



November 18, 2016

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

Regarding: Notice of Exempt Modification – RRH Installation
Property Address: 100 Reef Road, Fairfield, CT 06824
AT&T Site: CT5022

Dear Ms. Bachman:

AT&T currently maintains a wireless telecommunications facility on an existing 145-foot monopole at the above-referenced address, latitude 41.1396919, longitude -73.2577989. Said monopole is owned by the Town of Fairfield.

AT&T desires to modify its existing telecommunications facility by swapping (3) three remote-radio heads (“RRHs”). The centerline height of the existing antennas is and will remain at 130 feet.

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

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

1. The planned modification will not result in an increase in the height of the existing structure. The remote-radio heads to be swapped will be installed at the existing height of 130 feet on the 145-foot monopole.
2. The proposed modifications will not involve any changes to ground-mounted equipment, and therefore will not require an extension of the site boundary.
3. The proposed modification will not increase the noise level at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the modified facility will not increase radio frequency (RF) emissions at the facility to a level at or above Federal Communications Commission (FCC) safety standard. An RF emissions calculation (enclosed) for AT&T's modified facility is herein provided.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support AT&T's proposed modifications (please see enclosed structural analysis completed by Destek Engineering, LLC dated October 17, 2016).

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

Sincerely,

Jennifer Iliades

Jennifer Iliades
Site Acquisition Specialist

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

cc: Michael C. Tetreau, First Selectman, Town of Fairfield (municipality and landowner)
Office of the Town Attorney, Town of Fairfield (municipality and landowner)

Exhibit 1

100 REEF ROAD

Location 100 REEF ROAD

Mblu 182/ 670/ / /

Acct# 05288

Owner FAIRFIELD TOWN OF

Assessment \$4,450,390

Appraisal \$6,357,700

PID 16390

Building Count 2

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2015	\$4,826,700	\$1,531,000	\$6,357,700
Assessment			
Valuation Year	Improvements	Land	Total
2015	\$3,378,690	\$1,071,700	\$4,450,390

Owner of Record

Owner FAIRFIELD TOWN OF

Sale Price \$0

Co-Owner

Certificate

Address 725 OLD POST ROAD
FAIRFIELD, CT 06824

Book & Page 137/ 640

Sale Date

Ownership History

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

Building Information

Building 1 : Section 1

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

Building Photo

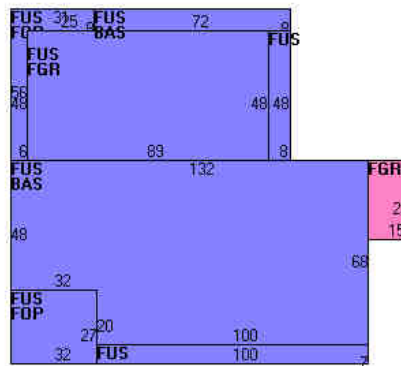
Building Attributes	
Field	Description
STYLE	Police Station
MODEL	Ind/Comm

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



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

Building Layout



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

Building 2 : Section 1

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

Building Attributes : Bldg 2 of 2	
Field	Description
STYLE	Office
MODEL	Ind/Comm
Stories:	2
Occupancy	1

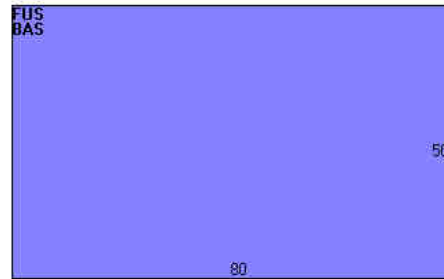
Building Photo

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



(<http://images.vgsi.com/photos/FairfieldCTPhotos//\00\00\14\66.jpg>)

Building Layout



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

Extra Features

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

Land

Land Use

Use Code 9031

Land Line Valuation

Size (Acres) 1.50

Description Police Dept
Zone R3
Neighborhood C3
Alt Land Appr No
Category

Depth 0
Assessed Value \$1,071,700
Appraised Value \$1,531,000

Outbuildings

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

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2015	\$4,826,700	\$1,531,000	\$6,357,700
2014	\$3,157,900	\$1,420,700	\$4,578,600
2013	\$3,157,900	\$1,420,700	\$4,578,600

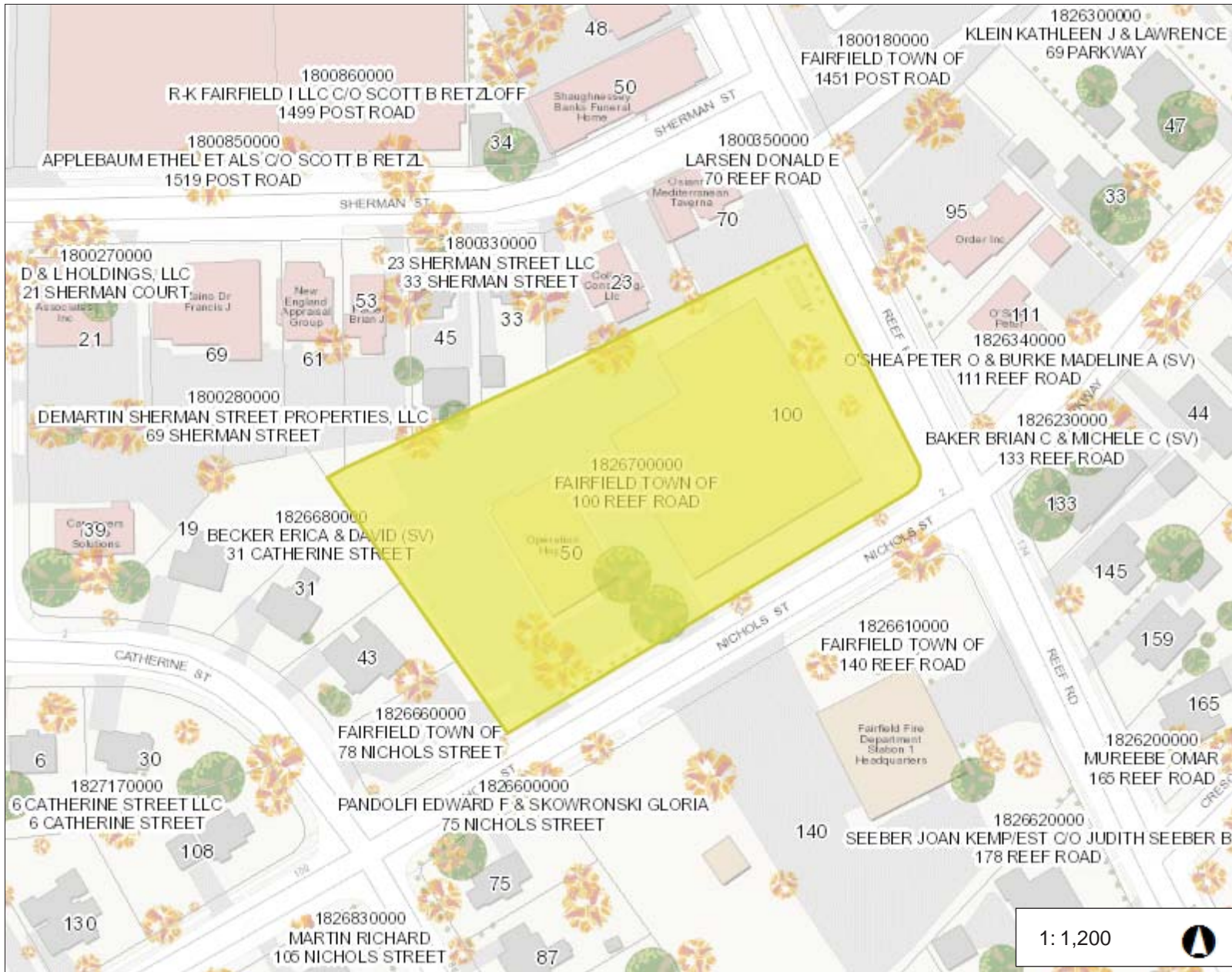
Assessment			
Valuation Year	Improvements	Land	Total
2015	\$3,378,690	\$1,071,700	\$4,450,390
2014	\$2,210,530	\$994,490	\$3,205,020
2013	\$2,210,530	\$994,490	\$3,205,020

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Town of Fairfield

Title



Legend

Parcels

1:1,200



WGS_1984_Web_Mercator_Auxiliary_Sphere
Created by Greater Bridgeport Regional Council

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

THIS MAP IS NOT TO BE USED FOR NAVIGATION



Exhibit 2

PROJECT INFORMATION

SCOPE OF WORK: • AT&T ANTENNAS: (3) EXISTING ANTENNAS PER SECTOR FOR 3 SECTORS, FOR A TOTAL OF (9) EXISTING ANTENNAS TO REMAIN.
 • AT&T RRUS: (1) NEW RRUS PER SECTOR WITH (3) SECTORS, FOR A TOTAL OF (3) NEW RRUS; (1) EXISTING RRU PER SECTOR TO BE REUSED, FOR A TOTAL OF (3) EXISTING RRUS; (1) EXISTING RRU PER SECTOR TO BE REMOVED, FOR A TOTAL OF (3) EXISTING RRUS.

SITE ADDRESS: 100 REEF ROAD
 FAIRFIELD, CT 06824

LATITUDE: 41.1396919 41°-08'-22.89"N
 LONGITUDE: -73.2577989 73°-15'-28.076"W

USID: 4522

TOWER OWNER: TBD

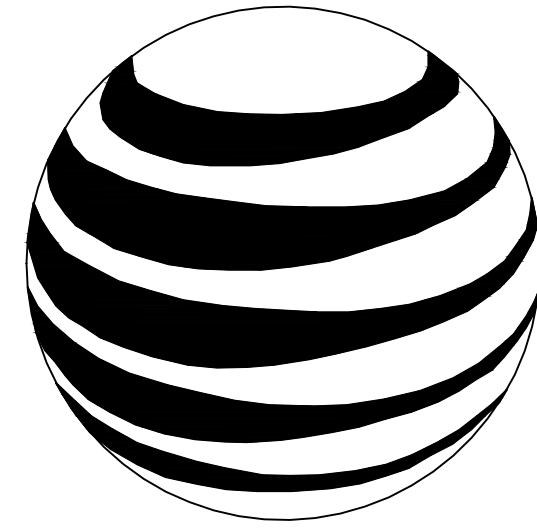
TYPE OF SITE: MONOPOLE/INDOOR EQUIPMENT ON ROOF

MONOPOLE HEIGHT: 145'-0"±

RAD CENTER: 130'-0"±

CURRENT USE: UNMANNED WIRELESS TELECOMMUNICATIONS FACILITY

PROPOSED USE: UNMANNED WIRELESS TELECOMMUNICATIONS FACILITY



at&t
MOBILITY

FA CODE: 10108711
SITE NUMBER: CT5022
SITE NAME: AWE - FAIRFIELD
BUN# 851939

PROJECT TEAM

CLIENT REPRESENTATIVE

COMPANY: EMPIRE TELECOM
 ADDRESS: 16 ESQUIRE ROAD
 BILLERICA, MA 01821
 CONTACT: DAVID COOPER
 PHONE: 617-639-4908
 EMAIL: dcooper@empiretelecomm.com

SITE ACQUISITION:

COMPANY: EMPIRE TELECOM
 ADDRESS: 16 ESQUIRE ROAD
 BILLERICA, MA 01821
 CONTACT: DAVID COOPER
 PHONE: 617-639-4908
 EMAIL: dcooper@empiretelecomm.com

ZONING:

COMPANY: EMPIRE TELECOM
 ADDRESS: 16 ESQUIRE ROAD
 BILLERICA, MA 01821
 CONTACT: DAVID COOPER
 PHONE: 617-639-4908
 EMAIL: dcooper@empiretelecomm.com

ENGINEERING:

COMPANY: COM-EX CONSULTANTS, LLC
 ADDRESS: 115 ROUTE 46
 SUITE E39
 MOUNTAIN LAKES, NJ 07046
 CONTACT: NICHOLAS D. BARILE, P.E.
 PHONE: 862-209-4300
 EMAIL: nbarile@comexconsultants.com

RF ENGINEER:

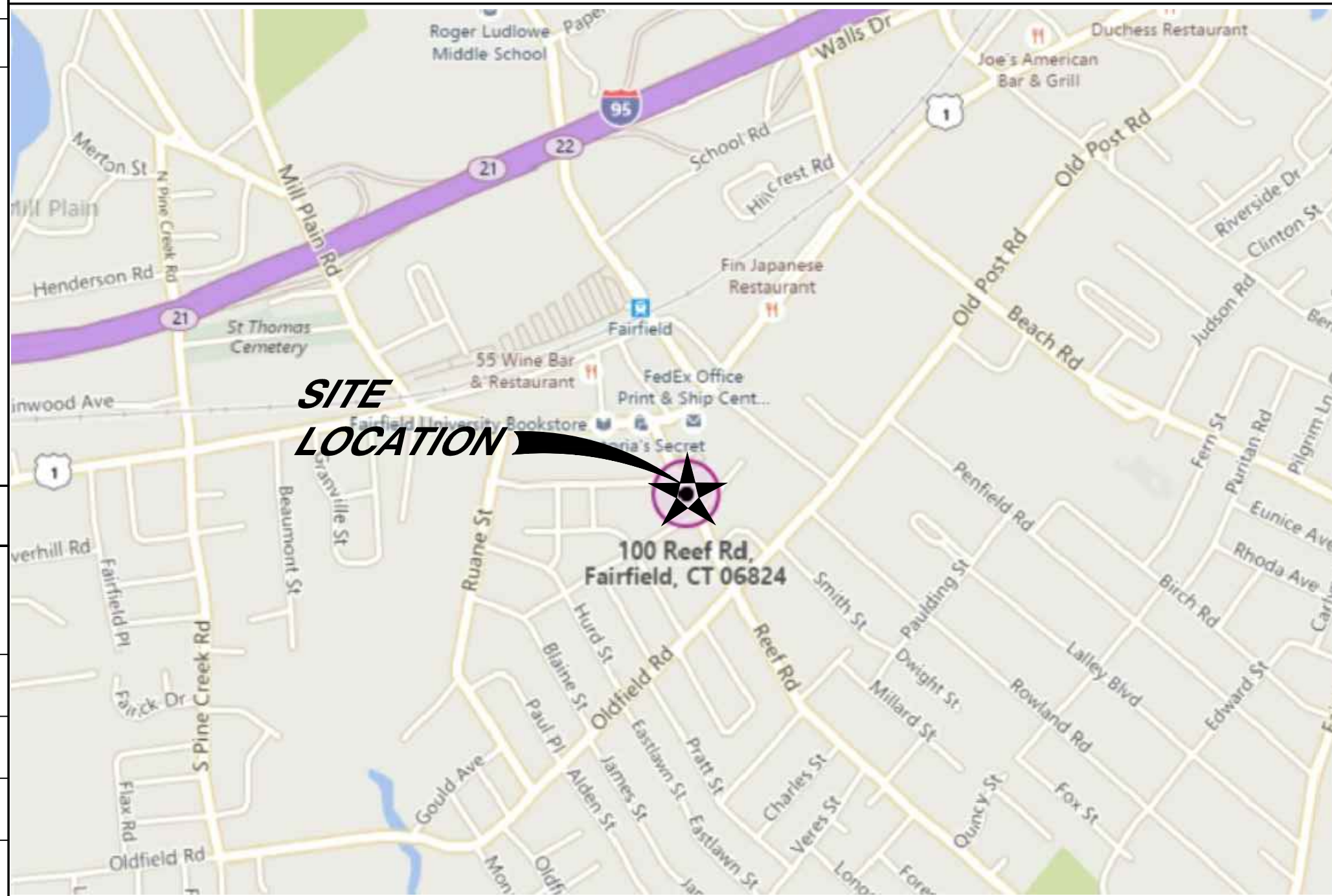
COMPANY: AT&T MOBILITY - NEW ENGLAND
 ADDRESS: 550 COCHITUATE ROAD
 SUITE 550 13 & 14
 FRAMINGHAM, MA 01701
 CONTACT: CAMERON SYME
 PHONE: 508-596-7146
 EMAIL: cs6970@att.com

CONSTRUCTION MANAGEMENT:

COMPANY: EMPIRE TELECOM
 ADDRESS: 16 ESQUIRE ROAD
 BILLERICA, MA 01821
 CONTACT: GRZEGORZ "GREG" DORMAN
 PHONE: 484-683-1750
 EMAIL: gdorman@empiretelecomm.com

VICINITY MAP

START OUT GOING NE ON ENTERPRISE DR TOWARD CAPITOL BLVD. TURN LEFT ONTO CAPITOL BLVD. TURN LEFT ONTO WEST ST. MERGE ONTO I-91 S VIA THE RAMP ON THE LEFT TOWARD NEW HAVEN. MERGE ONTO I-95S/GOVERNOR JOHN DAVIS LODGE TURNPIKE VIA THE EXIT ON THE LEFT TOWARD N.Y. CITY. TAKE THE CT-135/N BENSON ROAD EXIT, EXIT 22. TURN LEFT ONTO N BENSON RD/CT-135. TURN RIGHT ONTO POST RD/US-1. TURN LEFT ONTO REEF RD. 100 REEF RD IS ON THE RIGHT.



DRAWING INDEX

REV.

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A-1	PARTIAL ROOFTOP LAYOUT	0
A-2	EQUIPMENT LAYOUTS	0
A-3	ANTENNA LAYOUTS & ELEVATIONS	0
A-4	DETAILS	0
G-1	GROUNDING, ONE-LINE DIAGRAM & DETAILS	0

APPROVALS

THE FOLLOWING PARTIES HEREBY APPROVE AND ACCEPT THESE DOCUMENTS AND AUTHORIZE THE SUBCONTRACTOR TO PROCEED WITH THE CONSTRUCTION DESCRIBED HEREIN, ALL DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT AND MAY IMPOSE CHANGES OR SITE MODIFICATIONS.

DISCIPLINE:	NAME:	DATE:
SITE ACQUISITION:		
CONSTRUCTION MANAGER:		
AT&T PROJECT MANAGER:		

GENERAL NOTES

- THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY, AND COPYRIGHTED WORK OF AT&T. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.
- THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
- CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE AT&T REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.



CONNECTICUT LAW REQUIRES TWO WORKING DAYS NOTICE PRIOR TO ANY EARTH MOVING ACTIVITIES BY CALLING 800-922-4455 OR DIAL 811



SITE NUMBER: CT5022
SITE NAME: AWE - FAIRFIELD

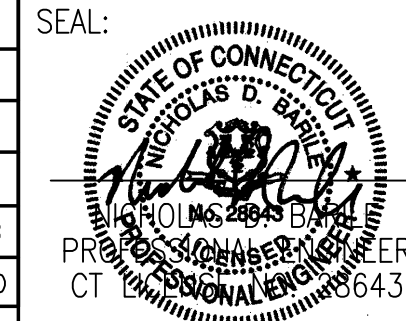
100 REEF ROAD
 FAIRFIELD, CT 06824
 FAIRFIELD COUNTY



550 COCHITUATE ROAD
 FRAMINGHAM, MA 01701

0	11/11/16	ISSUED AS FINAL	NJM	NDB	NDB
NO.	DATE	REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN		DESIGNED BY: NJM	DRAWN BY: NJM		

SEAL:



AT&T		
DRAWING TITLE: TITLE SHEET		
JOB NUMBER 16060-EMP	DRAWING NUMBER T-1	REV 0

GROUNDING NOTES:

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.
2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS. TESTS SHALL BE PERFORMED IN ACCORDANCE WITH 25471-000-3PS-EG00-0001, DESIGN & TESTING OF FACILITY GROUNDING FOR CELL SITES.
4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS; 2 AWG STRANDED COPPER FOR OUTDOOR BTS.
6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED WITH STAINLESS STEEL HARDWARE TO THE BRIDGE AND THE TOWER GROUND BAR.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
11. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
12. GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G., NON-METALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
13. ALL TOWER GROUNDING SYSTEMS SHALL COMPLY WITH THE REQUIREMENTS OF ANSI/TIA 222. FOR TOWERS BEING BUILT TO REV-G OF THE STANDARD, THE WIRE SIZE OF THE BURIED GROUND RING AND CONNECTIONS BETWEEN THE TOWER AND THE BURIED GROUND RING SHALL BE CHANGED FROM 2 AWG TO 2/0 AWG. IN ADDITION, THE MINIMUM LENGTH OF THE GROUND RODS SHALL BE INCREASED FROM EIGHT FEET (8') TO TEN FEET (10').
14. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE 1/2" OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID TINNED COPPER GROUND WIRE, PER NEC 250.50.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
 CONTRACTOR - EMPIRE TELECOM
 SUBCONTRACTOR - GENERAL CONTRACTOR (CONSTRUCTION)
 OWNER - AT&T MOBILITY
 OEM - ORIGINAL EQUIPMENT MANUFACTURER
2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR (EMPIRE TELECOM).
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
6. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
7. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.
8. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR. ROUTING OF TRENCHING SHALL BE APPROVED BY CONTRACTOR
9. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
10. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OFF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
11. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
12. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.
13. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS UNLESS OTHERWISE SPECIFIED. ALL CONCRETING WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.
14. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy=36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCH UP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
15. CONSTRUCTION SHALL COMPLY WITH SPECIFICATION 25741-000-3APS-A00Z-00002, "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T MOBILITY SITES."
16. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
17. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK MAY NEED TO BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
18. SINCE THE CELL SITE MAY BE ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE REQUIRED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

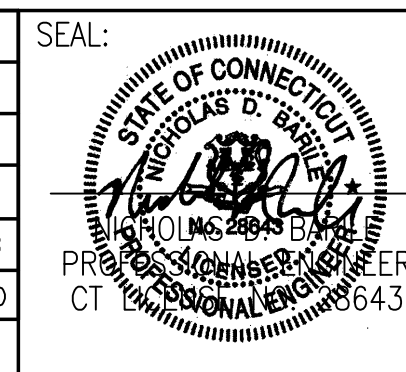
19. SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.
 - INTERNATIONAL BUILDING CODE: IBC 2009 WITH LOCAL & COUNTY AMENDMENTS
 - NATIONAL ELECTRICAL CODE: NEC 2011 WITH LOCAL & COUNTY AMENDMENTS
 - FIRE/LIFE SAFETY CODE: NFPA-101 2009 WITH LOCAL & COUNTY AMENDMENTS
20. SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:
 - AMERICAN CONCRETE INSTITUTE (ACI) 318, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
 - AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC), MANUAL OF STEEL CONSTRUCTION, THIRTEENTH EDITION
 - AMERICAN SOCIETY OF TESTING OF MATERIALS, ASTM
 - TELECOMMUNICATIONS INDUSTRY ASSOCIATION (ANSI/TIA-222-G-1), STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES:
 - TIA 607, COMMERCIAL BUILDING GROUNDING AND BONDING REQUIREMENTS FOR TELECOMMUNICATIONS
 - OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION, OSHA
 - INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE) 81, GUIDE FOR MEASURING EARTH RESISTIVELY, GROUND IMPEDANCE, AND EARTH SURFACE POTENTIALS OF A GROUND SYSTEM IEEE 1100 (1999) RECOMMENDED PRACTICE FOR POWERING AND GROUNDING OF ELECTRONIC EQUIPMENT
 - TELCORDIA GR-1503, COAXIAL CABLE CONNECTIONS
21. FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.
22. 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 AND SUBMIT TO THE ENGINEER ANY DISCREPANCIES FROM THE DRAWINGS.



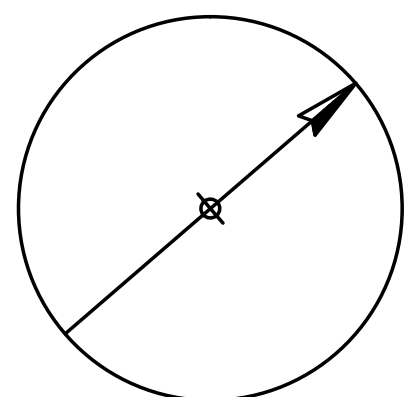
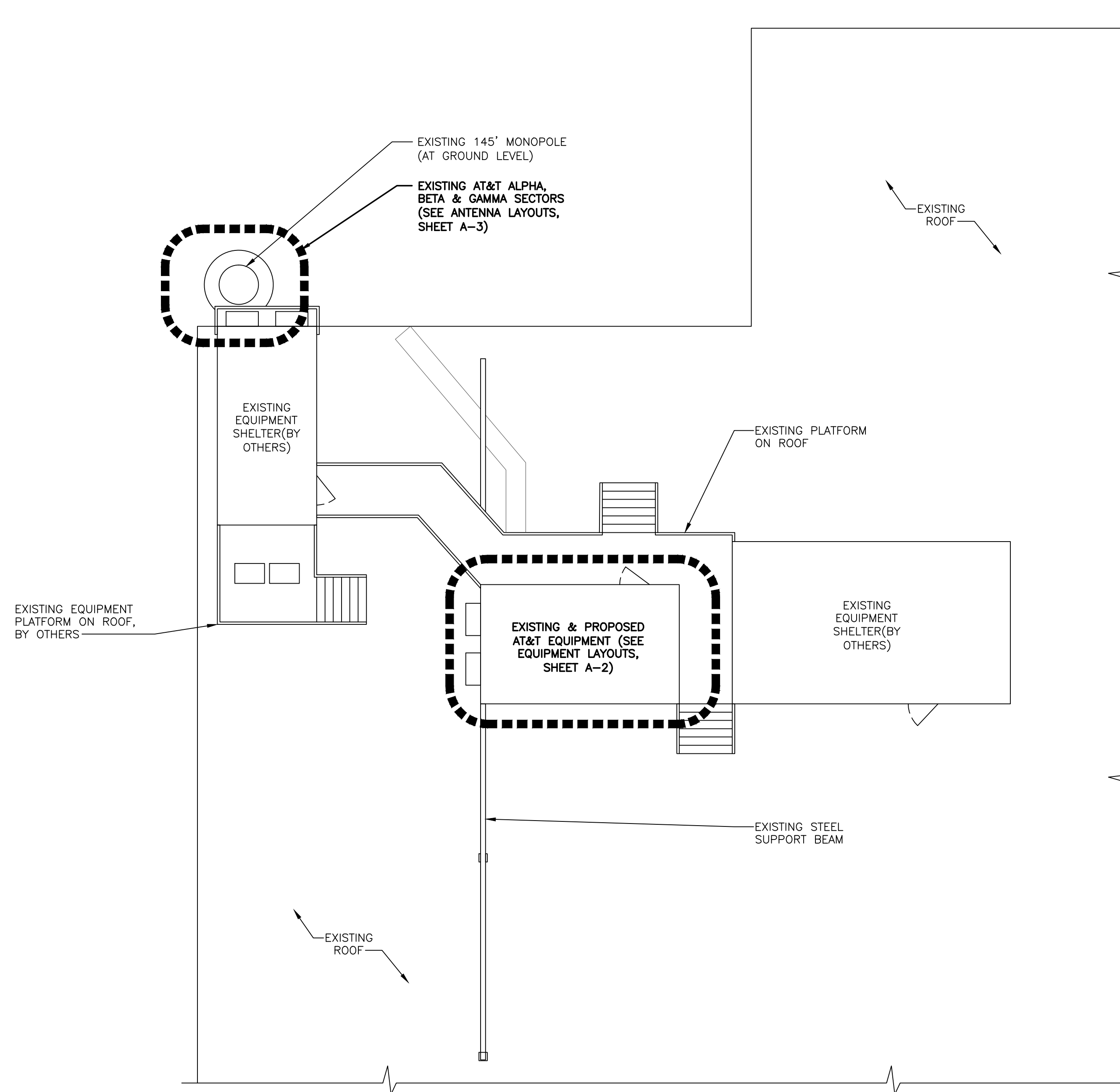
SITE NUMBER: CT5022
SITE NAME: AWE - FAIRFIELD
 100 REEF ROAD
 FAIRFIELD, CT 06824
 FAIRFIELD COUNTY



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NO.	DATE	REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN		DESIGNED BY: NJM	DRAWN BY: NJM		



AT&T		
DRAWING TITLE: GROUNDING & GENERAL NOTES		
JOB NUMBER 16060-EMP	DRAWING NUMBER GN-1	REV 0



NORTH

PARTIAL ROOFTOP LAYOUT

SCALE: 1/4" = 1'-0"



NOTE:
 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 AND SUBMIT TO THE ENGINEER ANY DISCREPANCIES FROM THE DRAWINGS.

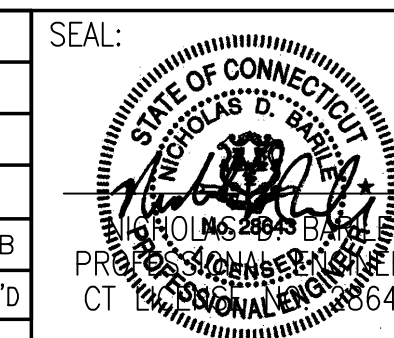
COM-EX
 Consultants
 115 ROUTE 46
 SUITE E39
 MOUNTAIN LAKES, NJ 07046
 PHONE: 862.209.4300
 FAX: 862.209.4301

EMPIRE
 telecom
 16 ESQUIRE ROAD
 BILLERICA, MA 01821

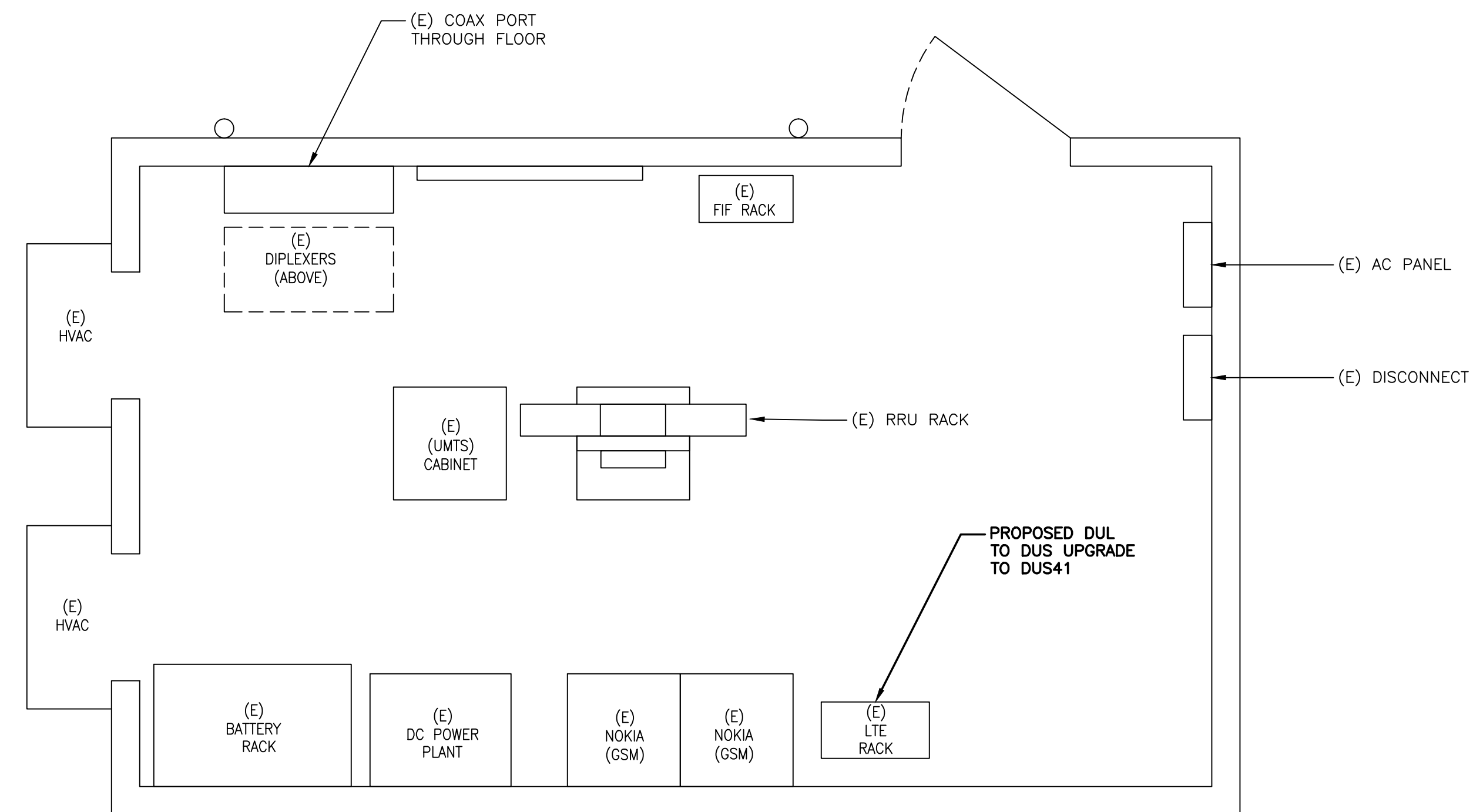
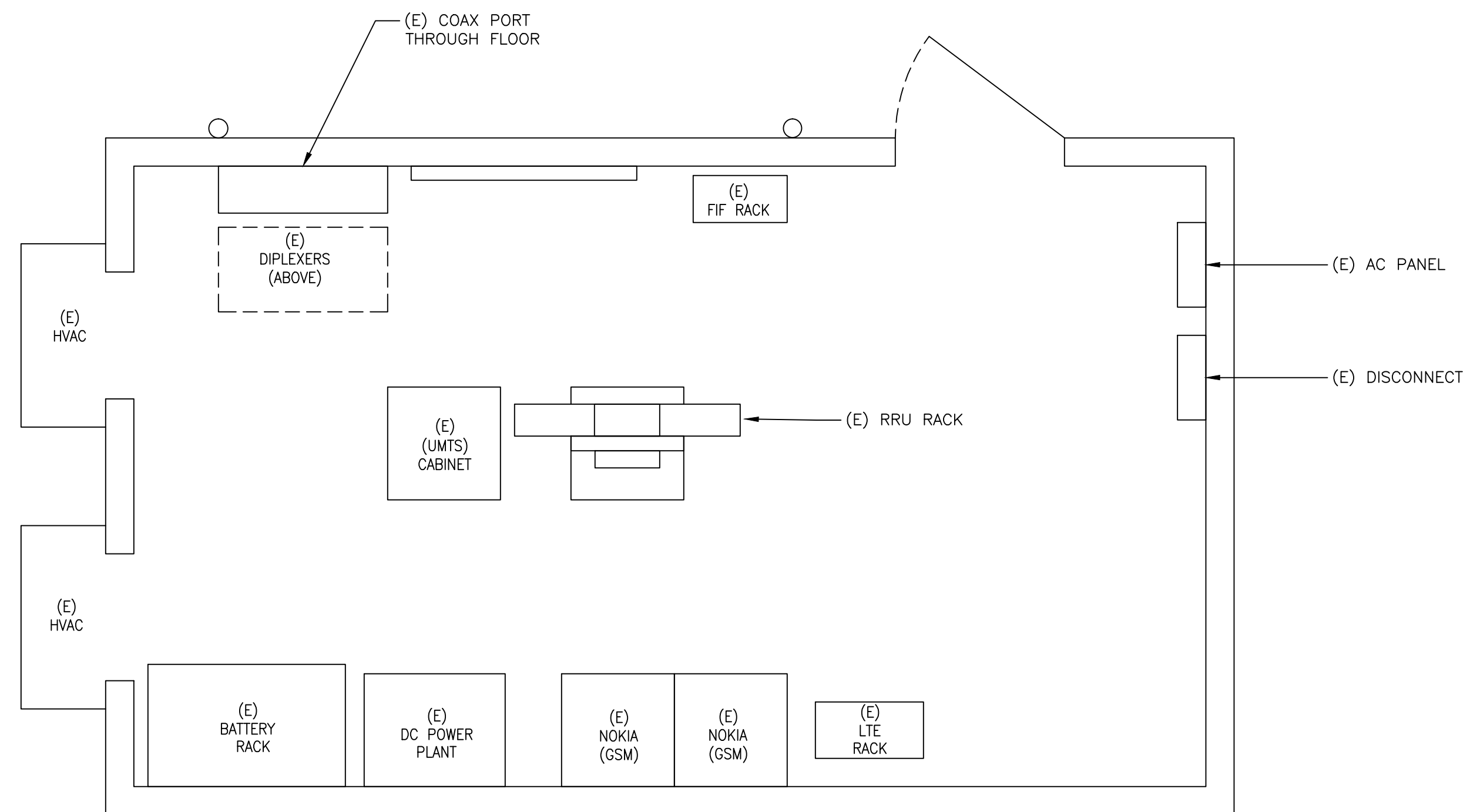
SITE NUMBER: CT5022
SITE NAME: AWE - FAIRFIELD
 100 REEF ROAD
 FAIRFIELD, CT 06824
 FAIRFIELD COUNTY

 **at&t**
 MOBILITY
 550 COCHITUATE ROAD
 FRAMINGHAM, MA 01701

0	11/11/16	ISSUED AS FINAL	NJM	NDB	NDB
NO.	DATE	REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN		DESIGNED BY: NJM	DRAWN BY: NJM		



AT&T		
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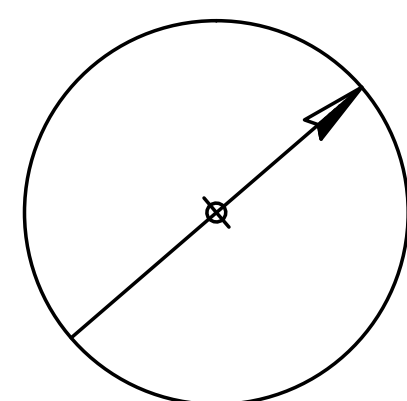


EXISTING EQUIPMENT LAYOUT

SCALE: 1" = 2'-0"



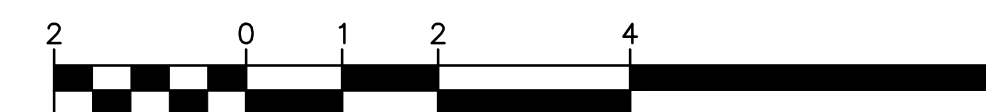
(IN FEET)
1/2 Inch = 1 Foot



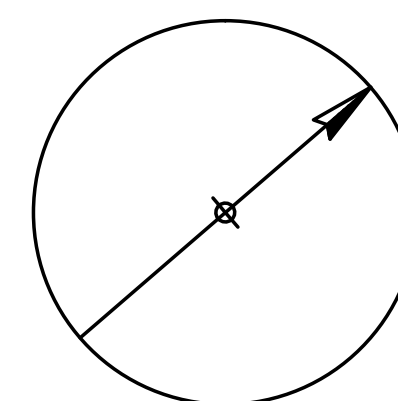
NORTH

PROPOSED EQUIPMENT LAYOUT

SCALE: 1" = 2'-0"



(IN FEET)
1/2 Inch = 1 Foot



NORTH

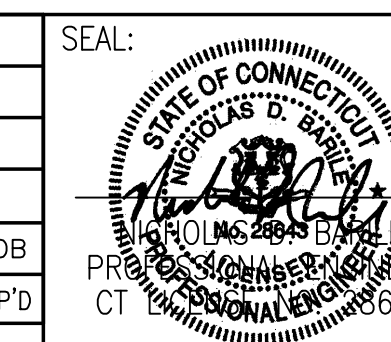
COM-EX
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115 ROUTE 46
SUITE E39
MOUNTAIN LAKES, NJ 07046
PHONE: 862.209.4300
FAX: 862.209.4301

EMPIRE
telecom
16 ESQUIRE ROAD
BILLERICA, MA 01821

SITE NUMBER: CT5022
SITE NAME: AWE - FAIRFIELD
100 REEF ROAD
FAIRFIELD, CT 06824
FAIRFIELD COUNTY

at&t
MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	11/11/16	ISSUED AS FINAL	NJM	NDB	NDB
SCALE: AS SHOWN		DESIGNED BY: NJM	DRAWN BY: NJM		



AT&T		
DRAWING TITLE: EQUIPMENT LAYOUTS		
JOB NUMBER 16060-EMP	DRAWING NUMBER A-2	REV 0

EXISTING DC-6 TO REMAIN
(TYP. 1 TOTAL)

EXISTING LTE RRUS-11 TO BE REMOVED
(TYP. 1 PER SECTOR, 3 TOTAL)

EXISTING LTE RRUS-11 TO REMAIN
(TYP. 1 PER SECTOR, 3 TOTAL)
(BELOW)

EXISTING UMTS ANTENNA TO REMAIN
(TYP. 1 PER SECTOR, 3 TOTAL)
• (2) TMAs PER SECTOR

EXISTING LTE ANTENNA TO REMAIN
(TYP. 1 PER SECTOR, 3 TOTAL)

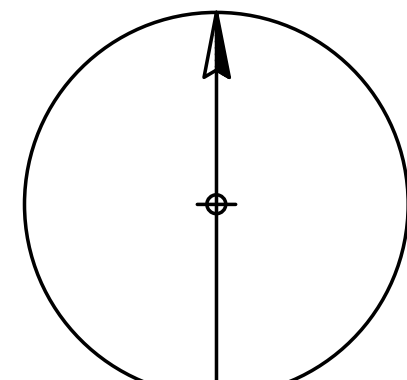
EXISTING GSM ANTENNA TO REMAIN
(TYP. 1 PER SECTOR, 3 TOTAL)
• (2) TMAs PER SECTOR

GAMMA SECTOR
270°

BETA SECTOR
135°

EXISTING ANTENNA LAYOUT

SCALE: N.T.S.



NORTH

EXISTING DC-6 TO REMAIN
(TYP. 1 TOTAL)

RRUs MOUNTED TO POLE ON EXISTING
CHAIN MOUNT (STACKED):
• (1) NEW RRUS-12 PER SECTOR
(3 TOTAL)
• (1) EXISTING RRUS-11 PER SECTOR
(3 TOTAL)

EXISTING UMTS ANTENNA TO REMAIN
(TYP. 1 PER SECTOR, 3 TOTAL)
• (2) TMAs PER SECTOR

EXISTING LTE ANTENNA TO REMAIN
(TYP. 1 PER SECTOR, 3 TOTAL)

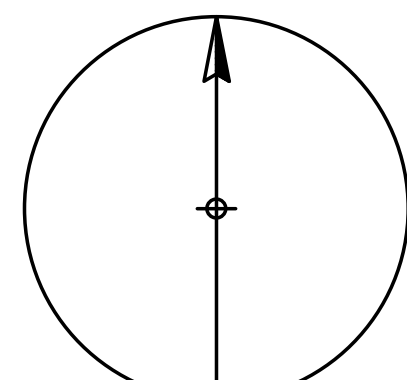
EXISTING GSM ANTENNA TO REMAIN
(TYP. 1 PER SECTOR, 3 TOTAL)
• (2) TMAs PER SECTOR

GAMMA SECTOR
270°

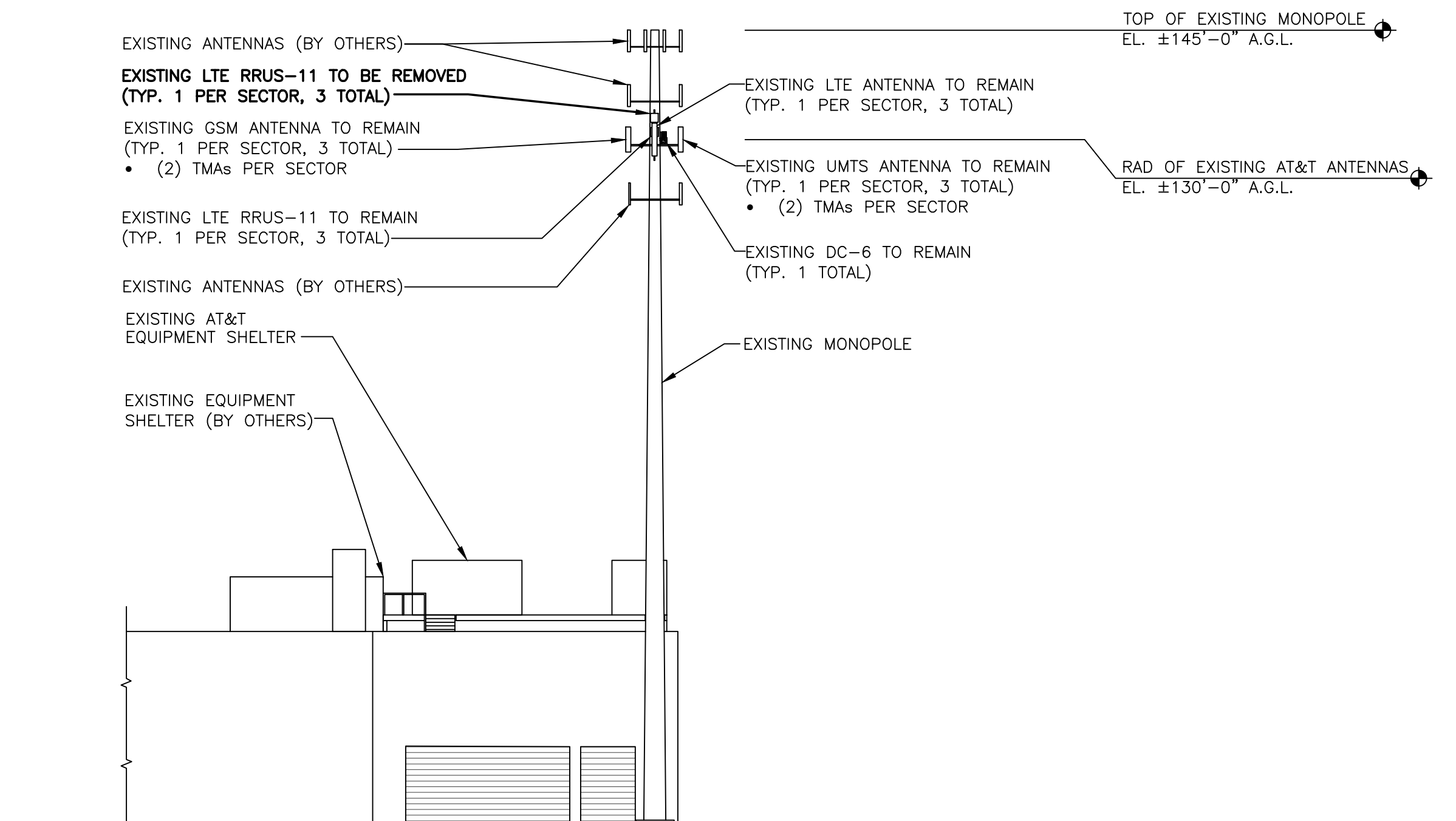
BETA SECTOR
135°

PROPOSED ANTENNA LAYOUT

SCALE: N.T.S.

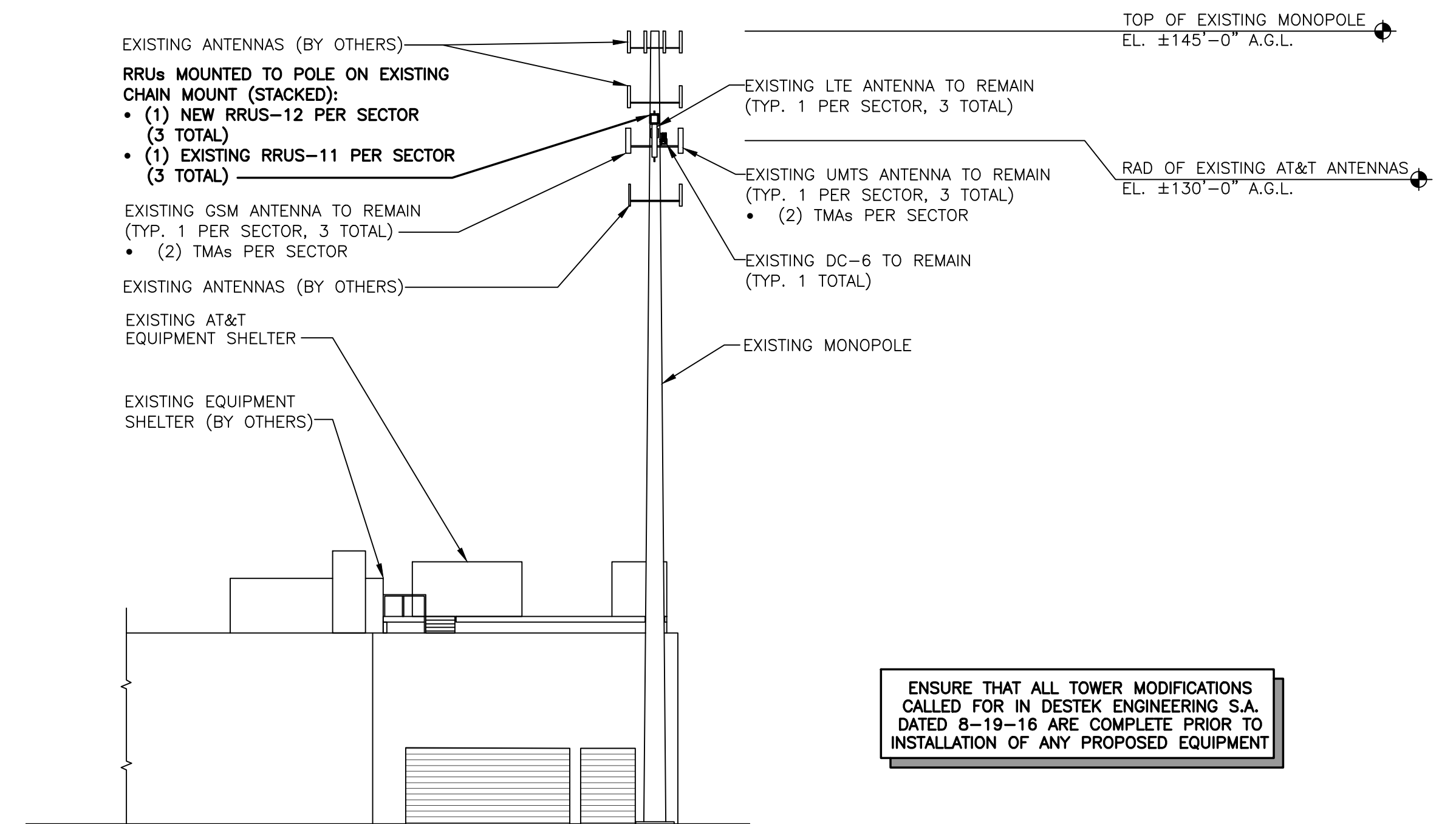


NORTH



EXISTING TOWER ELEVATION

SCALE: N.T.S.



PROPOSED TOWER ELEVATION

SCALE: N.T.S.

ENSURE THAT ALL TOWER MODIFICATIONS
CALLED FOR IN DESTEK ENGINEERING S.A.
DATED 8-19-16 ARE COMPLETE PRIOR TO
INSTALLATION OF ANY PROPOSED EQUIPMENT

PROJECT OWNER IS RESPONSIBLE FOR PROVIDING A STRUCTURAL STABILITY ANALYSIS TO DETERMINE THE CAPACITY AND SUITABILITY OF THE EXISTING ANTENNA SUPPORT STRUCTURE TO SAFELY CARRY ALL ADDITIONAL LOADS IMPOSED BY THE PROPOSED EQUIPMENT AS SHOWN HEREIN. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR INCORPORATING ANY REQUIRED STRUCTURAL MODIFICATIONS INTO THEIR SCOPE OF WORK.

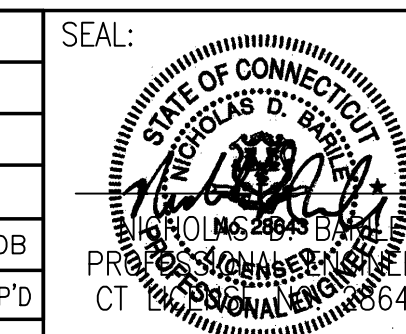
COM-EX
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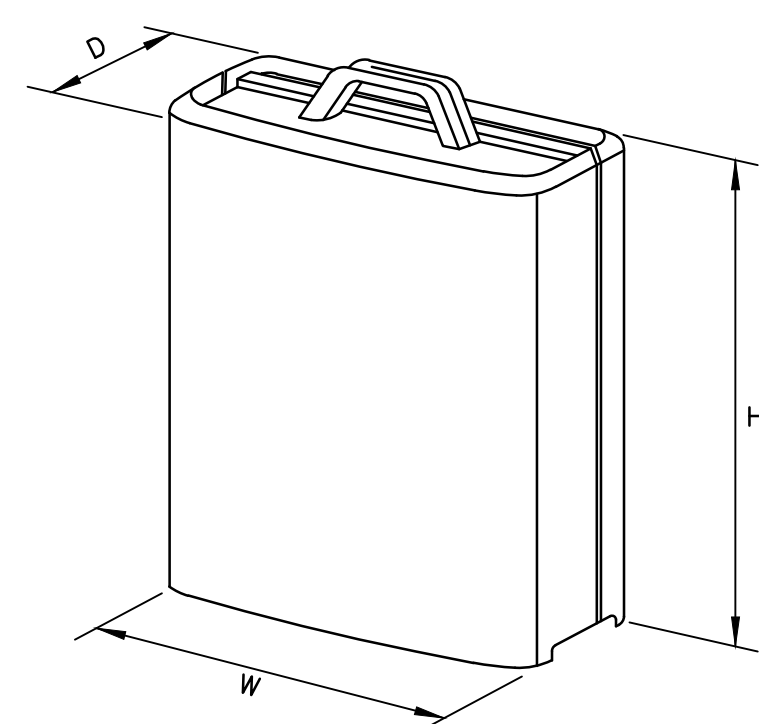
SITE NUMBER: CT5022
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FAIRFIELD COUNTY

at&t
MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

0	11/11/16	ISSUED AS FINAL	NJM	NDB	NDB
NO.	DATE	REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN		DESIGNED BY: NJM	DRAWN BY: NJM		



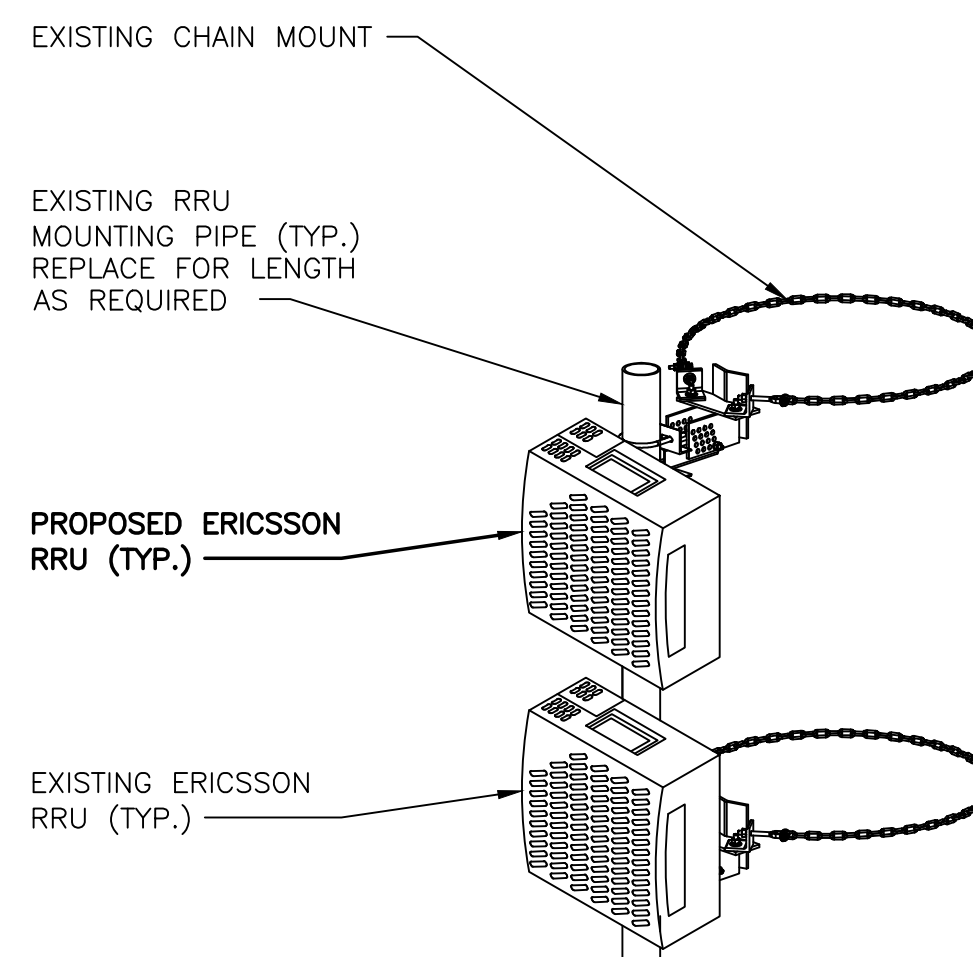
AT&T		
DRAWING TITLE: ANTENNA LAYOUTS & ELEVATIONS		
JOB NUMBER 16060-EMP	DRAWING NUMBER A-3	REV 0



MODEL	L x W x H	WEIGHT
*RRUS-11	19.69" x 16.97" x 7.17"	50.7 LBS
RRUS-12	20.4" x 18.5" x 7.5"	58 LBS

*DENOTES EXISTING.

RRUS DETAIL
SCALE: N.T.S.



RRU MOUNTING DETAIL
SCALE: N.T.S.

EXISTING ANTENNA SCHEDULE

SECTOR	POSITION	MAKE	MODEL	SIZE (INCHES)
ALPHA	A1	POWERWAVE	7770	55"x11"x5"
	A2	-	-	-
	A3	POWERWAVE	P65-16-XLH-RR	72"x12"x6"
	A4	POWERWAVE	7770	55"x11"x5"
BETA	B1	POWERWAVE	7770	55"x11"x5"
	B2	-	-	-
	B3	POWERWAVE	P65-16-XLH-RR	72"x12"x6"
	B4	POWERWAVE	7770	55"x11"x5"
GAMMA	G1	POWERWAVE	7770	55"x11"x5"
	G2	-	-	-
	G3	POWERWAVE	P65-16-XLH-RR	72"x12"x6"
	G4	POWERWAVE	7770	55"x11"x5"

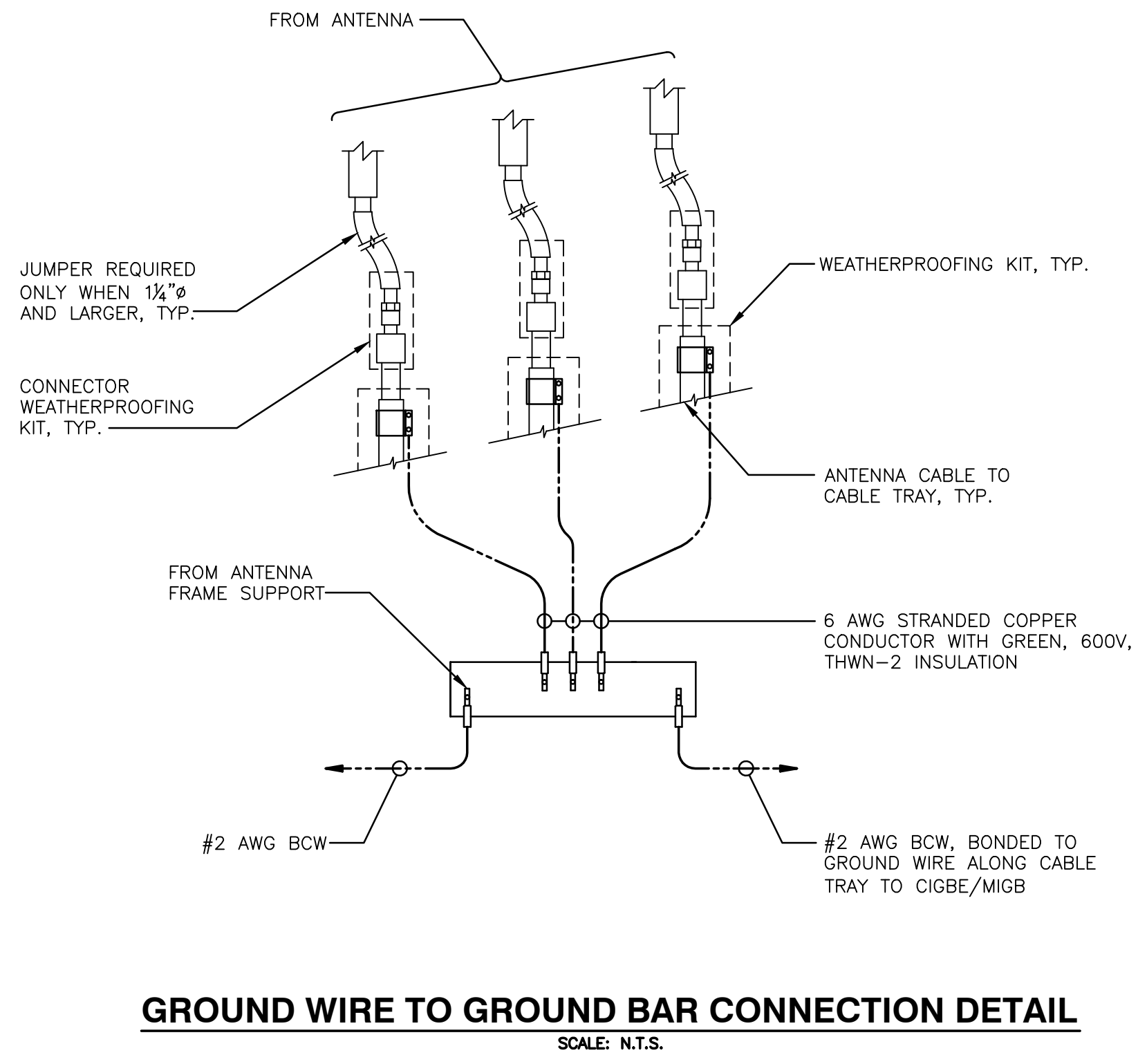
FINAL ANTENNA SCHEDULE

SECTOR	POSITION	MAKE	MODEL	SIZE (INCHES)
ALPHA	A1	POWERWAVE	7770	55"x11"x5"
	A2	-	-	-
	A3	POWERWAVE	P65-16-XLH-RR	72"x12"x6"
	A4	POWERWAVE	7770	55"x11"x5"
BETA	B1	POWERWAVE	7770	55"x11"x5"
	B2	-	-	-
	B3	POWERWAVE	P65-16-XLH-RR	72"x12"x6"
	B4	POWERWAVE	7770	55"x11"x5"
GAMMA	G1	POWERWAVE	7770	55"x11"x5"
	G2	-	-	-
	G3	POWERWAVE	P65-16-XLH-RR	72"x12"x6"
	G4	POWERWAVE	7770	55"x11"x5"

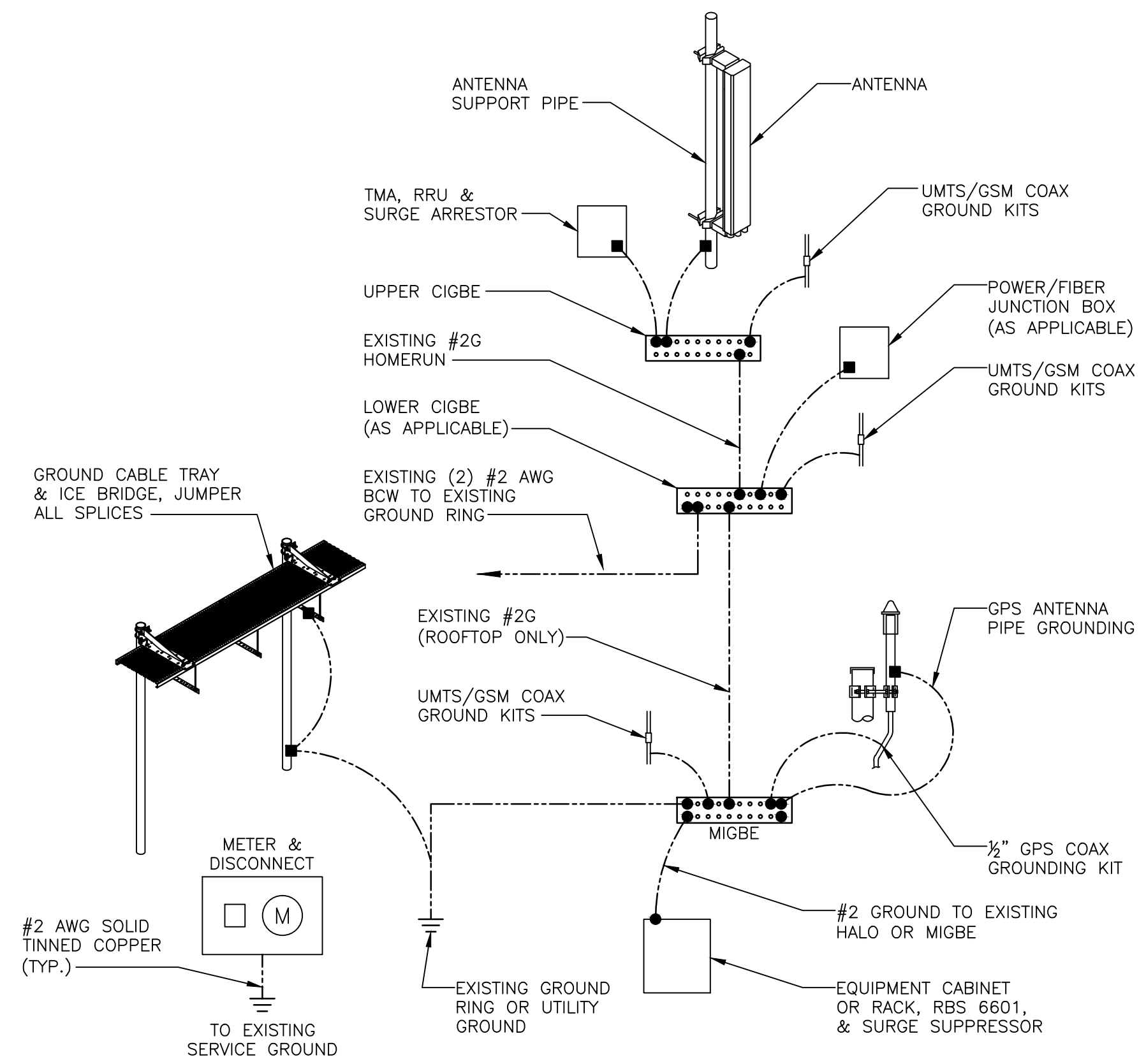
PROPOSED RRU SCHEDULE

SECTOR	MAKE	MODEL	SIZE (INCHES)	ADDITIONAL COMPONENT	SIZE (INCHES)
ALPHA	ERICSSON	RRUS-12	20.4"x18.5"x7.5"	-	-
	ERICSSON	RRUS-11 (EXISTING)	19.7"x16.9"x7.2"	-	-
BETA	ERICSSON	RRUS-12	20.4"x18.5"x7.5"	-	-
	ERICSSON	RRUS-11 (EXISTING)	19.7"x16.9"x7.2"	-	-
GAMMA	ERICSSON	RRUS-12	20.4"x18.5"x7.5"	-	-
	ERICSSON	RRUS-11 (EXISTING)	19.7"x16.9"x7.2"	-	-

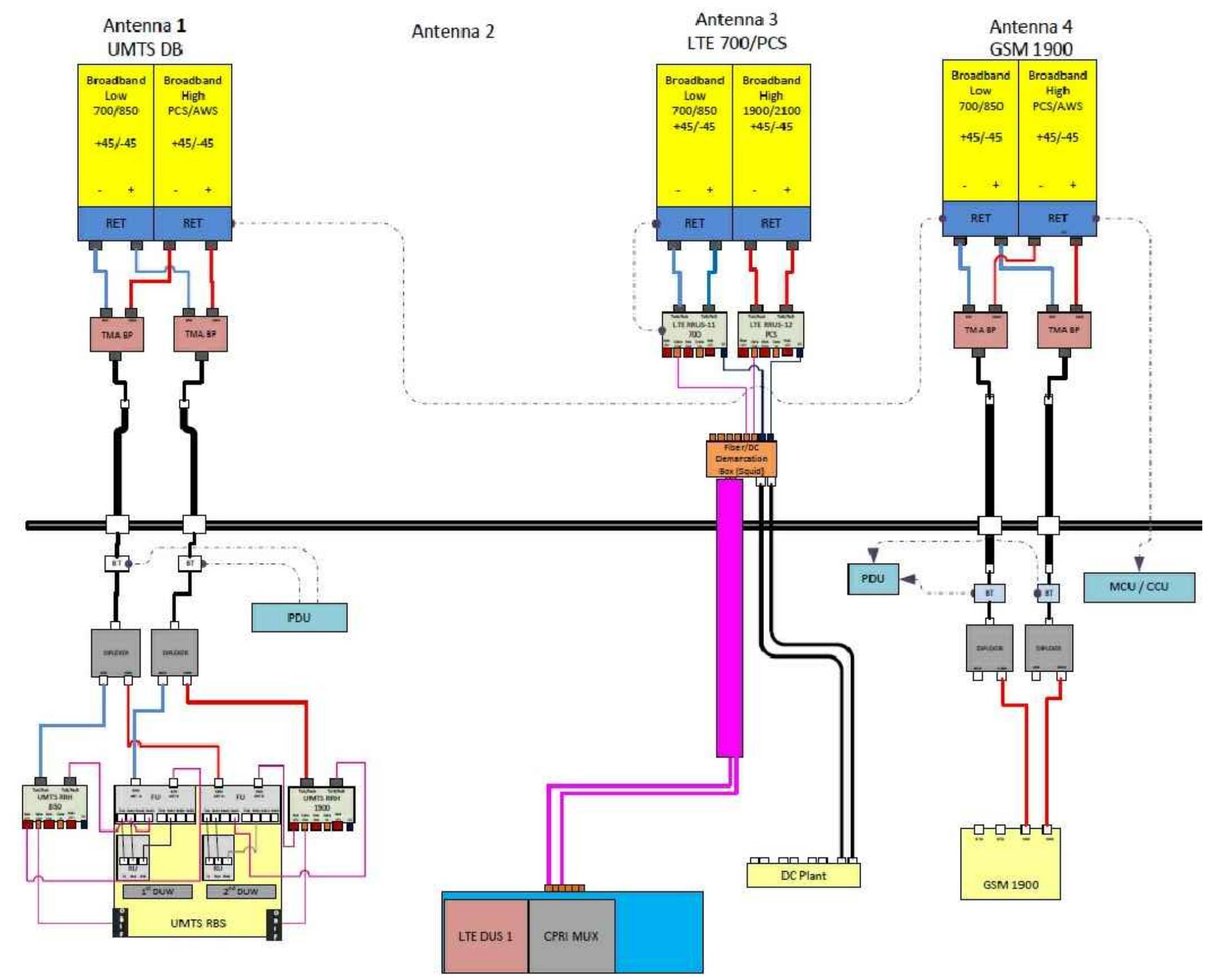
PROJECT OWNER IS RESPONSIBLE FOR PROVIDING A STRUCTURAL STABILITY ANALYSIS TO DETERMINE THE CAPACITY AND SUITABILITY OF THE EXISTING ANTENNA SUPPORT STRUCTURE TO SAFELY CARRY ALL ADDITIONAL LOADS IMPOSED BY THE PROPOSED EQUIPMENT AS SHOWN HEREIN. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR INCORPORATING ANY REQUIRED STRUCTURAL MODIFICATIONS INTO THEIR SCOPE OF WORK.



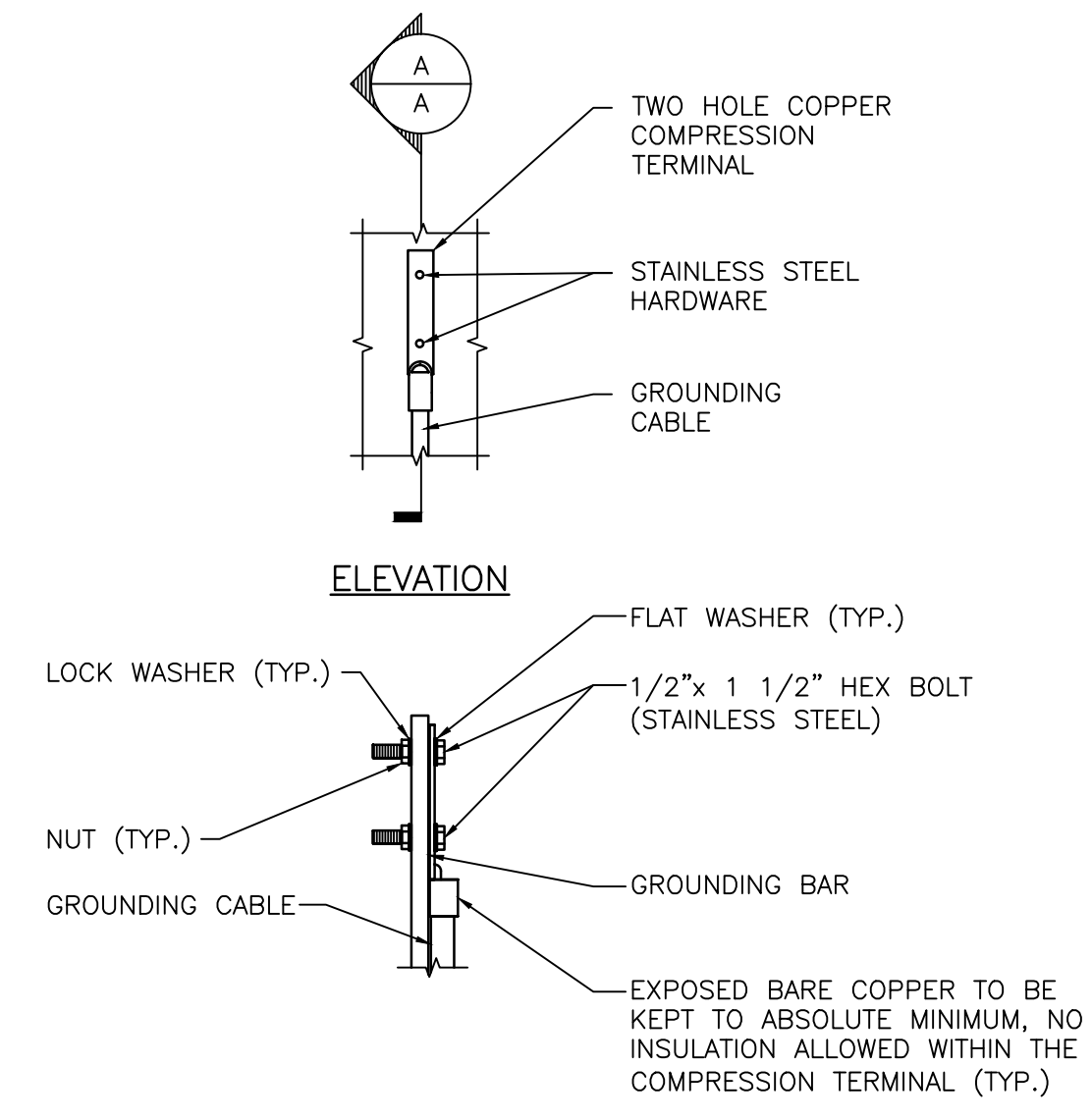
GROUND WIRE TO GROUND BAR CONNECTION DETAIL
SCALE: N.T.S.



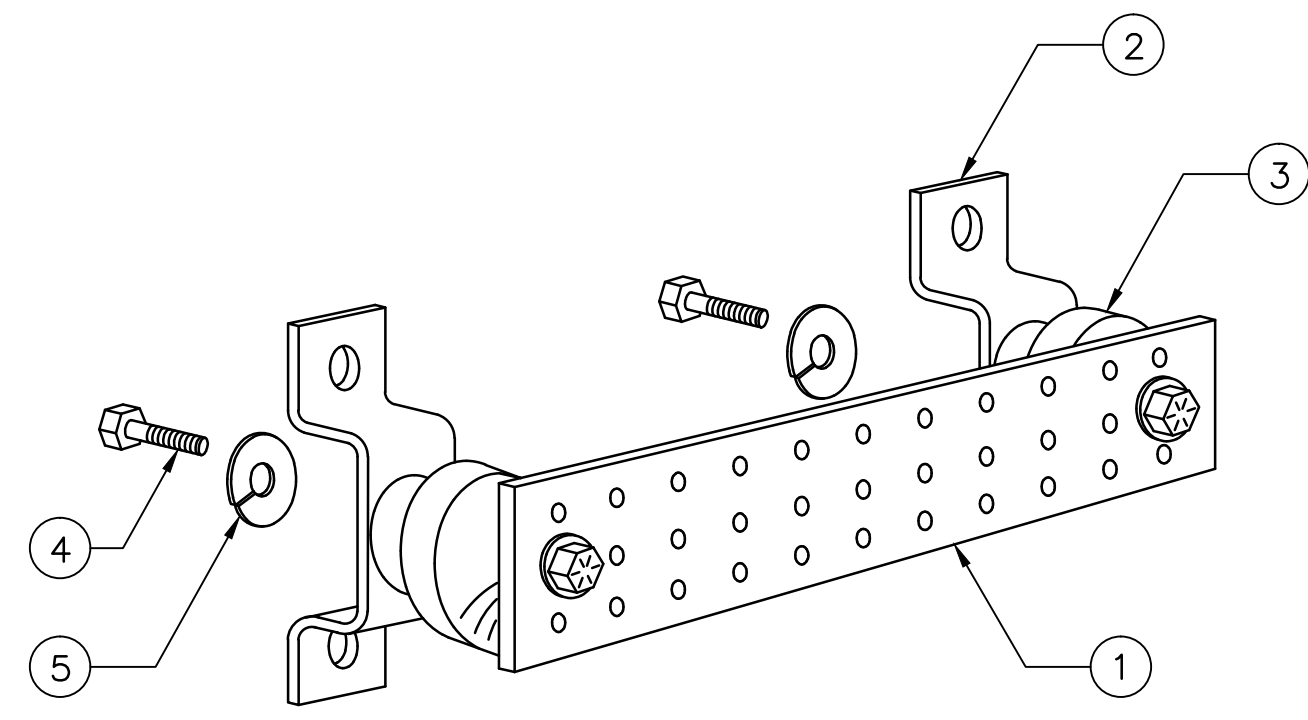
GROUNDING RISER DIAGRAM
SCALE: N.T.S.



TYPICAL PLUMBING DIAGRAM (PER SECTOR)
SCALE: N.T.S.



TYPICAL GROUND BAR CONNECTION DETAIL
SCALE: N.T.S.



ITEM NO.	QTY.	DESCRIPTION
1	1	SOLID GROUND BAR (20"x 4"x 1/4")
2	2	WALL MOUNTING BRACKET
3	2	INSULATORS
4	4	5/8"-11x1" H.H.C.S.
5	4	5/8" LOCK WASHER

- NOTES:
- EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION
- SECTION "P" - SURGE PRODUCERS**
- CABLE ENTRY PORTS (HATCH PLATES) (#2)
 - GENERATOR FRAMEWORK (IF AVAILABLE) (#2)
 - TELCO GROUND BAR
 - COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2)
 - +24V POWER SUPPLY RETURN BAR (#2)
 - 48V POWER SUPPLY RETURN BAR (#2)
 - RECTIFIER FRAMES
- SECTION "A" - SURGE ABSORBERS**
- INTERIOR GROUND RING (#2)
 - EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2)
 - METALLIC COLD WATER PIPE (IF AVAILABLE) (#2)
 - BUILDING STEEL (IF AVAILABLE) (#2)

GROUND BAR DETAIL
SCALE: N.T.S.

Exhibit 3

**STRUCTURAL ANALYSIS REPORT
MONOPOLE**



Prepared For:
Com-Ex Consultants, LLC
115 Route 46 – Suite E39
Mountain Lakes, NJ 07046

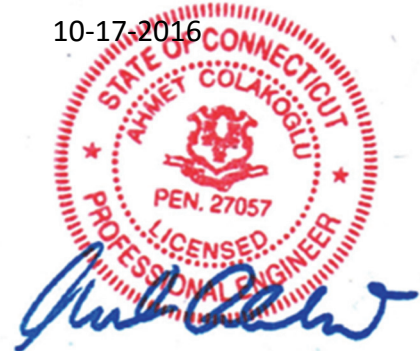


Structure Rating:

Monopole:	Pass (75.0%)
Anchor Rods:	Pass (85.8%)
Foundation	Pass (44.2%)
Soil Interaction:	Pass (68.8%)

Sincerely,
Destek Engineering, LLC

10-17-2016



Ahmet Colakoglu, PE
Connecticut Professional Engineer
License No: 27057

AT&T Site ID: CT5022
FA Number: 10108711
Site Name: AWE - Fairfield
100 Reef Road
Fairfield, CT 06824

CONTENTS

1.0 – SUBJECT AND REFERENCES

1.1 – STRUCTURE

2.0 – EXISTING AND PROPOSED APPURTENANCES

3.0 - CODES AND LOADING

4.0 - STANDARD CONDITIONS FOR ENGINEERING SERVICES ON EXISTING STRUCTURES

5.0 - ANALYSIS AND ASSUMPTIONS

6.0 – RESULTS AND CONCLUSION

APPENDIX

A– SOFTWARE OUTPUT & CALCULATIONS

1.0 SUBJECT AND REFERENCES

The purpose of this analysis is to evaluate the structural capacity of the existing monopole located at 100 Reef Road, Fairfield, CT 06824 for the additions and alterations proposed by AT&T.

The structural analysis is based on the following information provided to Destek Engineering, LLC (Destek):

- Tower manufacturing drawings prepared by Valmont, Order Number 11635-94, Dated 05/19/1994.
- Structural Analysis Report prepared by Fullerton Engineering Design, Project Number CT03XC354, dated 5/13/2015.
- RFDS prepared by AT&T, dated 06/23/2015.
- Tower Mapping prepared by Com-Ex, dated 03/25/2016.
- Geotechnical Data Report prepared by Terracon Consultants, Inc., dated 07/08/2016.
- Structural Modifications Drawings prepared by Destek Engineering, LLC, dated 08/19/2016.
- Construction Drawings prepared by Com-Ex, dated 10/15/2016.

1.1 STRUCTURE

The structure is a 145'-0" tall, (12) sided monopole, which is attached to the foundation with anchor bolts and a base plate. Please refer to the software output in Appendix A, for tower geometry, member sizes, and other details.

ELEVATION (FEET)	SECTION LENGTH (FEET)	LAP SPLICE (FT)	SHAFT THICKNESS (IN)	TOP DIAMETER (IN)	BOTTOM DIAMETER (IN)	YIELD STRENGTH (KSI)
145.00-90.83	54.17	5.17	0.281	23.6100	33.4800	65
90.83-42.83	53.17	6.17	0.375	31.9760	41.6400	65
42.83-0.00	49.00	-	0.438	39.7686	48.6900	65

*Does not include description of existing monopole modifications.

2.0 EXISTING AND PROPOSED APPURTENANCES

AT&T is proposing the following antenna configuration on the tower:

Existing Configuration of AT&T Appurtenances:

Rad. Center (ft)	Antenna & TMA	Mount	Cables
130.0	(6) 7770.00 w/Mount Pipe (3) P65-16-XLH-RR w/Mount Pipe (6) TMAs (6) RRUS-11 (1) DC 6	(3) Sector Mounts	(12) 1-5/8" (1) 7/8" (1) Fiber Cable

Proposed and Final Configuration of AT&T Appurtenances:

Rad. Center (ft)	Antenna & TMA	Mount	Cables
130.0	(6) 7770.00 w/Mount Pipe (3) P65-16-XLH-RR w/Mount Pipe (6) TMAs (3) RRUS-11 (3) RRUS-12 (1) DC 6	(3) Sector Mounts	(12) 1-5/8" (1) 7/8" (1) Fiber Cable

Existing Appurtenances by Others

Rad. Center (ft)	Antenna & TMA	Mount	Feedlines
143.0 Nextel	(1) 10' Omni (10) Andrew 5' Antennas	(3) Sector Mounts	(6) 1-5/8" (10) 7/8"
135.0 T-Mobile	(6) Kathrein 8101002R4B (6) Powerwave LGP21401 TMA (1) 24"x24" Panel	(3) Sector Mounts	(6) 1-5/8" (6) 1-1/4" (2) 1"
110.3 Sprint	(3) Andrew APXVSP16 (3) RRH1900-4x45 (3) 9442 RRH2x40-07L (1) 10' Omni	(1) Platform Mount	(3) 1-1/4"

3.0 CODES AND LOADING

This analysis has been performed in accordance with the 2016 Connecticut Building Code based upon an ultimate 3-second gust wind speed of 125 mph (Risk Category II) converted to a nominal 3-second gust wind speed of 97 mph per section 1609.3.1 as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1. The following loading criteria were used in the analysis:

- Basic wind speed of 97 mph without ice (V)
- Basic wind speed of 50 mph concurrent with the design ice thickness of $\frac{3}{4}$ " (V_i and t_i)
- Exposure Category C, Topographic Category 1

The following load combinations were used with wind blowing at 0° , 60° , and 90° , measured from a line normal to the face of the tower:

- $1.2D + 1.6W_o$
- $0.9D + 1.6W_o$
- $1.2D + 1.0D_i + 1.0W_i$

D: Dead load of structure and appurtenances
 W_o : Wind load without ice (based upon V)
 W_i : Concurrent wind load with factored ice thickness (based upon V_i)
 D_i : Weight of ice due to factored ice thickness (based upon t_i)

4.0 STANDARD CONDITIONS FOR ENGINEERING SERVICES ON EXISTING STRUCTURES

The analysis is based on the information provided to Destek and is assumed to be current and correct. Unless otherwise noted, the structure is assumed to be in good condition, free of defects, and can achieve theoretical strength.

It is assumed that the structure has been maintained and shall be maintained during its service lifespan. The superstructure and the foundation system are assumed to be designed with proper engineering practice and fabricated, constructed and erected in accordance with the design documents. Destek will accept no liability which may arise due to any existing deficiency in design, material, fabrication, erection, construction, etc. or lack of maintenance.

The analysis does not include a qualification of the antenna mounts attached on the structure or their connections. The analysis is performed to verify the capacity of the main structural members, which is the current practice in the tower industry.

The analysis results presented in this report are only applicable for the previously mentioned existing and proposed appurtenances. Any deviation of the appurtenances and placement, etc., will require Destek to generate an additional structural analysis. Additionally, the proposed linear appurtenances should be placed per recommendations of this report.

5.0 **ANALYSIS AND ASSUMPTIONS**

The Monopole was analyzed by utilizing tnxTower, a non-linear, three-dimensional, finite element-analysis software package, a product of Tower Numerics, Inc. Software output for this analysis is provided in Appendix A of this report.

This analysis assumes that the monopole is reinforced per Structural Modifications Drawings prepared by Destek Engineering, LLC, dated 8/16/2016.

6.0 **RESULTS AND CONCLUSION**

Based on a structural analysis per TIA-222-G, the existing monopole has **adequate** structural capacity for the proposed changes by AT&T. As a maximum, the monopole shaft between 0 feet and 2.67 feet is stressed to **75.0%** of its capacity. The anchor rods also have **adequate** structural capacity for the proposed changes by AT&T. As a maximum, the anchor rods are stressed to **85.8%** of its capacity. The existing foundation is found to have **adequate** capacity to support the proposed installation by AT&T.

Therefore, the proposed additions and alterations by AT&T **can** be implemented as intended with the conditions outlined in this report.

Should you have any questions about this report, please contact Ahmet Colakoglu at (770) 693-0835 or acolakoglu@destekengineering.com.

APPENDIX A
SOFTWARE OUTPUT & CALCULATIONS

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
(3) Andrew 5' Antennas w/Mount Pipe	143	RRUS 12	130
(4) Andrew 5' Antennas w/Mount Pipe	143	RRUS 12	130
(3) Andrew 5' Antennas w/Mount Pipe	143	RRUS 12	130
10' Omni	143	(2) 7770.00 w/ Mount Pipe	130
T-Arm Mount [TA 602-3]	143	(2) 7770.00 w/ Mount Pipe	130
(2) Kathrein 8101002R4B	135	(2) 7770.00 w/ Mount Pipe	130
(2) Kathrein 8101002R4B	135	P65-16-XLH-RR w/ Mount Pipe	130
(2) Kathrein 8101002R4B	135	P65-16-XLH-RR w/ Mount Pipe	130
(2) LGP21401	135	APXVSP16w/ Mount Pipe	110.3
(2) LGP21401	135	APXVSP16w/ Mount Pipe	110.3
(2) LGP21401	135	APXVSP16w/ Mount Pipe	110.3
24"x24" Panel	135	9442 RRH2X40-07L	110.3
T-Arm Mount [TA 602-3]	135	9442 RRH2X40-07L	110.3
P65-16-XLH-RR w/ Mount Pipe	130	9442 RRH2X40-07L	110.3
(2) LGP21401	130	PCS 1900MHz 4x45W-65MHz	110.3
(2) LGP21401	130	PCS 1900MHz 4x45W-65MHz	110.3
(2) LGP21401	130	PCS 1900MHz 4x45W-65MHz	110.3
RRUS 11	130	(2) 6' x 2" Mount Pipe	110.3
RRUS 11	130	(2) 6' x 2" Mount Pipe	110.3
RRUS 11	130	(2) 6' x 2" Mount Pipe	110.3
DC6-48-60-18-8F	130	10' Omni	110.3
T-Arm Mount [TA 602-3]	130	Platform Mount [LP 405-1]	110.3

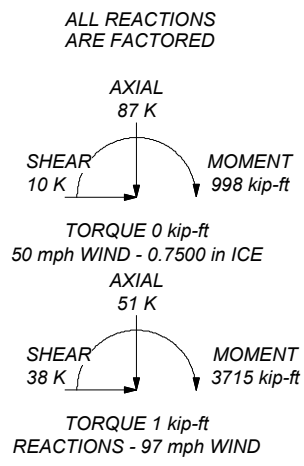
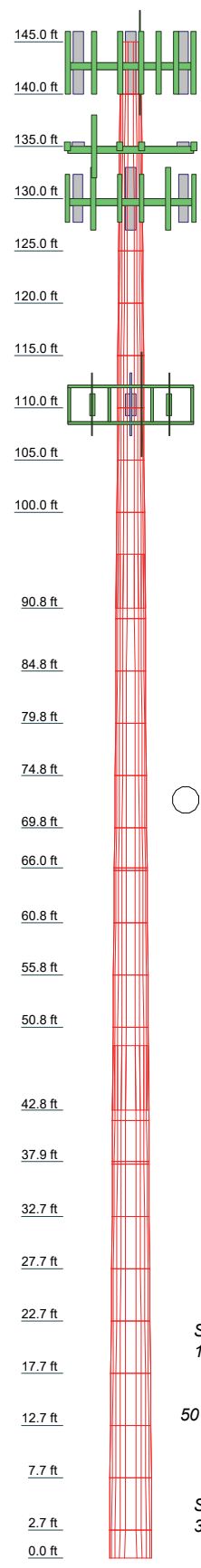
MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 97 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 75%

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	5.00	12	0.2810	5.17	30.8982	31.8092	0.4	0.4
2	5.00	12	0.2810	5.17	28.1651	27.2541	0.4	0.4
3	5.00	12	0.2810	5.17	25.4320	24.5210	0.4	0.4
4	5.00	12	0.2810	5.17	22.6989	21.7879	0.4	0.4
5	5.00	12	0.2810	5.17	19.9658	19.0548	0.4	0.4
6	5.00	12	0.2810	5.17	17.2327	16.3217	0.4	0.4
7	5.00	12	0.2810	5.17	14.4996	13.5886	0.4	0.4
8	5.00	12	0.2810	5.17	11.7665	10.8555	0.4	0.4
9	5.00	12	0.2810	5.17	9.0334	8.1224	0.4	0.4
10	5.00	12	0.2810	5.17	6.3003	5.3893	0.4	0.4
11	5.00	12	0.3750	6.17	3.5672	2.6562	0.9	0.8
12	5.00	12	0.3750	6.17	0.8341	-0.0769	0.7	0.7
13	5.00	12	0.3750	6.17	-1.9010	-2.8120	0.7	0.7
14	5.00	12	0.3750	6.17	-4.5679	-5.4789	0.7	0.7
15	5.00	12	0.3750	6.17	-7.2348	-8.1458	0.7	0.7
16	5.00	12	0.3750	6.17	-9.9017	-10.8127	0.7	0.7
17	5.00	12	0.3750	6.17	-12.5686	-13.4796	0.7	0.7
18	5.00	12	0.3750	6.17	-15.2355	-16.1465	0.7	0.7
19	5.00	12	0.3750	6.17	-17.9024	-18.8134	0.7	0.7
20	5.00	12	0.3750	6.17	-20.5693	-21.4803	0.7	0.7
21	5.00	12	0.3750	6.17	-23.2362	-24.1472	0.7	0.7
22	5.00	12	0.3750	6.17	-25.9031	-26.8141	0.7	0.7
23	5.00	12	0.3750	6.17	-28.5700	-29.4810	0.7	0.7
24	5.00	12	0.3750	6.17	-31.2369	-32.1479	0.7	0.7
25	5.00	12	0.3750	6.17	-33.9038	-34.8148	0.7	0.7
26	5.00	12	0.3750	6.17	-36.5707	-37.4817	0.7	0.7
27	5.00	12	0.3750	6.17	-39.2376	-40.1486	0.7	0.7
28	5.00	12	0.3750	6.17	-41.9045	-42.8155	0.7	0.7
29	5.00	12	0.3750	6.17	-44.5714	-45.4824	0.7	0.7
30	5.00	12	0.3750	6.17	-47.2383	-48.1493	0.7	0.7
31	5.00	12	0.3750	6.17	-49.9052	-50.8162	0.7	0.7
32	2.67	12	0.7005	1.0	-52.5721	-53.4831	1.0	1.0



DESTEK ENGINEERING
 1281 Kennestone Circle, Suite 100
 Marietta, GA 30066
 Phone: (770) 693 0835
 FAX:

Job: **CT5022**
 Project: **1629043**
 Client: _____ Drawn by: **Ahmet Colakoglu** App'd: _____
 Code: **TIA-222-G** Date: **10/17/16** Scale: **NTS**
 Path: _____ Dwg No. **E-1**

Z:\Projects\2016\29 - Com-Ex\043 - CT5022 - EMP - 1507710-7-2016 SAITrx\tower\CT5022 Mod.dwg

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	Client		Designed by	Ahmet Colakoglu

Section	Elevation	Section Length	Splice Length	Number of	Top Diameter	Bottom Diameter	Wall Thickness	Bend Radius	Pole Grade
L3	135.00-130.00	5.00	0.00	12	25.4320	26.3431	0.2810	1.1240	A572-65
L4	130.00-125.00	5.00	0.00	12	26.3431	27.2541	0.2810	1.1240	A572-65
L5	125.00-120.00	5.00	0.00	12	27.2541	28.1651	0.2810	1.1240	A572-65
L6	120.00-115.00	5.00	0.00	12	28.1651	29.0761	0.2810	1.1240	A572-65
L7	115.00-110.00	5.00	0.00	12	29.0761	29.9871	0.2810	1.1240	A572-65
L8	110.00-105.00	5.00	0.00	12	29.9871	30.8982	0.2810	1.1240	A572-65
L9	105.00-100.00	5.00	0.00	12	30.8982	31.8092	0.2810	1.1240	A572-65
L10	100.00-90.83	9.17	5.17	12	31.8092	33.4800	0.2810	1.1240	A572-65
L11	90.83-89.83	6.17	0.00	12	31.9760	33.0974	0.3750	1.5000	A572-65
L12	89.83-84.83	5.00	0.00	12	33.0974	34.0062	0.3750	1.5000	A572-65
L13	84.83-79.83	5.00	0.00	12	34.0062	34.9150	0.3750	1.5000	A572-65
L14	79.83-74.83	5.00	0.00	12	34.9150	35.8238	0.3750	1.5000	A572-65
L15	74.83-69.83	5.00	0.00	12	35.8238	36.7326	0.3750	1.5000	A572-65
L16	69.83-66.00	3.83	0.00	12	36.7326	37.4287	0.3750	1.5000	A572-65
L17	66.00-65.75	0.25	0.00	12	37.4287	37.4741	0.6125	2.4500	A572-65
L18	65.75-60.75	5.00	0.00	12	37.4741	38.3829	0.6125	2.4500	A572-65
L19	60.75-55.75	5.00	0.00	12	38.3829	39.2917	0.6000	2.4000	A572-65
L20	55.75-50.75	5.00	0.00	12	39.2917	40.2005	0.6000	2.4000	A572-65
L21	50.75-42.83	7.92	6.17	12	40.2005	41.6400	0.6000	2.4000	A572-65
L22	42.83-41.83	7.17	0.00	12	39.7686	41.0740	0.7130	2.8520	A572-65
L23	41.83-37.92	3.91	0.00	12	41.0740	41.7865	0.7005	2.8020	A572-65
L24	37.92-37.67	0.25	0.00	12	41.7865	41.8320	0.7505	3.0020	A572-65
L25	37.67-32.67	5.00	0.00	12	41.8320	42.7424	0.7380	2.9520	A572-65
L26	32.67-27.67	5.00	0.00	12	42.7424	43.6527	0.7380	2.9520	A572-65
L27	27.67-22.67	5.00	0.00	12	43.6527	44.5631	0.7255	2.9020	A572-65
L28	22.67-17.67	5.00	0.00	12	44.5631	45.4734	0.7255	2.9020	A572-65
L29	17.67-12.67	5.00	0.00	12	45.4734	46.3838	0.7130	2.8520	A572-65
L30	12.67-7.67	5.00	0.00	12	46.3838	47.2941	0.7130	2.8520	A572-65

Destek Engineering, LLC
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Client		Designed by	Ahmet Colakoglu

Section	Tip Dia.	Area	I_4	r	C	I/C_3	J_4	I/Q_2	w	w/t

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A'	Adjust. Factor A''	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals	Double Angle Stitch Bolt Spacing Redundants
L1 145.00-	2			1	1	1			
L2 140.00-				1	1	1			
L3 135.00-				1	1	1			
L4 130.00-				1	1	1			
L5 125.00-				1	1	1			
L6 120.00-				1	1	1			
L7 115.00-				1	1	1			
L8 110.00-				1	1	1			
L9 105.00-				1	1	1			
L10 100.00-				1	1	1			
L11 90.83-				1	1	1			
L12 89.83-				1	1	1			
L13 84.83-				1	1	1			
L14 79.83-				1	1	1			
L15 74.83-				1	1	1			

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	Client		Designed by	Ahmet Colakoglu

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor Af	Adjust. Factor Ar	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals	Double Angle Stitch Bolt Spacing Redundants
L16 69.83-				1	1	1			
L17 66.00-				1	1	0.977778			
L18 65.75-				1	1	0.968983			
L19 60.75-				1	1	0.980297			
L20 55.75-				1	1	0.972144			
L21 50.75-				1	1	0.969378			
L22 42.83-				1	1	0.962972			
L23 41.83-				1	1	0.973703			
L24 37.92-				1	1	0.966319			
L25 37.67-				1	1	0.973959			
L26 32.67-				1	1	0.965888			
L27 27.67-				1	1	0.974383			
L28 22.67-				1	1	0.966843			
L29 17.67-				1	1	0.976159			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Component Type	Placement	Total Number	Number Per Row	Start/End Position	Width or Diameter	Perimeter	Weight
LDF7-50A(1-5/8")	A	Surface Ar	135.00 - 30.00	3	3	0.000	1.9800		0.82
LDF7-50A(1-5/8")	A	Surface Ar	135.00 - 30.00	3	3	0.000	0.0000		0.82
LDF6-50A(1-1/4")	A	Surface Ar	135.00 - 30.00	6	6	0.000	1.5500		0.66
LDF2-2R(1")	A	Surface Ar	135.00 - 30.00	1	1	0.000	0.9860		0.30
LDF2-2R(1")	A	Surface Ar	135.00 - 30.00	1	1	0.000	0.9860		0.30
3" Conduit	B	Surface Ar	130.00 - 30.00	1	1	0.000	2.0000		2.80

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Description	Sector	Component Type	Placement	Total Number	Number Per Row	Start/End Position	Width or Diameter	Perimeter	Weight
LDF6-50A(1-1/4")	B	Surface Ar	110.30 - 30.00	3	3	0.000	0.0000		0.66
LDF5-50A(7/8)	B	Surface Ar	143.00 - 30.00	1	1	0.000	0.0000		0.33
10" Plate	A	Surface Af	47.75 - 0.00	1	1	0.240	10.0000	21.2500	0.00
10" Plate	B	Surface Af	47.75 - 0.00	1	1	-0.260	10.0000	21.2500	0.00
10" Plate	C	Surface Af	47.75 - 0.00	1	1	0.240	10.0000	21.2500	0.00
10" Plate	A	Surface Af	47.75 - 0.00	1	1	-0.260	10.0000	21.2500	0.00
10" Plate	B	Surface Af	47.75 - 0.00	1	1	0.240	10.0000	21.2500	0.00
10" Plate	C	Surface Af	47.75 - 0.00	1	1	-0.260	10.0000	21.2500	0.00
7" Plate	A	Surface Af	68.00 - 47.75	1	1	0.240	7.0000	15.2500	0.00
7" Plate	B	Surface Af	68.00 - 47.75	1	1	-0.260	7.0000	15.2500	0.00
7" Plate	C	Surface Af	68.00 - 47.75	1	1	0.240	7.0000	15.2500	0.00
7" Plate	A	Surface Af	68.00 - 47.75	1	1	-0.260	7.0000	15.2500	0.00
7" Plate	B	Surface Af	68.00 - 47.75	1	1	0.240	7.0000	15.2500	0.00
7" Plate	C	Surface Af	68.00 - 47.75	1	1	-0.260	7.0000	15.2500	0.00
6.25"x1.25"	A	Surface Af	41.67 - 33.92	1	1	0.000	6.5000	15.5000	0.00
6.25"x1.25"	B	Surface Af	41.67 - 33.92	1	1	0.000	6.5000	15.5000	0.00
6.25"x1.25"	C	Surface Af	41.67 - 33.92	1	1	0.000	6.5000	15.5000	0.00
6.25"x1.25"	A	Surface Af	51.50 - 43.75	1	1	0.000	6.5000	15.5000	0.00
6.25"x1.25"	B	Surface Af	51.50 - 43.75	1	1	0.000	6.5000	15.5000	0.00
6.25"x1.25"	C	Surface Af	51.50 - 43.75	1	1	0.000	6.5000	15.5000	0.00

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Shield	Allow Shield	Component Type	Placement	Total Number		C ^{AA}	Weight
LDF7-50A(1-5/8")	C	No	Inside Pole	143.00 - 30.00	6	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
LDF5-50A(7/8)	C	No	Inside Pole	143.00 - 30.00	6	No Ice	0.00	0.33
						1/2" Ice	0.00	0.33

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Description	Face or Shield	Allow Shield	Component Type	Placement	Total Number		CAA	Weight
LDF5-50A(7/8")	C	No	Inside Pole	143.00 - 30.00	4	No Ice 1/2" Ice	0.00 0.00	0.33 0.33
LDF7-50A(1-5/8")	B	No	Inside Pole	130.00 - 30.00	3	No Ice 1/2" Ice	0.00 0.00	0.82 0.82
LDF7-50A(1-5/8")	B	No	Inside Pole	130.00 - 30.00	9	No Ice 1/2" Ice	0.00 0.00	0.82 0.82
LDF5-50A(7/8)	B	No	Inside Pole	130.00 - 30.00	2	No Ice 1/2" Ice	0.00 0.00	0.33 0.33

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation	Face	A ^R	A ^F	CAA In Face	CAA Out Face	Weight
L1	145.00-140.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L2	140.00-135.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L3	135.00-130.00	A	0.000	0.000	8.606	0.000	0.05
		B	0.000	0.000	0.000	0.000	0.00
L4	130.00-125.00	A	0.000	0.000	8.606	0.000	0.05
		B	0.000	0.000	1.000	0.000	0.07
L5	125.00-120.00	A	0.000	0.000	8.606	0.000	0.05
		B	0.000	0.000	1.000	0.000	0.07
L6	120.00-115.00	A	0.000	0.000	8.606	0.000	0.05
		B	0.000	0.000	1.000	0.000	0.07
L7	115.00-110.00	A	0.000	0.000	8.606	0.000	0.05
		B	0.000	0.000	1.000	0.000	0.07
L8	110.00-105.00	A	0.000	0.000	8.606	0.000	0.05
		B	0.000	0.000	1.000	0.000	0.08
L9	105.00-100.00	A	0.000	0.000	8.606	0.000	0.05
		B	0.000	0.000	1.000	0.000	0.08
L10	100.00-90.83	A	0.000	0.000	15.783	0.000	0.09
		B	0.000	0.000	1.834	0.000	0.14
L11	90.83-89.83	A	0.000	0.000	1.721	0.000	0.01
		B	0.000	0.000	0.200	0.000	0.02
L12	89.83-84.83	A	0.000	0.000	8.606	0.000	0.05

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<i>Tower Section</i>	<i>Tower Elevation</i>	<i>Face</i>	<i>A^R</i>	<i>A^F</i>	<i>C^{AA} In Face</i>	<i>C^{AA} Out Face</i>	<i>Weight</i>
		-	0.000	0.000	8.606	0.000	0.05
L13	84.83-79.83	A	0.000	0.000	8.606	0.000	0.05
		B	0.000	0.000	1.000	0.000	0.08
		-	0.000	0.000	8.606	0.000	0.05
L14	79.83-74.83	A	0.000	0.000	8.606	0.000	0.05
		B	0.000	0.000	1.000	0.000	0.08
		-	0.000	0.000	8.606	0.000	0.05
L15	74.83-69.83	A	0.000	0.000	8.606	0.000	0.05
		B	0.000	0.000	1.000	0.000	0.08
		-	0.000	0.000	11.259	0.000	0.04
L16	69.83-66.00	A	0.000	0.000	11.259	0.000	0.04
		B	0.000	0.000	5.433	0.000	0.06
		-	0.000	0.000	1.014	0.000	0.00
L17	66.00-65.75	A	0.000	0.000	1.014	0.000	0.00
		B	0.000	0.000	0.633	0.000	0.00
		-	0.000	0.000	20.273	0.000	0.05
L18	65.75-60.75	A	0.000	0.000	20.273	0.000	0.05
		B	0.000	0.000	12.667	0.000	0.08
		-	0.000	0.000	20.273	0.000	0.05
L19	60.75-55.75	A	0.000	0.000	20.273	0.000	0.05
		B	0.000	0.000	12.667	0.000	0.08
		-	0.000	0.000	21.085	0.000	0.05
L20	55.75-50.75	A	0.000	0.000	21.085	0.000	0.05
		B	0.000	0.000	13.479	0.000	0.08
		-	0.000	0.000	44.615	0.000	0.08
L21	50.75-42.83	A	0.000	0.000	44.615	0.000	0.08
		B	0.000	0.000	32.567	0.000	0.12
		-	0.000	0.000	5.055	0.000	0.01
L22	42.83-41.83	A	0.000	0.000	5.055	0.000	0.01
		B	0.000	0.000	3.533	0.000	0.02
		-	0.000	0.000	23.843	0.000	0.04
L23	41.83-37.92	A	0.000	0.000	23.843	0.000	0.04
		B	0.000	0.000	17.890	0.000	0.06
		-	0.000	0.000	1.534	0.000	0.00
L24	37.92-37.67	A	0.000	0.000	1.534	0.000	0.00
		B	0.000	0.000	1.154	0.000	0.00
		-	0.000	0.000	29.335	0.000	0.05
L25	37.67-32.67	A	0.000	0.000	29.335	0.000	0.05
		B	0.000	0.000	21.729	0.000	0.08
		-	0.000	0.000	21.257	0.000	0.03
L26	32.67-27.67	A	0.000	0.000	21.257	0.000	0.03
		B	0.000	0.000	17.200	0.000	0.04
		-	0.000	0.000	16.667	0.000	0.00
L27	27.67-22.67	A	0.000	0.000	16.667	0.000	0.00
		B	0.000	0.000	16.667	0.000	0.00
		-	0.000	0.000	16.667	0.000	0.00
L28	22.67-17.67	A	0.000	0.000	16.667	0.000	0.00
		B	0.000	0.000	16.667	0.000	0.00
		-	0.000	0.000	16.667	0.000	0.00
L29	17.67-12.67	A	0.000	0.000	16.667	0.000	0.00
		B	0.000	0.000	16.667	0.000	0.00
		-	0.000	0.000	16.667	0.000	0.00
L30	12.67-7.67	A	0.000	0.000	16.667	0.000	0.00
		B	0.000	0.000	16.667	0.000	0.00
		-	0.000	0.000	16.667	0.000	0.00
L31	7.67-2.67	A	0.000	0.000	16.667	0.000	0.00

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Tower Section	Tower Elevation	Face	A^R	A^F	C^{AA} In Fqce	C^{AA} Out Fqce	Weight
L32	2.67-0.00	A	0.000	0.000	8.889	0.000	0.00
		B	0.000	0.000	8.889	0.000	0.00

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation	Face or	Ice Thickness	A^R	A^F	C^{AA} In Fqce	C^{AA} Out Fqce	Weight
L1	145.00-140.00	A	1.736	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	1.042	0.000	0.01
L2	140.00-135.00	A	1.730	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	1.730	0.000	0.02
L3	135.00-130.00	A	1.724	0.000	0.000	20.422	0.000	0.28
		B		0.000	0.000	1.724	0.000	0.02
L4	130.00-125.00	A	1.717	0.000	0.000	20.384	0.000	0.28
		B		0.000	0.000	4.434	0.000	0.13
L5	125.00-120.00	A	1.710	0.000	0.000	20.345	0.000	0.28
		B		0.000	0.000	4.420	0.000	0.12
L6	120.00-115.00	A	1.703	0.000	0.000	20.304	0.000	0.28
		B		0.000	0.000	4.406	0.000	0.12
L7	115.00-110.00	A	1.696	0.000	0.000	20.261	0.000	0.28
		B		0.000	0.000	4.519	0.000	0.13
L8	110.00-105.00	A	1.688	0.000	0.000	20.217	0.000	0.28
		B		0.000	0.000	6.486	0.000	0.15
L9	105.00-100.00	A	1.680	0.000	0.000	20.171	0.000	0.27
		B		0.000	0.000	6.460	0.000	0.15
L10	100.00-90.83	A	1.668	0.000	0.000	36.867	0.000	0.50
		B		0.000	0.000	11.776	0.000	0.27
L11	90.83-89.83	A	1.659	0.000	0.000	4.020	0.000	0.05
		B		0.000	0.000	1.284	0.000	0.03
L12	89.83-84.83	A	1.653	0.000	0.000	20.017	0.000	0.27
		B		0.000	0.000	6.373	0.000	0.15
L13	84.83-79.83	A	1.644	0.000	0.000	19.962	0.000	0.27
		B		0.000	0.000	6.342	0.000	0.15
L14	79.83-74.83	A	1.633	0.000	0.000	19.903	0.000	0.27
		B		0.000	0.000	6.308	0.000	0.15
L15	74.83-69.83	A	1.622	0.000	0.000	19.840	0.000	0.26

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Tower Section	Tower Elevation	Face or	Ice Thickness	A^R	A^F	C^{AA} In Face	C^{AA} Out Face	Weight
L16	69.83-66.00	A	1.612	0.000	0.000	21.087	0.000	0.25
		B		0.000	0.000	10.714	0.000	0.16
L17	66.00-65.75	A	1.607	0.000	0.000	1.729	0.000	0.02
		B		0.000	0.000	1.053	0.000	0.01
L18	65.75-60.75	A	1.601	0.000	0.000	34.533	0.000	0.39
		B		0.000	0.000	21.020	0.000	0.28
L19	60.75-55.75	A	1.588	0.000	0.000	34.435	0.000	0.39
		B		0.000	0.000	20.955	0.000	0.27
L20	55.75-50.75	A	1.573	0.000	0.000	35.123	0.000	0.40
		B		0.000	0.000	21.678	0.000	0.28
L21	50.75-42.83	A	1.553	0.000	0.000	66.491	0.000	0.73
		B		0.000	0.000	45.274	0.000	0.55
L22	42.83-41.83	A	1.538	0.000	0.000	7.843	0.000	0.08
		B		0.000	0.000	5.164	0.000	0.06
L23	41.83-37.92	A	1.529	0.000	0.000	34.496	0.000	0.37
		B		0.000	0.000	24.061	0.000	0.28
L24	37.92-37.67	A	1.520	0.000	0.000	2.211	0.000	0.02
		B		0.000	0.000	1.546	0.000	0.02
L25	37.67-32.67	A	1.510	0.000	0.000	42.822	0.000	0.45
		B		0.000	0.000	29.537	0.000	0.34
L26	32.67-27.67	A	1.487	0.000	0.000	29.805	0.000	0.28
		B		0.000	0.000	22.750	0.000	0.23
L27	27.67-22.67	A	1.460	0.000	0.000	19.586	0.000	0.15
		B		0.000	0.000	19.586	0.000	0.15
L28	22.67-17.67	A	1.428	0.000	0.000	19.522	0.000	0.15
		B		0.000	0.000	19.522	0.000	0.15
L29	17.67-12.67	A	1.388	0.000	0.000	19.442	0.000	0.14
		B		0.000	0.000	19.442	0.000	0.14
L30	12.67-7.67	A	1.333	0.000	0.000	19.333	0.000	0.14
		B		0.000	0.000	19.333	0.000	0.14
L31	7.67-2.67	A	1.246	0.000	0.000	19.159	0.000	0.13
		B		0.000	0.000	19.159	0.000	0.13
L32	2.67-0.00	A	1.088	0.000	0.000	10.050	0.000	0.06
		B		0.000	0.000	10.050	0.000	0.06

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<i>Tower</i>	<i>Feed Line</i>	<i>Description</i>	<i>Feed Line</i>	<i>K^a</i>	<i>K^a</i>
L3	9	LDF2-2R(1")	130.00 -	1.0000	1.0000
L3	10	LDF2-2R(1")	130.00 -	1.0000	1.0000
L3	18	LDF5-50A(7/8)	130.00 -	1.0000	1.0000
L4	6	LDF7-50A(1-5/8")	125.00 -	1.0000	1.0000
L4	7	LDF7-50A(1-5/8")	125.00 -	1.0000	1.0000
L4	8	LDF6-50A(1-1/4")	125.00 -	1.0000	1.0000
L4	9	LDF2-2R(1")	125.00 -	1.0000	1.0000
L4	10	LDF2-2R(1")	125.00 -	1.0000	1.0000
L4	16	3" Conduit	125.00 -	1.0000	1.0000
L4	18	LDF5-50A(7/8)	125.00 -	1.0000	1.0000
L5	6	LDF7-50A(1-5/8")	120.00 -	1.0000	1.0000
L5	7	LDF7-50A(1-5/8")	120.00 -	1.0000	1.0000
L5	8	LDF6-50A(1-1/4")	120.00 -	1.0000	1.0000
L5	9	LDF2-2R(1")	120.00 -	1.0000	1.0000
L5	10	LDF2-2R(1")	120.00 -	1.0000	1.0000
L5	16	3" Conduit	120.00 -	1.0000	1.0000
L5	18	LDF5-50A(7/8)	120.00 -	1.0000	1.0000
L6	6	LDF7-50A(1-5/8")	115.00 -	1.0000	1.0000
L6	7	LDF7-50A(1-5/8")	115.00 -	1.0000	1.0000
L6	8	LDF6-50A(1-1/4")	115.00 -	1.0000	1.0000
L6	9	LDF2-2R(1")	115.00 -	1.0000	1.0000
L6	10	LDF2-2R(1")	115.00 -	1.0000	1.0000
L6	16	3" Conduit	115.00 -	1.0000	1.0000
L6	18	LDF5-50A(7/8)	115.00 -	1.0000	1.0000
L7	6	LDF7-50A(1-5/8")	110.00 -	1.0000	1.0000
L7	7	LDF7-50A(1-5/8")	110.00 -	1.0000	1.0000
L7	8	LDF6-50A(1-1/4")	110.00 -	1.0000	1.0000
L7	9	LDF2-2R(1")	110.00 -	1.0000	1.0000
L7	10	LDF2-2R(1")	110.00 -	1.0000	1.0000

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<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert</i> <i>ft ft ft</i>	<i>Azimuth Adjustment</i> <i>°</i>	<i>Placement</i> <i>ft</i>	<i>C^{AA} Front</i> <i>ft²</i>	<i>C^{AA} Side</i> <i>ft²</i>	<i>Weight</i> <i>K</i>	
(3) Andrew 5' Antennas w/ Mount Pipe	A	From Leg	3.00 0.00 ---	0.0000	143.00	No Ice 1/2" Ice ---	8.50 9.15 ---	6.95 8.13 ---	0.08 0.15 ---
(4) Andrew 5' Antennas w/ Mount Pipe	B	From Leg	3.00 0.00 ---	0.0000	143.00	No Ice 1/2" Ice ---	8.50 9.15 ---	6.95 8.13 ---	0.08 0.15 ---
(3) Andrew 5' Antennas w/ Mount Pipe	C	From Leg	3.00 0.00 ---	0.0000	143.00	No Ice 1/2" Ice ---	8.50 9.15 ---	6.95 8.13 ---	0.08 0.15 ---
10' Omni	B	From Leg	0.00 0.00 ---	0.0000	143.00	No Ice 1/2" Ice ---	2.00 3.03 ---	2.00 3.03 ---	0.01 0.03 ---
T-Arm Mount [TA 602-3]	C	None		0.0000	143.00	No Ice 1/2" Ice ---	11.59 15.44 ---	11.59 15.44 ---	0.77 0.99 ---
RRUS 12	A	From Leg	3.00 0.00 ---	0.0000	130.00	No Ice 1/2" Ice ---	0.00 0.00 ---	1.29 1.44 ---	0.06 0.08 ---
RRUS 12	B	From Leg	3.00 0.00 ---	0.0000	130.00	No Ice 1/2" Ice ---	0.00 0.00 ---	1.29 1.44 ---	0.06 0.08 ---
RRUS 12	C	From Leg	3.00 0.00 ---	0.0000	130.00	No Ice 1/2" Ice ---	0.00 0.00 ---	1.29 1.44 ---	0.06 0.08 ---
(2) 7770.00 w/ Mount Pipe	A	From Leg	3.00 0.00 ---	0.0000	130.00	No Ice 1/2" Ice ---	5.75 6.18 ---	4.25 5.01 ---	0.06 0.10 ---
(2) 7770.00 w/ Mount Pipe	B	From Leg	3.00 0.00 ---	0.0000	130.00	No Ice 1/2" Ice ---	5.75 6.18 ---	4.25 5.01 ---	0.06 0.10 ---
(2) 7770.00 w/ Mount Pipe	C	From Leg	3.00 0.00 ---	0.0000	130.00	No Ice 1/2" Ice ---	5.75 6.18 ---	4.25 5.01 ---	0.06 0.10 ---
P65-16-XLH-RR w/ Mount Pipe	A	From Leg	3.00 0.00 ---	0.0000	130.00	No Ice 1/2" Ice ---	8.37 8.93 ---	6.36 7.54 ---	0.08 0.14 ---
P65-16-XLH-RR w/ Mount Pipe	B	From Leg	3.00 0.00 ---	0.0000	130.00	No Ice 1/2" Ice ---	8.37 8.93 ---	6.36 7.54 ---	0.08 0.14 ---
P65-16-XLH-RR w/ Mount Pipe	C	From Leg	3.00 0.00 ---	0.0000	130.00	No Ice 1/2" Ice ---	8.37 8.93 ---	6.36 7.54 ---	0.08 0.14 ---
(2) LGP21401	A	From Leg	3.00 0.00 ---	0.0000	130.00	No Ice 1/2" Ice ---	0.00 0.00 ---	0.23 0.31 ---	0.01 0.02 ---
(2) LGP21401	B	From Leg	3.00 0.00 ---	0.0000	130.00	No Ice 1/2" Ice ---	0.00 0.00 ---	0.23 0.31 ---	0.01 0.02 ---
(2) LGP21401	C	From Leg	3.00 0.00 ---	0.0000	130.00	No Ice 1/2" Ice ---	0.00 0.00 ---	0.23 0.31 ---	0.01 0.02 ---

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAA		Weight
			Horz	Lateral			Front	Side	
			Vert		°	ft	ft ²	ft ²	K
			ft	ft					
RRUS 11	A	From Leg	3.00	0.0000		130.00	No Ice 0.00	1.37	0.05
			0.00				1/2" Ice 0.00	1.55	0.07
			---				---	---	---
RRUS 11	B	From Leg	3.00	0.0000		130.00	No Ice 0.00	1.37	0.05
			0.00				1/2" Ice 0.00	1.55	0.07
			---				---	---	---
RRUS 11	C	From Leg	3.00	0.0000		130.00	No Ice 0.00	1.37	0.05
			0.00				1/2" Ice 0.00	1.55	0.07
			---				---	---	---
DC6-48-60-18-8F	A	From Leg	3.00	0.0000		130.00	No Ice 1.27	1.27	0.02
			0.00				1/2" Ice 1.46	1.46	0.03
			---				---	---	---
T-Arm Mount [TA 602-3]	C	None		0.0000		130.00	No Ice 11.59	11.59	0.77
							1/2" Ice 15.44	15.44	0.99
			---				---	---	---
(2) Kathrein 8101002R4B	A	From Leg	3.00	0.0000		135.00	No Ice 11.56	9.22	0.16
			0.00				1/2" Ice 12.28	10.51	0.25
			---				---	---	---
(2) Kathrein 8101002R4B	B	From Leg	3.00	0.0000		135.00	No Ice 11.56	9.22	0.16
			0.00				1/2" Ice 12.28	10.51	0.25
			---				---	---	---
(2) Kathrein 8101002R4B	C	From Leg	3.00	0.0000		135.00	No Ice 11.56	9.22	0.16
			0.00				1/2" Ice 12.28	10.51	0.25
			---				---	---	---
(2) LGP21401	A	From Leg	3.00	0.0000		135.00	No Ice 1.10	0.21	0.01
			0.00				1/2" Ice 1.24	0.27	0.02
			---				---	---	---
(2) LGP21401	B	From Leg	3.00	0.0000		135.00	No Ice 1.10	0.21	0.01
			0.00				1/2" Ice 1.24	0.27	0.02
			---				---	---	---
(2) LGP21401	C	From Leg	3.00	0.0000		135.00	No Ice 1.10	0.21	0.01
			0.00				1/2" Ice 1.24	0.27	0.02
			---				---	---	---
24"x24" Panel	C	From Leg	3.00	0.0000		135.00	No Ice 6.57	0.79	0.02
			0.00				1/2" Ice 6.91	0.96	0.05
			---				---	---	---
T-Arm Mount [TA 602-3]	C	None		0.0000		135.00	No Ice 11.59	11.59	0.77
							1/2" Ice 15.44	15.44	0.99
			---				---	---	---
APXVSPP16w/ Mount Pipe	A	From Leg	3.00	0.0000		110.30	No Ice 8.50	6.95	0.08
			0.00				1/2" Ice 9.15	8.13	0.15
			---				---	---	---
APXVSPP16w/ Mount Pipe	B	From Leg	3.00	0.0000		110.30	No Ice 8.50	6.95	0.08
			0.00				1/2" Ice 9.15	8.13	0.15
			---				---	---	---
APXVSPP16w/ Mount Pipe	C	From Leg	3.00	0.0000		110.30	No Ice 8.50	6.95	0.08
			0.00				1/2" Ice 9.15	8.13	0.15
			---				---	---	---
9442 RRH2X40-07L	A	From Leg	3.00	0.0000		110.30	No Ice 2.49	2.21	0.05
			0.00				1/2" Ice 2.71	2.42	0.07
			---				---	---	---

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAA Front	CAA Side	Weight
			Horz Lateral	Vert					
9442 RRH2X40-07L	B	From Leg	3.00	0.0000	110.30	No Ice	2.49	2.21	0.05
			0.00			1/2" Ice	2.71	2.42	0.07
9442 RRH2X40-07L	C	From Leg	3.00	0.0000	110.30	No Ice	2.49	2.21	0.05
			0.00			1/2" Ice	2.71	2.42	0.07
PCS 1900MHz 4x45W-65MHz	A	From Leg	3.00	0.0000	110.30	No Ice	2.32	2.24	0.06
			0.00			1/2" Ice	2.53	2.44	0.08
PCS 1900MHz 4x45W-65MHz	B	From Leg	3.00	0.0000	110.30	No Ice	2.32	2.24	0.06
			0.00			1/2" Ice	2.53	2.44	0.08
PCS 1900MHz 4x45W-65MHz	C	From Leg	3.00	0.0000	110.30	No Ice	2.32	2.24	0.06
			0.00			1/2" Ice	2.53	2.44	0.08
(2) 6' x 2" Mount Pipe	A	From Leg	3.00	0.0000	110.30	No Ice	1.43	1.43	0.02
			0.00			1/2" Ice	1.92	1.92	0.03
(2) 6' x 2" Mount Pipe	B	From Leg	3.00	0.0000	110.30	No Ice	1.43	1.43	0.02
			0.00			1/2" Ice	1.92	1.92	0.03
(2) 6' x 2" Mount Pipe	C	From Leg	3.00	0.0000	110.30	No Ice	1.43	1.43	0.02
			0.00			1/2" Ice	1.92	1.92	0.03
10' Omni	B	From Leg	0.00	0.0000	110.30	No Ice	2.00	2.00	0.01
			0.00			1/2" Ice	3.03	3.03	0.03
Platform Mount [LP 405-1]	C	None		0.0000	110.30	No Ice	20.80	20.80	1.80
						1/2" Ice	28.10	28.10	2.07

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral	Vert	Azimuth Adjustment	3 dB Beam Width	Elevation	Outside Diameter	Aperture Area	Weight
2											

Load Combinations

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Section No.	Elevation ft	Component Type	Condition	Gov. Load	Axial	Major Axis Moment	Minor Axis Moment
L25	37.6667 -	Pole	Max Tension	1	0.00	0.0	0.0
L26	32.6667 -	Pole	Max Tension	1	0.00	0.0	0.0
L27	27.6667 -	Pole	Max Tension	1	0.00	0.0	0.0
L28	22.6667 -	Pole	Max Tension	1	0.00	0.0	0.0
L29	17.6667 -	Pole	Max Tension	1	0.00	0.0	0.0
L30	12.6667 -	Pole	Max Tension	1	0.00	0.0	0.0
L31	7.6667 -	Pole	Max Tension	1	0.00	0.0	0.0

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<i>Load Combination</i>	<i>Vertical</i>	<i>Shear^x</i>	<i>Shear^z</i>	<i>Overturning Moment, M^x</i>	<i>Overturning Moment, M^z</i>	<i>Torque</i>
0.9 Dead+1.6 Wind 120 deg -	37.94	30.51	17.49	1710.0	-2992.9	-0.1
1.2 Dead+1.6 Wind 150 deg -	50.58	17.57	30.36	2992.5	-1734.2	-0.8
0.9 Dead+1.6 Wind 150 deg -	37.94	17.57	30.36	2972.0	-1722.3	-0.8
1.2 Dead+1.6 Wind 180 deg -	50.58	-0.07	35.10	3461.2	10.2	-1.4
0.9 Dead+1.6 Wind 180 deg -	37.94	-0.07	35.10	3437.5	10.0	-1.4
1.2 Dead+1.6 Wind 210 deg -	50.58	-19.00	32.68	3207.8	1870.7	-1.4
0.9 Dead+1.6 Wind 210 deg -	37.94	-19.00	32.68	3186.1	1857.7	-1.4
1.2 Dead+1.6 Wind 240 deg -	50.58	-30.58	17.61	1738.3	3024.4	-1.3
0.9 Dead+1.6 Wind 240 deg -	37.94	-30.58	17.61	1726.6	3003.3	-1.3
1.2 Dead+1.6 Wind 270 deg -	50.58	-35.27	0.07	8.5	3486.6	-0.7
0.9 Dead+1.6 Wind 270 deg -	37.94	-35.27	0.07	8.7	3462.3	-0.7
1.2 Dead+1.6 Wind 300 deg -	50.58	-30.51	-17.49	-1724.0	3014.8	0.1
0.9 Dead+1.6 Wind 300 deg -	37.94	-30.51	-17.49	-1711.8	2993.7	0.1
1.2 Dead+1.6 Wind 330 deg -	50.58	-17.57	-30.36	-2994.9	1735.2	0.8
0.9 Dead+1.6 Wind 330 deg -	37.94	-17.57	-30.36	-2973.8	1723.1	0.8
1.2 Dead+1.0 Wind 0 deg+1.0	87.45	0.02	-8.22	-867.4	1.6	0.4
1.2 Dead+1.0 Wind 30 deg+1.0	87.45	4.86	-8.39	-866.3	-496.1	0.4
1.2 Dead+1.0 Wind 60 deg+1.0	87.45	7.15	-4.13	-438.7	-746.6	0.4
1.2 Dead+1.0 Wind 90 deg+1.0	87.45	8.25	-0.02	-8.1	-861.3	0.2
1.2 Dead+1.0 Wind 120	87.45	7.13	4.09	423.3	-744.0	-0.0
1.2 Dead+1.0 Wind 150	87.45	4.17	7.23	747.4	-430.6	-0.2
1.2 Dead+1.0 Wind 180	87.45	-0.02	8.22	856.6	7.0	-0.4
1.2 Dead+1.0 Wind 210	87.45	-4.86	8.39	855.5	504.7	-0.4
1.2 Dead+1.0 Wind 240	87.45	-7.15	4.13	427.9	755.2	-0.4
1.2 Dead+1.0 Wind 270	87.45	-8.25	0.02	-2.7	869.9	-0.2
1.2 Dead+1.0 Wind 300	87.45	-7.13	-4.09	-434.1	752.6	0.0
1.2 Dead+1.0 Wind 330	87.45	-4.17	-7.23	-758.2	439.2	0.2
1.2 Dead+1.0 Wind 360	87.45	0.02	-8.22	-867.4	1.6	0.4

tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Suite 100 Marietta, GA 30066 Phone: (770) 693 0835 FAX:	Job CT5022	Page 34 of 36
	Project 1629043	Date 10:03:10 10/17/16
	Client	Designed by Ahmet Colakoglu

Section No.	Elevation h	Size	Actual V_u V_c	ϕV^n V_c	Ratio $\frac{V_u}{V_c}$	Actual T_u T_c	ϕT^n T_c	Ratio $\frac{T_u}{T_c}$
L29	17.6667 -	TP46.3838x45.4734x0.713	36.37	3864.38	0.009	1.4	14470.9	0.000
L30	12.6667 -	TP47.2941x46.3838x0.713	36.94	3941.41	0.009	1.4	15058.1	0.000
L31	7.6667 -	TP48.2045x47.2941x0.7005	37.51	3949.03	0.009	1.4	15394.6	0.000

Pole Interaction Design Data

Section No.	Elevation h	Ratio $\frac{P_u}{P_n}$	Ratio $\frac{M_u}{M_n}$	Ratio $\frac{M_w}{M_n}$	Ratio $\frac{V_u}{V_n}$	Ratio $\frac{T_u}{T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	145 - 140 (1)	0.001	0.022	0.000	0.007	0.000	0.73	1.000	4.8.2 ✓
L2	140 - 135 (2)	0.001	0.056	0.000	0.008	0.000	0.78	1.000	4.8.2 ✓
L3	135 - 130 (3)	0.003	0.111	0.000	0.013	0.000	0.74	1.000	4.8.2 ✓
L4	130 - 125 (4)	0.004	0.183	0.000	0.018	0.001	0.77	1.000	4.8.2 ✓
L5	125 - 120 (5)	0.004	0.251	0.000	0.018	0.001	0.75	1.000	4.8.2 ✓
L6	120 - 115 (6)	0.005	0.315	0.000	0.019	0.001	0.71	1.000	4.8.2 ✓
L7	115 - 110 (7)	0.007	0.378	0.000	0.023	0.001	0.75	1.000	4.8.2 ✓
L8	110 - 105 (8)	0.007	0.452	0.000	0.023	0.001	0.79	1.000	4.8.2 ✓
L9	105 - 100 (9)	0.007	0.521	0.000	0.024	0.001	0.79	1.000	4.8.2 ✓
L10	100 - 90.83 (10)	0.007	0.575	0.000	0.024	0.001	0.73	1.000	4.8.2 ✓
L11	90.83 - 89.83 (11)	0.006	0.455	0.000	0.017	0.000	0.71	1.000	4.8.2 ✓
L12	89.83 - 84.83 (12)	0.006	0.495	0.000	0.017	0.000	0.71	1.000	4.8.2 ✓
L13	84.83 - 79.83 (13)	0.006	0.534	0.000	0.017	0.000	0.71	1.000	4.8.2 ✓
L14	79.83 - 74.83 (14)	0.006	0.571	0.000	0.017	0.000	0.78	1.000	4.8.2 ✓
L15	74.83 - 69.83 (15)	0.007	0.607	0.000	0.018	0.000	0.74	1.000	4.8.2 ✓
L16	69.83 - 66 (16)	0.007	0.633	0.000	0.018	0.000	0.70	1.000	4.8.2 ✓

Additional Calculations



Site BU: CT5022
 Work Order: _____



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Pole Geometry

	Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
1	145	54.17	5.17	12	23.61	33.48	0.281	1.124	A572-65
2	96	53.17	6.17	12	31.98	41.64	0.375	1.5	A572-65
3	49	49	0	12	39.77	48.69	0.438	1.752	A572-65

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number												
						1	2	3	4	5	6	7	8	9	10	11	12
1	0	47.75	plate	10"	3		1				1				1		
2	0	37.9167	plate	10"	3				1				1				1
3	47.75	66	plate	7"	3		1				1				1		
4	37.9167	66	plate	7"	3				1				1				1
5																	
6																	
7																	
8																	
9																	
10																	

Reinforcement Details

	B (in)	H (in)	Gross Area (in ²)	Pole Face to Centroid (in)	Bottom Termination Length (in)	Top Termination Length (in)	L _u (in)	Net Area (in ²)	Bolt Hole Size (in)	Reinforcement Material
1	10	0.625	6.25	0.3125	n/a	24.000	11.000	5.664	0.8750	A572-65
2	10	0.625	6.25	0.3125	n/a	24.000	11.000	5.664	0.8750	A572-65
3	7	0.625	4.375	0.3125	24.000	24.000	11.000	3.789	0.8750	A572-65
4	7	0.625	4.375	0.3125	24.000	24.000	11.000	3.789	0.8750	A572-65

TNX Geometry Input

Increment (ft): 5

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	145 - 140	5		12	23.610	24.521	0.281	A572-65	1.000
2	140 - 135	5		12	24.521	25.432	0.281	A572-65	1.000
3	135 - 130	5		12	25.432	26.343	0.281	A572-65	1.000
4	130 - 125	5		12	26.343	27.254	0.281	A572-65	1.000
5	125 - 120	5		12	27.254	28.165	0.281	A572-65	1.000
6	120 - 115	5		12	28.165	29.076	0.281	A572-65	1.000
7	115 - 110	5		12	29.076	29.987	0.281	A572-65	1.000
8	110 - 105	5		12	29.987	30.898	0.281	A572-65	1.000
9	105 - 100	5		12	30.898	31.809	0.281	A572-65	1.000
10	100 - 96	9.17	5.17	12	31.809	33.480	0.281	A572-65	1.000
11	96 - 89.83	6.17		12	31.976	33.097	0.375	A572-65	1.000
12	89.83 - 84.83	5		12	33.097	34.006	0.375	A572-65	1.000
13	84.83 - 79.83	5		12	34.006	34.915	0.375	A572-65	1.000
14	79.83 - 74.83	5		12	34.915	35.824	0.375	A572-65	1.000
15	74.83 - 69.83	5		12	35.824	36.733	0.375	A572-65	1.000
16	69.83 - 66	3.83		12	36.733	37.429	0.375	A572-65	1.000
17	66 - 65.75	0.25		12	37.429	37.474	0.6125	A572-65	0.978
18	65.75 - 60.75	5		12	37.474	38.383	0.6125	A572-65	0.969
19	60.75 - 55.75	5		12	38.383	39.292	0.6	A572-65	0.980
20	55.75 - 50.75	5		12	39.292	40.200	0.6	A572-65	0.972
21	50.75 - 49	7.92	6.17	12	40.200	41.640	0.6	A572-65	0.969
22	49 - 41.83	7.17		12	39.769	41.074	0.713	A572-65	0.963
23	41.83 - 37.9167	3.9133		12	41.074	41.787	0.7005	A572-65	0.974
24	37.9167 - 37.6667	0.25		12	41.787	41.832	0.7505	A572-65	0.966
25	37.6667 - 32.6667	5		12	41.832	42.742	0.738	A572-65	0.974
26	32.6667 - 27.6667	5		12	42.742	43.653	0.738	A572-65	0.966
27	27.6667 - 22.6667	5		12	43.653	44.563	0.7255	A572-65	0.974
28	22.6667 - 17.6667	5		12	44.563	45.473	0.7255	A572-65	0.967
29	17.6667 - 12.6667	5		12	45.473	46.384	0.713	A572-65	0.976
30	12.6667 - 7.6667	5		12	46.384	47.294	0.713	A572-65	0.969
31	7.6667 - 2.6667	5		12	47.294	48.204	0.7005	A572-65	0.979
32	2.6667 - 0	2.6667		12	48.204	48.690	0.7005	A572-65	0.976

TNX Section Forces

Increment (ft):		5	TNX Output		
	Section Height (ft)	P _u (K)	M _{ux} (kip-ft)	V _u (K)	
1	145 - 140	1.916	17.409	5.7756	
2	140 - 135	2.3776	47.837	6.4006	
3	135 - 130	4.7894	100.45	10.917	
4	130 - 125	7.2425	174.63	15.255	
5	125 - 120	7.9077	252.91	16.055	
6	120 - 115	8.6012	335.22	16.867	
7	115 - 110	12.092	422.59	20.964	
8	110 - 105	12.867	529.46	21.785	
9	105 - 100	13.676	640.46	22.612	
10	100 - 96	14.346	732.22	23.266	
11	96 - 89.83	16.203	879.24	24.379	
12	89.83 - 84.83	17.274	1003.2	25.209	
13	84.83 - 79.83	18.379	1131.3	26.03	
14	79.83 - 74.83	19.519	1263.5	26.843	
15	74.83 - 69.83	20.692	1399.7	27.646	
16	69.83 - 66	21.609	1506.7	28.255	
17	66 - 65.75	21.709	1513.8	28.286	
18	65.75 - 60.75	23.414	1657.4	29.13	
19	60.75 - 55.75	25.155	1805.1	29.955	
20	55.75 - 50.75	26.926	1956.9	30.776	
21	50.75 - 49	27.547	2011	31.077	
22	49 - 41.83	32.365	2238.6	32.391	
23	41.83 - 37.9167	34.007	2366.6	33.041	
24	37.9167 - 37.6667	34.129	2374.9	33.071	
25	37.6667 - 32.6667	36.361	2542.3	33.875	
26	32.6667 - 27.6667	38.54	2713.3	34.545	
27	27.6667 - 22.6667	40.645	2887.6	35.187	
28	22.6667 - 17.6667	42.78	3065	35.799	
29	17.6667 - 12.6667	44.947	3245.3	36.37	
30	12.6667 - 7.6667	47.143	3428.6	36.942	
31	7.6667 - 2.6667	49.371	3614.6	37.513	
32	2.6667 - 0	50.57	3715	37.824	

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
145 - 140	Pole	TP24.521x23.61x0.281	Pole	2.3%	Pass
140 - 135	Pole	TP25.432x24.521x0.281	Pole	5.8%	Pass
135 - 130	Pole	TP26.343x25.432x0.281	Pole	11.4%	Pass
130 - 125	Pole	TP27.254x26.343x0.281	Pole	18.7%	Pass
125 - 120	Pole	TP28.165x27.254x0.281	Pole	25.5%	Pass
120 - 115	Pole	TP29.076x28.165x0.281	Pole	32.0%	Pass
115 - 110	Pole	TP29.987x29.076x0.281	Pole	38.4%	Pass
110 - 105	Pole	TP30.898x29.987x0.281	Pole	45.8%	Pass
105 - 100	Pole	TP31.809x30.898x0.281	Pole	52.8%	Pass
100 - 96	Pole	TP33.48x31.809x0.281	Pole	58.2%	Pass
96 - 89.83	Pole	TP33.097x31.976x0.375	Pole	45.9%	Pass
89.83 - 84.83	Pole	TP34.006x33.097x0.375	Pole	50.0%	Pass
84.83 - 79.83	Pole	TP34.915x34.006x0.375	Pole	53.9%	Pass
79.83 - 74.83	Pole	TP35.824x34.915x0.375	Pole	57.6%	Pass
74.83 - 69.83	Pole	TP36.733x35.824x0.375	Pole	61.2%	Pass
69.83 - 66	Pole	TP37.429x36.733x0.375	Pole	63.9%	Pass
66 - 65.75	Pole + Reinf.	TP37.474x37.429x0.6125	Reinf. 4 Compression	59.0%	Pass
65.75 - 60.75	Pole + Reinf.	TP38.383x37.474x0.6125	Reinf. 4 Compression	62.1%	Pass
60.75 - 55.75	Pole + Reinf.	TP39.292x38.383x0.6	Reinf. 4 Compression	65.1%	Pass
55.75 - 50.75	Pole + Reinf.	TP40.2x39.292x0.6	Reinf. 4 Compression	68.0%	Pass
50.75 - 49	Pole + Reinf.	TP41.64x40.2x0.6	Reinf. 4 Compression	68.9%	Pass
49 - 41.83	Pole + Reinf.	TP41.074x39.769x0.713	Reinf. 4 Compression	63.4%	Pass
41.83 - 37.92	Pole + Reinf.	TP41.787x41.074x0.7005	Reinf. 4 Compression	65.2%	Pass
37.92 - 37.67	Pole + Reinf.	TP41.832x41.787x0.7505	Reinf. 2 Compression	61.3%	Pass
37.67 - 32.67	Pole + Reinf.	TP42.742x41.832x0.738	Reinf. 2 Compression	63.4%	Pass
32.67 - 27.67	Pole + Reinf.	TP43.653x42.742x0.738	Reinf. 2 Compression	65.4%	Pass
27.67 - 22.67	Pole + Reinf.	TP44.563x43.653x0.7255	Reinf. 2 Compression	67.3%	Pass
22.67 - 17.67	Pole + Reinf.	TP45.473x44.563x0.7255	Reinf. 2 Compression	69.1%	Pass
17.67 - 12.67	Pole + Reinf.	TP46.384x45.473x0.713	Reinf. 2 Compression	70.9%	Pass
12.67 - 7.67	Pole + Reinf.	TP47.294x46.384x0.713	Reinf. 2 Compression	72.6%	Pass
7.67 - 2.67	Pole + Reinf.	TP48.204x47.294x0.7005	Reinf. 2 Compression	74.1%	Pass
2.67 - 0	Pole + Reinf.	TP48.69x48.204x0.7005	Reinf. 2 Compression	75.0%	Pass
				Summary	
			Pole	63.9%	Pass
			Reinforcement	75.0%	Pass
			Overall	75.0%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in ⁴)			Area (in ²)			% Capacity				
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4
145 - 140	1647	n/a	1647	21.90	n/a	21.90	2.3%				
140 - 135	1840	n/a	1840	22.72	n/a	22.72	5.8%				
135 - 130	2047	n/a	2047	23.55	n/a	23.55	11.4%				
130 - 125	2269	n/a	2269	24.37	n/a	24.37	18.7%				
125 - 120	2507	n/a	2507	25.19	n/a	25.19	25.5%				
120 - 115	2761	n/a	2761	26.02	n/a	26.02	32.0%				
115 - 110	3032	n/a	3032	26.84	n/a	26.84	38.4%				
110 - 105	3319	n/a	3319	27.66	n/a	27.66	45.8%				
105 - 100	3624	n/a	3624	28.49	n/a	28.49	52.8%				
100 - 96	3882	n/a	3882	29.14	n/a	29.14	58.2%				
96 - 89.83	5408	n/a	5408	39.46	n/a	39.46	45.9%				
89.83 - 84.83	5871	n/a	5871	40.55	n/a	40.55	50.0%				
84.83 - 79.83	6360	n/a	6360	41.65	n/a	41.65	53.9%				
79.83 - 74.83	6875	n/a	6875	42.74	n/a	42.74	57.6%				
74.83 - 69.83	7417	n/a	7417	43.84	n/a	43.84	61.2%				
69.83 - 66	7852	n/a	7852	44.68	n/a	44.68	63.9%				
66 - 65.75	7880	4817	12697	44.73	26.25	70.98	46.4%			59.0%	59.0%
65.75 - 60.75	8474	5047	13521	45.83	26.25	72.08	48.9%			62.1%	62.1%
60.75 - 55.75	9096	5282	14379	46.92	26.25	73.17	51.2%			65.1%	65.1%
55.75 - 50.75	9749	5523	15272	48.02	26.25	74.27	53.5%			68.0%	68.0%
50.75 - 49	9984	5608	15593	48.40	26.25	74.65	54.3%			68.9%	68.9%
49 - 41.83	12096	7033	19129	57.23	31.88	89.10	50.0%	63.4%			63.4%
41.83 - 37.92	12743	7272	20016	58.23	31.88	90.11	51.4%	65.2%			65.2%
37.92 - 37.67	12785	8607	21392	58.30	37.50	95.80	48.3%	61.3%	61.3%		
37.67 - 32.67	13648	8973	22620	59.58	37.50	97.08	50.0%	63.4%	63.4%		
32.67 - 27.67	14548	9347	23895	60.86	37.50	98.36	51.6%	65.4%	65.4%		
27.67 - 22.67	15487	9729	25215	62.14	37.50	99.64	53.1%	67.3%	67.3%		
22.67 - 17.67	16465	10118	26583	63.43	37.50	100.93	54.6%	69.1%	69.1%		
17.67 - 12.67	17484	10515	27999	64.71	37.50	102.21	56.0%	70.9%	70.9%		
12.67 - 7.67	18544	10920	29464	65.99	37.50	103.49	57.3%	72.6%	72.6%		
7.67 - 2.67	19646	11333	30979	67.27	37.50	104.77	58.6%	74.1%	74.1%		
2.67 - 0	20251	11557	31808	67.96	37.50	105.46	59.2%	75.0%	75.0%		

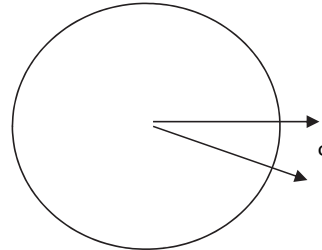
Note: Section capacity checked in 5 degree increments.



BU#	
Site Name	CT5022
App #	

Number Of Bolts (Ext + Mod)	19
Diameter Of Exist. Bolt Circle(inch)	56.91
Moment (ft. kips)	3715
Axial Compression (kips)	38
Outer Diamter of Mod. Bolt Circle(inch)	56.91

44580 in. kips



	Bolt Diameter (inch)	Grade	Allowable Axial (kips)	Capacity
Existing	2.25	A615 (Gr 75)	195	85.8%
Mod	2.25	F1554 (105 KSI)	218.6	76.2%

Sum Ax_i^2 29917.34

T(+) C(-)

Bolt #	ϕ°	Bolt Circle	D (in)	Radians	$\text{Cos}(\phi^\circ)$	x_i (inch)	x_i^2	Area	Ax_i	Ax_i^2	Force (Kip)	Capacities
1	-11.25	56.91	2.25	-0.196	0.981	27.908	778.870	3.98	110.97	3096.85	163.4	83.8%
2	11.25	56.91	2.25	0.196	0.981	27.908	778.870	3.98	110.97	3096.85	163.4	83.8%
3	33.75	56.91	2.25	0.589	0.831	23.659	559.770	3.98	94.07	2225.69	138.2	70.9%
4	56.25	56.91	2.25	0.982	0.556	15.809	249.917	3.98	62.86	993.69	91.7	47.0%
5	78.75	56.91	2.25	1.374	0.195	5.551	30.817	3.98	22.07	122.53	30.9	15.8%
6	101.25	56.91	2.25	1.767	-0.195	-5.551	30.817	3.98	-22.07	122.53	-34.9	17.9%
7	123.75	56.91	2.25	2.160	-0.556	-15.809	249.917	3.98	-62.86	993.69	-95.7	49.1%
8	146.25	56.91	2.25	2.553	-0.831	-23.659	559.770	3.98	-94.07	2225.69	-142.2	72.9%
9	168.75	56.91	2.25	2.945	-0.981	-27.908	778.870	3.98	-110.97	3096.85	-167.4	85.8%
10	191.25	56.91	2.25	3.338	-0.981	-27.908	778.870	3.98	-110.97	3096.85	-167.4	85.8%
11	213.75	56.91	2.25	3.731	-0.831	-23.659	559.770	3.98	-94.07	2225.69	-142.2	72.9%
12	236.25	56.91	2.25	4.123	-0.556	-15.809	249.917	3.98	-62.86	993.69	-95.7	49.1%
13	258.75	56.91	2.25	4.516	-0.195	-5.551	30.817	3.98	-22.07	122.53	-34.9	17.9%
14	281.25	56.91	2.25	4.909	0.195	5.551	30.817	3.98	22.07	122.53	30.9	15.8%
15	303.75	56.91	2.25	5.301	0.556	15.809	249.917	3.98	62.86	993.69	91.7	47.0%
16	326.25	56.91	2.25	5.694	0.831	23.659	559.770	3.98	94.07	2225.69	138.2	70.9%
17	0	56.91	2.25	0.000	1.000	28.455	809.687	3.98	113.14	3219.38	166.6	76.2%
18	112.5	56.91	2.25	1.963	-0.383	-10.889	118.576	3.98	-43.30	471.47	-66.5	30.4%
19	247.5	56.91	2.25	4.320	-0.383	-10.889	118.576	3.98	-43.30	471.47	-66.5	30.4%

Stiffened or Unstiffened, Ungrouted, Circular Base Plate - Any Rod Material

TIA Rev G

Assumption: Clear space between bottom of leveling nut and top of concrete **not** exceeding (1)*(Rod Diameter)

Site Data	
BU#:	
Site Name:	CT 5022
App #:	
Pole Manufacturer:	Other

Reactions		
Mu:	3715	ft-kips
Axial, Pu:	51	kips
Shear, Vu:	38	kips
Eta Factor, η	0.55	TIA G (Fig. 4-4)

Anchor Rod Data		
Qty:	16	
Diam:	2.25	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	56.91	in

If No stiffeners, Criteria: AISC LRFD <-Only Applicable to Unstiffened Cases

Base Plate Check Only

Rigid
AISC LRFD
ϕ^*T_n

Plate Data		
Diam:	62.9	in
Thick:	2.75	in
Grade:	60	ksi
Single-Rod B-eff:	9.98	in

Base Plate Results

Base Plate Stress:
Allowable Plate Stress:
Base Plate Stress Ratio:

Flexural Check

23.9 ksi
54.0 ksi
44.2% **Pass**

Rigid
AISC LRFD
ϕ^*F_y
Y.L. Length: 27.76

Stiffener Data (Welding at both sides)		
Config:	0	*
Weld Type:	Fillet	
Groove Depth:	0.25	<-- Disregard
Groove Angle:	45	<-- Disregard
Fillet H. Weld:	0.25	in
Fillet V. Weld:	0.3125	in
Width:	5	in
Height:	18	in
Thick:	0.75	in
Notch:	0.5	in
Grade:	36	ksi
Weld str.:	70	ksi

n/a

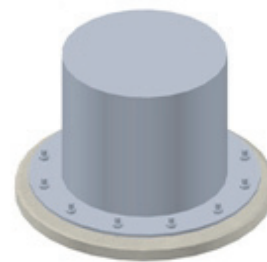
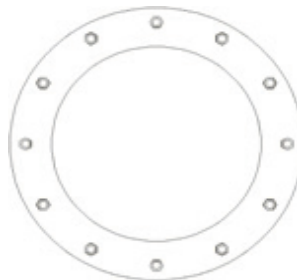
Stiffener Results

Horizontal Weld : n/a
Vertical Weld: n/a
Plate Flex+Shear, $f_b/F_b+(f_v/F_v)^2$: n/a
Plate Tension+Shear, $f_t/F_t+(f_v/F_v)^2$: n/a
Plate Comp. (AISC Bracket): n/a

Pole Results

Pole Punching Shear Check: n/a

Pole Data		
Diam:	49.68	in
Thick:	0.438	in
Grade:	65	ksi
# of Sides:	12	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0	"0" if None



* 0 = none, 1 = every bolt, 2 = every 2 bolts, 3 = 2 per bolt

** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

Exhibit 4



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

AT&T Existing Facility

Site ID: CT5022

AWE - Fairfield
100 Reef Road
Fairfield, CT 06824

October 17, 2016

EBI Project Number: 6216004630

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	6.23 %



October 17, 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: **CT5022 – AWE - Fairfield**

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

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The number of $\mu\text{W}/\text{cm}^2$ 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 ($\mu\text{W}/\text{cm}^2$). The general population exposure limits for the 700 and 850 MHz Bands are approximately $467 \mu\text{W}/\text{cm}^2$ and $567 \mu\text{W}/\text{cm}^2$ respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 2300 MHz (WCS) bands is $1000 \mu\text{W}/\text{cm}^2$. 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 **100 Reef Road, Fairfield, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

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 (1900 MHz (PCS)) 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 and the Powerwave P65-16-XLH-RR** 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 **130 feet** above ground level (AGL) for **Sector A**, **130 feet** above ground level (AGL) for **Sector B** and **130 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):	130 feet	Height (AGL):	130 feet	Height (AGL):	130 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%	0.65 %	Antenna B1 MPE%	0.65 %	Antenna C1 MPE%	0.65 %
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Powerwave P65-16-XLH-RR	Make / Model:	Powerwave P65-16-XLH-RR	Make / Model:	Powerwave P65-16-XLH-RR
Gain:	12.7 / 15.1 dBd	Gain:	12.7 / 15.1 dBd	Gain:	12.7 / 15.1 dBd
Height (AGL):	130 feet	Height (AGL):	130 feet	Height (AGL):	130 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):	6,117.63	ERP (W):	6,117.63	ERP (W):	6,117.63
Antenna A2 MPE%	2.03 %	Antenna B2 MPE%	2.03 %	Antenna C2 MPE%	2.03 %
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):	130 feet	Height (AGL):	130 feet	Height (AGL):	130 feet
Frequency Bands	1900 MHz	Frequency Bands	1900 MHz	Frequency Bands	1900 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):	1,312.66	ERP (W):	1,312.66	ERP (W):	1,312.66
Antenna A3 MPE%	0.31 %	Antenna B3 MPE%	0.31 %	Antenna C3 MPE%	0.31 %

Site Composite MPE%	
Carrier	MPE%
AT&T – Max per sector	2.98 %
T-Mobile	0.02 %
Clearwire	0.10 %
Sprint	1.28 %
MetroPCS	1.83 %
Nextel	0.00 %
FCI900	0.01 %
Fairfield	0.01 %
Site Total MPE %:	6.23 %

AT&T Sector A Total:	2.98 %
AT&T Sector B Total:	2.98 %
AT&T Sector C Total:	2.98 %
Site Total*:	6.23 %

AT&T Frequency Band / Technology	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
AT&T 850 MHz UMTS	2	414.12	130	1.94	850 MHz	567	0.34%
AT&T 1900 MHz (PCS) UMTS	2	656.33	130	3.07	1900 MHz (PCS)	1000	0.31%
AT&T 700 MHz LTE	2	1,117.25	130	5.22	700 MHz	467	1.12%
AT&T 1900 MHz (PCS) LTE	2	1,941.56	130	9.08	1900 MHz (PCS)	1000	0.91%
AT&T 1900 MHz (PCS) GSM	2	656.33	130	3.07	1900 MHz (PCS)	1000	0.31%
						Total*:	2.98%

* Note: Totals may vary by 0.01% 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:	2.98 %
Sector B:	2.98 %
Sector C:	2.98 %
AT&T Maximum Total (per sector):	2.98 %
Site Total:	6.23 %
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **6.23 %** 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.