_1	CTL01140_7C_1		LTE 700	AM-X-CD-16-65-00T-RET_725MHz_11DT	15.6		11	TOP	FIBER	0	NO								
ANTENNA POSITION 4	PORT 1		87435.C.850.25G.1	184G11403			GSM 850	7770.00.850.08	13.5		8	None	Andrew 1-5/8 (850)	180.046089	NO			NO	11.22	132.73			

Section 16A - NEW/PROPOSED SECTOR/CELL INFORMATION - SECTOR A (OR OMNI)

ANTENNA COMMON FIELDS	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
Existing Antenna?			Yes				
ANTENNA MAKE - MODEL							
ANTENNA VENDOR							
ANTENNA SIZE (H x W x D)							
ANTENNA WEIGHT							
AZIMUTH							
MAGNETIC DECLINATION							
RADIATION CENTER (feet)							
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT							
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)							
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
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)							
RRH - 700 band (QTY/MODEL)							
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	LTE 2C Q&D 1900 , Add RRUS-12 only.						
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 3		87435.A.1900.4G.1	CTL01140_9A_1	CTL01140_9A_1		LTE 1900	P65-17-XLH-RR_1930MHz_02DT	16.39		2	TOP	FIBER	0	NO									

Section 16B - NEW/PROPOSED SECTOR/CELL INFORMATION - SECTOR B

ANTENNA COMMON FIELDS	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
Existing Antenna?			Yes				
ANTENNA MAKE - MODEL							
ANTENNA VENDOR							
ANTENNA SIZE (H x W x D)							
ANTENNA WEIGHT							
AZIMUTH							
MAGNETIC DECLINATION							
RADIATION CENTER (feet)							
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT							
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)							
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
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)							
RRH - 700 band (QTY/MODEL)							
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	LTE 2C Q&D 1900 , Add RRUS-12 only.						
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 3		87435.B.1900.4G.1	CTL01140_9B_1	CTL01140_9B_1		LTE 1900	P65-17-XLH-RR_1930MHz_02DT	16.39		2	TOP	FIBER	0	NO								

Section 16C - NEW/PROPOSED SECTOR/CELL INFORMATION - SECTOR C

ANTENNA COMMON FIELDS	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
Existing Antenna?			Yes				
ANTENNA MAKE - MODEL							
ANTENNA VENDOR							
ANTENNA SIZE (H x W x D)							
ANTENNA WEIGHT							
AZIMUTH							
MAGNETIC DECLINATION							
RADIATION CENTER (feet)							
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT							
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)							
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
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)							
RRH - 700 band (QTY/MODEL)							
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	LTE 2C Q&D 1900 , Add RRUS-12 only.						
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 3		87435.C.1900.4G.1	CTL01140_9C_1	CTL01140_9C_1		LTE 1900	AM-X-CD-16-65-00T-RET_1948MHz_11DT	15.6		11	TOP	FIBER	0	NO								

Section 17A - FINAL SECTOR/CELL INFORMATION - SECTOR A (OR OMNI)

ANTENNA COMMON FIELDS	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		P65-17-XLH-RR	7770			
ANTENNA VENDOR	Powerwave		Powerwave	Powerwave			
ANTENNA SIZE (H x W x D)	55X11X5		96X12X6	55X11X5			
ANTENNA WEIGHT	35		70	35			
AZIMUTH	20		20	20			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)	114		112	114			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT	0		0	0			
FEEDER AMOUNT	2			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 Kathrein 860-10025		Internal	2 Kathrein 860-10025			
SURGE ARRESTOR (QTY/MODEL)			1 DC/Fiber Squid				
DIPLEXER (QTY/MODEL)	2 Powerwave / LGP 21901			2 Powerwave / LGP 21901			
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)	1 Kathrein / 860-10006		LTE RRH				
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)	2 Powerwave LGP 21401 (DB - 850 Bypass)			2 Powerwave LGP 21401 (DB - 850 Bypass)			
CURRENT INJECTORS FOR TMA (QTY/MODEL)	2 Polyphaser 1000860			2 Polyphaser 1000860			
PDU FOR TMAS (QTY/MODEL)	1 LGP 12104 (1900 AND 850 Bypass TMA)						
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)			1 RRUS-11				
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	LTE 2C Q&D 1900 , Add RRUS-12 only.						
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	87435.A.850.3G.1	87435.A.850.3G.1	CTV11401	CTV11401		UMTS 850	7770.00.850.04	13.5		4	None	Andrew 1-5/8 (850)	180.046089	NO			NO		255.27		1	
	PORT 3	87435.A.1900.3G.2	87435.A.1900.3G.2	CTU11407	CTU11407		UMTS 1900	7770.00.1900.02	15.5		2	None	Andrew 1-5/8 (1900)	180.046089	NO			NO		378.44		2	
ANTENNA POSITION 3	PORT 1	87435.A.700.4G.1	87435.A.700.4G.1	CTL01140_7A_1	CTL01140_7A_1		LTE 700	P65-17-XLH-RR_716MHz_02DT	16.39		2	TOP	FIBER	0	NO					1475.7065		5	
	PORT 3	87435.A.1900.4G.1	87435.A.1900.4G.1	CTL01140_9A_1	CTL01140_9A_1		LTE 1900	P65-17-XLH-RR_1930MHz_02DT	16.39		2	TOP	FIBER	0	NO					2421.029		5	
ANTENNA POSITION 4	PORT 1	87435.A.850.25G.1	87435.A.850.25G.1	184G11401			GSM 850	7770.00.850.04	13.5		4	None	Andrew 1-5/8 (850)	180.046089	NO			NO	11.22	132.73		7	

Section 17B - FINAL SECTOR/CELL INFORMATION - SECTOR B

ANTENNA COMMON FIELDS	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		P65-17-XLH-RR	7770			
ANTENNA VENDOR	Powerwave		Powerwave	Powerwave			
ANTENNA SIZE (H x W x D)	55X11X5		96X12X6	55X11X5			
ANTENNA WEIGHT	35		70	35			
AZIMUTH	150		150	150			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)	114		112	114			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT	0		0	0			
FEEDER AMOUNT	2			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 Kathrein 860-10025		Internal	2 Kathrein 860-10025			
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)	2 Powerwave / LGP 21901			2 Powerwave / LGP 21901			
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)			LTE RRH				
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)	2 Powerwave LGP 21401 (DB - 850 Bypass)			2 Powerwave LGP 21401 (DB - 850 Bypass)			
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)							
RRH - 700 band (QTY/MODEL)			1 RRUS-11				
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	LTE 2C Q&D 1900 , Add RRUS-12 only.						
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	87435.B.850.3G.1	87435.B.850.3G.1	CTV11402	CTV11402		UMTS 850	7770.00.850.06	13.5		6	None	Andrew 1-5/8 (850)	180.046089	NO			NO		255.27		9	
	PORT 3	87435.B.1900.3G.2	87435.B.1900.3G.2	CTU11408	CTU11408		UMTS 1900	7770.00.1900.02	15.5		2	None	Andrew 1-5/8 (1900)	180.046089	NO			NO		378.44		10	
ANTENNA POSITION 3	PORT 1	87435.B.700.4G.1	87435.B.700.4G.1	CTL01140_7B_1	CTL01140_7B_1		LTE 700	P65-17-XLH-RR_716MHz_02DT	16.39		2	TOP	FIBER	0	NO					1475.7065		13	
	PORT 3	87435.B.1900.4G.1	87435.B.1900.4G.1	CTL01140_9B_1	CTL01140_9B_1		LTE 1900	P65-17-XLH-RR_1930MHz_02DT	16.39		2	TOP	FIBER	0	NO					2421.029		13	
ANTENNA POSITION 4	PORT 1	87435.B.850.25G.1	87435.B.850.25G.1	184G11402			GSM 850	7770.00.850.06	13.5		6	None	Andrew 1-5/8 (850)	180.046089	NO			NO	11.22	132.73		15	

Section 17C - FINAL SECTOR/CELL INFORMATION - SECTOR C

ANTENNA COMMON FIELDS	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL	7770		AM-X-CD-16-65-00T-RET	7770			
ANTENNA VENDOR	Powerwave		KMW	Powerwave			
ANTENNA SIZE (H x W x D)	55X11X5		72X11.8X5.9	55X11X5			
ANTENNA WEIGHT	35		48.5	35			
AZIMUTH	260		270	270			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)	114		113	114			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT	0		0	0			
FEEDER AMOUNT	2			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 Kathrein 860-10025		Internal	2 Kathrein 860-10025			
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)	2 Powerwave / LGP 21901			2 Powerwave / LGP 21901			
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)			LTE RRH				
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)	2 Powerwave LGP 21401 (DB - 850 Bypass)			2 Powerwave LGP 21401 (DB - 850 Bypass)			
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)							
RRH - 700 band (QTY/MODEL)			1 RRUS-11				
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	LTE 2C Q&D 1900 , Add RRUS-12 only.						
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	87435.C.850.3G.1	87435.C.850.3G.1	CTV11403	CTV11403		UMTS 850	7770.00.850.08	13.5		8	None	Andrew 1-5/8 (850)	180.046089	NO			NO		255.27		17	
	PORT 3	87435.C.1900.3G.2	87435.C.1900.3G.2	CTU11409	CTU11409		UMTS 1900	7770.00.1900.02	15.5		2	None	Andrew 1-5/8 (1900)	180.046089	NO			NO		378.44		18	
ANTENNA POSITION 3	PORT 1	87435.C.700.4G.1	87435.C.700.4G.1	CTL01140_7C_1	CTL01140_7C_1		LTE 700	AM-X-CD-16-65-00T-RET_725MHz_11DT	15.6		11	TOP	FIBER	0	NO					1119.4378		21	
	PORT 3	87435.C.1900.4G.1	87435.C.1900.4G.1	CTL01140_9C_1	CTL01140_9C_1		LTE 1900	AM-X-CD-16-65-00T-RET_1948MHz_11DT	15.6		11	TOP	FIBER	0	NO					2182.7299		21	
ANTENNA POSITION 4	PORT 1	87435.C.850.25G.1	87435.C.850.25G.1	184G11403			GSM 850	7770.00.850.08	13.5		8	None	Andrew 1-5/8 (850)	180.046089	NO			NO	11.22	132.73		23	

Diagram - Sector	A	Diagram File Name - CT1140_LTE2C_A_B_C_BrStand_Rev1.vsd					
Atoll Site Name -	CTV1140	Location Name -	EAST WINDSOR WATER TANK	Market -	CONNECTICUT	Market Cluster -	NEW ENGLAND
Comments:							

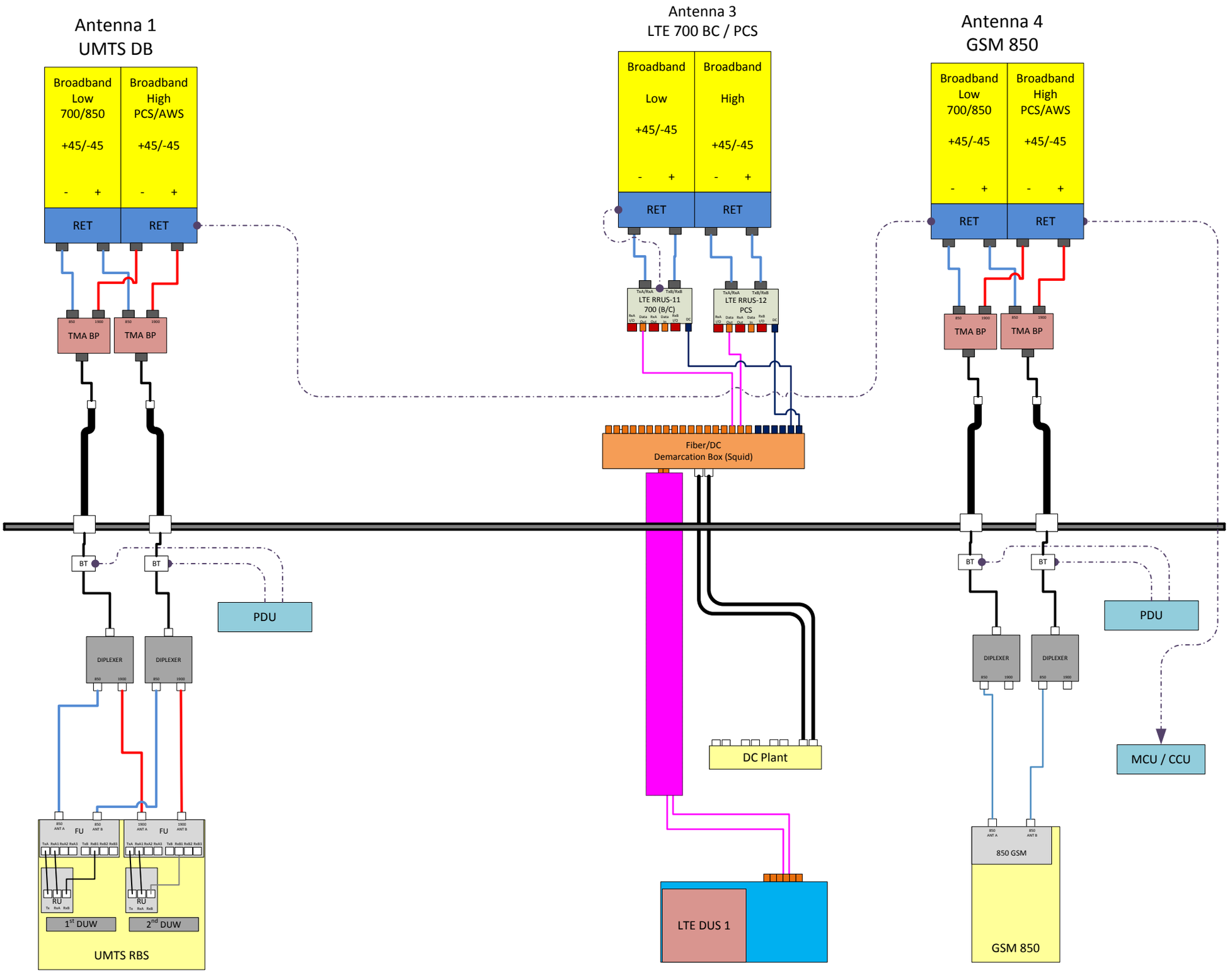


Diagram - Sector	B	Diagram File Name - CT1140_LTE2C_A_B_C_BrStand_Rev1.vsd					
Atoll Site Name -	CTV1140	Location Name -	EAST WINDSOR WATER TANK	Market -	CONNECTICUT	Market Cluster -	NEW ENGLAND
Comments:							

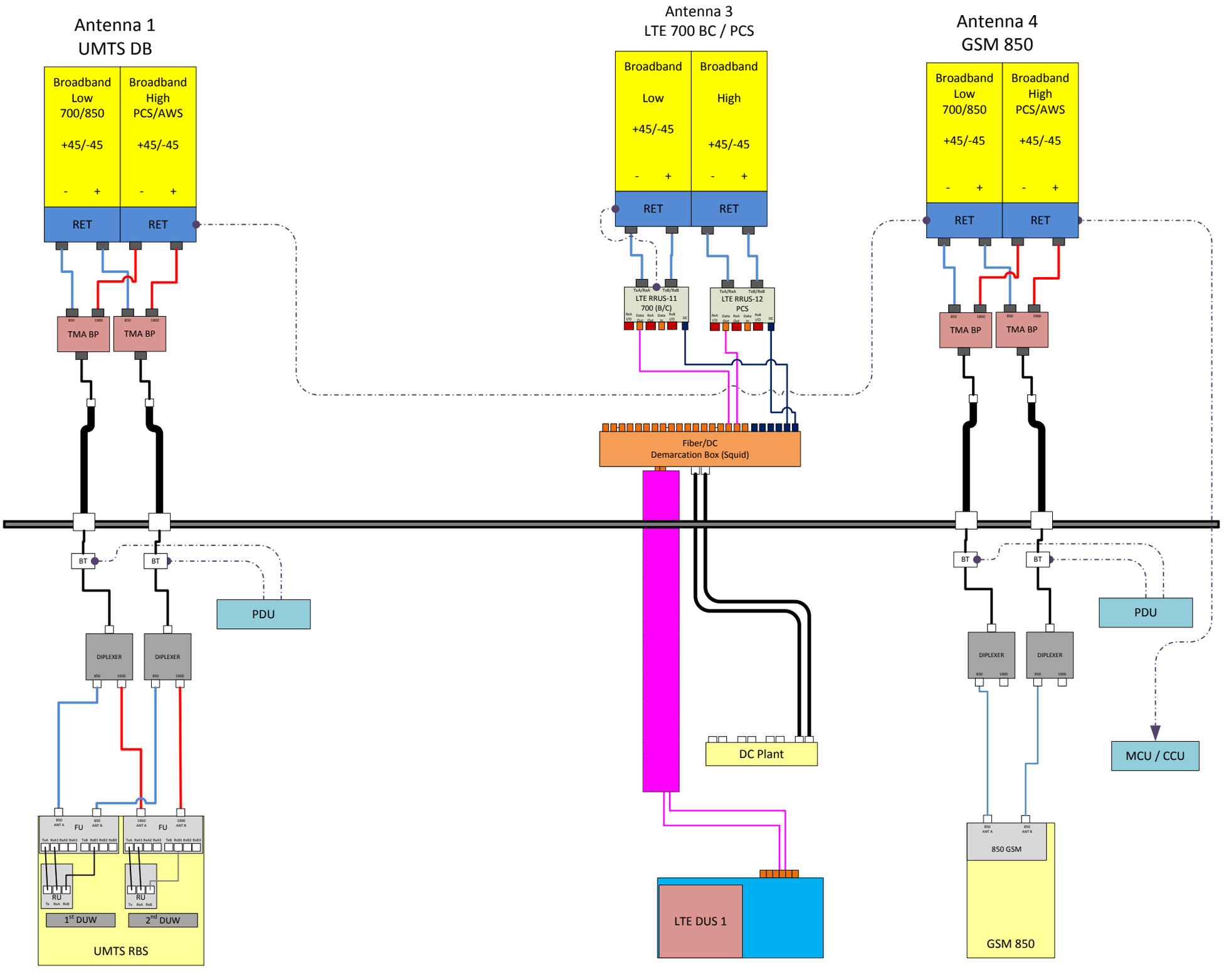
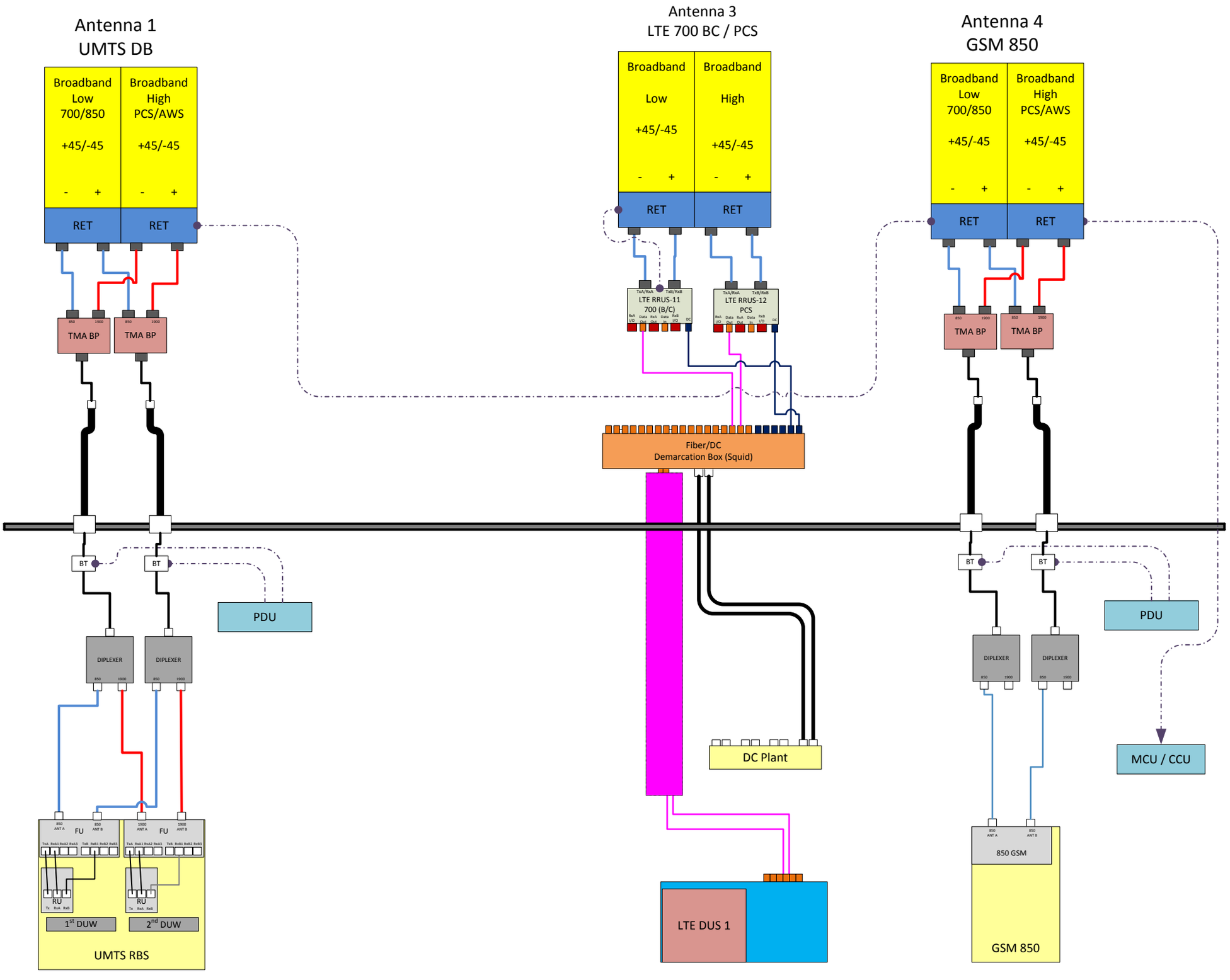


Diagram - Sector	C	Diagram File Name - CT1140_LTE2C_A_B_C_BrStand_Rev1.vsd					
Atoll Site Name -	CTV1140	Location Name -	EAST WINDSOR WATER TANK	Market -	CONNECTICUT	Market Cluster -	NEW ENGLAND
Comments:							



NOTES			
Date Time (Central)	Version	ATTUID	Note
3/22/2016 9:15:14 AM	1.00	dr701e	Updated RFDS with PACE number
6/22/2016 5:54:07 PM	1.00	mm093q	Updated with PD attached.

WORKFLOW SUMMARY						
Date	FROM State / Status	FROM ATTUID	TO State / Status	TO ATTUID	Operation	Comments
03/29/2016	Preliminary / In Progress	mm093q	Preliminary / Submitted for Approval	AB014M	Promote	LTE 2C Preliminary RFDS.
04/14/2016	Preliminary / Submitted for Approval	AB014M	Preliminary / Approved	BG144B	Promote	
05/16/2016	Preliminary / Approved	BG144B	Final / RF Approval	om636a	Promote	CoP // Add missing PD
06/24/2016	Final / RF Approval	om636a	Final / RF Approval	MM093Q	Re-Assign	
06/24/2016	Final / RF Approval	MM093Q	Final / Approved	AB014M	Promote	RFDS Final - COP Pd Attached
07/06/2016	Final / Approved	AB014M	As Built / In Progress	jk0520	Promote	

EBI Consulting
environmental | engineering | due diligence

RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

AT&T Existing Facility

Site ID: CT1140

East Windsor
50 Plantation Road
East Windsor, CT 06016

September 20, 2016

EBI Project Number: 6216003999

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	4.70 %

21 B Street · Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

September 20, 2016

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

Emissions Analysis for Site: **CT1140 – East Windsor**

EBI Consulting was directed to analyze the proposed AT&T facility located at **50 Plantation Road, East Windsor, 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 public 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 public 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.

Public 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 done for the proposed AT&T Wireless antenna facility located at **50 Plantation Road, East Windsor, 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.

For all calculations, all equipment was calculated using the following assumptions:

1) 2 UMTS channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 2 UMTS channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

3) 2 LTE channels (700 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

4) 2 LTE channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

5) 2 GSM channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

6) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. 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. This is rarely the case, and if so, is never continuous.

7) For the following calculations the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

8) The antennas used in this modeling are the **Powerwave 7770, Powerwave P65-17-XLH-RR and the KMW AM-X-CD-16-65-00T-RET** for transmission in the 700 MHz, 850 MHz and 1900 MHz (PCS) 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.

9) The antenna mounting height centerlines of the proposed antennas are **114 & 113 feet** above ground level (AGL) for **Sector A**, **114 & 113 feet** above ground level (AGL) for **Sector B** and **114 & 113 feet** above ground level (AGL) for Sector C.

10) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

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

AT&T Site Inventory and Power Data by Antenna

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	Powerwave 7770	Make / Model:	Powerwave 7770	Make / Model:	Powerwave 7770
Gain:	11.4 / 13.4 dBd	Gain:	11.4 / 13.4 dBd	Gain:	11.4 / 13.4 dBd
Height (AGL):	**114 feet**	Height (AGL):	**114 feet**	Height (AGL):	**114 feet**
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	120 Watts	Total TX Power(W):	120 Watts	Total TX Power(W):	120 Watts
ERP (W):	2,140.89	ERP (W):	2,140.89	ERP (W):	2,140.89
Antenna A1 MPE%	**0.85 %**	Antenna B1 MPE%	**0.85 %**	Antenna C1 MPE%	**0.85 %**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Powerwave P65-17-XLH-RR	Make / Model:	Powerwave P65-17-XLH-RR	Make / Model:	KMW AM-X-CD-16-65-00T-RET
Gain:	14.3 / 15.1 dBd	Gain:	14.3 / 15.1 dBd	Gain:	13.35 / 15.25 dBd
Height (AGL):	**113 feet**	Height (AGL):	**113 feet**	Height (AGL):	**113 feet**
Frequency Bands	700 MHz / 1900 MHz (PCS)	Frequency Bands	700 MHz / 1900 MHz (PCS)	Frequency Bands	700 MHz / 1900 MHz (PCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	240 Watts	Total TX Power(W):	240 Watts	Total TX Power(W):	240 Watts
ERP (W):	7,112.97	ERP (W):	7,112.97	ERP (W):	6,614.85
Antenna A2 MPE%	**3.39 %**	Antenna B2 MPE%	**3.39 %**	Antenna C2 MPE%	**3.01 %**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Powerwave 7770	Make / Model:	Powerwave 7770	Make / Model:	Powerwave 7770
Gain:	11.4 dBd	Gain:	11.4 dBd	Gain:	11.4 dBd
Height (AGL):	**114 feet**	Height (AGL):	**114 feet**	Height (AGL):	**114 feet**
Frequency Bands	850 MHz	Frequency Bands	850 MHz	Frequency Bands	850 MHz
Channel Count	2	Channel Count	2	Channel Count	2
Total TX Power(W):	60 Watts	Total TX Power(W):	60 Watts	Total TX Power(W):	60 Watts
ERP (W):	828.23	ERP (W):	828.23	ERP (W):	828.23
Antenna A3 MPE%	**0.45 %**	Antenna B3 MPE%	**0.45 %**	Antenna C3 MPE%	**0.45 %**

Site Composite MPE%	
Carrier	**MPE%**
AT&T – Max per sector	**4.70 %**
Sprint	0.00 %
Clearwire	0.00 %
T-Mobile	0.00 %
Site Total MPE %:	**4.70 %**

AT&T Sector A Total:	4.70 %
AT&T Sector B Total:	4.70 %
AT&T Sector C Total:	4.31 %
Site Total:	4.70 %

AT&T _ Frequency Band / Technology	# 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	2	414.12	114	2.55	850 MHz	567	0.45%
AT&T 1900 MHz (PCS) UMTS	2	656.33	114	4.05	1900 MHz (PCS)	1000	0.40%
AT&T 700 MHz LTE	2	1,614.92	113	10.14	700 MHz	467	2.17%
AT&T 1900 MHz (PCS) LTE	2	1,941.56	113	12.19	1900 MHz (PCS)	1000	1.22%
AT&T 850 MHz GSM	2	414.12	114	2.55	850 MHz	567	0.45%
						Total*:	4.70%

*NOTE: Totals may vary by .01% due to summing of remainders

Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general public 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 public exposure to RF Emissions are shown here:

AT&T Sector	Power Density Value (%)
Sector A:	4.70 %
Sector B:	4.70 %
Sector C:	4.31 %
AT&T Maximum Total (per sector):	4.70 %
Site Total:	4.70 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **4.70 %** of the allowable FCC established general public 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.