EMPIRE telecom

EM-AT&T-064-160323

March 22, 2016

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

Regarding:	Notice of Exempt Modification – Antenna Swap & Addition of Three Radio Heads & DC/Fiber Squid
Property Address:	99 Meadow Street, Hartford, CT (the "Property")
Applicant:	AT&T Mobility (AT&T)

Dear Ms. Bachman:

AT&T currently maintains a wireless telecommunications facility on an existing 147.9-foot monopole at the above-referenced address, latitude 41.7438919, longitude -72.6682989. Said monopole is owned by American Tower Corporation. The existing equipment shelter is 19.667' x 11.5' totaling 226.17 square feet.

AT&T desires to modify its existing telecommunications facility by swapping three (3) antennas and adding three remote-radio heads ("RRHs") with A2 modules. The centerline height of said antennas is and will remain at 135 feet. Antennas are mounted utilizing a platform with hand rails.

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). A copy of this letter is being sent to the Honorable Luke Bronin, Mayor of the City of Hartford. A copy is also being sent to the monopole owner American Tower Corporation as well as the landowner, Meadow Street Realty, LLC.

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 antennas to be swapped will be installed at the existing height of 135 feet on the 147.9-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 decibel or more, or to levels that exceed state and local criteria.

Sarah Snell • Empire Telecom USA, LLC • 16 Esquire Road Billerica, MA 01862 • 978-608-8146 • ssnell@empiretelecomm.com

4. The operation of the modified facility will not increase radio frequency (RF) emissions at the facility to a level at or above Federal Communications Commission (FCC) safety standard. An RF emissions calculation (attached) for AT&T's modified facility is herein provided.

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

6. The monopole and its foundation can support AT&T's proposed modifications (please see attached structural analysis completed by American Tower dated January 11, 2016).

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

Sincerely,

Sarah Snell
Site Acquisition Specialist

cc: The Honorable Luke Bronin, Mayor, City of Hartford
American Tower Corporation
Meadow Street Realty, LLC

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PROJECT INFORMATION

SCOPE OF WORK:
- ADD 1 RRH PER SECTOR (TOTAL OF 3 NEW RRHs)
- REPLACE ONE ANTENNA PER SECTOR (TOTAL OF 3 NEW ANTENNAS)
- ADD (2) DC SQUID
- INSTALL (1) FIBER TRUNK AND (2) DC TRUNKS
- ADD (4) TRIPLEXERS PER SECTOR (12 TOTAL)

SITE ADDRESS:	99 MEADOW STREET HARTFORD, CT 06114
LATITUDE:	41.7438919 41°-44'-36.01084"N
LONGITUDE:	-72.6682989 72°-40'-5.87604"W
USID:	4540
TOWER OWNER:	TBD
TYPE OF SITE:	MONOPOLE/OUTDOOR EQUIPMENT
STRUCTURE HEIGHT:	150'-0"±
RAD CENTER:	138'-0"±
CURRENT USE:	UNMANNED WIRELESS TELECOMMUNICATIONS FACILITY
PROPOSED USE:	UNMANNED WIRELESS TELECOMMUNICATIONS FACILITY

DRAWING INDEX

		REV.
T-1	TITLE SHEET	A
GN-1	GROUNDING & GENERAL NOTES	A
A-1	SITE PLAN	A
A-2	EQUIPMENT LAYOUTS	A
A-3	ANTENNA LAYOUTS & ELEVATIONS	A
A-4	DETAILS	A
A-5	ANTENNA MOUNTING DETAILS	A
G-1	GROUNDING, ONE-LINE DIAGRAM & DETAILS	A

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 AMD MAY IMPOSE CHANGES OR SITE MODIFICATIONS.

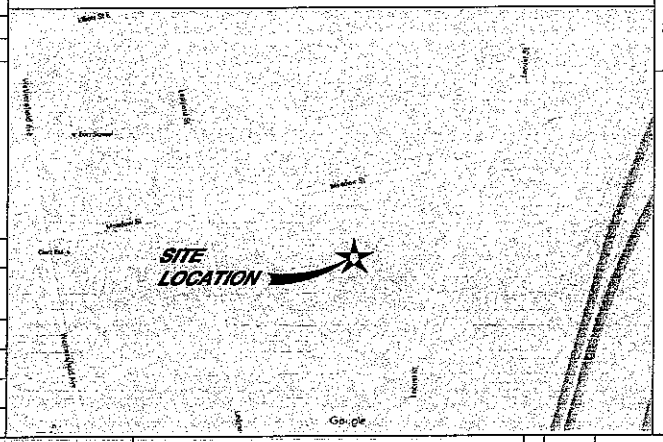
DISCIPLINE:	NAME:	DATE:
SITE ACQUISITION:		
CONSTRUCTION MANAGER:		
AT&T PROJECT MANAGER:		

at&t MOBILITY

FA CODE: 10070908
SITE NUMBER: CTU5127
SITE NAME: I 91 AND 5 SPLIT

VICINITY MAP

FROM ROCKY HILL, HEAD SOUTHWEST ON CONCRIB LN. TURN LEFT ONTO SOLO DR. TURN RIGHT ONTO GILBERT AVE. TURN RIGHT ONTO STATE HWY 411. TURN LEFT TO MERGE ONTO I-91 S. TAKE EXIT 27 TO AND TURN LEFT ONTO BRAINARD RD. TURN LEFT ONTO AIRPORT RD. TURN RIGHT ONTO LOCUST ST. TURN LEFT ONTO MEADOW ST. SITE WILL BE ON LEFT.



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

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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: 484-883-1750
EMAIL: gdorman@empiretelecomm.com

GENERAL NOTES

1. 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.
2. 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.
3. 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 ONE CALL SYSTEM, INC. 1-800-922-4455 STOP CALL BEFORE YOU DIG!

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

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NO.	DATE	REVISIONS	BY	CHK	APP'D
A	03/04/16	ISSUED FOR REVIEW	KCD	NDB	NDB

SCALE: AS SHOWN | DESIGNED BY: NJM | DRAWN BY: NJM

SEAL:
NICHOLAS D. BARILE
PROFESSIONAL ENGINEER
CT LICENSE NO. 28543

AT&T

DRAWING TITLE: TITLE SHEET

JOB NUMBER	DRAWING NUMBER	REV
15202-EMP	T-1	A

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 ½" 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 (F_y=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.
22. INFORMATION SHOWN ON THIS SET OF PLANS TAKEN FROM DRAWINGS PREPARED BY SAI COMMUNICATIONS FOR A RECENT UPGRADE DATED 10/23/08. CONTRACTOR TO NOTIFY DESIGN ENGINEER OF ANY DISCREPANCIES PRIOR TO COMMENCEMENT OF CONSTRUCTION.

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SITE NUMBER: CTU5127

SITE NAME: I 95 AND 5 SPLIT

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HARTFORD COUNTY

at&t MOBILITY
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FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
A	03/04/16	ISSUED FOR REVIEW	KDD	NDB	NDB

SCALE: AS SHOWN | DESIGNED BY: NJM | DRAWN BY: NJM

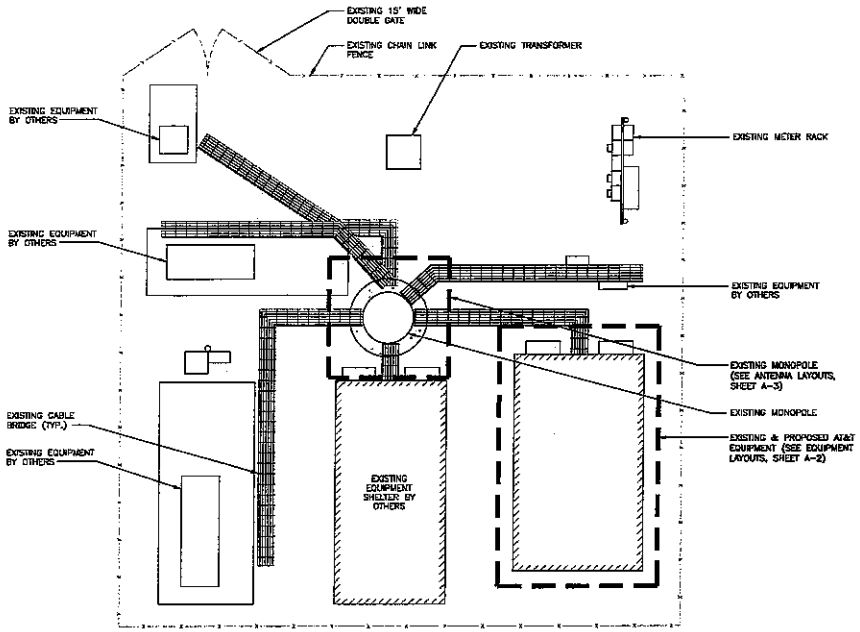
SEAL:

NICHOLAS D. BARILE
PROFESSIONAL ENGINEER
CT LICENSE NO. 28643

AT&T

DRAWING TITLE:
GROUNDING & GENERAL NOTES

JOB NUMBER	DRAWING NUMBER	REV
15202-EMP	GN-1	A



NORTH

SITE PLAN
SCALE: 3/16" = 1'-0"

GRAPHIC SCALE: 3/16"=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.

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NICHOLAS D. BARILE
PROFESSIONAL ENGINEER
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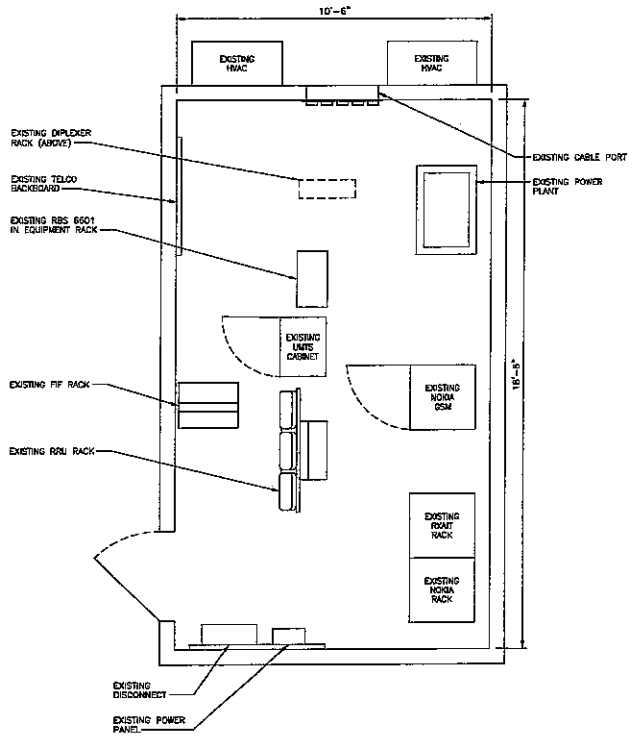
AT&T

DRAWING TITLE:
ROOFTOP LAYOUT

JOB NUMBER	DRAWING NUMBER	REV.
15202-EMP	A-1	A



EXISTING EQUIPMENT LAYOUT

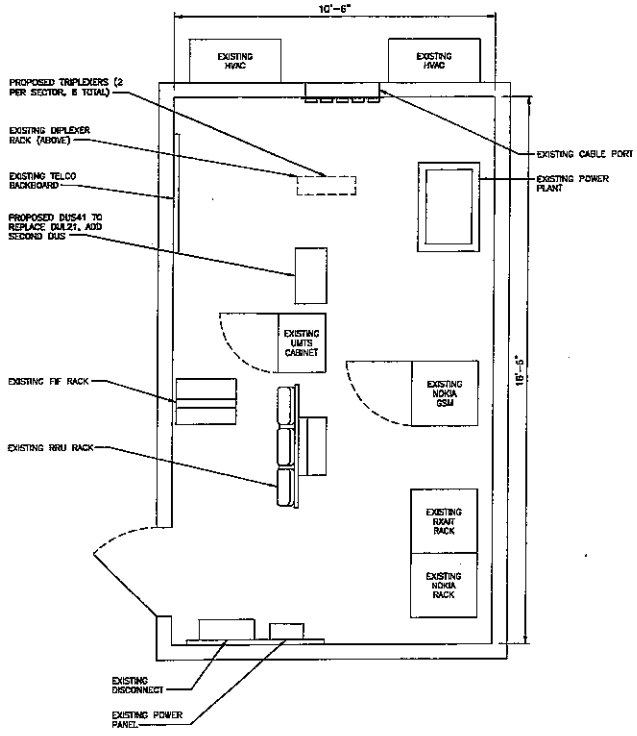
SCALE: 1" = 2'-0"

2 0 1 2 4 6

(IN FEET)

1/2 Inch = 1 Foot

NORTH



PROPOSED EQUIPMENT LAYOUT

SCALE: 1" = 2'-0"

2 0 1 2 4 6

(IN FEET)

1/2 Inch = 1 Foot

NO GROUND EQUIPMENT MODIFICATIONS ARE BEING MADE AS PART OF THIS SCOPE. EXISTING GROUND EQUIPMENT CONFIGURATION TO REMAIN.

NORTH

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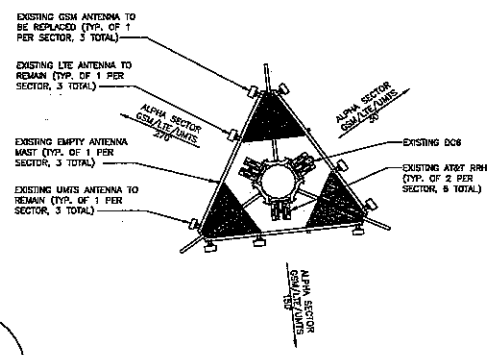
PROFESSIONAL ENGINEER
CT LICENSE NO. 28543

AT&T

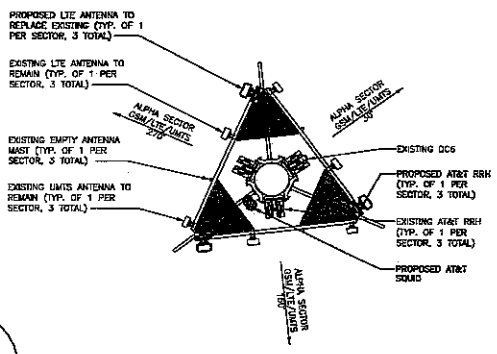
DRAWING TITLE: EQUIPMENT LAYOUTS

JOB NUMBER	DRAWING NUMBER	REV
15202-EMP	A-2	A



EXISTING ANTENNA LAYOUT

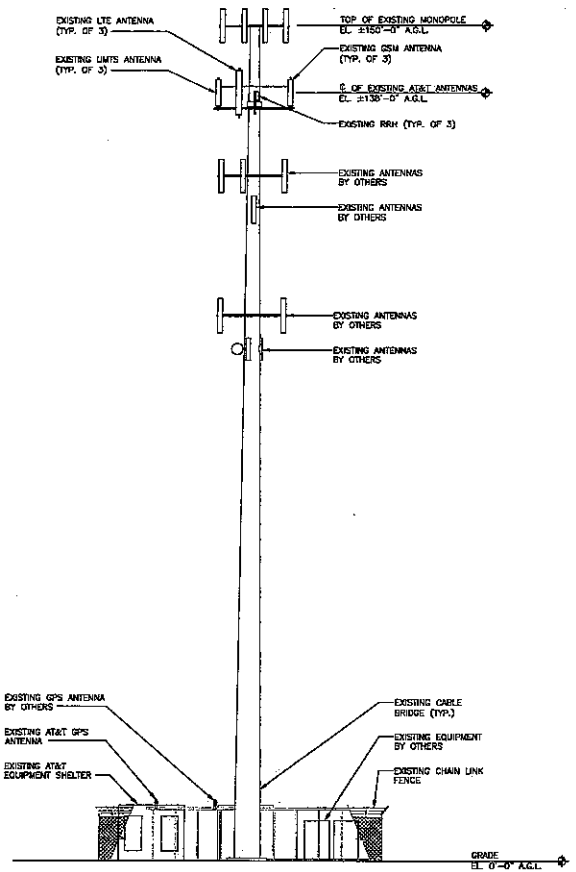
SCALE: N.T.S.



PROPOSED ANTENNA LAYOUT

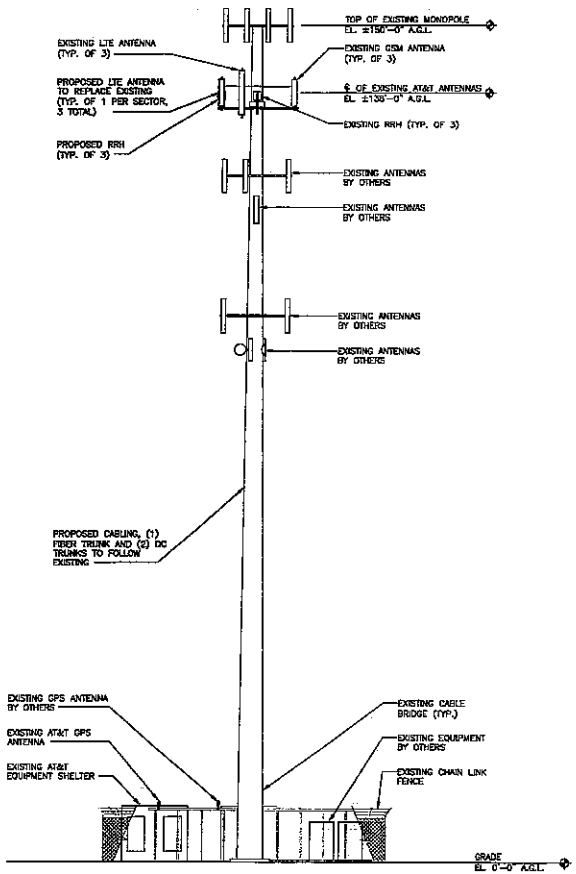
SCALE: N.T.S.

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.



EXISTING TOWER ELEVATION

SCALE: NTS



SCALE: NTS

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SITE NUMBER: CTU5127

SITE NAME: I 95 AND 5 SPLIT

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NO.	DATE	REVISIONS	BY	CHK	APP'D
A	03/04/19	ISSUED FOR REVIEW	KCD	NDB	NDB

SCALE: AS SHOWN | DESIGNED BY: NJM | DRAWN BY: NJM

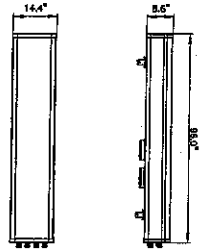
SEAL:

NICHOLAS D. BARILE
PROFESSIONAL ENGINEER
CT LICENSE NO. 28643

AT&T

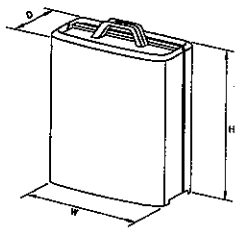
DRAWING TITLE:
ANTENNA LAYOUTS & ELEVATIONS

JOB NUMBER	DRAWING NUMBER	REV
15202-EMP	A-3	A



MANUFACTURER	CCI
MODEL	TPA-65R-LCUUU-H8
WEIGHT	75.0 LBS

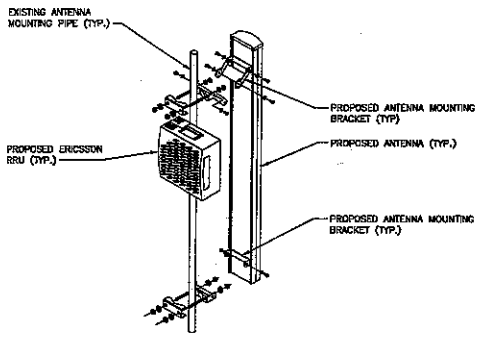
LTE ANTENNA DETAIL
SCALE: N.T.S.



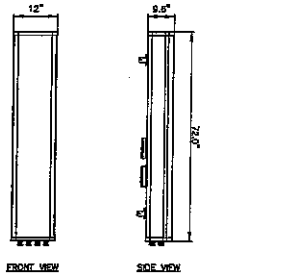
MODEL	L x W x H	WEIGHT
*RRUS-11	19.69" x 16.97" x 7.17"	50.7 LBS
RRUS-32	29.9" x 13.3" x 9.5"	77 LBS
A2 MODULE	16.4" x 15.2" x 3.4"	22 LBS

*DENOTES EXISTING.

RRUS DETAIL
SCALE: N.T.S.



ANTENNA AND RRU MOUNTING DETAIL
SCALE: N.T.S.



MANUFACTURER	QUINTEL
MODEL	QS65512-3
WEIGHT	105.0 LBS

LTE ANTENNA DETAIL
SCALE: N.T.S.

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A	03/04/16	ISSUED FOR REVIEW	KCD	NDB	NDB

SCALE: AS SHOWN | DESIGNED BY: NJM | DRAWN BY: NJM

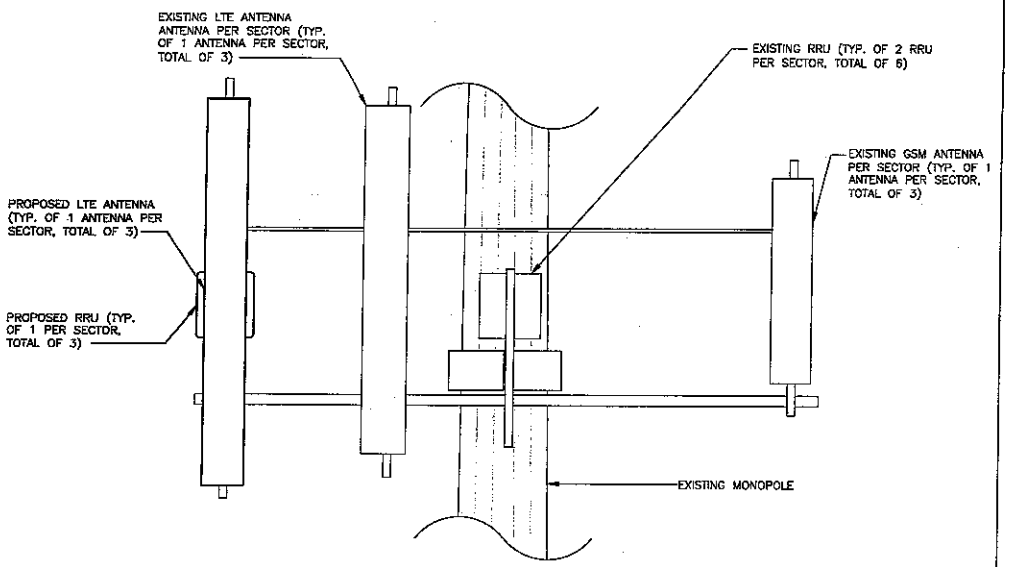
SEAL:

NICHOLAS D. BARILE
PROFESSIONAL ENGINEER
CT LICENSE NO. 28943

AT&T

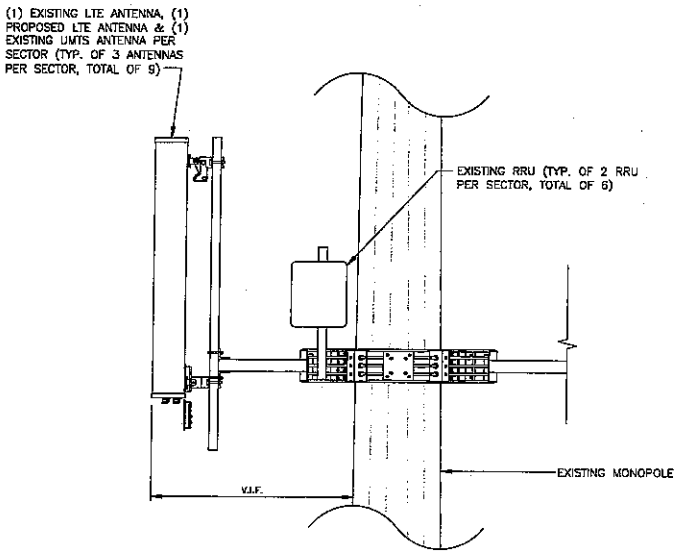
DRAWING TITLE: DETAILS

JOB NUMBER	DRAWING NUMBER	REV
15202-EMP	A-4	A



PROPOSED ANTENNA MOUNTING DETAIL (FRONT VIEW)

SCALE: N.T.S.



PROPOSED ANTENNA MOUNTING DETAIL (SIDE VIEW)

SCALE: N.T.S.

EXISTING ANTENNA SCHEDULE

SECTOR	POSITION	MAKE	MODEL	SIZE (INCHES)
ALPHA	A1	POWERWAVE	7770	55"x11"x5"
	A2	–	–	–
	A3	KMW	AM-X-CD-16-65-00T-RET	72"x11.8"x5.9"
	A1	POWERWAVE	7770	55"x11"x5"
BETA	A1	POWERWAVE	7770	55"x11"x5"
	B2	–	–	–
	B3	KMW	AM-X-CD-16-65-00T-RET	72"x11.8"x5.9"
	B4	–	–	–
GAMMA	G1	POWERWAVE	7770	55"x11"x5"
	G2	–	–	–
	G3	ANDREW	SBNH-1D-6565C	96.4"x11.9"x7.1"
	A1	POWERWAVE	7770	55"x11"x5"

FINAL ANTENNA SCHEDULE

SECTOR	POSITION	MAKE	MODEL	SIZE (INCHES)
ALPHA	A1	POWERWAVE	7770	55"x11"x5"
	A2	–	–	–
	A3	KMW	AM-X-CD-16-65-00T-RET	72"x11.8"x5.9"
	A1	CCI	QS66512-3	72"x12"x9.6"
BETA	B1	POWERWAVE	7770	55"x11"x5"
	B2	–	–	–
	B3	KMW	AM-X-CD-16-65-00T-RET	72"x11.8"x5.9"
	A1	CCI	QS66512-3	72"x12"x9.6"
GAMMA	G1	POWERWAVE	7770	55"x11"x5"
	G2	–	–	–
	G3	ANDREW	SBNH-1D-6565C	96.4"x11.9"x7.1"
	A1	CCI	TPA-65R-LCUUUU-H8	96"X14"X8.6"

PROPOSED RRU SCHEDULE

SECTOR	MAKE	MODEL	SIZE (INCHES)	ADDITIONAL COMPONENT	SIZE (INCHES)
ALPHA	ERICSSON	RRUS-11 (EXISTING)	19.7"x16.9"x7.2"		
	ERICSSON	RRUS-11 (EXISTING)	19.7"X16.9"X7.2"		
	ERICSSON	RRUS-32	29.9"x13.3"x9.5"	A2 MODULE	16.4"x15.2"x3.4"
BETA	ERICSSON	RRUS-11 (EXISTING)	19.7"x16.9"x7.2"		
	ERICSSON	RRUS-11 (EXISTING)	19.7"X16.9"X7.2"		
	ERICSSON	RRUS-32	29.9"X13.3"X9.5"	A2 MODULE	16.4"X15.2"X3.4"
GAMMA	ERICSSON	RRUS-11 (EXISTING)	19.7"x16.9"x7.2"		
	ERICSSON	RRUS-11 (EXISTING)	19.7"X16.9"X7.2"		
	ERICSSON	RRUS-32	29.9"X13.3"X9.5"	A2 MODULE	16.4"X15.2"X3.4"

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SCALE: AS SHOWN | DESIGNED BY: NJM | DRAWN BY: NJM

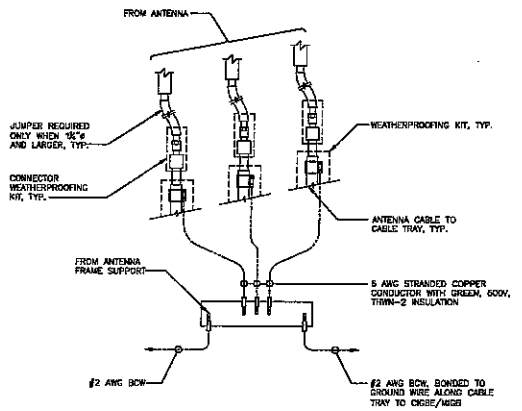
SEAL:

NICHOLAS D. BARILE
PROFESSIONAL ENGINEER
CT LICENSE NO. 28643

AT&T

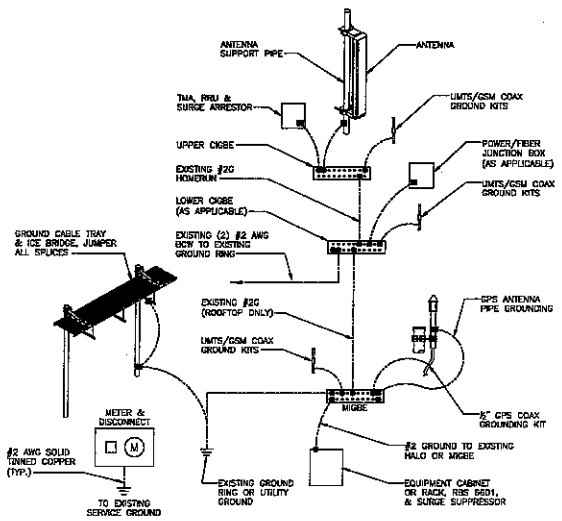
DRAWING TITLE:
ANTENNA MOUNTING DETAILS

JOB NUMBER	DRAWING NUMBER	REV
15202-EMP	A-5	A



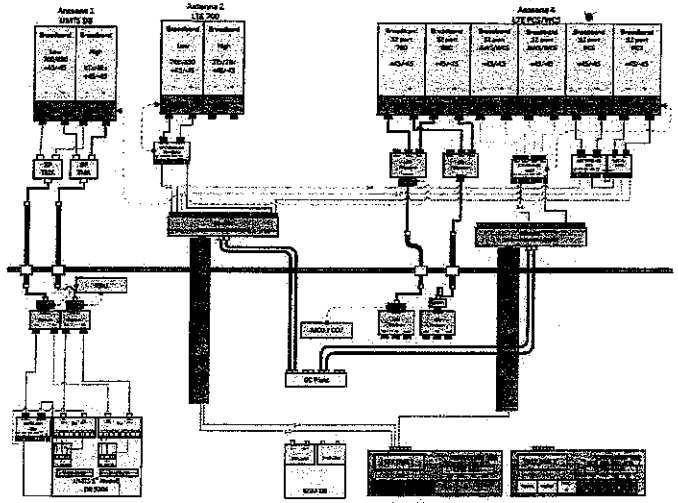
GROUND WIRE TO GROUND BAR CONNECTION DETAIL

SCALE: N.T.S.



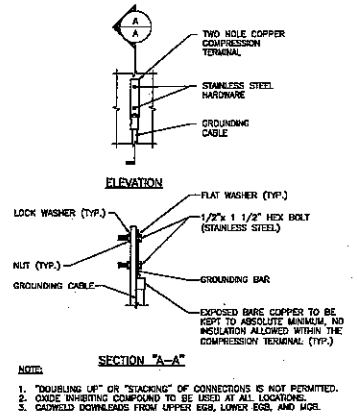
GROUNDING RISER DIAGRAM

SCALE: N.T.S.



TYPICAL PLUMBING DIAGRAM (PER SECTOR)

SCALE: N.T.S.

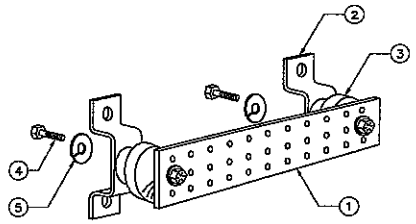


NOTE:

1. "DOUBLING UP" OR "STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB.

TYPICAL GROUND BAR CONNECTION DETAIL

SCALE: N.T.S.



ITEM NO.	QTY.	DESCRIPTION
1	1	SOLID GROUND BAR (20"± 4"± ¼")
2	2	WALL MOUNTING BRACKET
3	2	INSULATORS
4	4	⅝"-11x1" H.H.C.S.
5	4	⅝" 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 "Z" - 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.

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SITE NUMBER: CTU5127

SITE NAME: I 95 AND 5 SPLIT

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HARTFORD COUNTY

at&t MOBILITY
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FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
A	03/04/16	ISSUED FOR REVIEW	KCD	NDB	NDB

SCALE: AS SHOWN | DESIGNED BY: NJM | DRAWN BY: NJM

SEAL:

NICHOLAS D. BARILE
PROFESSIONAL ENGINEER
CT LICENSE NO. 28643

AT&T

DRAWING TITLE: GROUNDING, ONE-LINE DIAGRAM & DETAILS

JOB NUMBER	DRAWING NUMBER	REV
15202-EMP	G-1	A

AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**147.9 ft Monopole**
ATC Site Name	:	**Petro Lock, CT**
ATC Site Number	:	**302468**
Engineering Number	:	**64792022**
Proposed Carrier	:	**AT&T Mobility**
Carrier Site Name	:	**1 91 AND 5 Split**
Carrier Site Number	:	**CT5127/FA#10070908**
Site Location	:	**99 Meadow St** **Hartford, CT 06114-1598** **41.743197,-72.667500**
County	:	**Hartford**
Date	:	**January 11, 2016**
Max Usage	:	**90%**
Result	:	**Pass**

Reviewed by:
Scott Wirgau, PE
Structural Team Leader

Prepared By:
Amir H. Tabarestani, E.I.
Structural Engineer II

Jan 11 2016 4:49 PM

COA: PEC.0001553

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Table of Contents

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 147.9 ft monopole to reflect the change in loading by AT&T Mobility.

Supporting Documents

Tower Drawings	FWT Job #21719000 Rev. 1, dated July 18, 2000
Foundation Drawing	FWT Job #21719000 Rev. 1, dated July 18, 2000
Geotechnical Report	Osprey Environmental Engineering Job #98083-01, dated August 28, 1998

Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/EIA-222.

Basic Wind Speed:	80 mph (Fastest Mile)
Basic Wind Speed w/ Ice:	69 mph (Fastest Mile)w/ 1/2" radial ice concurrent
Code:	ANSI/TIA/EIA-222-F / 2003 IBC, Sec. 1609.1.1, Exception (3) & Sec. 3108.4 w/ 2005 CT Supplement & 2009 CT Amendment

Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

Existing and Reserved Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
147.0	149.0	4	Decibel DB844H90E-XY	Platform w/ Handrails	(12) 1 5/8" Coax	Sprint Nextel
		8	Andrew 844G65VTZASX			
135.0	137.0	6	Powerwave LGP21401	Platform w/ Handrails	(2) 0.78" 8 AWG 6 (12) 1 5/8" Coax (1) 3" Conduit (1) 0.39" Cable	AT&T Mobility
		3	Ericsson RRUS 11 (Band 12) (55 lb)			
		3	Powerwave 7750.00			
		2	KMW AM-X-CD-16-65-00T-RET			
		1	Andrew SBNH-1D6565C			
	135.0	2	Raycap DC6-48-60-18-8F			
123.0	123.0	3	Kathrein Smart Bias-T	T-Arms	(12) 1 5/8" Coax	T-Mobile
		3	Ericsson KRY 112 144/1			
		3	Ericsson KRY 112 489/1			
		3	RFS APX16DWV-16DWVS-E-A20			
		3	Andrew LNX-6515DS-VTM			
113.0	113.0	3	RFS APXV18-206517	Flush	(6) 1 5/8" Coax	Metro PCS
98.0	98.0	3	RFS IBC1900BB-1	Low Profile Platform	(4) 1 1/4" Hybriflex	Sprint Nextel
		3	RFS IBC1900HG-2A			
		3	Alcatel-Lucent 800MHz 2X50W RRH w/ Filter			
		3	Alcatel-Lucent 4x40W RRH (88 lb)			
		3	Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield			
		3	RFS APXVTM14-C-I20			
		3	RFS APXVSPP18-C-A20			
89.0	89.0	3	DragonWave Horizon Compact	Side Arms	(6) 5/16" Coax (3) 1/2" Coax (1) 2" Conduit	Clearwire
		3	NextNet BTS-2500			
		2	DragonWave A-ANT-18G-2-C			
		3	Argus LLPX310R			
		1	DragonWave A-ANT-11G-2.5-C			
84.0	84.0	3	Alcatel-Lucent RRH2x40 (700)	Low Profile Platform	(12) 1 5/8" Coax (2) 1 5/8" Hybriflex	Verizon
		3	Alcatel-Lucent RRH2x40-AWS			
		6	Antel BXA-171063-8BF-EDIN-X			
		1	RFS DB-T1-6Z-8AB-0Z			
		6	Antel BXA-70063-6CF-EDIN-X			
20.0	20.0	1	Lucent KS-24019	Flush	(1) 1/2" Coax	Sprint Nextel

Equipment to be Removed

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
136.0	137.0	3	Ericsson RRUS 11 (Band 12) (55 lb)	-	-	AT&T Mobility
	136.0	6	LGP LGP21903			
135.0	137.0	3	Powerwave 7750.00			

Proposed Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
135.0	137.0	3	Ericsson RRUS 11 w/ RRUS A2	Platform w/ Handrails	-	AT&T Mobility
		3	Ericsson RRUS-32			
		2	Quintel QS66512-3 (112 lbs.)			
		1	CCI TPA-65R-LCUUUU-H8			
	135.0	6	CCI TPX-070821			

[1]Mount elevation is defined as height above bottom of steel structure to the bottom of mount, RAD elevation is defined as center of antenna above ground level (AGL).

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	89%	Pass
Shaft	90%	Pass
Base Plate	47%	Pass

Foundations

Reaction Component	Analysis Reactions
Moment (Kips-Ft)	3,556.6
Shear (Kips)	35.1
Axial (kips)	45.1

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
135.0	CCI TPX-070821	AT&T Mobility	2.143	1.576
	Ericsson RRUS 11 w/ RRUS A2			
	Ericsson RRUS-32			
	Quintel QS66512-3 (112 lbs.)			
	CCI TPA-65R-LCUUUU-H8			
89.0	DragonWave A-ANT-18G-2-C	Clearwire	0.994	1.223
	DragonWave A-ANT-11G-2.5-C			

***Deflection and Sway was evaluated considering a design wind speed of 50 mph (Fastest Mile) per ANSI/TIA/EIA-222-F.**

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Standard Conditions

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

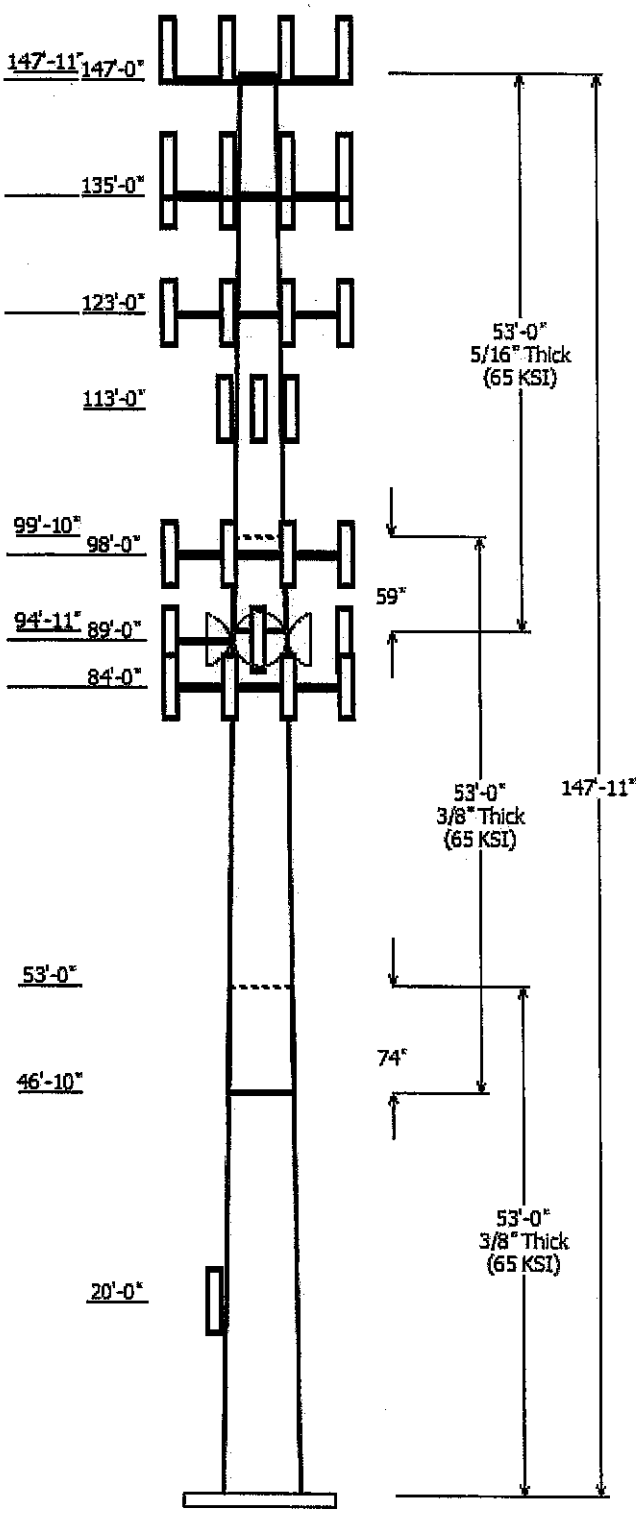
-- Information supplied by the client regarding the structure itself, antenna, mounts and feed line loading on the structure and its components, or other relevant information.

-- Information from drawings in the possession of American Tower Corporation, or generated by field inspections or measurements of the structure.

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and that their capacity has not significantly changed from the "as new" condition.

Unless explicitly agreed by both the client and American Tower Corporation, all services will be performed in accordance with the current revision of ANSI/TIA -222. The design basic wind speed will be determined based on the minimum basic wind speed as prescribed in ANSI/TIA-222. Although every effort is taken to ensure that the loading considered is adequate to meet the requirements of all applicable regulatory entities, we can provide no assurance to meet any other local and state codes or requirements. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.



Job Information

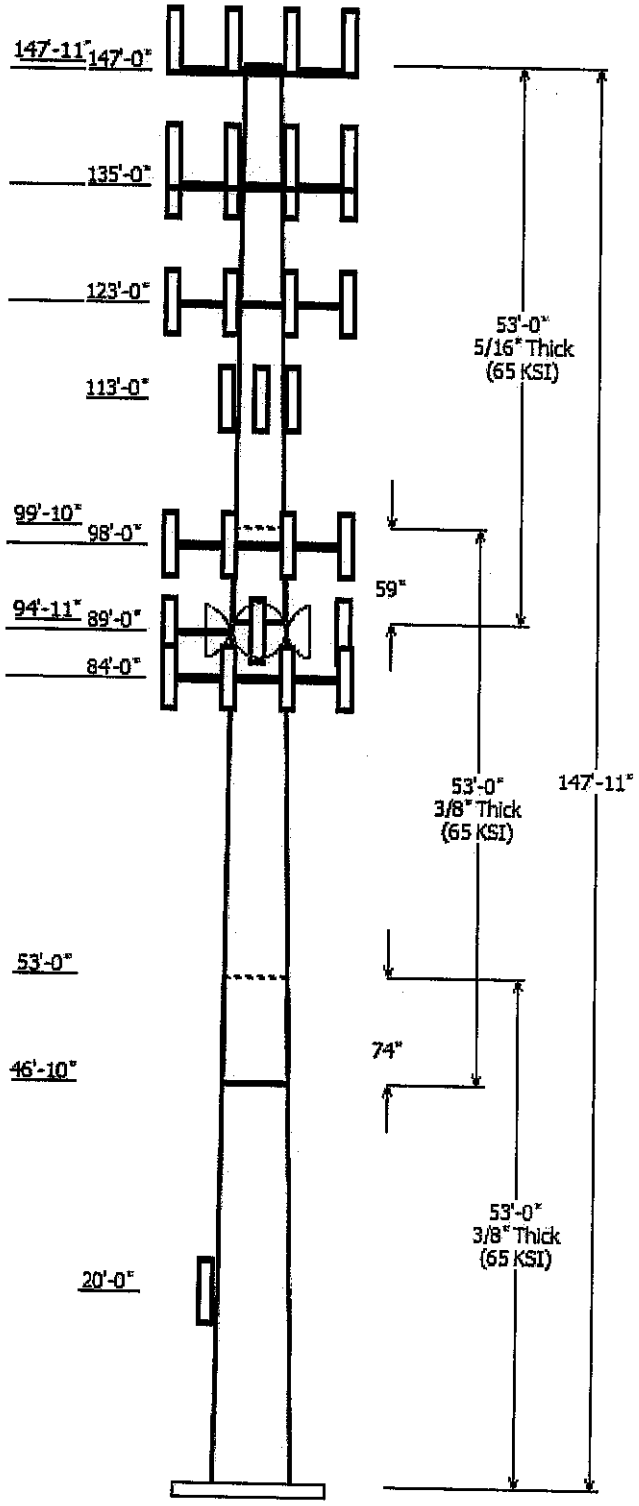
Pole :	302468
Code:	TIA/EIA-222-F
Description :	148' FWT Monopole
Client :	AT&T MOBILITY
Location :	Petro Lock, CT
Shape :	18 Sides
Height :	147.92 (ft)
Base Elev (ft):	0.00
Taper:	0.21456(in/ft)

Sections Properties

Shaft Section	Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Taper (in/ft)	Steel Grade (ksi)
1	53.000	45.20	56.58	0.375		0.000	0.214600	65
2	53.000	35.90	47.28	0.375	Slip Joint	74.000	0.214600	65
3	53.000	26.21	37.58	0.313	Slip Joint	59.000	0.214600	65

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
147.000	147.000	1	Flat Platform w/ Handrails
147.000	149.000	8	Andrew 844G65VTZASX
147.000	149.000	4	Decibel DB844H90E-XY
135.000	137.000	1	CCI TPA-65R-LCUUUU-H8
135.000	137.000	2	Quintel QS66512-3 (112 lbs.)
135.000	137.000	3	Ericsson RRUS-32
135.000	137.000	3	Ericsson RRUS 11 w/ RRUS A2
135.000	135.000	2	Raycap DC6-48-60-18-8F
135.000	137.000	3	Ericsson RRUS 11 (Band 12) (55
135.000	137.000	1	Andrew SBNH-1D6565C
135.000	137.000	2	KMW AM-X-CD-16-65-00T-RET
135.000	135.000	6	CCI TPX-070821
135.000	137.000	6	Powerwave LGP21401
135.000	135.000	1	Flat Platform w/ Handrails
135.000	137.000	3	Powerwave 7750.00
123.000	123.000	3	Andrew LNX-6515DS-VTM
123.000	123.000	3	RFS APX16DWV-16DWVS-E-A20
123.000	123.000	3	Ericsson KRY 112 489/1
123.000	123.000	3	Ericsson KRY 112 144/1
123.000	123.000	3	Kathrein Scala Smart Bias-T
123.000	123.000	3	Round T-Arms
113.000	113.000	3	RFS APXV18-206517
98.000	98.000	3	RFS APXVTM14-C-I20
98.000	98.000	3	Alcatel-Lucent TD-RRH8x20-25
98.000	98.000	3	RFS IBC1900HG-2A
98.000	98.000	3	RFS IBC1900BB-1
98.000	98.000	3	Alcatel-Lucent 800 MHz 2X50W
98.000	98.000	3	Alcatel-Lucent 4x40W RRH (88 I
98.000	98.000	3	RFS APXVSPP18-C-A20
98.000	98.000	1	Round Low Profile Platform
89.000	89.000	1	DragonWave A-ANT-11G-2.5-C
89.000	89.000	1	Side Arms
89.000	89.000	3	NextNet BTS-2500
89.000	89.000	3	Argus LLPX310R
89.000	89.000	3	DragonWave Horizon Compact
89.000	89.000	2	DragonWave A-ANT-18G-2-C
84.000	84.000	1	RFS DB-T1-6Z-8AB-0Z
84.000	84.000	1	Flat Low Profile Platform
84.000	84.000	6	Antel BXA-70063-6CF-EDIN-X
84.000	84.000	6	Antel BXA-171063-8BF-EDIN-X
84.000	84.000	3	Alcatel-Lucent RRH2x40-AWS
84.000	84.000	3	Alcatel-Lucent RRH2x40 (700)
20.000	20.000	1	Lucent KS-24019



Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
5.000	20.000	1/2" Coax	No
5.000	84.000	1 5/8" Coax	Yes
5.000	84.000	1 5/8" Hybriflex	Yes
5.000	89.000	1/2" Coax	Yes
5.000	89.000	2" Conduit	Yes
5.000	89.000	5/16" Coax	No
5.000	98.000	1 1/4" Hybriflex	No
5.000	113.0	1 5/8" Coax	No
5.000	123.0	1 5/8" Coax	No
5.000	123.0	1 5/8" Coax	Yes
5.000	135.0	0.39" Cable	No
5.000	135.0	0.78" 8 AWG 6	No
5.000	135.0	1 5/8" Coax	No
5.000	135.0	3" Conduit	No
5.000	147.0	1 5/8" Coax	No

Load Cases

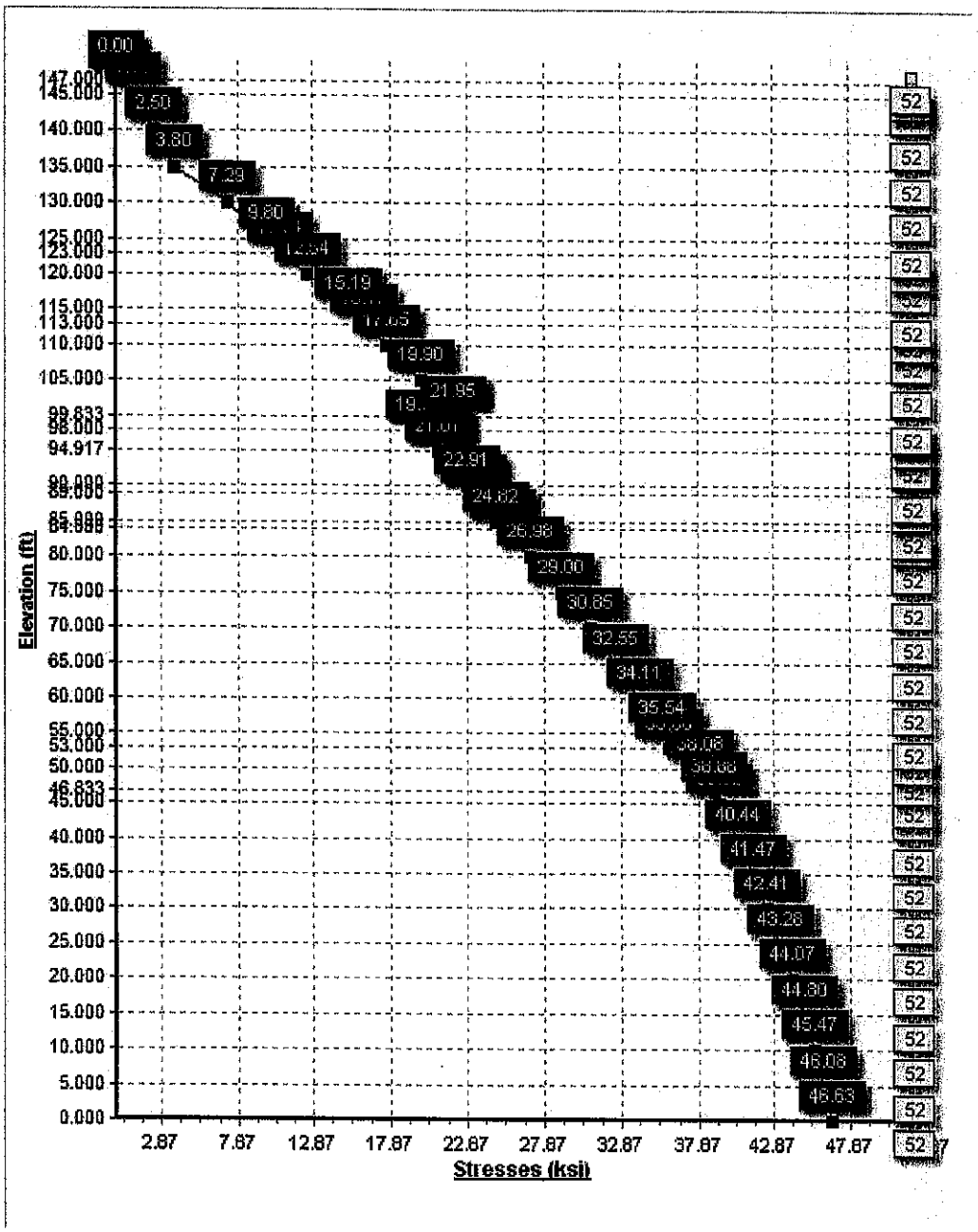
No Ice	80.00 mph Wind with No Ice
Ice	69.28 mph Wind with Ice
Twist/Sway	50.00 mph Wind with No Ice

Reactions

Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
No Ice	3556.60	35.09	45.13
Ice	2875.13	28.39	54.36
Twist/Sway	1390.21	13.71	45.18

Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
Twist/Sway	89.00	11.931	1.223
Twist/Sway	89.00	11.931	1.223


Elevation (ft)
147.000
145.000
140.000
135.000
130.000
125.000
123.000
120.000
115.000
113.000
110.000
105.000
99.833
98.000
94.917
90.000
85.000
80.000
75.000
70.000
65.000
60.000
55.000
53.000
50.000
46.833
45.000
40.000
35.000
30.000
25.000
20.000
15.000
10.000
5.000
0.000
2.87
7.87
12.87
17.87
22.87
27.87
32.87
37.87
42.87
47.87
Stresses (ksi)
0.00
2.50
3.80
7.29
9.80
15.19
19.90
21.95
22.91
24.82
26.98
29.00
30.85
32.55
34.11
35.54
40.44
41.47
42.41
43.28
44.07
44.80
45.47
46.08
46.63
52

Site Number:	**302468**	**Code:**	**TIA/EIA-222-F**
Site Name:	**Petro Lock, CT**	**Engineering Number:**	**64792022**
Customer:	**AT&T MOBILITY**		

1/11/2016 10:13:46 AM

Analysis Parameters

Location:	**Hartford County, CT**		
Code:	**TIA/EIA-222-F**	**Height (ft):**	**147.**
Shape:	**18 Sides**	**Base Diameter (in):**	**56.58**
Pole Type:	**Taper**	**Top Diameter (in):**	**26.22**
Pole Manfacturer:	**FWT Inc**	**Taper (in/ft) :**	**0.215**

Load Cases

No Ice	**80.00 mph Wind with No Ice**
Ice	**69.28 mph Wind with Ice**
Twist/Sway	**50.00 mph Wind with No Ice**

Site Number: 302468 | Code: TIA/EIA-222-F |

Site Name: Petro Lock, CT | Engineering Number: 64792022 | 1/11/2016 10:13:46 AM

Customer: AT&T MOBILITY

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom Dia (in)	Bottom Elev (ft)	Bottom Area (in²)	Bottom Ix (in⁴)	Bottom W/t Ratio	Bottom D/t Ratio	Top Dia (in)	Top Elev (ft)	Top Area (in²)	Top Ix (in⁴)	Top W/t Ratio	Top D/t Ratio	Taper (in/ft)
1-18	53.000	0.3750	65		0.00	10,844	56.58	0.00	66.90	26698.9	24.84	150.88	45.20	53.00	53.36	13550.6	19.49	120.55	0.214568
2-18	53.000	0.3750	65	Slip	74.00	8,848	47.28	46.83	55.83	15518.7	20.47	126.08	35.90	99.83	42.29	6746.8	15.12	95.76	0.214568
3-18	53.000	0.3125	65	Slip	59.00	5,651	37.58	94.92	36.97	6490.6	19.45	120.28	26.21	147.92	25.69	2178.2	13.03	83.89	0.214568
				Shaft Weight		25,342													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	No Ice Weight (lb)	No Ice EPAa (sf)	No Ice Orientation Factor	Ice Weight (lb)	Ice EPAa (sf)	Ice Orientation Factor	Distance From Face (ft)	Vert Ecc (ft)
147.00	Andrew 844G65VTZASX	8	16.00	5.890	0.84	54.72	6.500	0.84	0.000	2.000
147.00	Decibel DB844H90E-XY	4	14.00	3.733	0.91	40.30	4.288	0.91	0.000	2.000
147.00	Flat Platform w/ Handrails	1	2000.00	42.400	1.00	2,450.00	48.400	1.00	0.000	0.000
135.00	Andrew SBNH-1D6565C	1	66.10	11.440	1.00	132.00	12.370	1.00	0.000	2.000
135.00	CCI TPA-65R-LCUUUU-H8	1	82.10	13.440	1.00	141.77	14.350	1.00	0.000	2.000
135.00	CCI TPX-070821	6	7.50	0.550	0.50	7.90	0.380	0.50	0.000	0.000
135.00	Ericsson RRUS 11 (Band 12)	3	55.00	2.940	0.67	74.30	3.290	0.67	0.000	2.000
135.00	Ericsson RRUS 11 w/ RRUS	3	72.00	3.260	0.67	0.00	0.000	0.67	0.000	2.000
135.00	Ericsson RRUS-32	3	77.00	3.870	0.67	104.90	4.300	0.67	0.000	2.000
135.00	Flat Platform w/ Handrails	1	2000.00	42.400	1.00	2,450.00	48.400	1.00	0.000	0.000
135.00	KMW AM-X-CD-16-65-00T-	2	48.50	8.260	0.84	95.00	9.080	0.84	0.000	2.000
135.00	Powerwave 7750.00	3	35.00	5.880	0.75	65.67	6.540	0.75	0.000	2.000
135.00	Powerwave LGP21401	6	14.10	1.290	0.50	21.26	1.530	0.50	0.000	2.000
135.00	Quintel QS66512-3 (112 lbs.)	2	112.00	8.400	0.93	0.00	0.000	0.93	0.000	2.000
135.00	Raycap DC6-48-60-18-8F	2	20.00	1.260	1.00	35.10	1.460	1.00	0.000	0.000
123.00	Andrew LNX-6515DS-VTM	3	51.30	11.430	0.84	117.10	12.360	0.84	0.000	0.000
123.00	Ericsson KRY 112 144/1	3	11.00	0.410	0.50	14.10	0.550	0.50	0.000	0.000
123.00	Ericsson KRY 112 489/1	3	15.40	0.650	0.50	20.40	0.830	0.50	0.000	0.000
123.00	Kathrein Scala Smart Bias-T	3	1.30	0.080	0.65	0.00	0.000	0.65	0.000	0.000
123.00	RFS APX16DWV-16DWVS-E-	3	40.70	7.220	0.65	75.00	7.910	0.65	0.000	0.000
123.00	Round T-Arms	3	250.00	9.700	0.75	314.00	12.100	0.75	0.000	0.000
113.00	RFS APXV18-206517	3	26.40	5.050	0.80	48.13	5.700	0.80	0.000	0.000
98.00	Alcatel-Lucent 4x40W RRH	3	88.00	2.910	0.67	122.40	4.230	0.67	0.000	0.000
98.00	Alcatel-Lucent 800 MHz	3	64.00	2.400	0.67	86.10	2.720	0.67	0.000	0.000
98.00	Alcatel-Lucent TD-RRH8x20-	3	70.00	4.720	0.67	122.40	4.230	0.67	0.000	0.000
98.00	RFS APXVSPP18-C-A20	3	57.00	8.260	0.82	106.50	9.080	0.82	0.000	0.000
98.00	RFS APXVTM14-C-I20	3	52.90	6.900	0.76	73.60	7.740	0.76	0.000	0.000
98.00	RFS IBC1900BB-1	3	22.00	1.130	0.50	59.80	1.360	0.50	0.000	0.000
98.00	RFS IBC1900HG-2A	3	22.00	1.130	0.50	59.80	1.360	0.50	0.000	0.000
98.00	Round Low Profile Platform	1	1500.00	21.700	1.00	1,700.00	27.200	1.00	0.000	0.000
89.00	Argus LLPX310R	3	28.60	4.830	0.70	54.50	5.360	0.70	0.000	0.000
89.00	DragonWave A-ANT-11G-2.5-	1	47.60	8.670	0.95	117.00	9.170	0.95	0.000	0.000
89.00	DragonWave A-ANT-18G-2-C	2	27.10	4.690	0.80	55.10	5.050	0.80	0.000	0.000
89.00	DragonWave Horizon	3	10.60	0.430	0.50	17.00	0.580	0.50	0.000	0.000
89.00	NextNet BTS-2500	3	35.00	2.120	0.67	48.30	2.430	0.67	0.000	0.000
89.00	Side Arms	1	560.00	8.500	1.00	680.00	10.500	1.00	0.000	0.000
84.00	Alcatel-Lucent RRH2x40 (700)	3	50.00	2.480	0.67	71.08	2.810	0.67	0.000	0.000
84.00	Alcatel-Lucent RRH2x40-AWS	3	44.00	2.520	0.67	61.40	2.870	0.67	0.000	0.000
84.00	Antel BXA-171063-8BF-EDIN-X	6	10.50	2.940	0.87	29.30	3.410	0.87	0.000	0.000
84.00	Antel BXA-70063-6CF-EDIN-X	6	17.00	7.730	0.77	58.00	8.540	0.77	0.000	0.000
84.00	Flat Low Profile Platform	1	1500.00	26.100	1.00	1,700.00	31.600	1.00	0.000	0.000
84.00	RFS DB-T1-6Z-8AB-0Z	1	44.00	5.600	0.67	44.30	3.280	0.67	0.000	0.000
20.00	Lucent KS-24019	1	4.00	0.910	1.00	15.00	1.300	1.00	0.000	0.000
	Totals	123	12235.20			16,247.62			Number of Loadings :	43

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Qty	Description	No Ice Weight (lb/ft)	No Ice CaAa (sf/ft)	Ice Weight (lb/ft)	Ice CaAa (sf/ft)	Exposed To Wind
5.00	147.00	12	1 5/8" Coax	9.84	0.00	0.00	0.00	N
5.00	135.00	1	0.39" Cable	0.07	0.00	0.00	0.00	N
5.00	135.00	2	0.78" 8 AWG6	1.18	0.00	0.00	0.00	N
5.00	135.00	12	1 5/8" Coax	9.84	0.00	0.00	0.00	N
5.00	135.00	1	3" Conduit	7.58	0.00	0.00	0.00	N
5.00	123.00	6	1 5/8" Coax	9.84	0.00	0.00	0.00	N
5.00	123.00	6	1 5/8" Coax	4.92	0.20	9.46	0.25	Y
5.00	113.00	6	1 5/8" Coax	4.92	0.00	0.00	0.00	N
5.00	98.00	4	1 1/4" Hybriflex	2.52	0.00	0.00	0.00	N
5.00	89.00	3	1/2" Coax	0.45	0.00	0.00	0.00	Y
5.00	89.00	1	2" Conduit	3.65	0.24	4.53	0.29	Y
5.00	89.00	6	5/16" Coax	0.30	0.00	0.00	0.00	N
5.00	84.00	12	1 5/8" Coax	9.84	0.40	18.93	0.50	Y
5.00	84.00	2	1 5/8" Hybriflex	1.64	0.40	3.15	0.50	Y
5.00	20.00	1	1/2" Coax	0.15	0.00	0.00	0.00	N
			Total Weight	7,610.55 (lb)		3,241.12 (lb)		

Segment Properties (Max Len : 5.ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fy (ksi)	Fb (ksi)	Fa (ksi)	Weight (lb)
0.00		0.3750	56.580	66.895	26,698.9	24.84	150.88	65	52	0	0.0
5.00		0.3750	55.507	65.618	25,199.0	24.34	148.02	65	52	0	1,127.3
10.00		0.3750	54.434	64.341	23,756.4	23.83	145.16	65	52	0	1,105.6
15.00		0.3750	53.361	63.065	22,369.9	23.33	142.30	65	52	0	1,083.8
20.00		0.3750	52.288	61.788	21,038.4	22.82	139.44	65	52	0	1,062.1
25.00		0.3750	51.216	60.511	19,760.8	22.32	136.57	65	52	0	1,040.4
30.00		0.3750	50.143	59.234	18,536.1	21.81	133.71	65	52	0	1,018.7
35.00		0.3750	49.070	57.957	17,363.0	21.31	130.85	65	52	0	996.9
40.00		0.3750	47.997	56.680	16,240.5	20.81	127.99	65	52	0	975.2
45.00		0.3750	46.924	55.403	15,167.4	20.30	125.13	65	52	0	953.5
46.83	Bot - Section 2	0.3750	46.531	54.935	14,786.1	20.12	124.08	65	52	0	344.2
50.00		0.3750	45.851	54.126	14,142.7	19.80	122.27	65	52	0	1,184.8
53.00	Top - Section 1	0.3750	45.958	54.253	14,242.1	19.85	122.55	65	52	0	1,106.4
55.00		0.3750	45.528	53.742	13,843.6	19.64	121.41	65	52	0	367.5
60.00		0.3750	44.456	52.465	12,880.1	19.14	118.55	65	52	0	903.5
65.00		0.3750	43.383	51.188	11,962.4	18.64	115.69	65	52	0	881.8
70.00		0.3750	42.310	49.911	11,089.3	18.13	112.83	65	52	0	860.0
75.00		0.3750	41.237	48.634	10,259.8	17.63	109.97	65	52	0	838.3
80.00		0.3750	40.164	47.357	9,472.7	17.12	107.10	65	52	0	816.6
84.00		0.3750	39.306	46.336	8,872.8	16.72	104.82	65	52	0	637.6
85.00		0.3750	39.091	46.081	8,726.9	16.62	104.24	65	52	0	157.2
89.00		0.3750	38.233	45.059	8,159.3	16.21	101.96	65	52	0	620.3
90.00		0.3750	38.019	44.804	8,021.4	16.11	101.38	65	52	0	152.9
94.92	Bot - Section 3	0.3750	36.964	43.548	7,365.7	15.62	98.57	65	52	0	739.1
95.00		0.3750	36.946	43.527	7,354.9	15.61	98.52	65	52	0	22.8
98.00		0.3750	36.302	42.761	6,973.3	15.31	96.81	65	52	0	814.4
99.83	Top - Section 2	0.3125	36.534	35.926	5,955.0	18.85	116.91	65	52	0	490.6
100.0		0.3125	36.498	35.890	5,937.4	18.83	116.79	65	52	0	20.4
105.0		0.3125	35.425	34.826	5,424.8	18.23	113.36	65	52	0	601.6
110.0		0.3125	34.352	33.762	4,942.6	17.62	109.93	65	52	0	583.5
113.0		0.3125	33.709	33.124	4,667.5	17.26	107.87	65	52	0	341.4
115.0		0.3125	33.279	32.698	4,489.8	17.01	106.49	65	52	0	224.0
120.0		0.3125	32.207	31.634	4,065.6	16.41	103.06	65	52	0	547.3
123.0		0.3125	31.563	30.995	3,824.4	16.05	101.00	65	52	0	319.7
125.0		0.3125	31.134	30.570	3,669.0	15.80	99.63	65	52	0	209.5
130.0		0.3125	30.061	29.506	3,299.0	15.20	96.19	65	52	0	511.1
135.0		0.3125	28.988	28.442	2,954.8	14.59	92.76	65	52	0	493.0
140.0		0.3125	27.915	27.377	2,635.4	13.99	89.33	65	52	0	474.8
145.0		0.3125	26.842	26.313	2,339.9	13.38	85.90	65	52	0	456.7
147.0		0.3125	26.413	25.888	2,228.2	13.14	84.52	65	52	0	177.6
147.9		0.3125	26.216	25.693	2,178.2	13.03	83.89	65	52	0	80.5
											25,342.4

Load Case: No Ice — 80.00 mph Wind with No Ice — 23 Iterations

Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		210.1	0.0					0.0	0.0	210.1	0.0	0.0	0.0
5.00		416.3	1,127.3					0.0	0.0	416.3	1,127.3	0.0	0.0
10.00		408.2	1,105.6					171.7	333.7	579.9	1,439.3	0.0	0.0
15.00		400.2	1,083.8					171.7	333.7	571.8	1,417.5	0.0	0.0
20.00	Appertunance(s)	392.1	1,062.1	25.2	0.0	0.0	4.0	171.7	333.7	589.0	1,399.8	0.0	0.0
25.00		384.1	1,040.4					171.7	333.0	555.7	1,373.3	0.0	0.0
30.00		376.0	1,018.7					171.7	333.0	547.7	1,351.6	0.0	0.0
35.00		374.7	996.9					171.7	333.0	546.4	1,329.9	0.0	0.0
40.00		380.0	975.2					178.1	333.0	558.1	1,308.2	0.0	0.0
45.00		261.9	953.5					184.5	333.0	446.4	1,286.4	0.0	0.0
46.83	Bot - Section 2	195.0	344.2					69.2	122.1	264.2	466.3	0.0	0.0
50.00		242.6	1,184.8					121.3	210.9	363.9	1,395.7	0.0	0.0
53.00	Top - Section 1	197.2	1,106.4					117.0	199.8	314.2	1,306.1	0.0	0.0
55.00		276.7	367.5					79.0	133.2	355.7	500.7	0.0	0.0
60.00		395.3	903.5					201.2	333.0	596.5	1,236.4	0.0	0.0
65.00		394.7	881.8					206.0	333.0	600.8	1,214.7	0.0	0.0
70.00		393.2	860.0					210.6	333.0	603.8	1,193.0	0.0	0.0
75.00		390.9	838.3					215.0	333.0	605.9	1,171.3	0.0	0.0
80.00		349.4	816.6					219.1	333.0	568.5	1,149.5	0.0	0.0
84.00	Appertunance(s)	193.0	637.6	3,289.2	0.0	0.0	1,991.0	178.1	266.4	3,660.4	2,895.0	0.0	0.0
85.00		191.4	157.2					15.9	55.1	207.4	212.3	0.0	0.0
89.00	Appertunance(s)	191.0	620.3	1,444.4	0.0	0.0	884.4	64.3	220.4	1,699.7	1,725.1	0.0	0.0
90.00		223.6	152.9					7.4	50.7	230.9	203.6	0.0	0.0
94.92	Bot - Section 3	188.7	739.1					36.5	249.3	225.3	988.4	0.0	0.0
95.00		117.0	22.8					0.6	4.2	117.7	27.1	0.0	0.0
98.00	Appertunance(s)	183.0	814.4	3,072.3	0.0	0.0	2,627.7	22.6	152.1	3,277.9	3,594.2	0.0	0.0
99.83	Top - Section 2	75.4	490.6					13.9	88.3	89.3	579.0	0.0	0.0
100.00		192.7	20.4					1.3	8.0	193.9	28.4	0.0	0.0
105.00		369.7	601.6					38.3	241.0	408.0	842.5	0.0	0.0
110.00		291.7	583.5					38.8	241.0	330.5	824.4	0.0	0.0
113.00	Appertunance(s)	180.0	341.4	477.0	0.0	0.0	79.2	23.5	144.6	680.5	565.2	0.0	0.0
115.00		248.1	224.0					15.8	86.5	263.8	310.5	0.0	0.0
120.00		280.6	547.3					39.8	216.4	320.4	763.6	0.0	0.0
123.00	Appertunance(s)	172.7	319.7	2,679.7	0.0	0.0	1,109.1	24.1	129.8	2,876.5	1,558.6	0.0	0.0
125.00		237.4	209.5					0.0	57.0	237.4	266.5	0.0	0.0
130.00		333.5	511.1					0.0	142.6	333.5	653.6	0.0	0.0
135.00	Appertunance(s)	325.1	493.0	5,742.7	0.0	7,628.5	3,355.8	0.0	142.6	6,067.8	3,991.3	0.0	0.0
140.00		316.3	474.8					0.0	49.2	316.3	524.0	0.0	0.0
145.00		217.0	456.7					0.0	49.2	217.0	505.9	0.0	0.0
147.00	Appertunance(s)	88.8	177.6	4,063.8	0.0	4,529.4	2,184.0	0.0	19.7	4,152.6	2,381.3	0.0	0.0
147.92		27.8	80.5					0.0	0.0	27.8	80.5	0.0	0.0
								Totals:		35,229.5	45,188.1	0.00	0.00

Load Case: No Ice — 80.00 mph Wind with No Ice — 23 Iterations

Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Calculated Shaft Forces and Deflections

Seg Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	X Deflect (in)	Z Deflect (in)	Total Deflect (in)	Rotation (deg)
0.00	-35.094	-45.130	0.000	0.000	0.000	-3,556.601	0.000	0.000	0.000	0.000
5.00	-34.818	-43.891	0.000	0.000	0.000	-3,381.136	-0.100	0.000	0.100	-0.185
10.00	-34.369	-42.343	0.000	0.000	0.000	-3,207.050	-0.394	0.000	0.394	-0.371
15.00	-33.919	-40.819	0.000	0.000	0.000	-3,035.209	-0.883	0.000	0.883	-0.558
20.00	-33.443	-39.317	0.000	0.000	0.000	-2,865.616	-1.568	0.000	1.568	-0.745
25.00	-32.992	-37.844	0.000	0.000	0.000	-2,698.402	-2.450	0.000	2.450	-0.933
30.00	-32.540	-36.395	0.000	0.000	0.000	-2,533.445	-3.530	0.000	3.530	-1.122
35.00	-32.080	-34.972	0.000	0.000	0.000	-2,370.749	-4.806	0.000	4.806	-1.310
40.00	-31.600	-33.575	0.000	0.000	0.000	-2,210.350	-6.279	0.000	6.279	-1.498
45.00	-31.190	-32.232	0.000	0.000	0.000	-2,052.352	-7.949	0.000	7.949	-1.684
46.83	-30.964	-31.723	0.000	0.000	0.000	-1,995.172	-8.609	0.000	8.609	-1.754
50.00	-30.617	-30.279	0.000	0.000	0.000	-1,897.121	-9.814	0.000	9.814	-1.872
53.00	-30.306	-28.935	0.000	0.000	0.000	-1,805.272	-11.027	0.000	11.027	-1.984
55.00	-29.994	-28.382	0.000	0.000	0.000	-1,744.661	-11.874	0.000	11.874	-2.059
60.00	-29.432	-27.082	0.000	0.000	0.000	-1,594.693	-14.123	0.000	14.123	-2.230
65.00	-28.858	-25.809	0.000	0.000	0.000	-1,447.534	-16.549	0.000	16.549	-2.398
70.00	-28.272	-24.564	0.000	0.000	0.000	-1,303.248	-19.149	0.000	19.149	-2.562
75.00	-27.676	-23.347	0.000	0.000	0.000	-1,161.891	-21.918	0.000	21.918	-2.720
80.00	-27.104	-22.163	0.000	0.000	0.000	-1,023.515	-24.848	0.000	24.848	-2.871
84.00	-23.324	-19.430	0.000	0.000	0.000	-915.102	-27.304	0.000	27.304	-2.988
85.00	-23.130	-19.201	0.000	0.000	0.000	-891.778	-27.933	0.000	27.933	-3.017
89.00	-21.361	-17.544	0.000	0.000	0.000	-799.261	-30.508	0.000	30.508	-3.127
90.00	-21.143	-17.324	0.000	0.000	0.000	-777.901	-31.166	0.000	31.166	-3.155
94.92	-20.880	-16.327	0.000	0.000	0.000	-673.951	-34.481	0.000	34.481	-3.281
95.00	-20.772	-16.293	0.000	0.000	0.000	-672.212	-34.538	0.000	34.538	-3.283
98.00	-17.305	-12.877	0.000	0.000	0.000	-609.896	-36.625	0.000	36.625	-3.358
99.83	-17.187	-12.297	0.000	0.000	0.000	-578.171	-37.923	0.000	37.923	-3.402
100.0	-17.006	-12.260	0.000	0.000	0.000	-575.307	-38.042	0.000	38.042	-3.406
105.0	-16.572	-11.408	0.000	0.000	0.000	-490.279	-41.677	0.000	41.677	-3.534
110.0	-16.207	-10.581	0.000	0.000	0.000	-407.419	-45.440	0.000	45.440	-3.652
113.0	-15.501	-10.046	0.000	0.000	0.000	-358.798	-47.756	0.000	47.756	-3.718
115.0	-15.229	-9.735	0.000	0.000	0.000	-327.796	-49.321	0.000	49.321	-3.760
120.0	-14.870	-8.977	0.000	0.000	0.000	-251.650	-53.307	0.000	53.307	-3.851
123.0	-11.900	-7.608	0.000	0.000	0.000	-207.041	-55.742	0.000	55.742	-3.900
125.0	-11.650	-7.349	0.000	0.000	0.000	-183.242	-57.381	0.000	57.381	-3.929
130.0	-11.279	-6.710	0.000	0.000	0.000	-124.991	-61.527	0.000	61.527	-3.988
135.0	-4.948	-3.151	0.000	0.000	0.000	-60.971	-65.725	0.000	65.725	-4.030
140.0	-4.596	-2.649	0.000	0.000	0.000	-36.231	-69.956	0.000	69.956	-4.053
145.0	-4.344	-2.159	0.000	0.000	0.000	-13.249	-74.206	0.000	74.206	-4.067
147.0	-0.033	-0.078	0.000	0.000	0.000	-0.031	-75.909	0.000	75.909	-4.069
147.9	-0.028	0.000	0.000	0.000	0.000	0.000	-76.690	0.000	76.690	-4.069

Load Case: No Ice — 80.00 mph Wind with No Ice — 23 Iterations

Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Calculated Stresses

Seg Elev (ft)	Applied Stresses: Axial (Y) (ksi)	Shear (X) (ksi)	Shear (Z) (ksi)	Torsion (ksi)	Bending (X) (ksi)	Bending (Z) (ksi)	Combined (ksi)	Allowable Stress (Fb) (ksi)	Allowable Stress (Fa) (ksi)	Stress Ratio
0.00	0.67	1.06	0.00	0.00	0.00	45.92	46.63	52.0	0.0	0.898
5.00	0.67	1.07	0.00	0.00	0.00	45.38	46.08	52.0	0.0	0.887
10.00	0.66	1.08	0.00	0.00	0.00	44.77	45.47	52.0	0.0	0.875
15.00	0.65	1.08	0.00	0.00	0.00	44.11	44.80	52.0	0.0	0.862
20.00	0.64	1.09	0.00	0.00	0.00	43.39	44.07	52.0	0.0	0.848
25.00	0.63	1.10	0.00	0.00	0.00	42.61	43.28	52.0	0.0	0.833
30.00	0.61	1.11	0.00	0.00	0.00	41.75	42.41	52.0	0.0	0.816
35.00	0.60	1.12	0.00	0.00	0.00	40.82	41.47	52.0	0.0	0.798
40.00	0.59	1.12	0.00	0.00	0.00	39.80	40.44	52.0	0.0	0.778
45.00	0.58	1.13	0.00	0.00	0.00	38.68	39.32	52.0	0.0	0.756
46.83	0.58	1.14	0.00	0.00	0.00	38.25	38.88	52.0	0.0	0.748
50.00	0.56	1.14	0.00	0.00	0.00	37.47	38.08	52.0	0.0	0.733
53.00	0.53	1.13	0.00	0.00	0.00	35.49	36.08	52.0	0.0	0.694
55.00	0.53	1.12	0.00	0.00	0.00	34.96	35.54	52.0	0.0	0.684
60.00	0.52	1.13	0.00	0.00	0.00	33.53	34.11	52.0	0.0	0.656
65.00	0.50	1.14	0.00	0.00	0.00	31.98	32.55	52.0	0.0	0.626
70.00	0.49	1.14	0.00	0.00	0.00	30.29	30.85	52.0	0.0	0.593
75.00	0.48	1.15	0.00	0.00	0.00	28.45	29.00	52.0	0.0	0.558
80.00	0.47	1.15	0.00	0.00	0.00	26.44	26.98	52.0	0.0	0.519
84.00	0.42	1.01	0.00	0.00	0.00	24.70	25.18	52.0	0.0	0.484
85.00	0.42	1.01	0.00	0.00	0.00	24.34	24.82	52.0	0.0	0.477
89.00	0.39	0.96	0.00	0.00	0.00	22.82	23.27	52.0	0.0	0.448
90.00	0.39	0.95	0.00	0.00	0.00	22.46	22.91	52.0	0.0	0.441
94.92	0.37	0.97	0.00	0.00	0.00	20.61	21.05	52.0	0.0	0.405
95.00	0.37	0.96	0.00	0.00	0.00	20.57	21.01	52.0	0.0	0.404
98.00	0.30	0.82	0.00	0.00	0.00	19.34	19.70	52.0	0.0	0.379
99.83	0.34	0.96	0.00	0.00	0.00	21.61	22.02	52.0	0.0	0.424
100.00	0.34	0.95	0.00	0.00	0.00	21.55	21.95	52.0	0.0	0.422
105.00	0.33	0.96	0.00	0.00	0.00	19.51	19.90	52.0	0.0	0.383
110.00	0.31	0.97	0.00	0.00	0.00	17.25	17.65	52.0	0.0	0.339
113.00	0.30	0.94	0.00	0.00	0.00	15.79	16.17	52.0	0.0	0.311
115.00	0.30	0.94	0.00	0.00	0.00	14.80	15.19	52.0	0.0	0.292
120.00	0.28	0.95	0.00	0.00	0.00	12.15	12.54	52.0	0.0	0.241
123.00	0.25	0.77	0.00	0.00	0.00	10.41	10.74	52.0	0.0	0.207
125.00	0.24	0.77	0.00	0.00	0.00	9.47	9.80	52.0	0.0	0.189
130.00	0.23	0.77	0.00	0.00	0.00	6.94	7.29	52.0	0.0	0.140
135.00	0.11	0.35	0.00	0.00	0.00	3.64	3.80	52.0	0.0	0.073
140.00	0.10	0.34	0.00	0.00	0.00	2.34	2.50	52.0	0.0	0.048
145.00	0.08	0.33	0.00	0.00	0.00	0.93	1.16	52.0	0.0	0.022
147.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	52.0	0.0	0.000
147.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	52.0	0.0	0.000

Load Case: Ice — 69.28 mph Wind with Ice — 23 Iterations

Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		160.4	0.0					0.0	0.0	160.4	0.0	0.0	0.0
5.00		317.8	1,300.1					0.0	0.0	317.8	1,300.1	0.0	0.0
10.00		311.8	1,275.1					159.9	411.6	471.7	1,686.6	0.0	0.0
15.00		305.7	1,250.0					159.9	411.6	465.6	1,661.6	0.0	0.0
20.00	Appertunance(s)	299.7	1,225.0	27.0	0.0	0.0	15.0	159.9	411.6	486.6	1,651.6	0.0	0.0
25.00		293.7	1,200.0					159.9	410.8	453.6	1,610.8	0.0	0.0
30.00		287.6	1,174.9					159.9	410.8	447.5	1,585.7	0.0	0.0
35.00		286.8	1,149.9					159.9	410.8	446.7	1,560.7	0.0	0.0
40.00		291.0	1,124.9					165.8	410.8	456.8	1,535.7	0.0	0.0
45.00		200.6	1,099.8					171.9	410.8	372.4	1,510.6	0.0	0.0
46.83	Bot - Section 2	149.3	397.4					64.4	150.6	213.8	548.0	0.0	0.0
50.00		185.8	1,276.9					113.0	260.2	298.8	1,537.0	0.0	0.0
53.00	Top - Section 1	151.1	1,192.4					108.9	246.5	260.1	1,438.9	0.0	0.0
55.00		212.1	424.3					73.6	164.3	285.7	588.6	0.0	0.0
60.00		303.2	1,042.2					187.4	410.8	490.5	1,453.0	0.0	0.0
65.00		302.9	1,017.2					191.9	410.8	494.8	1,428.0	0.0	0.0
70.00		301.9	992.1					196.2	410.8	498.0	1,402.9	0.0	0.0
75.00		300.3	967.1					200.2	410.8	500.5	1,377.9	0.0	0.0
80.00		268.5	942.1					204.1	410.8	472.6	1,352.9	0.0	0.0
84.00	Appertunance(s)	148.4	735.9	2,778.9	0.0	0.0	2,665.5	165.9	328.6	3,093.2	3,730.1	0.0	0.0
85.00		147.3	181.7					14.7	60.1	161.9	241.8	0.0	0.0
89.00	Appertunance(s)	147.0	715.9	1,221.4	0.0	0.0	1,266.6	59.2	240.3	1,427.6	2,222.8	0.0	0.0
90.00		172.1	176.7					6.9	55.3	179.0	231.9	0.0	0.0
94.92	Bot - Section 3	145.3	852.8					34.3	271.6	179.6	1,124.4	0.0	0.0
95.00		90.1	24.8					0.6	4.6	90.7	29.4	0.0	0.0
98.00	Appertunance(s)	140.9	883.7	2,656.5	0.0	0.0	3,591.8	21.2	165.8	2,818.6	4,641.3	0.0	0.0
99.83	Top - Section 2	58.1	532.5					13.0	96.7	71.1	629.2	0.0	0.0
100.00		148.5	24.2					1.2	8.8	149.7	33.0	0.0	0.0
105.00		285.1	712.4					35.9	263.7	321.0	976.1	0.0	0.0
110.00		225.1	691.0					36.4	263.7	261.5	954.7	0.0	0.0
113.00	Appertunance(s)	139.0	404.7	403.8	0.0	0.0	144.4	22.1	158.2	564.8	707.3	0.0	0.0
115.00		191.7	265.7					14.8	95.6	206.5	361.3	0.0	0.0
120.00		216.9	648.2					37.3	239.1	254.2	887.2	0.0	0.0
123.00	Appertunance(s)	133.6	379.0	2,294.3	0.0	0.0	1,621.8	22.6	143.4	2,450.5	2,144.3	0.0	0.0
125.00		183.8	248.5					0.0	57.0	183.8	305.6	0.0	0.0
130.00		258.4	605.4					0.0	142.6	258.4	747.9	0.0	0.0
135.00	Appertunance(s)	252.2	583.9	4,016.1	0.0	4,773.8	3,893.5	0.0	142.6	4,268.3	4,620.0	0.0	0.0
140.00		245.7	562.5					0.0	49.2	245.7	611.7	0.0	0.0
145.00		168.7	541.1					0.0	49.2	168.7	590.3	0.0	0.0
147.00	Appertunance(s)	69.1	210.8	3,434.1	0.0	3,787.8	3,049.0	0.0	19.7	3,503.2	3,279.5	0.0	0.0
147.92		21.6	95.6					0.0	0.0	21.6	95.6	0.0	0.0
								Totals:		28,473.5	54,395.8	0.00	0.00

Load Case: Ice — 69.28 mph Wind with Ice — 23 Iterations

Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Calculated Shaft Forces and Deflections

Seg Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	X Deflect (in)	Z Deflect (in)	Total Deflect (in)	Rotation (deg)
0.00	-28.386	-54.358	0.000	0.000	0.000	-2,875.133	0.000	0.000	0.000	0.000
5.00	-28.205	-52.984	0.000	0.000	0.000	-2,733.208	-0.081	0.000	0.081	-0.149
10.00	-27.861	-51.227	0.000	0.000	0.000	-2,592.188	-0.318	0.000	0.318	-0.300
15.00	-27.516	-49.496	0.000	0.000	0.000	-2,452.885	-0.714	0.000	0.714	-0.451
20.00	-27.141	-47.777	0.000	0.000	0.000	-2,315.310	-1.268	0.000	1.268	-0.602
25.00	-26.790	-46.101	0.000	0.000	0.000	-2,179.611	-1.981	0.000	1.981	-0.754
30.00	-26.438	-44.452	0.000	0.000	0.000	-2,045.662	-2.853	0.000	2.853	-0.906
35.00	-26.078	-42.830	0.000	0.000	0.000	-1,913.476	-3.884	0.000	3.884	-1.058
40.00	-25.700	-41.236	0.000	0.000	0.000	-1,783.090	-5.074	0.000	5.074	-1.210
45.00	-25.364	-39.689	0.000	0.000	0.000	-1,654.595	-6.423	0.000	6.423	-1.360
46.83	-25.189	-39.113	0.000	0.000	0.000	-1,608.094	-6.957	0.000	6.957	-1.416
50.00	-24.912	-37.544	0.000	0.000	0.000	-1,528.330	-7.929	0.000	7.929	-1.512
53.00	-24.660	-36.080	0.000	0.000	0.000	-1,453.596	-8.909	0.000	8.909	-1.602
55.00	-24.420	-35.457	0.000	0.000	0.000	-1,404.276	-9.593	0.000	9.593	-1.662
60.00	-23.966	-33.963	0.000	0.000	0.000	-1,282.181	-11.408	0.000	11.408	-1.800
65.00	-23.501	-32.497	0.000	0.000	0.000	-1,162.352	-13.367	0.000	13.367	-1.935
70.00	-23.024	-31.061	0.000	0.000	0.000	-1,044.851	-15.464	0.000	15.464	-2.066
75.00	-22.537	-29.654	0.000	0.000	0.000	-929.733	-17.697	0.000	17.697	-2.193
80.00	-22.064	-28.280	0.000	0.000	0.000	-817.051	-20.059	0.000	20.059	-2.314
84.00	-18.844	-24.661	0.000	0.000	0.000	-728.797	-22.038	0.000	22.038	-2.407
85.00	-18.696	-24.408	0.000	0.000	0.000	-709.953	-22.545	0.000	22.545	-2.430
89.00	-17.195	-22.233	0.000	0.000	0.000	-635.170	-24.619	0.000	24.619	-2.518
90.00	-17.030	-21.991	0.000	0.000	0.000	-617.976	-25.148	0.000	25.148	-2.539
94.92	-16.818	-20.861	0.000	0.000	0.000	-534.248	-27.817	0.000	27.817	-2.640
95.00	-16.737	-20.827	0.000	0.000	0.000	-532.847	-27.863	0.000	27.863	-2.642
98.00	-13.718	-16.311	0.000	0.000	0.000	-482.638	-29.542	0.000	29.542	-2.701
99.83	-13.622	-15.682	0.000	0.000	0.000	-457.488	-30.586	0.000	30.586	-2.736
100.0	-13.486	-15.643	0.000	0.000	0.000	-455.218	-30.681	0.000	30.681	-2.739
105.0	-13.143	-14.662	0.000	0.000	0.000	-387.789	-33.604	0.000	33.604	-2.840
110.0	-12.851	-13.705	0.000	0.000	0.000	-322.076	-36.628	0.000	36.628	-2.933
113.0	-12.260	-13.019	0.000	0.000	0.000	-283.524	-38.488	0.000	38.488	-2.985
115.0	-12.047	-12.658	0.000	0.000	0.000	-259.005	-39.746	0.000	39.746	-3.018
120.0	-11.757	-11.774	0.000	0.000	0.000	-198.773	-42.946	0.000	42.946	-3.091
123.0	-9.198	-9.761	0.000	0.000	0.000	-163.504	-44.900	0.000	44.900	-3.129
125.0	-9.004	-9.460	0.000	0.000	0.000	-145.107	-46.216	0.000	46.216	-3.152
130.0	-8.711	-8.722	0.000	0.000	0.000	-100.087	-49.542	0.000	49.542	-3.199
135.0	-4.192	-4.347	0.000	0.000	0.000	-51.759	-52.911	0.000	52.911	-3.233
140.0	-3.913	-3.749	0.000	0.000	0.000	-30.800	-56.307	0.000	56.307	-3.253
145.0	-3.711	-3.169	0.000	0.000	0.000	-11.235	-59.719	0.000	59.719	-3.264
147.0	-0.027	-0.094	0.000	0.000	0.000	-0.025	-61.086	0.000	61.086	-3.266
147.9	-0.022	0.000	0.000	0.000	0.000	0.000	-61.713	0.000	61.713	-3.266

Site Number: 302468
Site Name: Petro Lock, CT
Customer: AT&T MOBILITY

Code: TIA/EIA-222-F
Engineering Number: 64792022

1/11/2016 10:13:51 AM

Load Case: Ice — 69.28 mph Wind with Ice — 23 Iterations

Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Calculated Stresses

Seg Elev (ft)	Applied Stresses: Axial (Y) (ksi)	Shear (X) (ksi)	Shear (Z) (ksi)	Torsion (ksi)	Bending (X) (ksi)	Bending (Z) (ksi)	Combined (ksi)	Allowable Stress (Fb) (ksi)	Allowable Stress (Fa) (ksi)	Stress Ratio
0.00	0.81	0.86	0.00	0.00	0.00	37.12	37.96	52.0	0.0	0.731
5.00	0.81	0.87	0.00	0.00	0.00	36.68	37.52	52.0	0.0	0.722
10.00	0.80	0.87	0.00	0.00	0.00	36.19	37.01	52.0	0.0	0.712
15.00	0.78	0.88	0.00	0.00	0.00	35.65	36.46	52.0	0.0	0.702
20.00	0.77	0.89	0.00	0.00	0.00	35.06	35.87	52.0	0.0	0.690
25.00	0.76	0.89	0.00	0.00	0.00	34.42	35.21	52.0	0.0	0.677
30.00	0.75	0.90	0.00	0.00	0.00	33.72	34.50	52.0	0.0	0.664
35.00	0.74	0.91	0.00	0.00	0.00	32.95	33.72	52.0	0.0	0.649
40.00	0.73	0.91	0.00	0.00	0.00	32.11	32.87	52.0	0.0	0.632
45.00	0.72	0.92	0.00	0.00	0.00	31.19	31.94	52.0	0.0	0.615
46.83	0.71	0.92	0.00	0.00	0.00	30.83	31.58	52.0	0.0	0.608
50.00	0.69	0.93	0.00	0.00	0.00	30.19	30.92	52.0	0.0	0.595
53.00	0.67	0.92	0.00	0.00	0.00	28.58	29.29	52.0	0.0	0.563
55.00	0.66	0.92	0.00	0.00	0.00	28.14	28.84	52.0	0.0	0.555
60.00	0.65	0.92	0.00	0.00	0.00	26.96	27.66	52.0	0.0	0.532
65.00	0.63	0.93	0.00	0.00	0.00	25.68	26.37	52.0	0.0	0.507
70.00	0.62	0.93	0.00	0.00	0.00	24.29	24.96	52.0	0.0	0.480
75.00	0.61	0.93	0.00	0.00	0.00	22.77	23.43	52.0	0.0	0.451
80.00	0.60	0.94	0.00	0.00	0.00	21.11	21.76	52.0	0.0	0.419
84.00	0.53	0.82	0.00	0.00	0.00	19.67	20.25	52.0	0.0	0.390
85.00	0.53	0.82	0.00	0.00	0.00	19.38	19.96	52.0	0.0	0.384
89.00	0.49	0.77	0.00	0.00	0.00	18.13	18.67	52.0	0.0	0.359
90.00	0.49	0.77	0.00	0.00	0.00	17.85	18.38	52.0	0.0	0.354
94.92	0.48	0.78	0.00	0.00	0.00	16.33	16.87	52.0	0.0	0.324
95.00	0.48	0.77	0.00	0.00	0.00	16.31	16.84	52.0	0.0	0.324
98.00	0.38	0.65	0.00	0.00	0.00	15.31	15.73	52.0	0.0	0.303
99.83	0.44	0.76	0.00	0.00	0.00	17.10	17.59	52.0	0.0	0.338
100.00	0.44	0.76	0.00	0.00	0.00	17.05	17.53	52.0	0.0	0.337
105.00	0.42	0.76	0.00	0.00	0.00	15.43	15.90	52.0	0.0	0.306
110.00	0.41	0.77	0.00	0.00	0.00	13.64	14.11	52.0	0.0	0.271
113.00	0.39	0.75	0.00	0.00	0.00	12.48	12.93	52.0	0.0	0.249
115.00	0.39	0.74	0.00	0.00	0.00	11.70	12.15	52.0	0.0	0.234
120.00	0.37	0.75	0.00	0.00	0.00	9.59	10.05	52.0	0.0	0.193
123.00	0.31	0.60	0.00	0.00	0.00	8.22	8.60	52.0	0.0	0.165
125.00	0.31	0.59	0.00	0.00	0.00	7.50	7.88	52.0	0.0	0.152
130.00	0.30	0.60	0.00	0.00	0.00	5.56	5.94	52.0	0.0	0.114
135.00	0.15	0.30	0.00	0.00	0.00	3.09	3.29	52.0	0.0	0.063
140.00	0.14	0.29	0.00	0.00	0.00	1.99	2.18	52.0	0.0	0.042
145.00	0.12	0.28	0.00	0.00	0.00	0.79	1.03	52.0	0.0	0.020
147.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	52.0	0.0	0.000
147.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	52.0	0.0	0.000

Site Number: 302468
Site Name: Petro Lock, CT
Customer: AT&T MOBILITY

Code: TIA/EIA-222-F
Engineering Number: 64792022

1/11/2016 10:13:51 AM

Load Case: Twist/Sway — 50.00 mph Wind with No Ice — 22 Iterations

Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		82.1	0.0					0.0	0.0	82.1	0.0	0.0	0.0
5.00		162.6	1,127.3					0.0	0.0	162.6	1,127.3	0.0	0.0
10.00		159.5	1,105.6					67.1	333.7	226.5	1,439.3	0.0	0.0
15.00		156.3	1,083.8					67.1	333.7	223.4	1,417.5	0.0	0.0
20.00	Appertunance(s)	153.2	1,062.1	9.8	0.0	0.0	4.0	67.1	333.7	230.1	1,399.8	0.0	0.0
25.00		150.0	1,040.4					67.1	333.0	217.1	1,373.3	0.0	0.0
30.00		146.9	1,018.7					67.1	333.0	213.9	1,351.6	0.0	0.0
35.00		146.4	996.9					67.1	333.0	213.4	1,329.9	0.0	0.0
40.00		148.5	975.2					69.6	333.0	218.0	1,308.2	0.0	0.0
45.00		102.3	953.5					72.1	333.0	174.4	1,286.4	0.0	0.0
46.83	Bot - Section 2	76.2	344.2					27.0	122.1	103.2	466.3	0.0	0.0
50.00		94.8	1,184.8					47.4	210.9	142.2	1,395.7	0.0	0.0
53.00	Top - Section 1	77.0	1,106.4					45.7	199.8	122.7	1,306.1	0.0	0.0
55.00		108.1	367.5					30.9	133.2	139.0	500.7	0.0	0.0
60.00		154.4	903.5					78.6	333.0	233.0	1,236.4	0.0	0.0
65.00		154.2	881.8					80.5	333.0	234.7	1,214.7	0.0	0.0
70.00		153.6	860.0					82.3	333.0	235.9	1,193.0	0.0	0.0
75.00		152.7	838.3					84.0	333.0	236.7	1,171.3	0.0	0.0
80.00		136.5	816.6					85.6	333.0	222.1	1,149.5	0.0	0.0
84.00	Appertunance(s)	75.4	637.6	1,284.9	0.0	0.0	1,991.0	69.6	266.4	1,429.9	2,895.0	0.0	0.0
85.00		74.8	157.2					6.2	55.1	81.0	212.3	0.0	0.0
89.00	Appertunance(s)	74.6	620.3	564.2	0.0	0.0	884.4	25.1	220.4	663.9	1,725.1	0.0	0.0
90.00		87.3	152.9					2.9	50.7	90.2	203.6	0.0	0.0
94.92	Bot - Section 3	73.7	739.1					14.3	249.3	88.0	988.4	0.0	0.0
95.00		45.7	22.8					0.2	4.2	46.0	27.1	0.0	0.0
98.00	Appertunance(s)	71.5	814.4	1,200.1	0.0	0.0	2,627.7	8.8	152.1	1,280.4	3,594.2	0.0	0.0
99.83	Top - Section 2	29.4	490.6					5.4	88.3	34.9	579.0	0.0	0.0
100.00		75.3	20.4					0.5	8.0	75.8	28.4	0.0	0.0
105.00		144.4	601.6					15.0	241.0	159.4	842.5	0.0	0.0
110.00		114.0	583.5					15.2	241.0	129.1	824.4	0.0	0.0
113.00	Appertunance(s)	70.3	341.4	186.3	0.0	0.0	79.2	9.2	144.6	265.8	565.2	0.0	0.0
115.00		96.9	224.0					6.2	86.5	103.1	310.5	0.0	0.0
120.00		109.6	547.3					15.5	216.4	125.1	763.6	0.0	0.0
123.00	Appertunance(s)	67.5	319.7	1,046.7	0.0	0.0	1,109.1	9.4	129.8	1,123.6	1,558.6	0.0	0.0
125.00		92.7	209.5					0.0	57.0	92.7	266.5	0.0	0.0
130.00		130.3	511.1					0.0	142.6	130.3	653.6	0.0	0.0
135.00	Appertunance(s)	127.0	493.0	2,243.3	0.0	2,979.9	3,355.8	0.0	142.6	2,370.2	3,991.3	0.0	0.0
140.00		123.6	474.8					0.0	49.2	123.6	524.0	0.0	0.0
145.00		84.8	456.7					0.0	49.2	84.8	505.9	0.0	0.0
147.00	Appertunance(s)	34.7	177.6	1,587.4	0.0	1,769.3	2,184.0	0.0	19.7	1,622.1	2,381.3	0.0	0.0
147.92		10.8	80.5					0.0	0.0	10.8	80.5	0.0	0.0
								Totals:		13,761.5	45,188.1	0.00	0.00

Site Number: 302468
Site Name: Petro Lock, CT
Customer: AT&T MOBILITY

Code: TIA/EIA-222-F
Engineering Number: 64792022

1/11/2016 10:13:53 AM

Load Case: Twist/Sway — 50.00 mph Wind with No Ice

Gust Response Factor: 1.69
Dead Load Factor: 1.00
Wind Load Factor: 1.00

22 Iterations

Calculated Shaft Forces and Deflections

Seg Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	X Deflect (in)	Z Deflect (in)	Total Deflect (in)	Rotation (deg)
0.00	-13.708	-45.179	0.000	0.000	0.000	-1,390.213	0.000	0.000	0.000	0.000
5.00	-13.600	-44.035	0.000	0.000	0.000	-1,321.675	-0.039	0.000	0.039	-0.072
10.00	-13.425	-42.579	0.000	0.000	0.000	-1,253.676	-0.154	0.000	0.154	-0.145
15.00	-13.250	-41.145	0.000	0.000	0.000	-1,186.551	-0.345	0.000	0.345	-0.218
20.00	-13.065	-39.730	0.000	0.000	0.000	-1,120.303	-0.613	0.000	0.613	-0.291
25.00	-12.889	-38.341	0.000	0.000	0.000	-1,054.982	-0.958	0.000	0.958	-0.365
30.00	-12.713	-36.975	0.000	0.000	0.000	-990.540	-1.380	0.000	1.380	-0.439
35.00	-12.534	-35.631	0.000	0.000	0.000	-926.976	-1.879	0.000	1.879	-0.512
40.00	-12.347	-34.309	0.000	0.000	0.000	-864.307	-2.455	0.000	2.455	-0.585
45.00	-12.188	-33.014	0.000	0.000	0.000	-802.571	-3.108	0.000	3.108	-0.658
46.83	-12.100	-32.541	0.000	0.000	0.000	-780.228	-3.366	0.000	3.366	-0.686
50.00	-11.965	-31.138	0.000	0.000	0.000	-741.912	-3.837	0.000	3.837	-0.732
53.00	-11.844	-29.826	0.000	0.000	0.000	-706.017	-4.311	0.000	4.311	-0.776
55.00	-11.723	-29.317	0.000	0.000	0.000	-682.329	-4.643	0.000	4.643	-0.805
60.00	-11.505	-28.071	0.000	0.000	0.000	-623.715	-5.522	0.000	5.522	-0.872
65.00	-11.281	-26.848	0.000	0.000	0.000	-566.194	-6.471	0.000	6.471	-0.938
70.00	-11.053	-25.647	0.000	0.000	0.000	-509.789	-7.488	0.000	7.488	-1.002
75.00	-10.821	-24.468	0.000	0.000	0.000	-454.524	-8.571	0.000	8.571	-1.064
80.00	-10.599	-23.314	0.000	0.000	0.000	-400.419	-9.717	0.000	9.717	-1.123
84.00	-9.121	-20.443	0.000	0.000	0.000	-358.025	-10.678	0.000	10.678	-1.168
85.00	-9.046	-20.228	0.000	0.000	0.000	-348.904	-10.924	0.000	10.924	-1.180
89.00	-8.354	-18.514	0.000	0.000	0.000	-312.722	-11.931	0.000	11.931	-1.223
90.00	-8.269	-18.308	0.000	0.000	0.000	-304.368	-12.188	0.000	12.188	-1.234
94.92	-8.167	-17.318	0.000	0.000	0.000	-263.711	-13.485	0.000	13.485	-1.283
95.00	-8.125	-17.290	0.000	0.000	0.000	-263.030	-13.508	0.000	13.508	-1.284
98.00	-6.769	-13.723	0.000	0.000	0.000	-238.655	-14.324	0.000	14.324	-1.313
99.83	-6.723	-13.144	0.000	0.000	0.000	-226.244	-14.832	0.000	14.832	-1.330
100.0	-6.653	-13.114	0.000	0.000	0.000	-225.124	-14.878	0.000	14.878	-1.332
105.0	-6.484	-12.270	0.000	0.000	0.000	-191.860	-16.301	0.000	16.301	-1.382
110.0	-6.342	-11.445	0.000	0.000	0.000	-159.441	-17.773	0.000	17.773	-1.428
113.0	-6.066	-10.885	0.000	0.000	0.000	-140.416	-18.679	0.000	18.679	-1.454
115.0	-5.960	-10.574	0.000	0.000	0.000	-128.285	-19.292	0.000	19.292	-1.470
120.0	-5.820	-9.811	0.000	0.000	0.000	-98.486	-20.852	0.000	20.852	-1.506
123.0	-4.657	-8.282	0.000	0.000	0.000	-81.028	-21.805	0.000	21.805	-1.525
125.0	-4.560	-8.016	0.000	0.000	0.000	-71.714	-22.446	0.000	22.446	-1.536
130.0	-4.415	-7.365	0.000	0.000	0.000	-48.914	-24.069	0.000	24.069	-1.560
135.0	-1.937	-3.440	0.000	0.000	0.000	-23.862	-25.712	0.000	25.712	-1.576
140.0	-1.799	-2.919	0.000	0.000	0.000	-14.178	-27.368	0.000	27.368	-1.585
145.0	-1.701	-2.415	0.000	0.000	0.000	-5.182	-29.031	0.000	29.031	-1.591
147.0	-0.013	-0.080	0.000	0.000	0.000	-0.012	-29.698	0.000	29.698	-1.591
147.9	-0.011	0.000	0.000	0.000	0.000	0.000	-30.003	0.000	30.003	-1.591

Site Number: 302468
Site Name: Petro Lock, CT
Customer: AT&T MOBILITY

Code: TIA/EIA-222-F
Engineering Number: 64792022

1/11/2016 10:13:53 AM

Load Case: Twist/Sway — 50.00 mph Wind with No Ice — 22 Iterations

Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Calculated Stresses

Seg Elev (ft)	Applied Stresses							Allowable Stress (Fb) (ksi)	Allowable Stress (Fa) (ksi)	Stress Ratio
	Axial (Y) (ksi)	Shear (X) (ksi)	Shear (Z) (ksi)	Torsion (ksi)	Bending (X) (ksi)	Bending (Z) (ksi)	Combined (ksi)			
0.00	0.68	0.41	0.00	0.00	0.00	17.95	18.64	52.0	0.0	0.359
5.00	0.67	0.42	0.00	0.00	0.00	17.74	18.42	52.0	0.0	0.354
10.00	0.66	0.42	0.00	0.00	0.00	17.50	18.18	52.0	0.0	0.350
15.00	0.65	0.42	0.00	0.00	0.00	17.24	17.91	52.0	0.0	0.345
20.00	0.64	0.43	0.00	0.00	0.00	16.96	17.62	52.0	0.0	0.339
25.00	0.63	0.43	0.00	0.00	0.00	16.66	17.31	52.0	0.0	0.333
30.00	0.62	0.43	0.00	0.00	0.00	16.33	16.97	52.0	0.0	0.326
35.00	0.61	0.44	0.00	0.00	0.00	15.96	16.59	52.0	0.0	0.319
40.00	0.61	0.44	0.00	0.00	0.00	15.56	16.19	52.0	0.0	0.311
45.00	0.60	0.44	0.00	0.00	0.00	15.13	15.74	52.0	0.0	0.303
46.83	0.59	0.44	0.00	0.00	0.00	14.96	15.57	52.0	0.0	0.300
50.00	0.58	0.45	0.00	0.00	0.00	14.65	15.25	52.0	0.0	0.293
53.00	0.55	0.44	0.00	0.00	0.00	13.88	14.45	52.0	0.0	0.278
55.00	0.55	0.44	0.00	0.00	0.00	13.67	14.24	52.0	0.0	0.274
60.00	0.54	0.44	0.00	0.00	0.00	13.12	13.67	52.0	0.0	0.263
65.00	0.52	0.44	0.00	0.00	0.00	12.51	13.06	52.0	0.0	0.251
70.00	0.51	0.45	0.00	0.00	0.00	11.85	12.39	52.0	0.0	0.238
75.00	0.50	0.45	0.00	0.00	0.00	11.13	11.66	52.0	0.0	0.224
80.00	0.49	0.45	0.00	0.00	0.00	10.34	10.86	52.0	0.0	0.209
84.00	0.44	0.40	0.00	0.00	0.00	9.66	10.13	52.0	0.0	0.195
85.00	0.44	0.40	0.00	0.00	0.00	9.52	9.98	52.0	0.0	0.192
89.00	0.41	0.37	0.00	0.00	0.00	8.93	9.36	52.0	0.0	0.180
90.00	0.41	0.37	0.00	0.00	0.00	8.79	9.22	52.0	0.0	0.177
94.92	0.40	0.38	0.00	0.00	0.00	8.06	8.49	52.0	0.0	0.163
95.00	0.40	0.38	0.00	0.00	0.00	8.05	8.47	52.0	0.0	0.163
98.00	0.32	0.32	0.00	0.00	0.00	7.57	7.91	52.0	0.0	0.152
99.83	0.37	0.38	0.00	0.00	0.00	8.46	8.85	52.0	0.0	0.170
100.00	0.37	0.37	0.00	0.00	0.00	8.43	8.82	52.0	0.0	0.170
105.00	0.35	0.38	0.00	0.00	0.00	7.63	8.01	52.0	0.0	0.154
110.00	0.34	0.38	0.00	0.00	0.00	6.75	7.12	52.0	0.0	0.137
113.00	0.33	0.37	0.00	0.00	0.00	6.18	6.54	52.0	0.0	0.126
115.00	0.32	0.37	0.00	0.00	0.00	5.79	6.15	52.0	0.0	0.118
120.00	0.31	0.37	0.00	0.00	0.00	4.75	5.10	52.0	0.0	0.098
123.00	0.27	0.30	0.00	0.00	0.00	4.07	4.37	52.0	0.0	0.084
125.00	0.26	0.30	0.00	0.00	0.00	3.71	4.00	52.0	0.0	0.077
130.00	0.25	0.30	0.00	0.00	0.00	2.72	3.01	52.0	0.0	0.058
135.00	0.12	0.14	0.00	0.00	0.00	1.43	1.57	52.0	0.0	0.030
140.00	0.11	0.13	0.00	0.00	0.00	0.91	1.05	52.0	0.0	0.020
145.00	0.09	0.13	0.00	0.00	0.00	0.36	0.51	52.0	0.0	0.010
147.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	52.0	0.0	0.000
147.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	52.0	0.0	0.000

Analysis Summary

	Reactions						Max Stresses			
Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Combined Stress (ksi)	Allowable Stress (ksi)	Elev (ft)	Stress Ratio
No Ice	35.1	0.00	45.13	0.00	0.00	3556.60	46.63	52.0	0.00	0.898
Ice	28.4	0.00	54.36	0.00	0.00	2875.13	37.96	52.0	0.00	0.731
Twist/Sway	13.7	0.00	45.18	0.00	0.00	1390.21	18.64	52.0	0.00	0.359

Base Summary

Reactions

Original Design			Analysis		
Moment (kip-ft)	Axial (kip)	Shear (kip)	Moment (kip-ft)	Axial (kip)	Shear (kip)
2,489.00	36.10	23.90	3,556.60	54.36	35.09

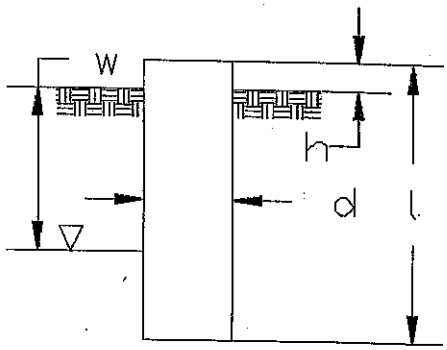
Base Plate

Yield (ksi)	Thick (in)	Width (in)	Style	Poly Sides	Clip Len (in)	Effective Len (in)	Moment (kip-in)	Allow Stress (ksi)	Applied Stress (ksi)	Stress Ratio
60.0	2.500	69.000	Round	0	0.00	11.224	332.75	60.00	28.46	0.47

Anchor Bolts

Bolt Circle	Num Bolts	Bolt Type	Bolt Dia (in)	Yield (ksi)	Ultimate (ksi)	Arrange	Cluster Dist (in)	Start Angle (deg)	Compression			Tension		
									Force (kip)	Allow (kip)	Ratio	Force (kip)	Allow (kip)	Ratio
63.00	16	2.25" 18J	2.25	75.00	100.00	Radial	0.00	0.0	172.76	195.00	0.89	165.96	195.00	0.85

Site Name:	Petro Lock, CT	*Program Last Updated:*	*5/13/2014*
Site Number:	302468	*American Tower Corporation*	
Engineer:	AT		
Engineering Number:	64792022		
Date:	01/11/15		



Design Base Loads (Unfactored) - Analysis per TIA-222-F Standards

Analyze or Design a Foundation?	Analyze
Foundation Mapped:	N
Moment (M):	3556.6 k-ft
Shear/Leg (V):	35.1 k
Axial Load (P):	45.1 k
Uplift/Leg (U):	0.0 k
Tower Type (GT / SST / MP):	MP
Diameter of Caisson (d):	7.0 ft
Caisson Embedment (L-h):	33.5 ft
Caisson Height Above Ground (h):	0.5 ft
Depth Below Ground Surface to Water Table (w):	7.0 ft
Unit Weight of Concrete:	150.0 pcf
Unit Weight of Water:	62.4 pcf
Tension Skin Friction/Compression Skin Friction:	1.00
Pullout Angle:	30.0 degrees

Engineer Notes

Soil Mechanical Properties

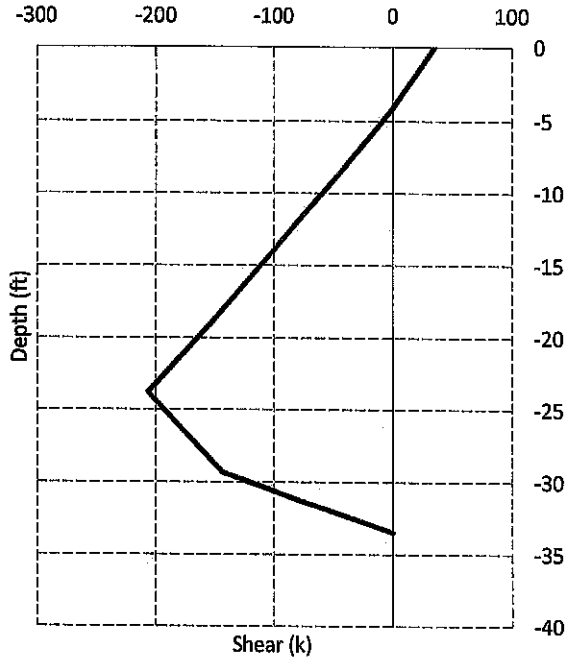
Depth (ft) Top	Depth (ft) Bottom	γ_{Soil} (pcf)	Cohesion (psf)	ϕ (degree)	Allowable Skin Friction (psf)	Allowable Bearing Pressure (psf)
0.0	4.0	100	0	0	0	0
4.0	26.0	110	2880		1440	
26.0	33.5	120	10080		5040	40000

Required Embedment:	20.1 ft - OK, Caisson Embedment Satisfactory
Volume of Concrete:	1308.5 ft^3 = 48.5 yd^3
Weight of Concrete (Buoyancy Effect Considered):	132.6 k
Average Soil Unit Weight:	61.7 pcf
Skin Friction Resistance:	1527.9 k
Compressive Bearing Resistance:	1539.4 k
Pullout Weight (Minus Concrete Weight):	1248.9 k
Allowable Uplift Capacity (U_{Allow}):	730.6 k
Allowable Compressive Capacity (P_{Allow}):	3067.3 k
Compressive Design Load (P):	95.4 k
U / U_{Allow}:	0.00 Result: OK
P / P_{Allow}:	0.03 Result: OK
Total Lateral Resistance:	5818.2 k
Inflection Point (Below Ground Surface):	23.8 ft
Design Overturning Moment At Inflection Point (M_D):	4408.1 k-ft
Nominal Moment Capacity (M_{Allow}):	46061.8 k-ft
M_{Allow} / M_D Factor of Safety:	10.45 Result: OK

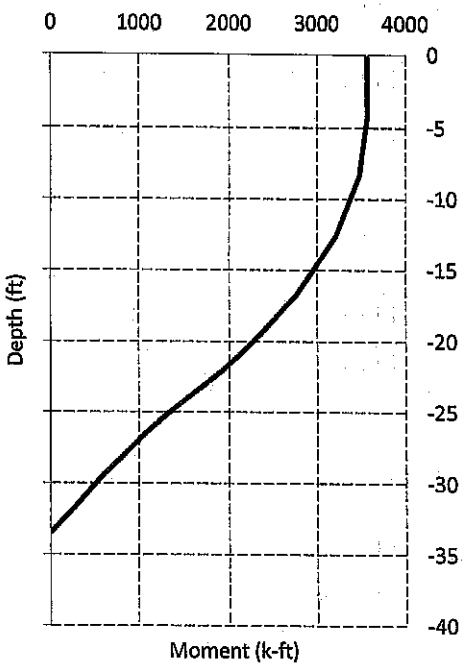
Caisson Strength Capacity

Concrete Compressive Strength (f'_c):	3000	psi
Vertical Steel Rebar Size #:	11	
Vertical Steel Rebar Area:	1.56	in^2
Design # of Vertical Steel Rebars:	21	
Vertical Steel Rebar Yield Strength (F_y):	60	ksi
Horizontal Tie / Stirrup Size #:	5	
Horizontal Tie / Stirrup Area:	0.31	in^2
Design Horizontal Tie / Stirrup Spacing:	18.0	in
Horizontal Tie / Stirrup Steel Yield Strength (F_y):	60	ksi
Rebar Cage Diameter:	76.0	in
Strength Bending/Tension Reduction Factor (ϕ_B):	0.90	ACI318-05 - 9.3.2.1
Strength Shear Reduction Factor (ϕ_V):	0.75	ACI318-05 - 9.3.2.3
Strength Compression Reduction Factor (ϕ_V):	0.65	ACI318-05 - 9.3.2.2
Wind Design Factor:	1.30	ACI318-05 - 9.2.1
Steel Elastic Modulus:	29000	ksi
Design Moment (M_u):	4650.3	k-ft
Nominal Moment Capacity ($\phi_B M_n$):	4963.4	k-ft - ACI318-005 - 10.2
$M_u/\phi_B M_n$:	0.94	Result: OK
Design Shear (V_u):	269.0	k
Nominal Shear Capacity ($\phi_V V_n$):	457.2	k - ACI318-05 - 11.3.1.1 or 11.5.7.2
$V_u/\phi_V V_n$:	0.59	Result: OK
Design Tension (T_u):	0.0	k
Nominal Tension Capacity ($\phi_T T_n$):	1769.0	k - ACI318-05 - 10.2
$T_u/\phi_T T_n$:	0.00	Result: OK
Design Compression (P_u):	124.0	k
Nominal Compression Capacity ($\phi_P P_n$):	7304.9	k - ACI318-05 - 10.3.6.2
$P_u/\phi_P P_n$:	0.02	Result: OK
Bending Reinforcement Ratio:	0.006	ACI318-05 - 10.8.4 & 10.9.1
$M_u/\phi_B M_n + T_u/\phi_T T_n$:	0.94	Result: OK

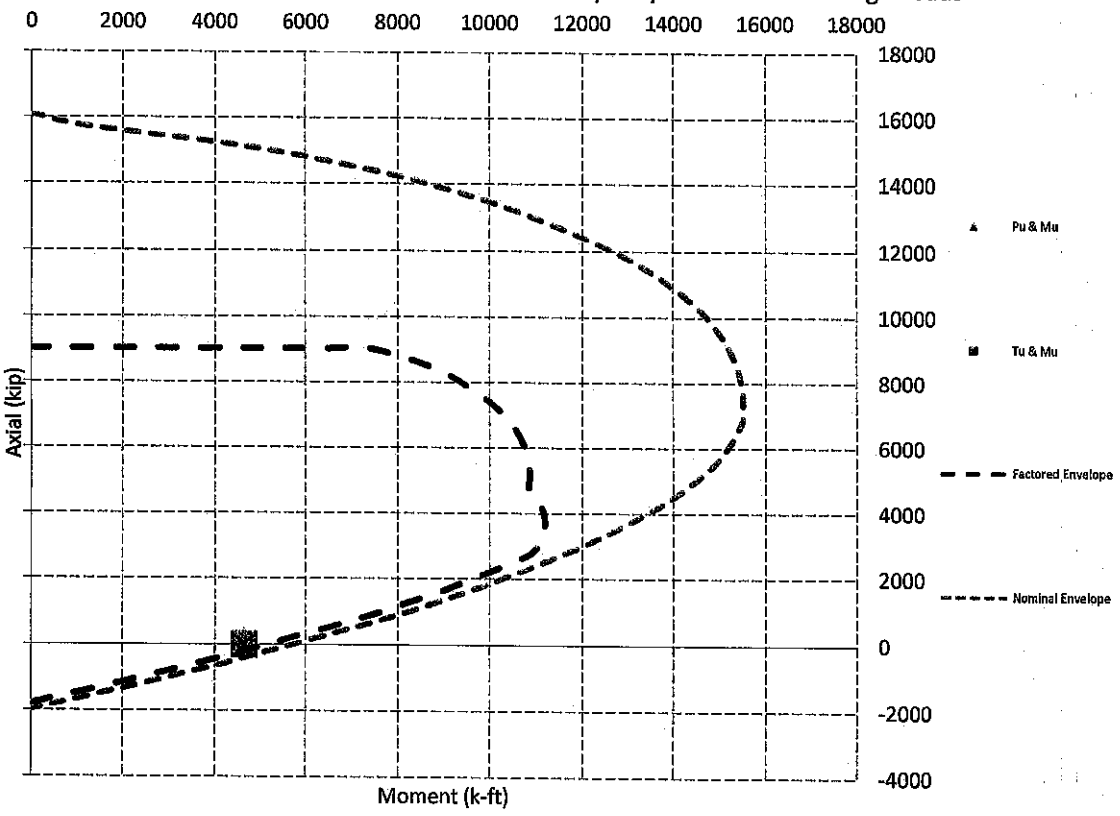
Design Unfactored Shear / Depth



Design Unfactored Moment / Depth



Nominal and Factored Moment Capacity and Factored Design Loads



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

AT&T Existing Facility

Site ID: CT5127

I-91 & 5 Split
99 Meadow Street
Hartford, CT 06114

March 4, 2016

EBI Project Number: 6216000915

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general public allowable limit:	**7.91 %**

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

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March 4, 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: **CT5127 – I-91 & 5 Split**

EBI Consulting was directed to analyze the proposed AT&T facility located at **99 Meadow Street, Hartford, CT**, for the purpose of determining whether the emissions from the Proposed AT&T Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed AT&T Wireless antenna facility located at **99 Meadow Street, Hartford, 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 (PCS Band – 1900 MHz) 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 (WCS Band – 2300 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

5) 2 LTE channels (PCS Band – 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 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 six 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 **CCI TPA-65R-LCUUUU-H8, Commscope SBNH-1D6565C, KMW AM-X-CD-16-65-00T-RET, Quintel QS66512-3 and the Powerwave 7750.00** for transmission in the 700 MHz, 850 MHz, 1900 MHz (PCS) and 2300 MHz (WCS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

9) The antenna mounting height centerline of the proposed antennas is **137 feet** above ground level (AGL).

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.

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AT&T Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
	Powerwave 7750.00		Powerwave 7750.00		Powerwave 7750.00
	12.5 / 15.6 dBd		12.5 / 15.6 dBd		12.5 / 15.6 dBd
	137 feet		137 feet		137 feet
	850 MHz / 1900 MHz (PCS)		850 MHz / 1900 MHz (PCS)		850 MHz / 1900 MHz (PCS)
	4		4		4
	120		120		120
	3,245.44		3,245.44		3,245.44
	0.85		**0.85**		**0.85**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
	Commscope SBNH-1D6565C		KMW AM-X-CD-16-65-00T-RET		KMW AM-X-CD-16-65-00T-RET
	13.45 dBd		13.35 dBd		13.35 dBd
	137 feet		137 feet		137 feet
	700 MHz		700 MHz		700 MHz
	2		2		2
	120		120		120
	2,655.71		2,595.26		2,595.26
	1.19		**1.16**		**1.16**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
	CCI TPA-65R-LCUUUU-H8		Quintel QS66512-3		Quintel QS66512-3
	14.45 / 13.75 dBd		14.85 / 15.15 dBd		14.85 / 15.15 dBd
	137 feet		137 feet		137 feet
	2300 MHz (WCS) / 1900 MHz (PCS)		2300 MHz (WCS) / 1900 MHz (PCS)		2300 MHz (WCS) / 1900 MHz (PCS)
	4		4		4
	240		240		240
	6,188.99		7,593.99		7,593.99
	1.30		**1.59**		**1.59**

Site Composite MPE%	
Carrier	MPE%
AT&T – Max per sector	**3.48 %**
T-Mobile	0.74 %
MetroPCS	1.06 %
Nextel	0.26 %
Clearwire	0.27 %
Sprint	2.10 %
Site Total MPE %:	**7.91 %**

AT&T Sector 1 Total:	5.41 %
AT&T Sector 2 Total:	5.41 %
AT&T Sector 3 Total:	5.41 %
Site Total:	7.91 %

AT&T - Max Sector (A, B or C)	#Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
AT&T 850 MHz UMTS	2	470.03	137	1.97	850	567	0.35 %
AT&T 1900 MHz (PCS) UMTS	2	895.61	137	3.75	1900	1000	0.38 %
AT&T 700 MHz LTE	2	1297.63	137	5.44	700	467	1.16 %
AT&T 2300 MHz (WCS) LTE	2	1832.95	137	7.68	2300	1000	0.77 %
AT&T 1900 MHz (PCS) LTE	2	1964.04	137	8.23	1900	1000	0.82 %
						Total:	3.48 %

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 1:	3.34 %
Sector 2:	3.48 %
Sector 3 :	3.48 %
AT&T Maximum Total (per sector):	3.48 %
Site Total:	7.91 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **7.91%** 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.

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