



20 Commercial St
Branford, CT 06405
Phone: (203) 208-0806
Fax: (203) 488-4820

July 15, 2015

Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051
Attn: Ms. Melanie Bachman, Executive Director

**Re: Notice of Exempt Modification Application
100 Northrop Road
Wallingford, CT 06492**

Dear Ms. Bachman,

On behalf of New Cingular Wireless PCS, LLC ("AT&T"), enclosed for filing are an original and two (2) copies of AT&T's Notice of Exempt Modification for Proposed Modifications to an Existing Telecommunications Facility located at the above-referenced site.

I also enclose herewith a check in the amount of \$625.00 representing the fee for the Notice of Exempt Modification.

If you have any questions, please feel free to contact me.

Thank you,

By: _____

A handwritten signature in black ink, appearing to read 'David Bass', is written over a horizontal line.

Name: David Bass
Vertical Development LLC

CC:

Mayor William W. Dickinson 45 South Main Street, Rm 310 Wallingford, CT 06492	American Towers Corporation Shawn.Dunn@AmericanTower.com
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siting.council@ct.gov

Notice of Exempt Modification
100 Northrop Road
Wallingford, CT 06492

New Cingular Wireless PCS, LLC ("AT&T") submits this Notice of Exempt Modification to the Connecticut Siting Council ("Council") pursuant to Sections 16-50j-73 and 16-50j-72(b) of the Regulations of Connecticut State Agencies ("Regulations") in connection with AT&T's planned modification of antennas and associated equipment on an existing 150' monopole tower located at 100 Northrop Road, in the Town of Wallingford, Connecticut. More particularly, AT&T plans to upgrade this site by adding LTE technology to its facilities. The proposed modifications will not increase the tower height, cause a significant adverse change or alteration in the physical or environmental characteristics of the site, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six (6) decibels, add radio frequency sending or receiving capability which increases the total radio frequency electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the Federal Communications Commission pursuant to Section 704 of the Telecommunications Act of 1996, as amended, and the State Department of Energy and Environmental Protection, pursuant to Section 22a-162 of the Connecticut General Statutes, or impair the structural integrity of the facility, as determined in a certification provided by a professional engineer licensed in Connecticut.

To better meet the growing voice and data demands of its wireless customers, AT&T is upgrading their network nationwide to include LTE technology, which will provide faster service and better overall performance. Pursuant to the LTE technology upgrade at this site, AT&T will add panel antennas and install RRHs and related equipment within the fenced tower compound.

The existing 150' monopole located at 100 Northrop Road, in the Town of Wallingford, Connecticut (lat. 41° 29' 21.84", long. -72° 46' 5.52") is owned by American Tower Corporation. AT&T's existing facility is located within the Landlord's existing fenced compound. AT&T currently has nine (9) panel antennas (three (3) per sector) with a centerline of 126' installed on the tower. AT&T's base station equipment is located adjacent to the base of the tower within the fenced compound. A site plan depicting this is attached.

AT&T will remove three (3) antennas and reuse six (6) Powerwave 7777.00 panel antennas (2 per sector) and (3) existing RRUS (1 per sector, 3 sectors total).

AT&T plans to remove the existing platform and replace it with a new Sector Mounting Platform (Commscope #MTC3607) and add the following antennas and equipment: three (3) HPA-65R-LCUU-H6 panel antennas (1 per sector), three (3) RRUS-12 (1 per sector), and three (3) Ericsson A2 modules (1 per sector (attached behind each respective RRU-12)). The height of the tower will not be increased and all antennas, surge suppressors, and RRHs will be installed at the 126' centerline.

The compound's boundaries will not need to be extended. The proposed modifications will not cause a significant adverse change or alteration in the physical or environmental characteristics of the site, since it is already a telecommunications installation and the modifications will be compatible with this. Other than brief, construction-related noise, these modifications will not increase noise levels at the tower site boundary by six (6) decibels.

The proposed modifications will not add radio frequency sending or receiving capability which increases the total radio frequency electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the Federal Communications Commission pursuant to Section 704 of the Telecommunications Act of 1996, as amended, and the State Department of Energy and Environmental Protection, pursuant to Section 22a-162 of the Connecticut General Statutes. A radio frequency emissions analysis prepared by EBI Consulting concludes that the proposed final configuration

(including other carriers on the tower) will emit 27.53% of the allowable FCC established general public limits sampled at the ground level (see page 1 and the 6th page of Radio Frequency Emissions Analysis Report Evaluation of Human Exposure Potential to Non-Ionizing Emissions (the “MPE” Assessment) dated July 9, 2015). Emissions values for additional carriers were based upon values listed in Connecticut Siting Council active database (see the 1st and 6th page of the MPE Assessment dated July 9, 2015). The information used in the report was analyzed as a percentage of current Maximum Permissible Exposure (%MPE) as listed in the FCC OET Bulletin 65 Edition 97-01 and ANSI/IEEE Std C95.1 (see the 2nd page of the MPE Assessment).

The proposed modifications will not impair the structural integrity of the facility. American Tower Corporation performed a structural analysis of the tower to verify that it can support the proposed loading. The structure and foundation were found to meet the specified TIA requirements and deemed adequate to support the existing and proposed loading, and was rated at 88.00% (see cover page and page 3 of the Structural Analysis Report dated May 19, 2015.)

In conclusion, AT&T’s proposed modifications do not constitute a modification subject to the Council’s review because AT&T will not change the height of the tower, will not extend the boundaries of the compound, will not cause a significant adverse change or alteration in the physical or environmental characteristics of the site, will not increase the noise levels at the site, will not increase the total radio frequency electromagnetic radiation power density at the site to levels above applicable standards, and will not impair the structural integrity of the facility. Therefore, AT&T respectfully requests that the Council acknowledge that this Notice of Exempt Modification meets the Council’s exemption criteria.

PROJECT INFORMATION

SCOPE OF WORK:

- REPLACE ANTENNA MOUNT WITH COMMSCOPE MTC3607 ANTENNA MOUNT
- AT&T RRU's: (1) NEW RRU PER SECTOR WITH (3) SECTORS, FOR A TOTAL OF (3) NEW RRU's; (1) EXISTING RRU PER SECTOR TO REMAIN, FOR A TOTAL OF (3) EXISTING RRU's. (3) PROPOSED A2 MODULES, (1) PER SECTOR
- AT&T ANTENNAS: REMOVE (1) ANTENNA PER SECTOR FOR A TOTAL OF (3) REMOVED ANTENNAS, INSTALL (1) ANTENNA PER SECTOR FOR A TOTAL OF (3) NEW ANTENNAS

SITE ADDRESS: 100 NORTHROP ROAD
WALLINGFORD, CT 06492

LATITUDE: 41.4894000 41° 29' 21.84"N
LONGITUDE: -72.7682000 72° 46' 5.52"W

USID: 61205

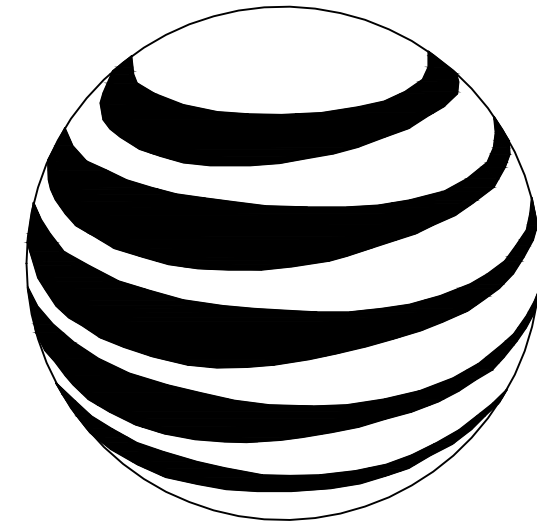
TOWER OWNER: AMERICAN TOWER CORPORATION
116 HUNTINGTON AVE. 11TH FLOOR
BOSTON, MA 02116

TYPE OF SITE: MONOPOLE/INDOOR EQUIPMENT

RAD CENTER: 126'-0"±

CURRENT USE: UNMANNED WIRELESS TELECOMMUNICATIONS FACILITY

PROPOSED USE: UNMANNED WIRELESS TELECOMMUNICATIONS FACILITY



at&t
MOBILITY

FA CODE: 10035227
SITE NUMBER: CT2221
**SITE NAME: WALLINGFORD-
NORTHROP RD**

PROJECT TEAM

CLIENT REPRESENTATIVE

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

SITE ACQUISITION:

COMPANY: VERTICAL DEVELOPMENT, LLC
ADDRESS: 20 COMMERCIAL STREET
BRANFORD, CT 06405
CONTACT: DAVID BASS
PHONE: 203-826-5857
EMAIL: dbass@verticaldevelopmentllc.com

ZONING:

COMPANY: VERTICAL DEVELOPMENT, LLC
ADDRESS: 20 COMMERCIAL STREET
BRANFORD, CT 06405
CONTACT: DAVID BASS
PHONE: 203-826-5857
EMAIL: dbass@verticaldevelopmentllc.com

ENGINEERING:

COMPANY: COM-EX CONSULTANTS, LLC
ADDRESS: 4 SECOND AVENUE
SUITE 204
DENVER, NJ 07834
CONTACT: NICHOLAS D. BARILE, P.E.
PHONE: 862-209-4300
EMAIL: nbarile@comexconsultants.com

RF ENGINEER:

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

CONSTRUCTION MANAGEMENT:

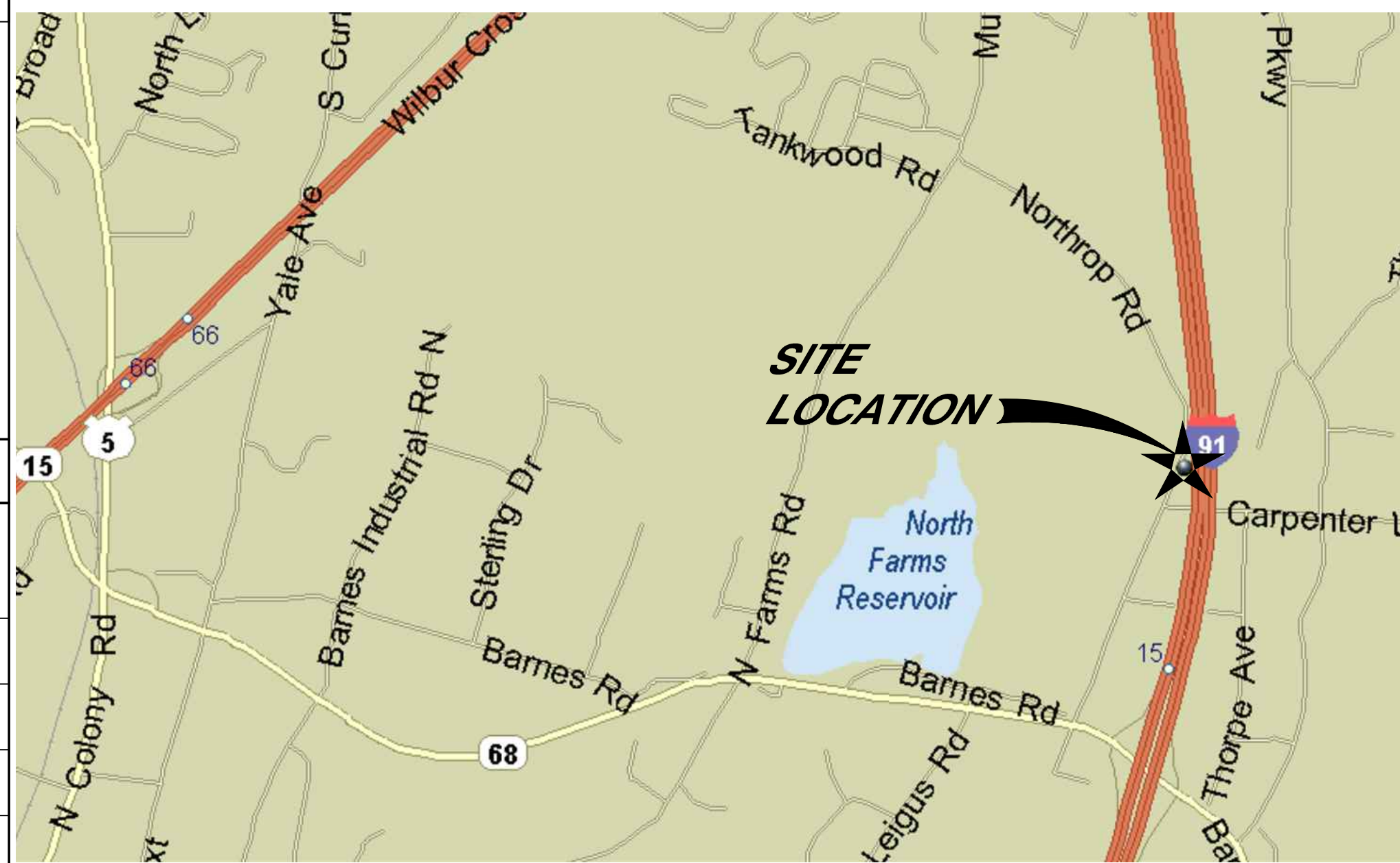
COMPANY: EMPIRE TELECOM
ADDRESS: 16 ESQUIRE ROAD
BILLERICA, MA 01821
CONTACT: GRZEGORZ "GREG" DORMAN
PHONE: 484-683-1750
EMAIL: gdorman@empiretelecomm.com

DRAWING INDEX

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VICINITY MAP

1. DEPART 550 COCHITUATE RD, TOWN OF FRAMINGHAM, MA 01701 ON SR-30 [COCHITUATE RD] (WEST). 2. BEAR LEFT (SOUTH) ONTO SR-126 [CONCORD ST], TURN LEFT (SOUTH) ONTO CONCORD ST. 3. TURN RIGHT (WEST) ONTO SR-9 [WORCESTER RD], MERGE ONTO SR-30 [SR-9]. 4. KEEP STRAIGHT ONTO SR-9 [WORCESTER RD], TURN RIGHT ONTO RAMP. 5. KEEP LEFT TO STAY ON RAMP *TOLL ROAD*, MERGE ONTO I-90 [MASS PIKE]. 6. AT EXIT 9, TAKE RAMP (RIGHT) ONTO I-84, ENTERING CONNECTICUT. 7. AT EXIT 57, TAKE RAMP (LEFT) ONTO SR-15, ROAD NAME CHANGES TO US-5 [SR-15]. 8. AT EXIT 86, TAKE RAMP (RIGHT) ONTO I-91. 9. AT EXIT 18, TAKE RAMP (RIGHT) ONTO I-691. 10. AT EXIT 1, TAKE RAMP (LEFT) ONTO I-84 AT EXIT 11, TURN RIGHT ONTO RAMP. 11. TURN RIGHT (NORTH-EAST) ONTO MILE HILL RD, TURN LEFT (NORTH-WEST) ONTO SR-34 [BERKSHIRE RD]. 12. TURN RIGHT (NORTH) ONTO LOCAL ROAD(S).



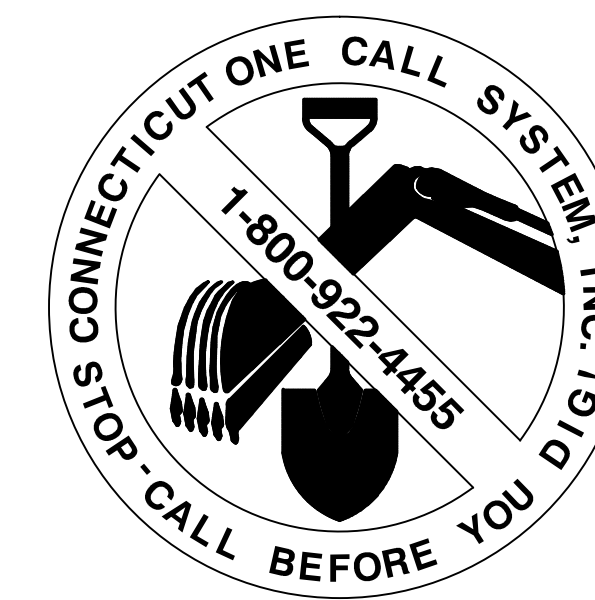
GENERAL NOTES

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

APPROVALS

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

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



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

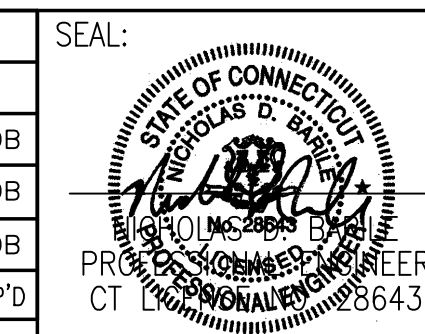


SITE NUMBER: CT2221
**SITE NAME: WALLINGFORD-
NORTHROP RD**
100 NORTHROP ROAD
WALLINGFORD, CT 06492
NEW HAVEN COUNTY



NO.	DATE	REVISIONS	BY	CHK	APP'D
2	07/15/15	REVISED PER CLIENT COMMENT	GR	NDB	NDB
1	07/8/15	REVISED PER CLIENT COMMENT	GR	NDB	NDB
0	06/15/15	ISSUED AS FINAL	GR	NDB	NDB

SCALE: AS SHOWN DESIGNED BY: CJT DRAWN BY: GR



AT&T		
DRAWING TITLE:		
JOB NUMBER	DRAWING NUMBER	REV
14225-EMP	T-1	2

GROUNDING NOTES:

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

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
 CONTRACTOR – EMPIRE TELECOM
 SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
 OWNER – AT&T MOBILITY
 OEM – ORIGINAL EQUIPMENT MANUFACTURER
2. INFORMATION SHOWN ON THIS SET OF DRAWINGS TAKEN FROM PLANS PREPARED BY CHA FOR AT&T DATED (04/20/11). CONTRACTOR TO NOTIFY ENGINEER IF DISCREPANCIES EXIST PRIOR TO COMMENCEMENT OF CONSTRUCTION.
3. 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.
4. 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.
5. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
6. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8. 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.
9. 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
10. 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.
11. 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.
12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.
14. 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.
15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy=36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCH UP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
16. CONSTRUCTION SHALL COMPLY WITH SPECIFICATION 25741-000-3APS-A00Z-00002, "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T MOBILITY SITES."
17. 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.
18. 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.
19. 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.

20. 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
21. 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
22. 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.
23. INFORMATION SHOWN ON THIS SET OF DRAWINGS TAKEN FROM PLANS PREPARED BY CENTEK FOR AT&T DATED 5/2/12. CONTRACTOR TO NOTIFY ENGINEER IF DISCREPANCIES EXIST PRIOR TO COMMENCEMENT OF CONSTRUCTION.

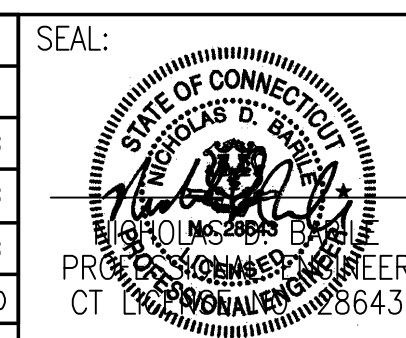


SITE NUMBER: CT2221
SITE NAME: WALLINGFORD-NORTHROP RD
 100 NORTHROP ROAD
 WALLINGFORD, CT 06492
 NEW HAVEN COUNTY

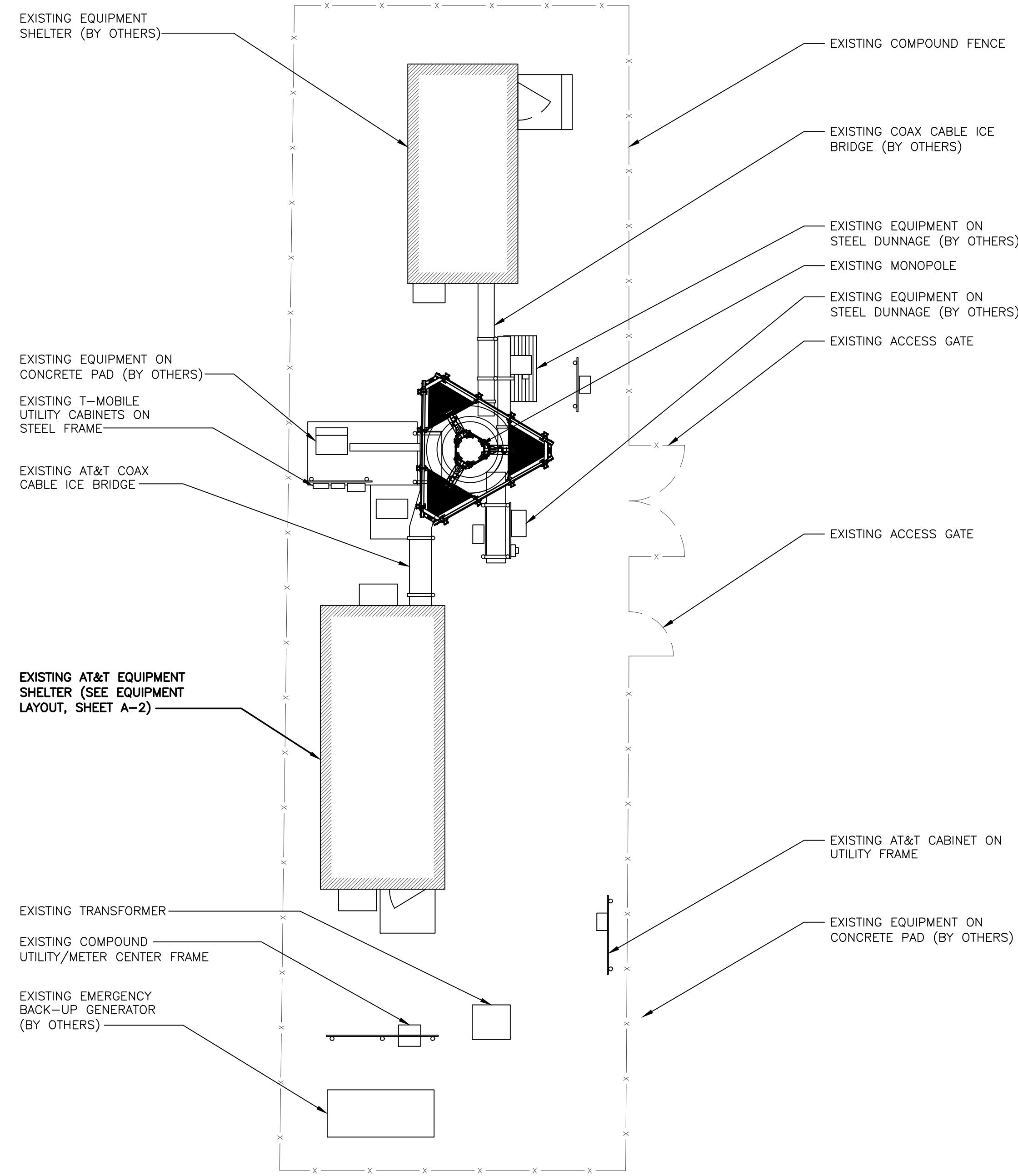


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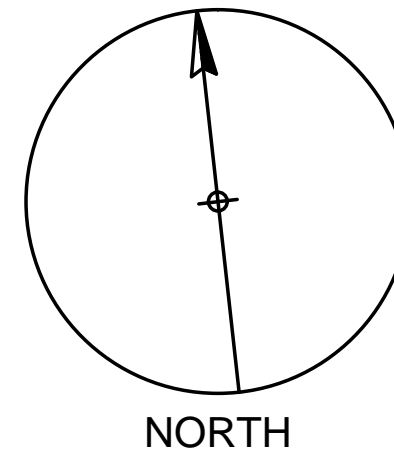
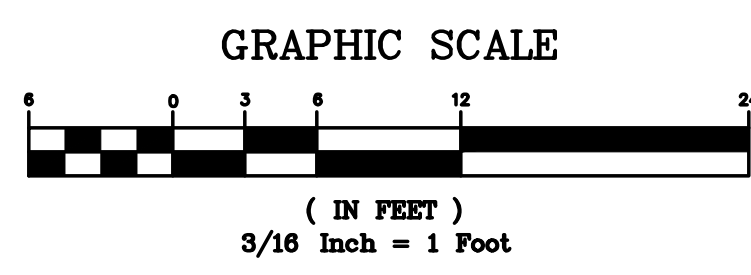
SCALE: AS SHOWN DESIGNED BY: CJT DRAWN BY: GR



AT&T		
DRAWING TITLE: GROUNDING NOTES & GENERAL NOTES		
JOB NUMBER 14225-EMP	DRAWING NUMBER GN-1	REV 2



COMPOUND PLAN
SCALE: 1/8" = 1'-0"



COM-EX
Consultants
4 SECOND AVENUE
SUITE 204
DENVER, NJ 07834
PHONE: 862.209.4300
FAX: 862.209.4301

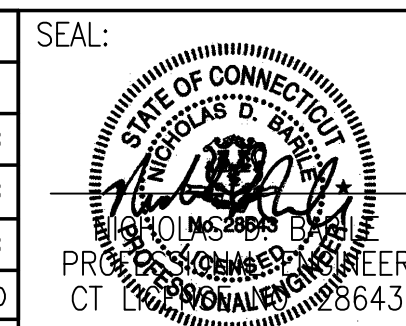
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telecom
16 ESQUIRE ROAD
BILLERICA, MA 01821

SITE NUMBER: CT2221
**SITE NAME: WALLINGFORD-
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WALLINGFORD, CT 06492
NEW HAVEN COUNTY

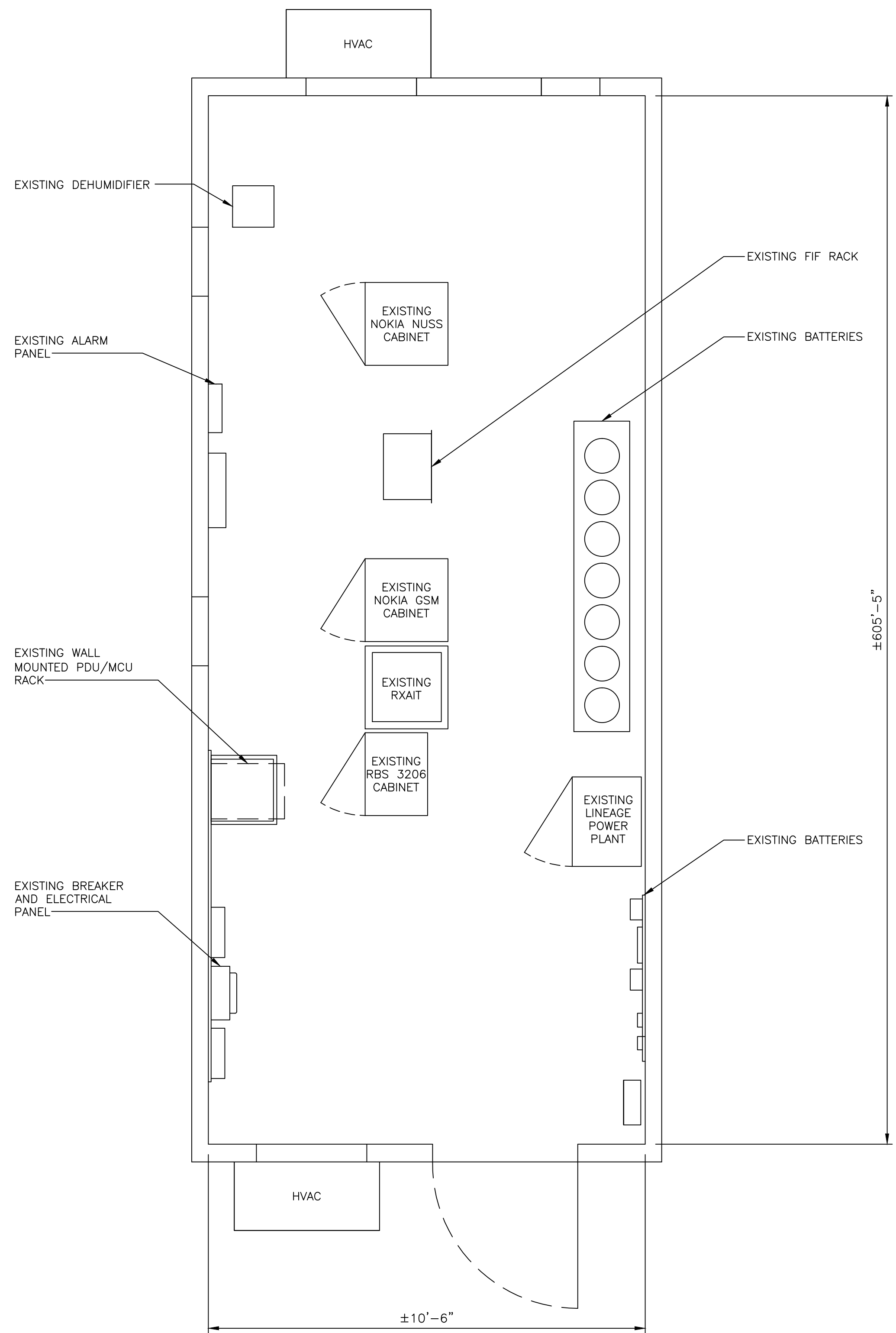
 **at&t**
MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

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0	06/15/15	ISSUED AS FINAL	GR	NDB	NDB

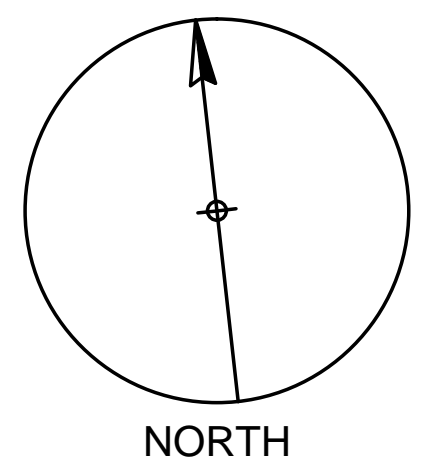
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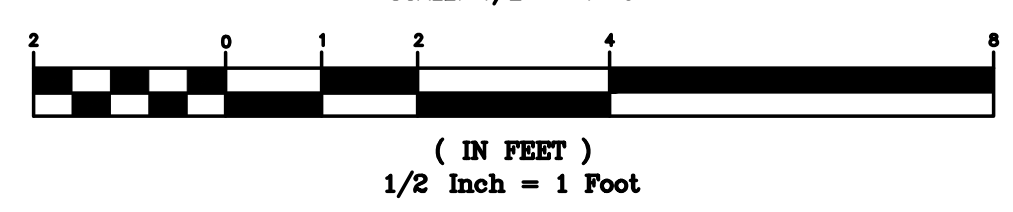
AT&T		
DRAWING TITLE:		
COMPOUND LAYOUT		
JOB NUMBER	DRAWING NUMBER	REV
14225-EMP	A-1	2



NOTE:
NO GROUND EQUIPMENT CHANGES
ARE PROPOSED UNDER THIS SCOPE
OF WORK. EXISTING GROUND
EQUIPMENT CONFIGURATION TO
REMAIN.



EXISTING EQUIPMENT LAYOUT
SCALE: 1/2" = 1'-0"



COM-EX
Consultants
4 SECOND AVENUE
SUITE 204
DENVER, NJ 07834
PHONE: 862.209.4300
FAX: 862.209.4301

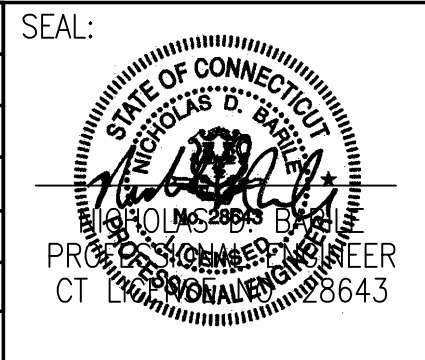
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telecom
16 ESQUIRE ROAD
BILLERICA, MA 01821

SITE NUMBER: CT2221
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NEW HAVEN COUNTY

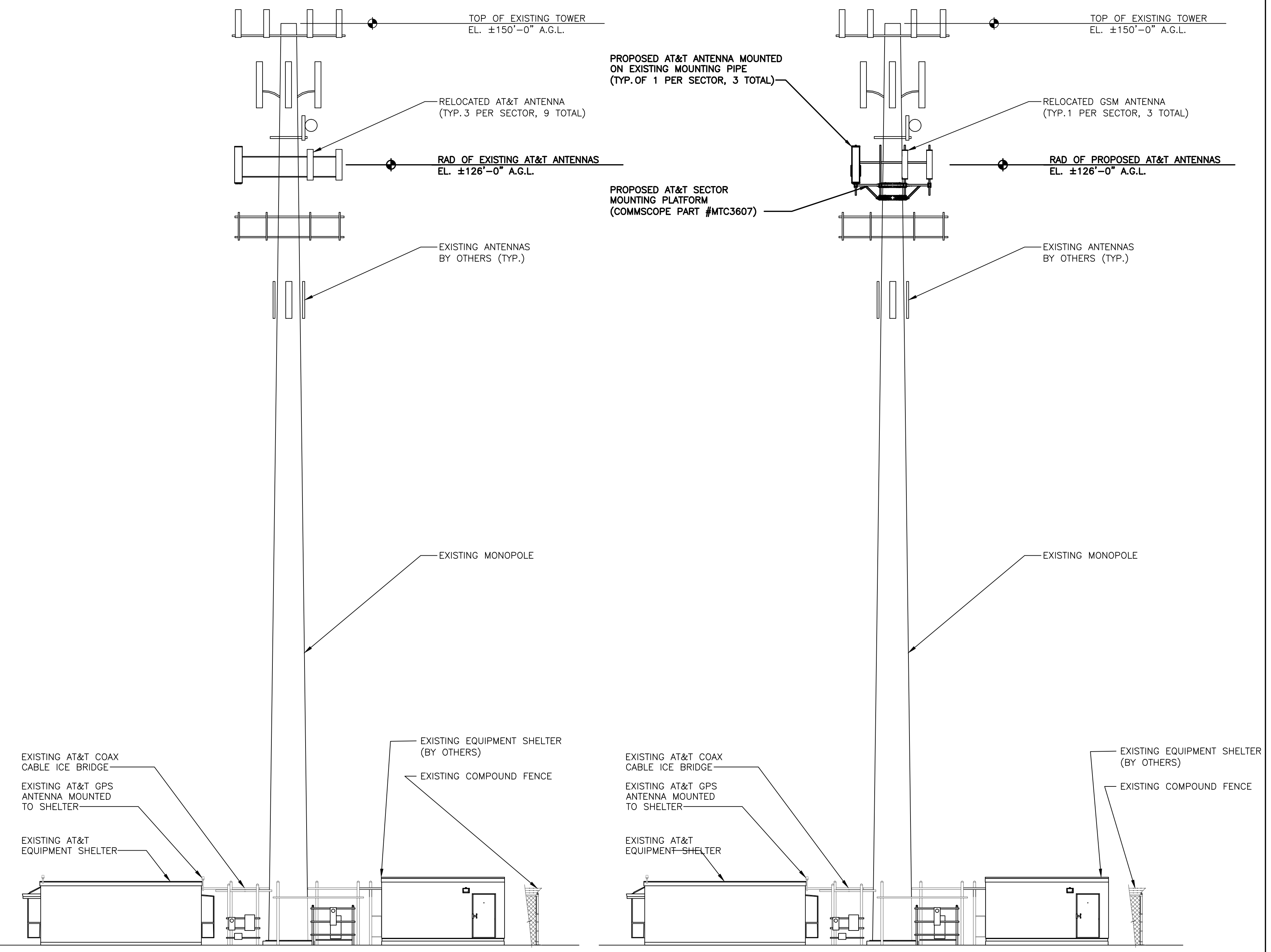
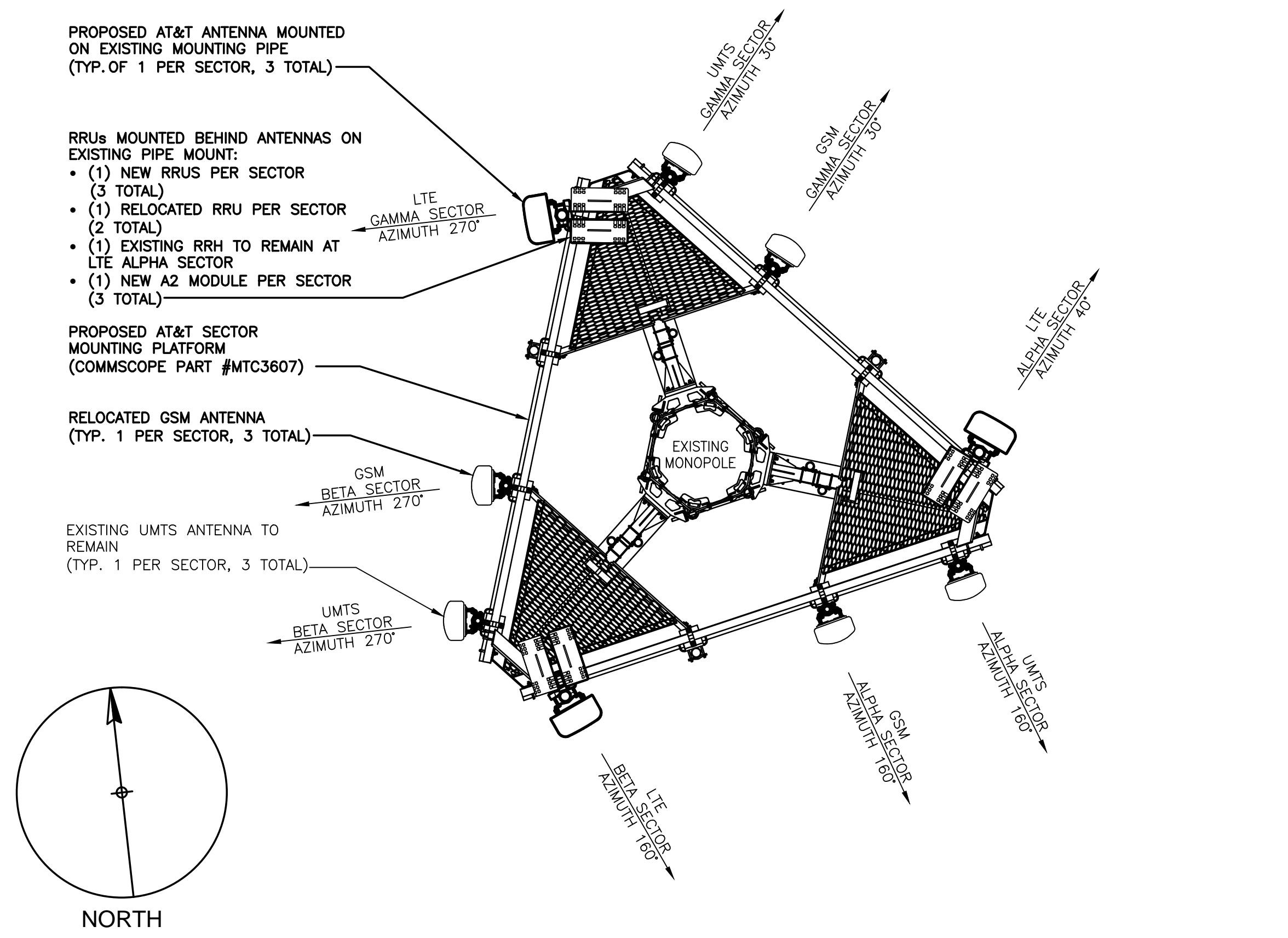
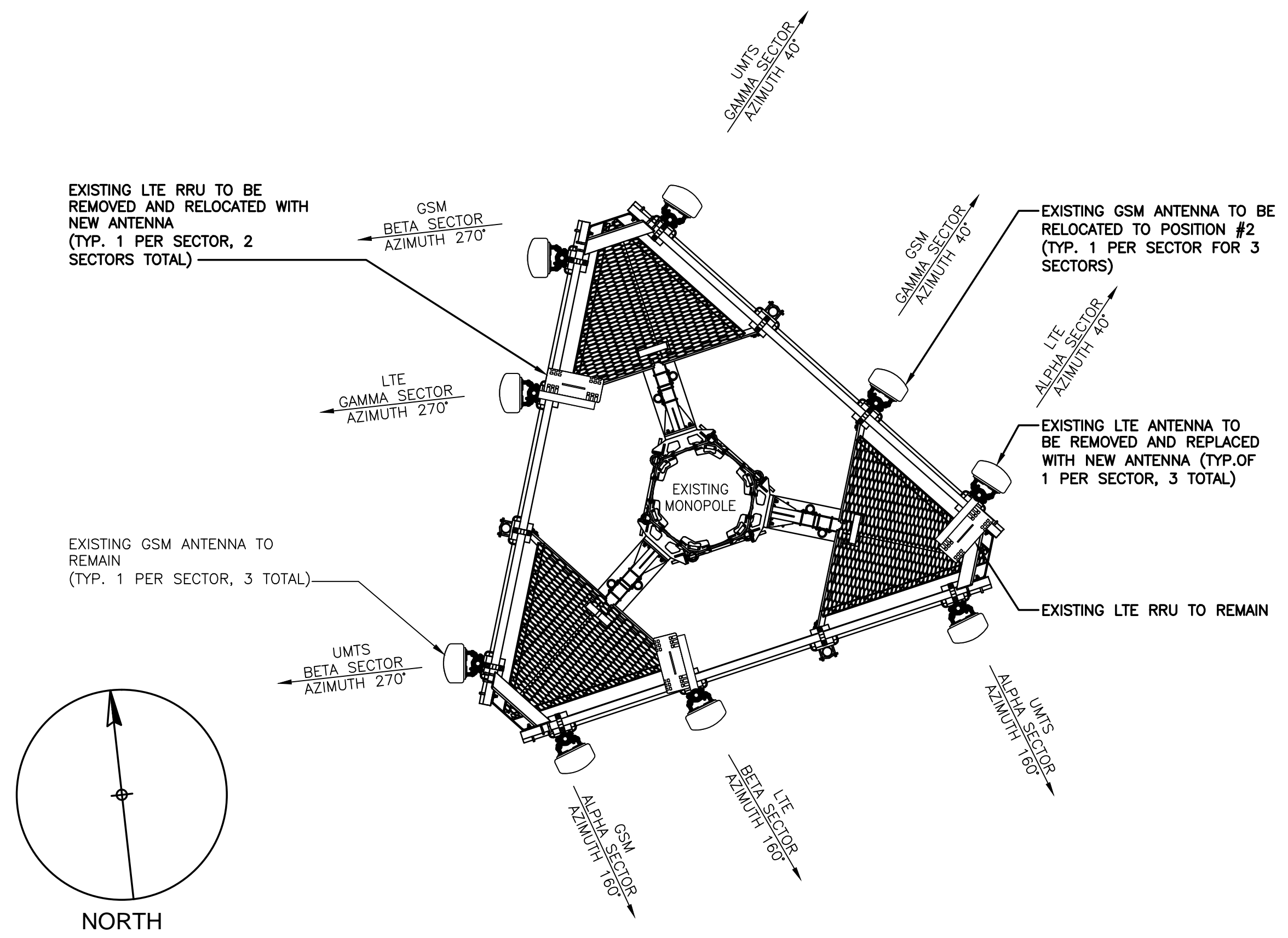
 **at&t**
MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
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1	07/8/15	REVISED PER CLIENT COMMENT	GR	NDB	NDB
0	06/15/15	ISSUED AS FINAL	GR	NDB	NDB

SCALE: AS SHOWN DESIGNED BY: CJT DRAWN BY: GR



AT&T		
DRAWING TITLE: EQUIPMENT LAYOUT		
JOB NUMBER 14225-EMP	DRAWING NUMBER A-2	REV 2



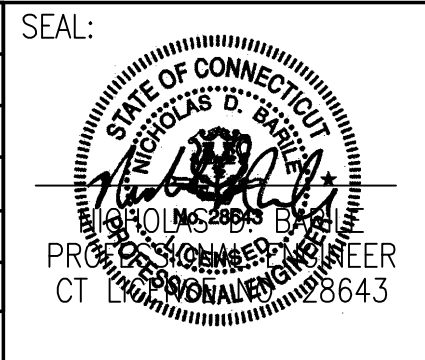
EXISTING TOWER ELEVATION
SCALE: NTS

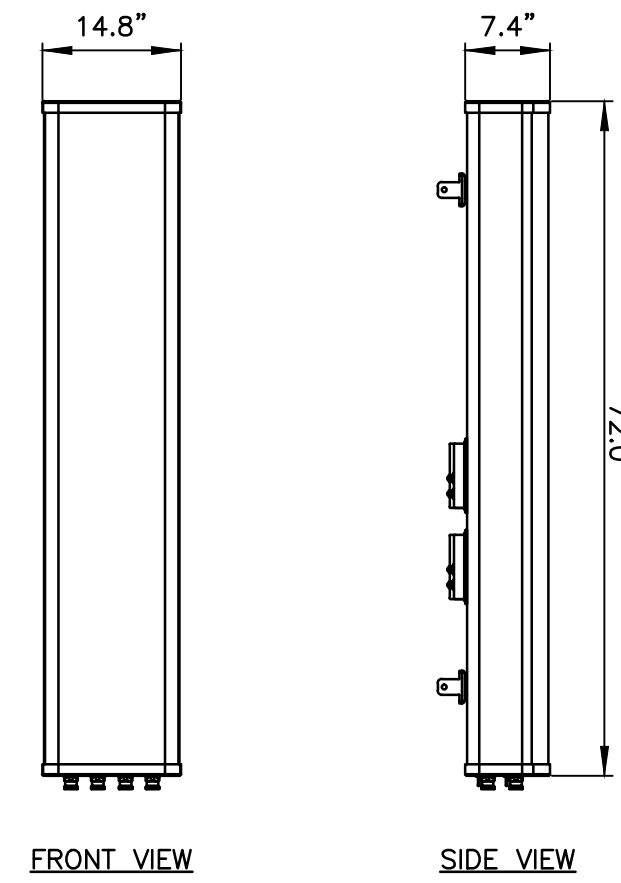
PROPOSED TOWER ELEVATION
SCALE: NTS

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.

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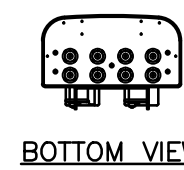
SCALE: AS SHOWN DESIGNED BY: CJT DRAWN BY: GR





FRONT VIEW

SIDE VIEW

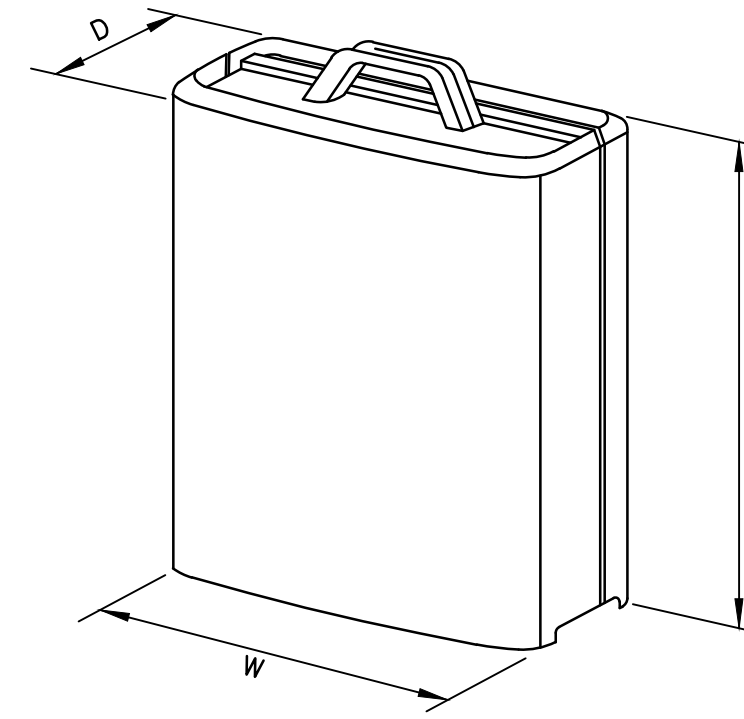


BOTTOM VIEW

MANUFACTURER	CCI
MODEL	OPA-65R-LCUU-H6
WEIGHT	73.0 LBS

ANTENNA DETAIL

SCALE: N.T.S.

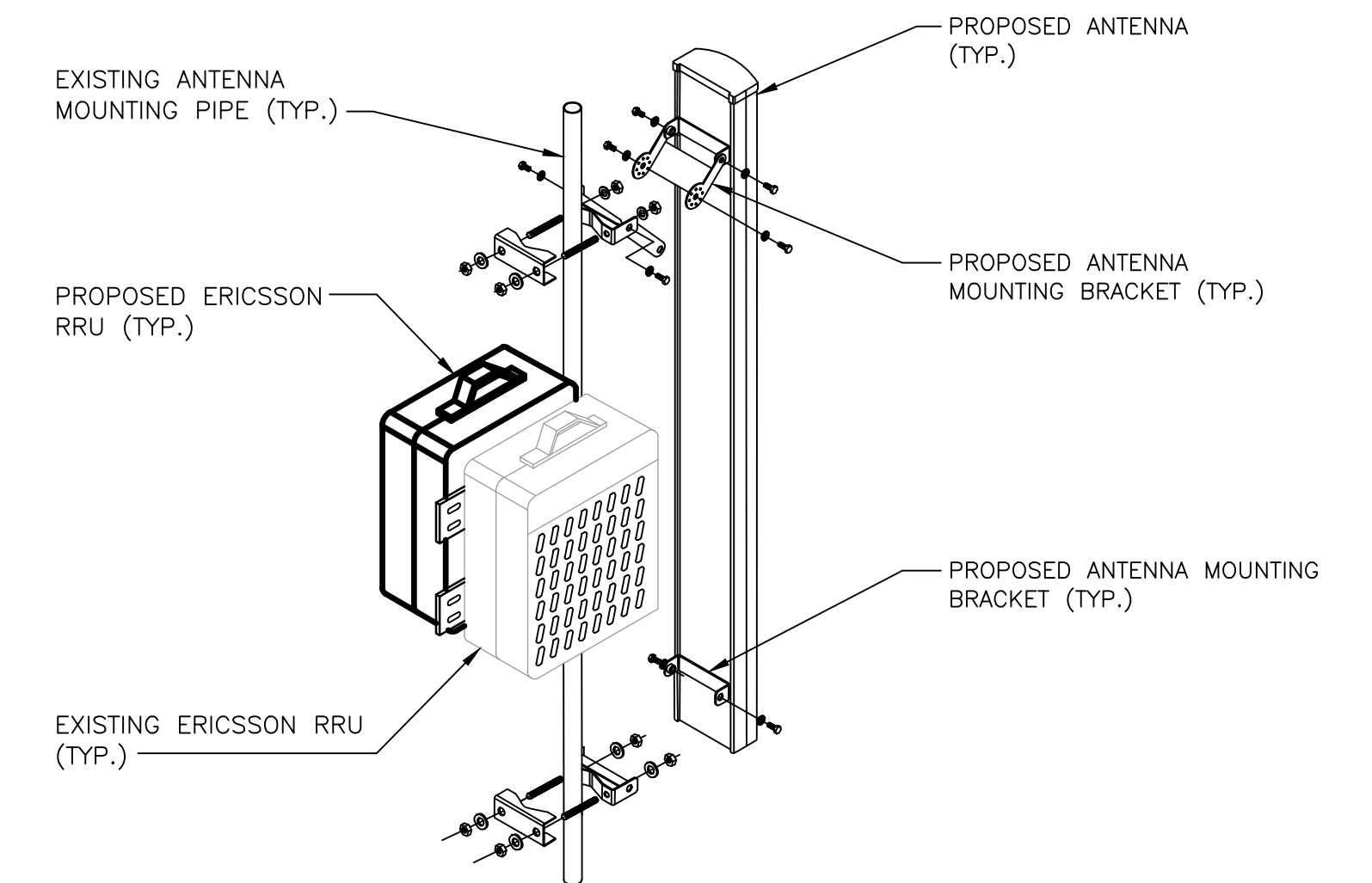


MODEL	L x W x H	WEIGHT
*RRUS-11	19.69" x 16.97" x 7.17"	50.7 LBS
RRUS-12	20.4" x 18.5" x 7.5"	58 LBS
A2 MODULE	16.4" x 15.2" x 3.4"	22 LBS

*DENOTES EXISTING.

RRUS DETAIL

SCALE: N.T.S.



ANTENNA AND RRU MOUNTING DETAIL

SCALE: N.T.S.

EXISTING ANTENNA SCHEDULE

SECTOR	POSITION	MAKE	MODEL	SIZE (INCHES)
ALPHA	A1	POWERWAVE	7770.00.850.06	55"x11"x5"
	A2	-	-	-
	A3	POWERWAVE	7770.00.850.06	55"x11"x5"
	A4	KMW	AM-X-CD-16-65-00T-RET	72"x11.8"x5.9"
BETA	B1	POWERWAVE	7770.00.850.06	55"x11"x5"
	B2	-	-	-
	B3	KMW	AM-X-CD-16-65-00T-RET	72"x11.8"x5.9"
	B4	POWERWAVE	7770.00.850.06	55"x11"x5"
GAMMA	G1	POWERWAVE	7770.00.850.06	55"x11"x5"
	G2	-	-	-
	G3	KMW	AM-X-CD-16-65-00T-RET	72"x11.8"x5.9"
	G4	POWERWAVE	7770.00.850.06	55"x11"x5"

FINAL ANTENNA SCHEDULE

SECTOR	POSITION	MAKE	MODEL	SIZE (INCHES)
ALPHA	A1	POWERWAVE	7770.00.850.06	55"x11"x5"
	A2	POWERWAVE	7770.00.850.06	55"x11"x5"
	A3	-	-	-
	A4	CCI	OPA-65-LCUU-H6	72"x14.8"x7.4"
BETA	B1	POWERWAVE	7770.00.850.06	55"x11"x5"
	B2	POWERWAVE	7770.00.850.06	55"x11"x5"
	B3	-	-	-
	B4	CCI	OPA-65-LCUU-H6	72"x14.8"x7.4"
GAMMA	G1	POWERWAVE	7770.00.850.06	55"x11"x5"
	G2	POWERWAVE	7770.00.850.06	55"x11"x5"
	G3	-	-	-
	G4	CCI	OPA-65-LCUU-H6	72"x14.8"x7.4"

PROPOSED RRH SCHEDULE

SECTOR	MAKE	MODEL	SIZE (INCHES)	ADDITIONAL COMPONENT	SIZE (INCHES)
ALPHA	ERICSSON	RRUS-12	20.4"x18.5"x7.5"	ERICSSON A2 MODULE	16.4"x15.2"x3.4"
	ERICSSON	RRUS-11 (RELOCATED)	19.7"x16.9"x7.2"		
BETA	ERICSSON	RRUS-12	20.4"x18.5"x7.5"	ERICSSON A2 MODULE	16.4"x15.2"x3.4"
	ERICSSON	RRUS-11 (RELOCATED)	19.7"x16.9"x7.2"		
GAMMA	ERICSSON	RRUS-12	20.4"x18.5"x7.5"	ERICSSON A2 MODULE	16.4"x15.2"x3.4"
	ERICSSON	RRUS-11 (RELOCATED)	19.7"x16.9"x7.2"		

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

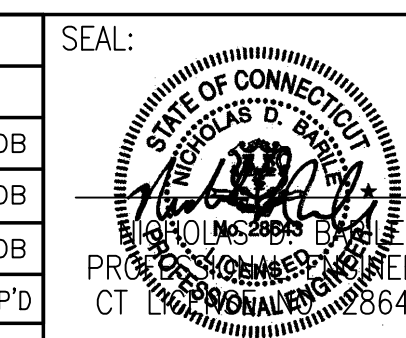


SITE NUMBER: CT2221
SITE NAME: WALLINGFORD-NORTHROP RD
 100 NORTHROP ROAD
 WALLINGFORD, CT 06492
 NEW HAVEN COUNTY



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1	07/8/15	REVISED PER CLIENT COMMENT	GR	NDB	NDB
0	06/15/15	ISSUED AS FINAL	GR	NDB	NDB

SCALE: AS SHOWN DESIGNED BY: CJT DRAWN BY: GR



AT&T		
DRAWING TITLE: DETAILS		
JOB NUMBER 14225-EMP	DRAWING NUMBER A-4	REV 2

EXISTING RELOCATED UMTS ANTENNA & TMAS MOUNTED TO PROPOSED SECTOR FRAME (TYP. FOR 1 PER SECTOR, TOTAL OF 3)

RRUs MOUNTED BEHIND ANTENNAS ON PROPOSED PIPE:
 • (1) NEW RRUs PER SECTOR (3 TOTAL)
 • (1) RELOCATED RRU PER SECTOR (3 TOTAL)
 • (1) NEW A2 MODULE PER SECTOR (3 TOTAL)

PROPOSED LTE ANTENNA MOUNTED TO PROPOSED SECTOR FRAME (TYP. FOR 3 PER SECTOR, TOTAL OF 9)

PROPOSED AT&T SECTOR MOUNTING PLATFORM (COMMSCOPE PART #MTC3607)

PROPOSED ANTENNA MOUNTING DETAIL (FRONT VIEW)

SCALE: N.T.S.

AT&T ANTENNA MOUNTED TO PROPOSED SECTOR FRAME (TYP. FOR 3 PER SECTOR, TOTAL OF 9)

RRUS MOUNTED BEHIND ANTENNAS ON PROPOSED PIPE:
 • (1) NEW RRUS PER SECTOR (3 TOTAL)
 • (1) RELOCATED RRU PER SECTOR (3 TOTAL)
 • (1) NEW A2 MODULE PER SECTOR (3 TOTAL)

EXISTING MONOPOLE

PROPOSED AT&T SECTOR MOUNTING PLATFORM (COMMSCOPE PART #MTC3607)

PROPOSED ANTENNA MOUNTING DETAIL (SIDE VIEW)

SCALE: N.T.S.

COM-EX
 Consultants
 4 SECOND AVENUE
 SUITE 204
 DENVER, NJ 07834
 PHONE: 862.209.4300
 FAX: 862.209.4301

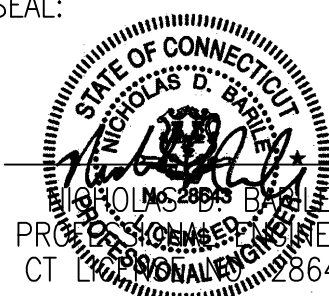
EMPIRE
 telecom
 16 ESQUIRE ROAD
 BILLERICA, MA 01821

SITE NUMBER: CT2221
SITE NAME: WALLINGFORD-NORTHROP RD
 100 NORTHROP ROAD
 WALLINGFORD, CT 06492
 NEW HAVEN COUNTY

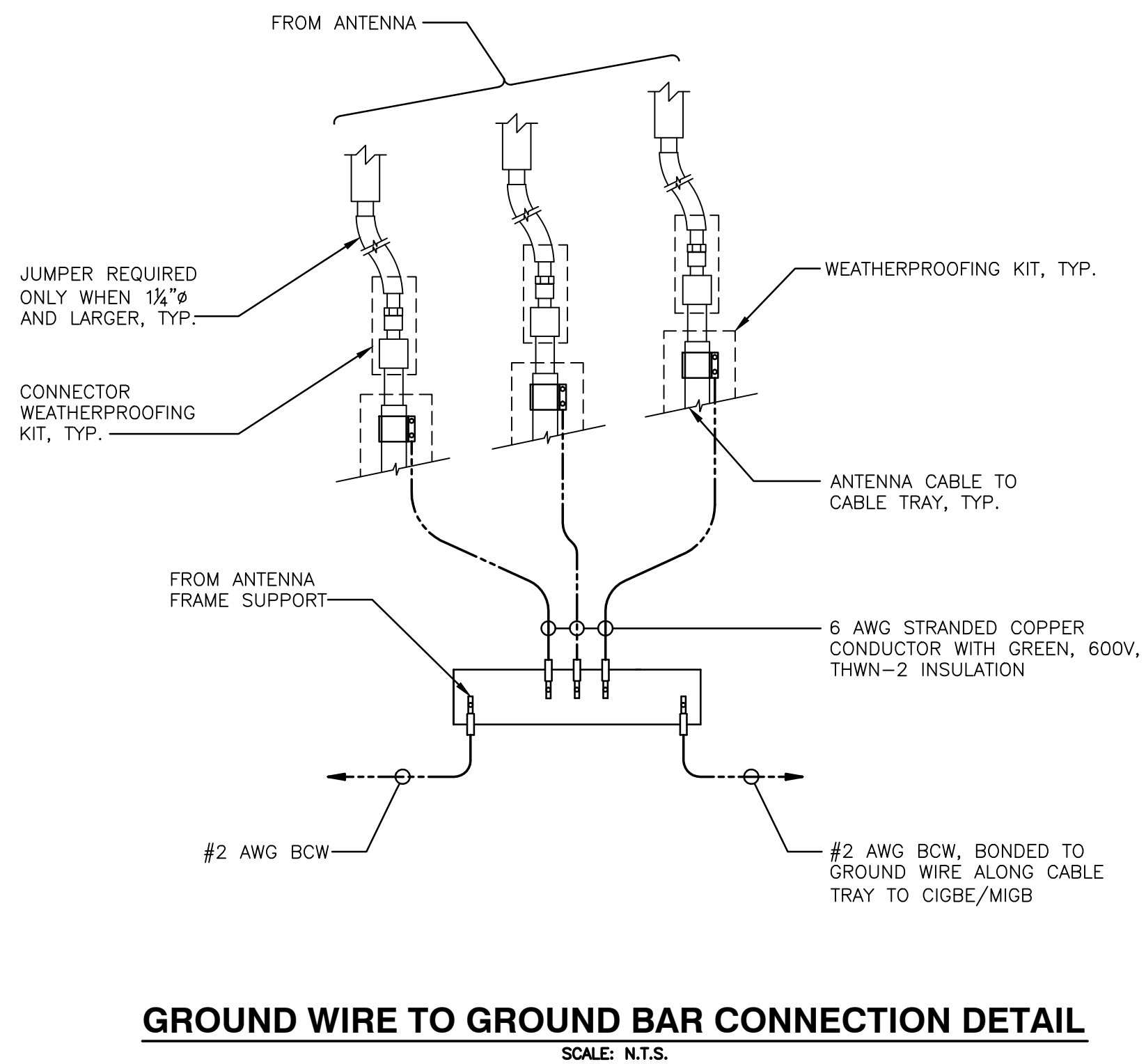
 **at&t**
 MOBILITY
 550 COCHITUATE ROAD
 FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
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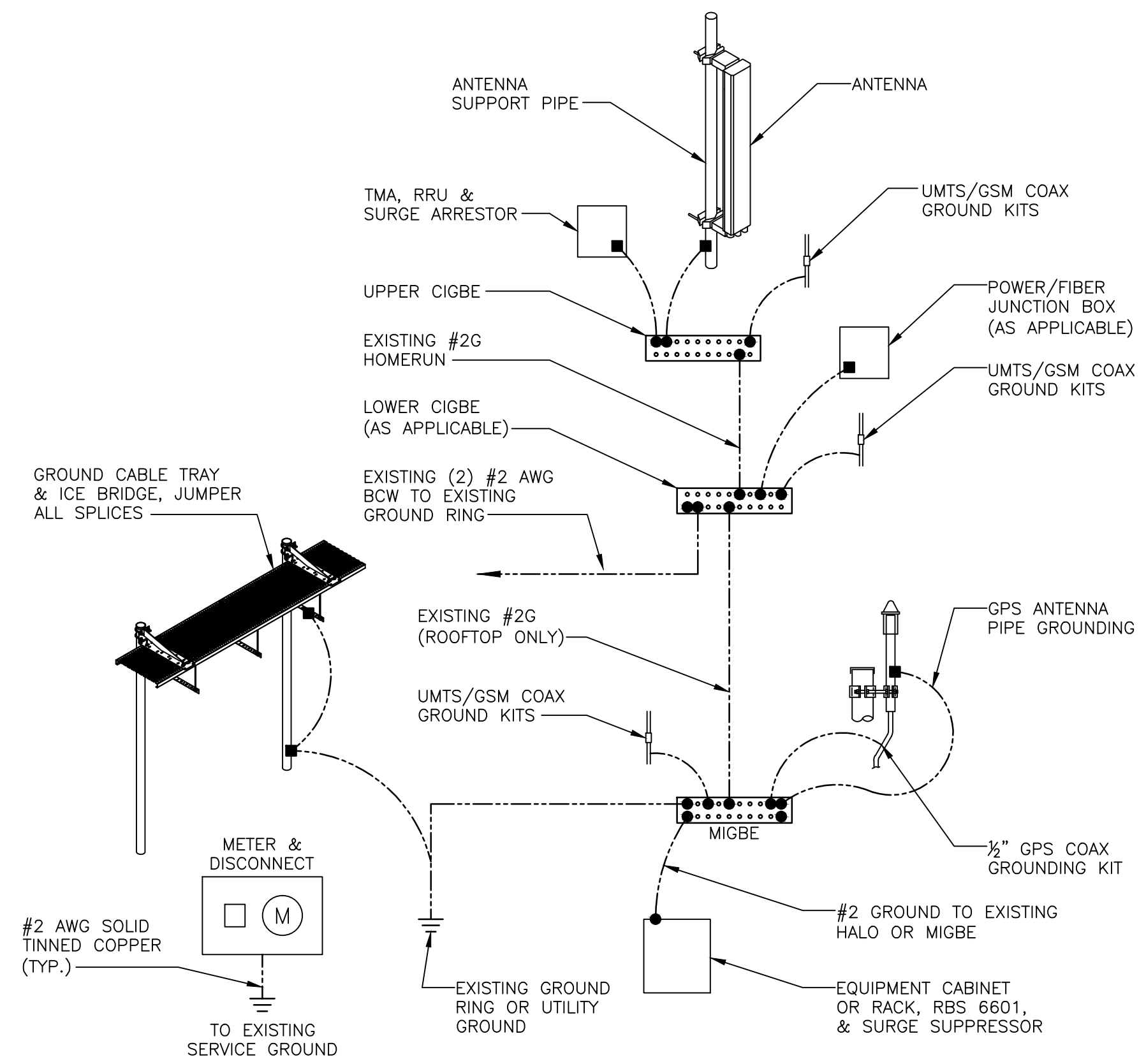
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SEAL:

 NICHOLAS D. BICKEL
 PROFESSIONAL ENGINEER
 STATE OF CONNECTICUT
 LICENSE NO. 28643

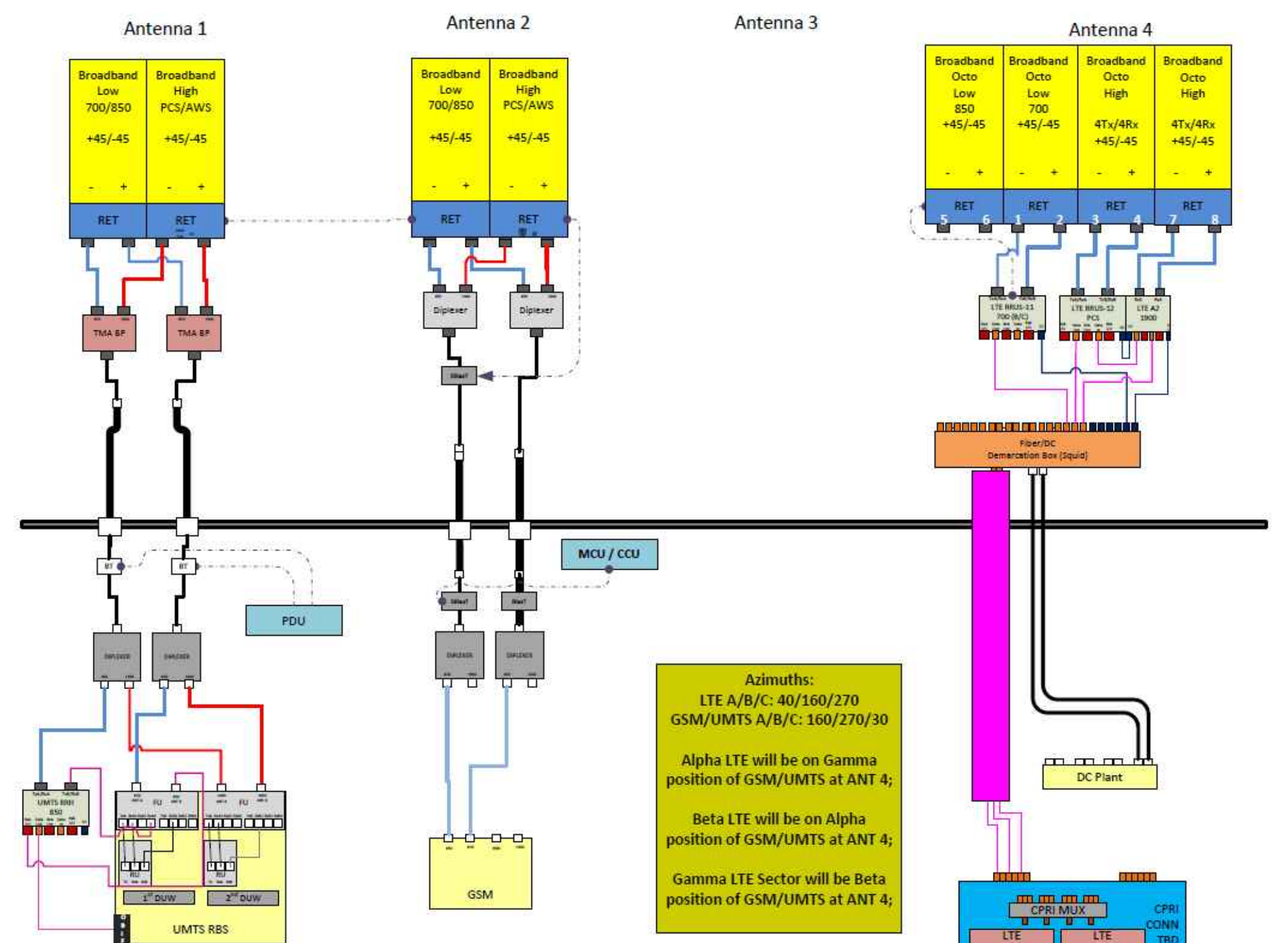
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JOB NUMBER	DRAWING NUMBER	REV
14225-EMP	A-4	2



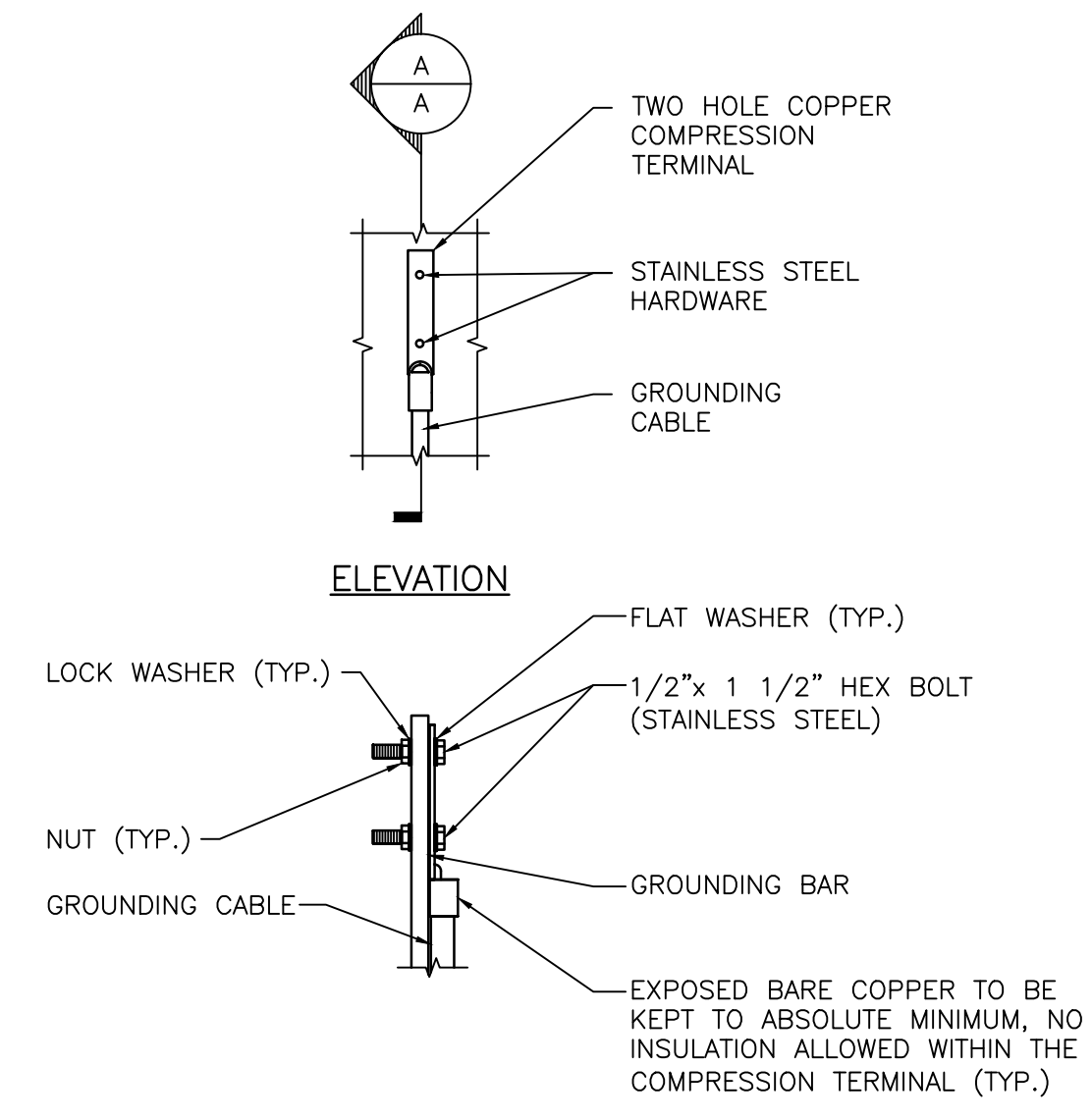
GROUND WIRE TO GROUND BAR CONNECTION DETAIL
SCALE: N.T.S.



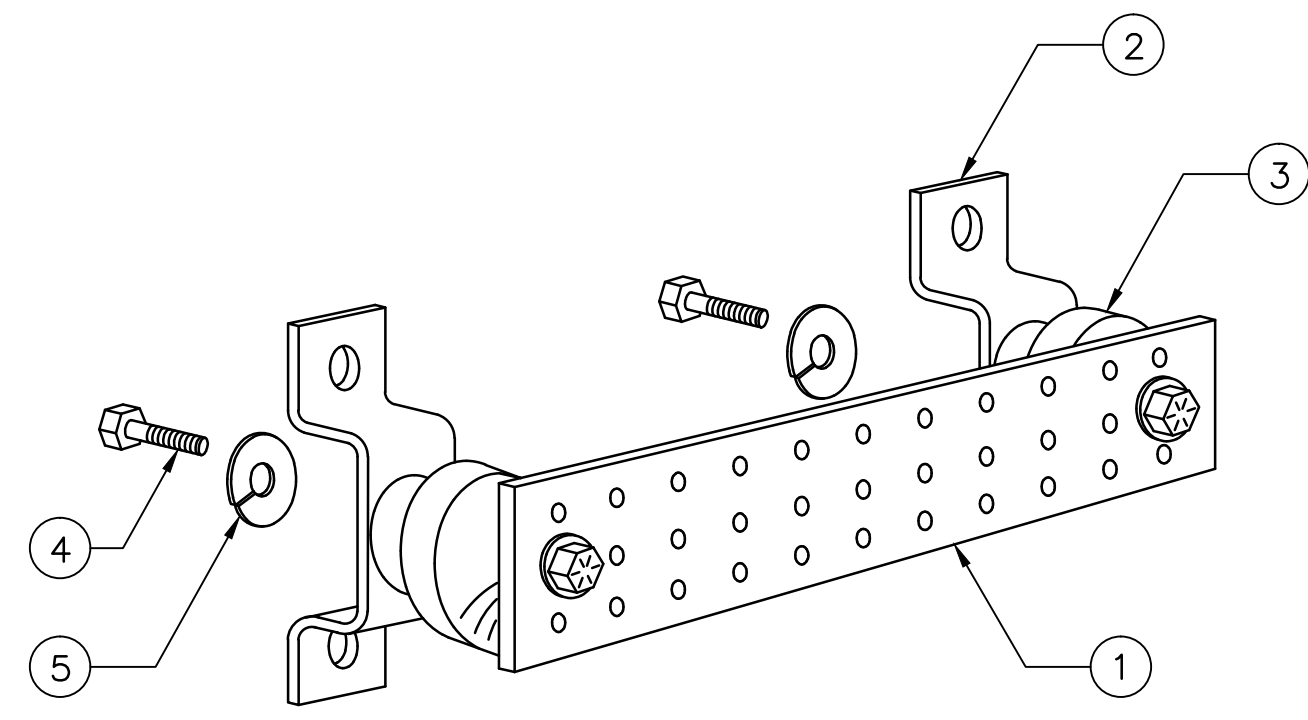
GROUNDING RISER DIAGRAM
SCALE: N.T.S.



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



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



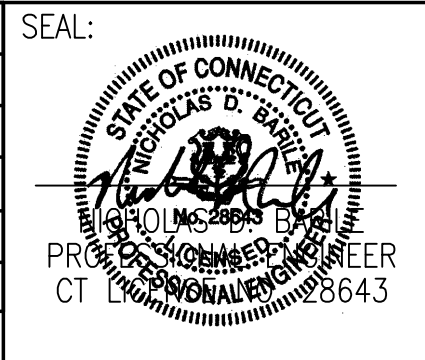
ITEM NO.	QTY.	DESCRIPTION
1	1	SOLID GROUND BAR (20"x 4"x 1/4")
2	2	WALL MOUNTING BRACKET
3	2	INSULATORS
4	4	5/8"-11x1" H.H.C.S.
5	4	5/8" LOCK WASHER

GROUND BAR DETAIL
SCALE: N.T.S.

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
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0	06/15/15	ISSUED AS FINAL	GR	NDB	NDB

SCALE: AS SHOWN DESIGNED BY: CJT DRAWN BY: GR





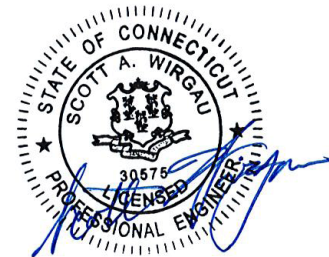
AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure : 150 ft Monopole
ATC Site Name : Parsonage Hill Aka Wallin, CT
ATC Site Number : 302538
Engineering Number : 61682021
Proposed Carrier : AT&T Mobility
Carrier Site Name : N/A
Carrier Site Number : /FA#10035227
Site Location : 922 Northrop Road
Wallingford, CT 06492-1910
41.489347,-72.768253
County : New Haven
Date : May 19, 2015
Max Usage : 88%
Result : Pass

Reviewed by:
Scott Wirgau, PE
Structural Team Leader

Prepared By:
Ammar Elhassan, E.I.



May 19 2015 4:11 PM

COA: PEC.0001553



Table of Contents

Introduction	1
Supporting Documents	1
Analysis	1
Conclusion.....	1
Existing and Reserved Equipment.....	2
Equipment to be Removed.....	2
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Structure Usages	3
Foundations	3
Deflection, Twist, and Sway.....	3
Standard Conditions	4
Calculations	Attached



Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 150 ft monopole to reflect the change in loading by AT&T Mobility.

Supporting Documents

Tower Drawings	Valmont Drawing #DC1776Z, dated June 29, 1994
Foundation Drawing	SAC Engineering, Valmont Order #11715-94, dated July 21, 1994
Geotechnical Report	AET Project #91294, dated July 8, 1994

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/TIA-222.

Basic Wind Speed:	105 mph (3-Second Gust)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Code:	ANSI/TIA-222-G / 2003 IBC w/ 2005 CT Supplement & 2011 CT Amendments
Structure Class:	II
Exposure Category:	C
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	$S_s = 0.18, S_1 = 0.06$
Site Class:	D - Stiff Soil

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					
150.0	153.0	1	10' Dipole	T-Arms	(12) 1 5/8" Coax	Double A Transportation
	150.0	9	52" x 12" Panel		(1) 7/8" Coax	Sprint Nextel
		3	72" x 12" Panel			
140.0	140.0	3	Ericsson KRY 112 144/1	Stand-Offs	(12) 1 5/8" Coax (1) 1 1/4" Hybriflex Cable	T-Mobile
		3	Ericsson AIR 21, 1.3 M, B2A B4P			
133.5	133.5	2	DragonWave Horizon Compact	T-Arm	(6) 5/16" Coax (2) 2" Conduit (2) 1/2" Coax	Clearwire
		3	NextNet BTS-2500			
		3	Argus LLPX310R			
		1	DragonWave A-ANT-11G-2-C			
		1	DragonWave A-ANT-18G-2-C			
131.0		1	18" x 12" Junction Box	Flush	-	
123.0	126.0	3	14" x 9" TTA	Platform w/ Handrails	(12) 1 5/8" Coax (2) 0.78" 8 AWG 6 (1) 0.39" Cable	AT&T Mobility
		6	Powerwave LGP21401			
		1	Raycap DC6-48-60-18-8F			
		6	Ericsson RRUS 11 (Band 12) (55 lb)			
		3	36" x 8" x 6" Panel			
		6	72" x 12" Panel			
111.0	111.0	-	-	Empty Platform w/ Handrails	-	--
105.0	105.0	3	RFS APXV18-206517S-C	Flush	(6) 1 5/8" Coax	Metro PCS

Equipment to be Removed

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
127.0	125.0	3	KMW AM-X-CD-16-65-00T-RET	-	-	AT&T Mobility

Proposed Equipment

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
123.0	126.0	3	Ericsson RRUS 12 w/ RRUS A2	Platform w/ Handrails	(1) 3" Conduit	AT&T Mobility
		3	CCI OPA-65R-LCUU-H6			

¹Mount 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).

Install proposed coax inside the pole shaft.



Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	84%	Pass
Shaft	88%	Pass
Base Plate	87%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	4,027.6	89%
Shear (Kips)	40.6	84%

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.

The foundation and anchorages for this tower were analyzed with a factor of safety greater than or equal to 2 with respect to wind.

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
133.5	DragonWave A-ANT-18G-2-C	Clearwire	1.595	1.223
	DragonWave A-ANT-11G-2-C			
123.0	Ericsson RRUS 12 w/ RRUS A2	AT&T Mobility	1.374	1.187
	CCI OPA-65R-LCUU-H6			

*Deflection and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-G



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:

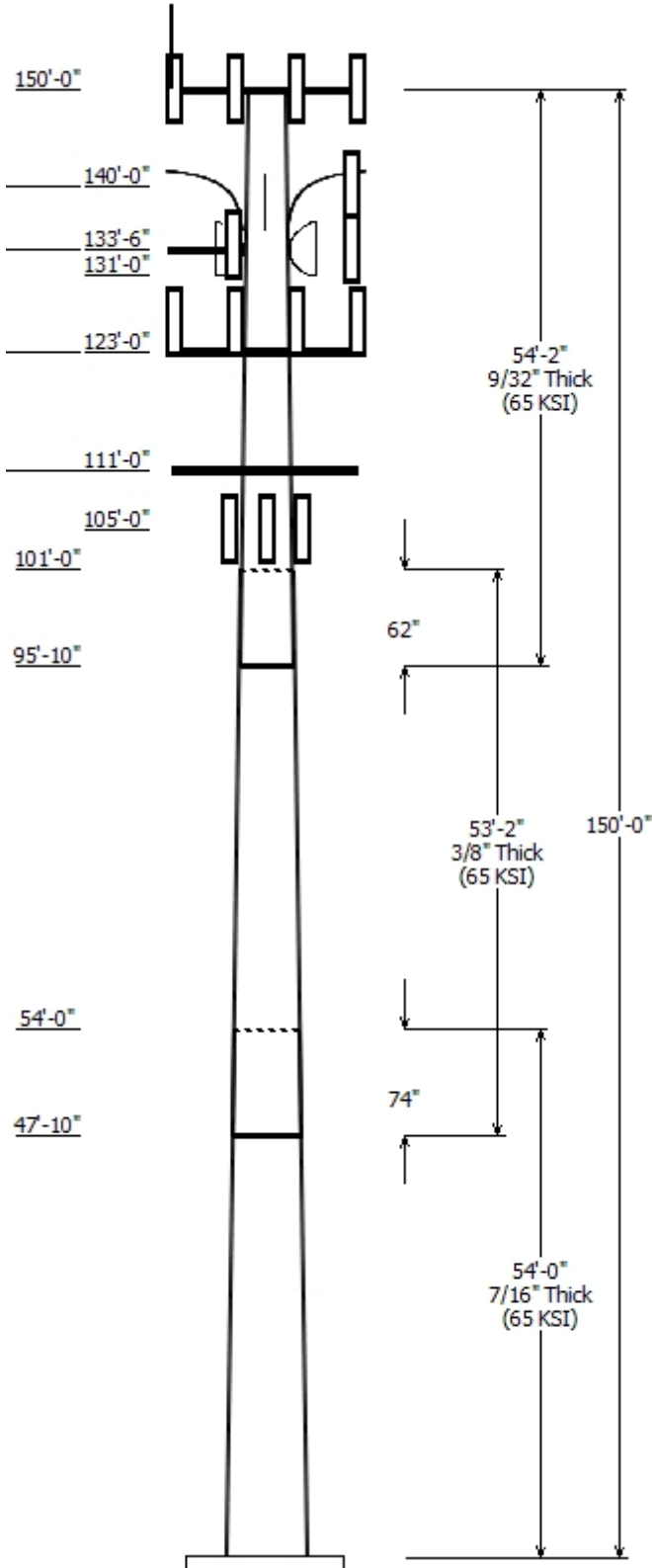
- Information supplied by the client regarding the structure itself, antenna, mounts and feed line loading on the structure and its components, or other relevant information.
- Information from drawings in the possession of American Tower Corporation, or generated by field inspections or measurements 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.

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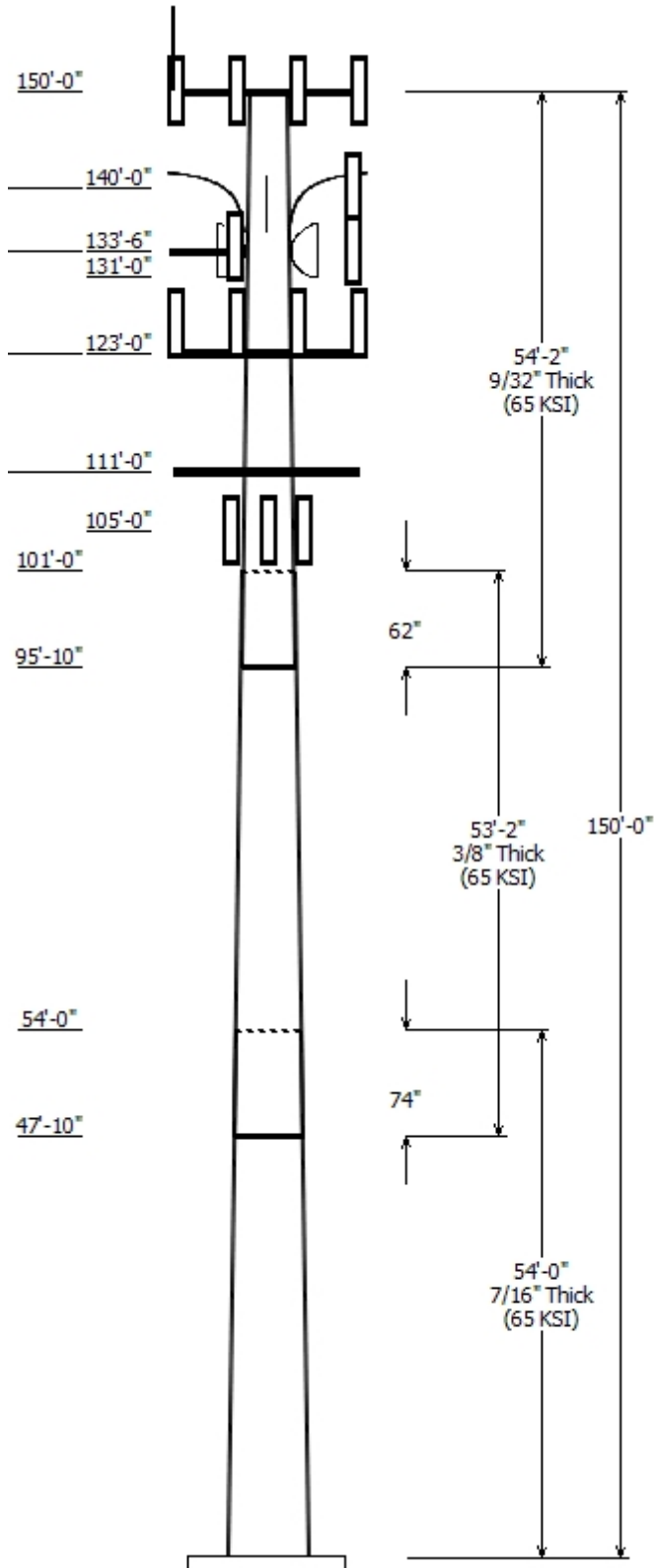


Job Information	
Pole :	302538
Code :	ANSI/TIA-222-G
Description :	150 ft Valmont Monopole
Client :	AT&T Mobility
Struct Class :	II
Location :	Parsonage Hill AKA Wallingford, CT
Shape :	12 Sides
Exposure :	C
Height :	150.00 (ft)
Topo :	1
Base Elev (ft):	0.00
Taper:	0.18201(in/ft)

Sections Properties								
Shaft Section	Length (ft)	Diameter (in)		Thick (in)	Joint Type	Overlap		Steel Grade (ksi)
		Top	Bottom			Length (in)	Taper (in/ft)	
1	54.000	39.77	49.60	0.438		0.000	0.182016	65
2	53.167	31.96	41.64	0.375	Slip Joint	74.000	0.182016	65
3	54.167	23.61	33.46	0.281	Slip Joint	62.000	0.182016	65

Discrete Appurtenance				
Attach Elev (ft)	Force Elev (ft)	Qty	Description	
150.000	153.000	1	10' Dipole	
150.000	150.000	9	52" x 12" Panel	
150.000	150.000	3	72" x 12" Panel	
150.000	150.000	3	Round T-Arm	
140.000	140.000	3	Ericsson KRY 112 144/1	
140.000	140.000	3	Ericsson AIR 21, 1.3 M, B2A B4	
140.000	140.000	3	Stand-Off	
133.500	133.500	1	DragonWave A-ANT-11G-2-C	
133.500	133.500	1	T-Arm	
133.500	133.500	2	DragonWave Horizon Compact	
133.500	133.500	1	DragonWave A-ANT-18G-2-C	
133.500	133.500	3	NextNet BTS-2500	
133.500	133.500	3	Argus LLPX310R	
131.000	133.500	1	18" x 12" Junction Box	
123.000	126.000	3	CCI OPA-65R-LCUU-H6	
123.000	126.000	3	Ericsson RRUS 12 w/ RRUS A2	
123.000	126.000	3	14" x 9" TTA	
123.000	126.000	1	Flat Platform w/ Handrails	
123.000	126.000	6	72" x 12" Panel	
123.000	126.000	3	36" x 8" x 6" Panel	
123.000	126.000	6	Powerwave Allgon LGP21401	
123.000	126.000	1	Raycap DC6-48-60-18-8F	
123.000	126.000	6	Ericsson RRUS 11 (Band 12) (55	
111.000	111.000	1	Flat Platform w/ Handrails	
105.000	105.000	3	RFS APXV18-206517S-C	

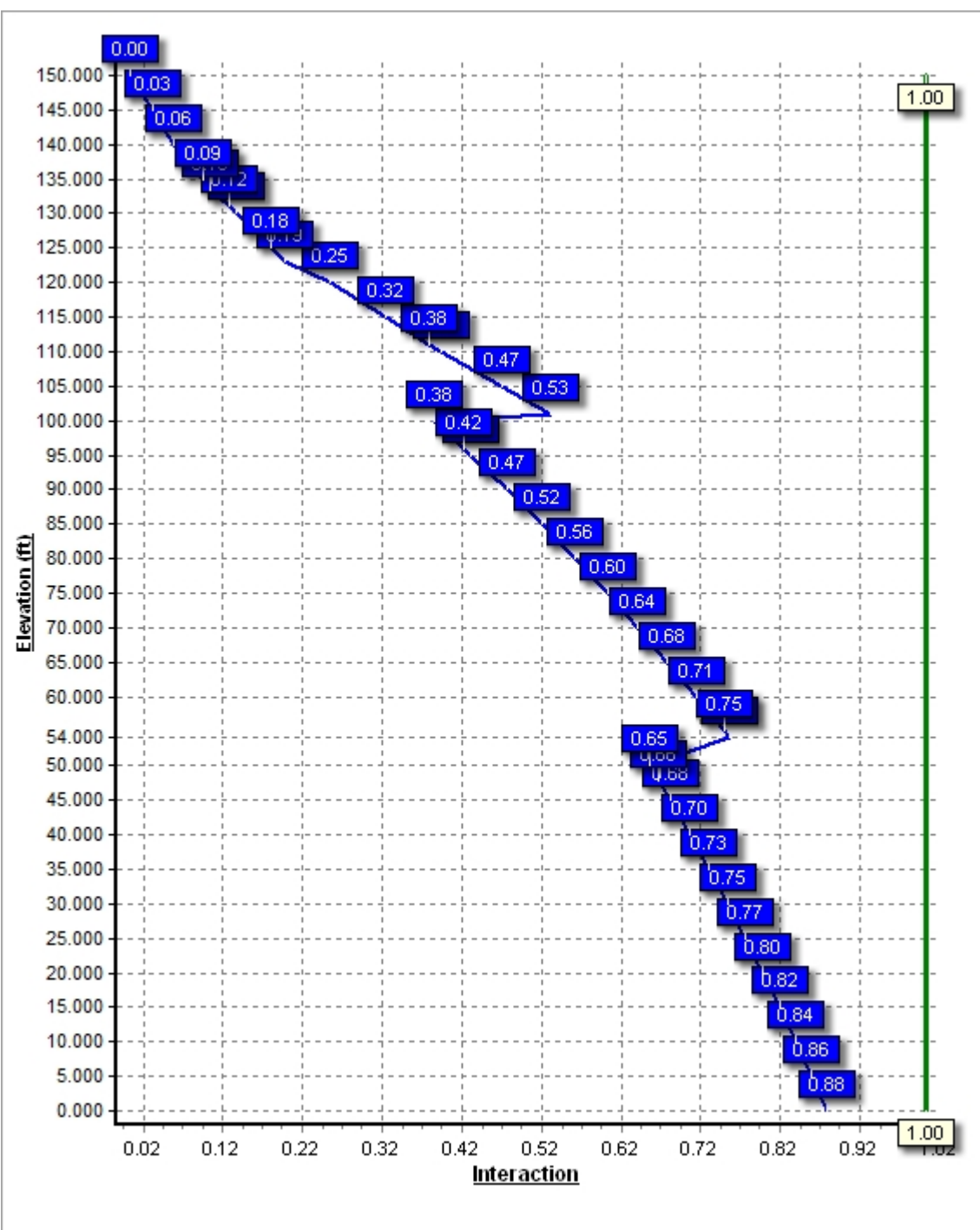
Linear Appurtenance			
Elev (ft)		Description	Exposed To Wind
From	To		
0.000	105.0	1 5/8" Coax	No
0.000	123.0	0.39" Cable	No
0.000	123.0	0.78" 8 AWG 6	No
0.000	123.0	1 5/8" Coax	No
0.000	123.0	3" Conduit	No
0.000	133.5	1/2" Coax	Yes
0.000	133.5	2" Conduit	Yes
0.000	133.5	5/16" Coax	Yes
0.000	140.0	1 1/4" Hybriflex	No
0.000	140.0	1 5/8" Coax	No
0.000	150.0	1 5/8" Coax	No
0.000	150.0	7/8" Coax	No



Load Cases	
1.2D + 1.6W	105 mph with No Ice
0.9D + 1.6W	105 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Lateral
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Modal
1.0D + 1.0W	Serviceability 60 mph

Reactions			
Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	4027.60	40.60	46.70
0.9D + 1.6W	3985.51	40.58	35.00
1.2D + 1.0Di + 1.0Wi	808.30	7.74	72.74
(1.2 + 0.2Sds) * DL + E ELFM	157.09	1.43	43.60
(1.2 + 0.2Sds) * DL + E EMAM	157.57	1.57	46.53
(0.9 - 0.2Sds) * DL + E ELFM	155.44	1.43	30.31
(0.9 - 0.2Sds) * DL + E EMAM	155.30	1.57	32.35
1.0D + 1.0W	817.58	8.28	38.99

Dish Deflections			
Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
1.0D + 1.0W	133.50	19.136	1.223
1.0D + 1.0W	133.50	19.136	1.223



Site Number: 302538

Code: ANSI/TIA-222-G

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Site Name: Parsonage Hill AKA Wallingford

Engineering Number: 61682021

5/19/2015 11:44:59 AM

Customer: AT&T Mobility

Analysis Parameters

Location:	New Haven County, CT		
Code:	ANSI/TIA-222-G	Height (ft):	150
Shape:	12 Sides	Base Diameter (in):	49.60
Pole Type:	Taper	Top Diameter (in):	23.61
Pole Manufacturer:	Valmont	Taper (in/ft) :	0.182

Ice & Wind Parameters

Structure Class:	II	Design Wind Speed Without Ice:	105 mph
Exposure Category:	C	Design Wind Speed With Ice:	50 mph
Topographic Category:	1	Operational Wind Speed:	60 mph
Crest Height:	0.0 ft	Design Ice Thickness:	0.50 in

Seismic Parameters

Analysis Method:	Equivalent Modal Analysis & Equivalent Lateral Force Methods		
Site Class:	D - Stiff Soil		
Period Based on Rayleigh Method (sec):	2.19		
T_L (sec):	6	p :	1.3
S_s :	0.182	S_1 :	0.063
F_a :	1.600	F_v :	1.600
S_{ds} :	0.194	S_{d1} :	0.067
		C_s :	0.030
		C_s Max:	0.030
		C_s Min:	0.030

Load Cases

1.2D + 1.6W	105 mph with No Ice
0.9D + 1.6W	105 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E ELFM	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E EMAM	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E ELFM	Seismic (Reduced DL) Equivalent Lateral Forces Method
(0.9 - 0.2Sds) * DL + E EMAM	Seismic (Reduced DL) Equivalent Modal Analysis Method
1.0D + 1.0W	Serviceability 60 mph

Site Number: 302538

Code: ANSI/TIA-222-G

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Site Name: Parsonage Hill AKA Wallingford

Engineering Number: 61682021

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Customer: AT&T Mobility

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom						Top						
							Dia (in)	Elev (ft)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Taper (in/ft)
1-12	54.000	0.4375	65		0.00	11,454	49.60	0.00	69.26	21365.7	27.70	113.37	39.77	54.00	55.41	10942.2	21.68	90.90	0.182016
2-12	53.167	0.3750	65	Slip	74.00	7,958	41.64	47.83	49.83	10832.4	27.08	111.05	31.96	101.00	38.15	4859.3	20.16	85.24	0.182016
3-12	54.167	0.2813	65	Slip	62.00	4,717	33.46	95.83	30.06	4225.4	29.21	119.00	23.61	150.00	21.13	1467.6	19.81	83.95	0.182016
Shaft Weight						24,129													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	No Ice			Ice			Distance From Face (ft)	Vert Ecc (ft)
			Weight (lb)	EPAA (sf)	Orientation Factor	Weight (lb)	EPAA (sf)	Orientation Factor		
150.00	10' Dipole	1	30.00	3.760	1.00	141.39	9.750	1.00	0.000	3.000
150.00	52" x 12" Panel	9	40.00	5.550	0.67	182.65	6.586	0.67	0.000	0.000
150.00	72" x 12" Panel	3	45.00	8.130	0.67	236.27	9.427	0.67	0.000	0.000
150.00	Round T-Arm	3	250.00	9.700	0.67	459.07	17.947	0.67	0.000	0.000
140.00	Ericsson AIR 21, 1.3 M, B2A	3	83.00	6.050	0.71	250.29	7.138	0.71	0.000	0.000
140.00	Ericsson KRY 112 144/1	3	11.00	0.410	0.50	27.17	0.632	0.50	0.000	0.000
140.00	Stand-Off	3	75.00	2.500	0.67	111.33	3.798	0.67	0.000	0.000
133.50	Argus LLPX310R	3	28.60	4.290	0.63	134.77	5.177	0.63	0.000	0.000
133.50	DragonWave A-ANT-11G-2-C	1	27.00	4.690	0.90	123.21	5.951	0.90	0.000	0.000
133.50	DragonWave A-ANT-18G-2-C	1	27.10	4.690	0.90	123.66	5.951	0.90	0.000	0.000
133.50	DragonWave Horizon	2	10.60	0.430	0.50	40.33	0.657	0.50	0.000	0.000
133.50	NextNet BTS-2500	3	35.00	1.820	0.50	91.20	2.355	0.50	0.000	0.000
133.50	T-Arm	1	560.00	8.500	1.00	1,023.24	15.531	1.00	0.000	0.000
131.00	18" x 12" Junction Box	1	15.00	1.800	1.00	81.78	2.360	1.00	0.000	2.500
123.00	14" x 9" TTA	3	10.00	1.050	0.50	45.66	1.489	0.50	0.000	3.000
123.00	36" x 8" x 6" Panel	3	25.00	2.580	0.67	106.36	3.296	0.67	0.000	3.000
123.00	72" x 12" Panel	6	45.00	8.130	0.67	231.88	9.400	0.67	0.000	3.000
123.00	CCI OPA-65R-LCUU-H6	3	73.00	9.660	0.66	357.00	14.559	0.66	0.000	3.000
123.00	Ericsson RRUS 11 (Band 12)	6	55.00	2.520	0.50	133.34	3.150	0.50	0.000	3.000
123.00	Ericsson RRUS 12 w/ RRUS	3	71.40	3.150	0.50	169.11	4.289	0.50	0.000	3.000
123.00	Flat Platform w/ Handrails	1	2000.00	42.400	1.00	3,394.39	62.977	1.00	0.000	0.000
123.00	Powerwave Allgon LGP21401	6	14.10	1.100	0.50	46.78	1.553	0.50	0.000	3.000
123.00	Raycap DC6-48-60-18-8F	1	31.80	1.280	1.00	122.39	2.838	1.00	0.000	3.000
111.00	Flat Platform w/ Handrails	1	2000.00	42.400	1.00	3,381.22	62.783	1.00	0.000	0.000
105.00	RFS APXV18-206517S-C	3	26.40	5.170	0.68	136.33	6.207	0.68	0.000	0.000
Totals		73	7956.90			18,961.42			Number of Loadings :	25

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Diameter (in)	Coax Weight (lb/ft)	Protected Flat	Width (in)	Exposed To Wind	Carrier
0.00	150.00	12	1 5/8" Coax	1.98	0.82	N	0.00	N	Sprint Nextel
0.00	150.00	1	7/8" Coax	1.09	0.33	N	0.00	N	Double A Transportation
0.00	140.00	1	1 1/4" Hybriflex Cable	1.54	1.00	N	0.00	N	T-Mobile
0.00	140.00	12	1 5/8" Coax	1.98	0.82	N	0.00	N	T-Mobile
0.00	133.50	2	1/2" Coax	0.63	0.15	N	0.00	Y	Clearwire
0.00	133.50	2	2" Conduit	2.38	3.65	N	2.38	Y	Clearwire
0.00	133.50	6	5/16" Coax	0.31	0.05	N	0.00	Y	Clearwire
0.00	123.00	1	0.39" Cable	0.39	0.07	N	0.00	N	AT&T Mobility
0.00	123.00	2	0.78" 8 AWG 6	0.78	0.59	N	0.00	N	AT&T Mobility
0.00	123.00	12	1 5/8" Coax	1.98	0.82	N	0.00	N	AT&T Mobility
0.00	123.00	1	3" Conduit	3.50	7.58	N	0.00	N	AT&T Mobility

Site Number: 302538

Code: ANSI/TIA-222-G

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Site Name: Parsonage Hill AKA Wallingford

Engineering Number: 61682021

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Customer: AT&T Mobility

0.00	105.00	6 1 5/8" Coax	1.98	0.82	N	0.00	N	Metro PCS
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Site Name: Parsonage Hill AKA Wallingford

Engineering Number: 61682021

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Customer: AT&T Mobility

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)	S (in ³)	Z (in ³)	Weight (lb)
0.00		0.4375	49.600	69.257	21,365.7	27.70	113.37	74.5	832.2	0.0	0.0
5.00		0.4375	48.690	67.975	20,200.9	27.14	111.29	75.1	801.5	0.0	1,167.4
10.00		0.4375	47.780	66.693	19,079.3	26.58	109.21	75.7	771.4	0.0	1,145.6
15.00		0.4375	46.870	65.411	18,000.1	26.03	107.13	76.3	741.9	0.0	1,123.8
20.00		0.4375	45.959	64.129	16,962.2	25.47	105.05	76.9	713.0	0.0	1,102.0
25.00		0.4375	45.049	62.847	15,965.1	24.91	102.97	77.5	684.6	0.0	1,080.2
30.00		0.4375	44.139	61.565	15,007.8	24.35	100.89	78.2	656.9	0.0	1,058.4
35.00		0.4375	43.229	60.283	14,089.6	23.80	98.81	78.8	629.6	0.0	1,036.6
40.00		0.4375	42.319	59.001	13,209.7	23.24	96.73	79.4	603.0	0.0	1,014.7
45.00		0.4375	41.409	57.719	12,367.1	22.68	94.65	80.0	577.0	0.0	992.9
47.83	Bot - Section 2	0.4375	40.893	56.992	11,906.0	22.37	93.47	80.3	562.5	0.0	553.0
50.00		0.4375	40.499	56.437	11,561.2	22.12	92.57	80.6	551.5	0.0	783.8
54.00	Top - Section 1	0.3750	40.521	48.476	9,972.4	26.27	108.06	76.1	475.4	0.0	1,427.0
55.00		0.3750	40.339	48.256	9,837.3	26.14	107.57	76.2	471.1	0.0	164.6
60.00		0.3750	39.429	47.158	9,180.5	25.49	105.14	76.9	449.8	0.0	811.7
65.00		0.3750	38.519	46.059	8,553.5	24.84	102.72	77.6	429.0	0.0	793.0
70.00		0.3750	37.609	44.960	7,955.7	24.19	100.29	78.3	408.7	0.0	774.3
75.00		0.3750	36.699	43.861	7,386.5	23.54	97.86	79.0	388.8	0.0	755.6
80.00		0.3750	35.789	42.762	6,845.1	22.89	95.44	79.7	369.5	0.0	736.9
85.00		0.3750	34.878	41.663	6,330.8	22.24	93.01	80.5	350.7	0.0	718.2
90.00		0.3750	33.968	40.564	5,843.0	21.59	90.58	81.2	332.3	0.0	699.5
95.00		0.3750	33.058	39.465	5,380.8	20.94	88.16	81.9	314.4	0.0	680.8
95.83	Bot - Section 3	0.3750	32.907	39.282	5,306.3	20.83	87.75	81.9	311.5	0.0	111.6
100.00		0.3750	32.148	38.366	4,943.7	20.29	85.73	81.9	297.1	0.0	971.7
101.00	Top - Section 2	0.2813	32.529	29.204	3,876.3	28.31	115.66	73.8	230.2	0.0	229.8
105.00		0.2813	31.801	28.545	3,619.7	27.62	113.07	74.6	219.9	0.0	393.0
110.00		0.2813	30.891	27.721	3,315.1	26.75	109.83	75.5	207.3	0.0	478.6
111.00		0.2813	30.709	27.556	3,256.3	26.58	109.19	75.7	204.9	0.0	94.0
115.00		0.2813	29.980	26.896	3,028.1	25.88	106.60	76.5	195.1	0.0	370.6
120.00		0.2813	29.070	26.072	2,758.2	25.02	103.36	77.4	183.3	0.0	450.6
123.00		0.2813	28.524	25.578	2,604.2	24.50	101.42	78.0	176.4	0.0	263.6
125.00		0.2813	28.160	25.248	2,504.8	24.15	100.13	78.4	171.8	0.0	172.9
130.00		0.2813	27.250	24.424	2,267.4	23.28	96.89	79.3	160.7	0.0	422.6
131.00		0.2813	27.068	24.259	2,221.8	23.11	96.24	79.5	158.6	0.0	82.8
133.50		0.2813	26.613	23.847	2,110.5	22.68	94.62	80.0	153.2	0.0	204.6
135.00		0.2813	26.340	23.600	2,045.5	22.41	93.65	80.3	150.0	0.0	121.1
140.00		0.2813	25.430	22.775	1,838.6	21.55	90.42	81.2	139.7	0.0	394.5
145.00		0.2813	24.520	21.951	1,646.1	20.68	87.18	81.9	129.7	0.0	380.5
150.00		0.2813	23.610	21.127	1,467.6	19.81	83.95	81.9	120.1	0.0	366.5
24,129.1											

Site Number: 302538

Code: ANSI/TIA-222-G

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Site Name: Parsonage Hill AKA Wallingford

Engineering Number: 61682021

5/19/2015 11:44:59 AM

Customer: AT&T Mobility

Load Case: 1.2D + 1.6W

105 mph with No Ice

24 Iterations

Gust Response Factor : 1.10

Wind Importance Factor : 1.00

Dead Load Factor : 1.20

Wind Load Factor : 1.60

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		425.2	0.0					0.0	0.0	425.2	0.0	0.0	0.0
5.00		842.5	1,400.9					0.0	314.8	842.5	1,715.7	0.0	0.0
10.00		826.7	1,374.7					0.0	314.8	826.7	1,689.6	0.0	0.0
15.00		823.7	1,348.6					0.0	314.8	823.7	1,663.4	0.0	0.0
20.00		842.5	1,322.4					0.0	314.8	842.5	1,637.2	0.0	0.0
25.00		865.9	1,296.2					0.0	314.8	865.9	1,611.0	0.0	0.0
30.00		881.9	1,270.0					0.0	314.8	881.9	1,584.9	0.0	0.0
35.00		892.4	1,243.9					0.0	314.8	892.4	1,558.7	0.0	0.0
40.00		898.6	1,217.7					0.0	314.8	898.6	1,532.5	0.0	0.0
45.00		706.0	1,191.5					0.0	314.8	706.0	1,506.3	0.0	0.0
47.83	Bot - Section 2	454.6	663.6					0.0	178.4	454.6	842.0	0.0	0.0
50.00		566.2	940.5					0.0	136.4	566.2	1,077.0	0.0	0.0
54.00	Top - Section 1	458.8	1,712.4					0.0	251.9	458.8	1,964.2	0.0	0.0
55.00		548.9	197.5					0.0	63.0	548.9	260.5	0.0	0.0
60.00		912.0	974.0					0.0	314.8	912.0	1,288.8	0.0	0.0
65.00		906.1	951.6					0.0	314.8	906.1	1,266.4	0.0	0.0
70.00		898.7	929.1					0.0	314.8	898.7	1,244.0	0.0	0.0
75.00		889.8	906.7					0.0	314.8	889.8	1,221.5	0.0	0.0
80.00		879.6	884.3					0.0	314.8	879.6	1,199.1	0.0	0.0
85.00		868.2	861.8					0.0	314.8	868.2	1,176.7	0.0	0.0
90.00		855.8	839.4					0.0	314.8	855.8	1,154.2	0.0	0.0
95.00		494.8	817.0					0.0	314.8	494.8	1,131.8	0.0	0.0
95.83	Bot - Section 3	423.8	134.0					0.0	52.5	423.8	186.4	0.0	0.0
100.00		437.8	1,166.1					0.0	262.4	437.8	1,428.4	0.0	0.0
101.00	Top - Section 2	417.7	275.8					0.0	63.0	417.7	338.7	0.0	0.0
105.00	Appertunance(s)	743.5	471.6	636.4	0.0	0.0	95.0	0.0	251.9	1,379.9	818.5	0.0	0.0
110.00		491.0	574.4					0.0	285.3	491.0	859.7	0.0	0.0
111.00	Appertunance(s)	401.9	112.9	2,588.6	0.0	0.0	2,400.0	0.0	57.1	2,990.5	2,569.9	0.0	0.0
115.00		714.3	444.7					0.0	228.2	714.3	672.9	0.0	0.0
120.00		625.4	540.7					0.0	285.3	625.4	826.0	0.0	0.0
123.00	Appertunance(s)	384.7	316.4	6,192.7	0.0	10,642.5	3,905.5	0.0	171.2	6,577.4	4,393.1	0.0	0.0
125.00		528.4	207.5					0.0	69.3	528.4	276.8	0.0	0.0
130.00		449.6	507.1					0.0	173.3	449.6	680.3	0.0	0.0
131.00	Appertunance(s)	257.4	99.4	114.2	0.0	285.6	18.0	0.0	34.7	371.6	152.0	0.0	0.0
133.50	Appertunance(s)	292.2	245.5	1,540.3	0.0	0.0	991.3	0.0	86.6	1,832.5	1,323.5	0.0	0.0
135.00		465.4	145.3					0.0	37.8	465.4	183.1	0.0	0.0
140.00	Appertunance(s)	703.2	473.4	1,014.6	0.0	0.0	608.4	0.0	126.1	1,717.8	1,207.9	0.0	0.0
145.00		683.1	456.6					0.0	61.0	683.1	517.6	0.0	0.0
150.00	Appertunance(s)	336.4	439.8	3,739.5	0.0	589.4	1,530.0	0.0	61.0	4,076.0	2,030.8	0.0	0.0
									Totals:	40,920.8	46,791.2	0.00	0.00

Site Number: 302538

Code: ANSI/TIA-222-G

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Site Name: Parsonage Hill AKA Wallingford

Engineering Number: 61682021

5/19/2015 11:45:01 AM

Customer: AT&T Mobility

Load Case: 1.2D + 1.6W

105 mph with No Ice

24 Iterations

Gust Response Factor : 1.10

Wind Importance Factor : 1.00

Dead Load Factor : 1.20

Wind Load Factor : 1.60

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-46.70	-40.60	0.00	-4,027.60	0.00	4,027.60	4,644.06	2,322.03	9,415.76	4,650.09	0.00	0.00	0.876
5.00	-44.80	-39.96	0.00	-3,824.59	0.00	3,824.59	4,595.29	2,297.64	9,142.87	4,515.32	0.14	-0.26	0.857
10.00	-42.94	-39.32	0.00	-3,624.78	0.00	3,624.78	4,545.10	2,272.55	8,870.93	4,381.02	0.56	-0.52	0.837
15.00	-41.11	-38.67	0.00	-3,428.18	0.00	3,428.18	4,493.52	2,246.76	8,600.11	4,247.27	1.24	-0.79	0.817
20.00	-39.31	-37.98	0.00	-3,234.84	0.00	3,234.84	4,440.53	2,220.27	8,330.57	4,114.16	2.21	-1.05	0.795
25.00	-37.54	-37.25	0.00	-3,044.94	0.00	3,044.94	4,386.14	2,193.07	8,062.46	3,981.75	3.45	-1.31	0.774
30.00	-35.82	-36.50	0.00	-2,858.67	0.00	2,858.67	4,330.35	2,165.17	7,795.94	3,850.12	4.97	-1.58	0.751
35.00	-34.12	-35.71	0.00	-2,676.19	0.00	2,676.19	4,273.15	2,136.58	7,531.18	3,719.37	6.76	-1.84	0.728
40.00	-32.46	-34.91	0.00	-2,497.62	0.00	2,497.62	4,214.55	2,107.28	7,268.33	3,589.55	8.83	-2.10	0.704
45.00	-30.86	-34.26	0.00	-2,323.06	0.00	2,323.06	4,154.55	2,077.28	7,007.55	3,460.77	11.16	-2.36	0.679
47.83	-29.96	-33.84	0.00	-2,226.00	0.00	2,226.00	4,119.93	2,059.96	6,860.76	3,388.27	12.61	-2.51	0.665
50.00	-28.82	-33.30	0.00	-2,152.69	0.00	2,152.69	4,093.15	2,046.57	6,749.00	3,333.08	13.77	-2.62	0.653
54.00	-26.81	-32.81	0.00	-2,019.48	0.00	2,019.48	3,318.35	1,659.17	5,491.59	2,712.09	16.06	-2.83	0.753
55.00	-26.48	-32.33	0.00	-1,986.67	0.00	1,986.67	3,309.46	1,654.73	5,451.83	2,692.45	16.65	-2.88	0.746
60.00	-25.09	-31.47	0.00	-1,825.04	0.00	1,825.04	3,264.20	1,632.10	5,253.67	2,594.59	19.82	-3.15	0.711
65.00	-23.74	-30.60	0.00	-1,667.71	0.00	1,667.71	3,217.53	1,608.77	5,056.74	2,497.33	23.26	-3.42	0.676
70.00	-22.42	-29.73	0.00	-1,514.70	0.00	1,514.70	3,169.46	1,584.73	4,861.18	2,400.76	26.99	-3.69	0.638
75.00	-21.13	-28.85	0.00	-1,366.06	0.00	1,366.06	3,119.99	1,560.00	4,667.18	2,304.94	30.99	-3.95	0.600
80.00	-19.88	-27.98	0.00	-1,221.79	0.00	1,221.79	3,069.12	1,534.56	4,474.87	2,209.97	35.26	-4.20	0.560
85.00	-18.66	-27.10	0.00	-1,081.90	0.00	1,081.90	3,016.84	1,508.42	4,284.42	2,115.91	39.78	-4.44	0.518
90.00	-17.48	-26.22	0.00	-946.41	0.00	946.41	2,963.16	1,481.58	4,095.99	2,022.86	44.54	-4.66	0.474
95.00	-16.33	-25.67	0.00	-815.30	0.00	815.30	2,908.97	1,454.48	3,910.95	1,931.47	49.54	-4.88	0.428
95.83	-16.14	-25.26	0.00	-793.91	0.00	793.91	2,895.47	1,447.74	3,874.53	1,913.49	50.39	-4.91	0.421
100.00	-14.71	-24.73	0.00	-688.66	0.00	688.66	2,827.97	1,413.98	3,694.98	1,824.81	54.75	-5.08	0.383
101.00	-14.37	-24.30	0.00	-663.94	0.00	663.94	1,940.72	970.36	2,581.43	1,274.87	55.81	-5.12	0.529
105.00	-13.61	-22.90	0.00	-566.73	0.00	566.73	1,916.34	958.17	2,490.95	1,230.18	60.16	-5.26	0.468
110.00	-12.76	-22.35	0.00	-452.25	0.00	452.25	1,884.60	942.30	2,378.33	1,174.57	65.77	-5.46	0.392
111.00	-10.45	-19.15	0.00	-429.90	0.00	429.90	1,878.08	939.04	2,355.89	1,163.48	66.92	-5.50	0.375
115.00	-9.81	-18.39	0.00	-353.31	0.00	353.31	1,851.46	925.73	2,266.41	1,119.29	71.58	-5.64	0.321
120.00	-9.02	-17.71	0.00	-261.34	0.00	261.34	1,816.91	908.46	2,155.32	1,064.43	77.56	-5.78	0.251
123.00	-5.30	-10.72	0.00	-197.58	0.00	197.58	1,795.51	897.76	2,089.15	1,031.75	81.21	-5.85	0.195
125.00	-5.07	-10.17	0.00	-176.13	0.00	176.13	1,780.96	890.48	2,045.25	1,010.07	83.66	-5.89	0.177
130.00	-4.43	-9.66	0.00	-125.26	0.00	125.26	1,743.61	871.81	1,936.34	956.28	89.87	-5.98	0.134
131.00	-4.31	-9.28	0.00	-115.31	0.00	115.31	1,735.97	867.99	1,914.71	945.60	91.13	-6.00	0.125
133.50	-3.19	-7.32	0.00	-92.11	0.00	92.11	1,716.63	858.32	1,860.88	919.02	94.27	-6.03	0.102
135.00	-3.05	-6.84	0.00	-81.14	0.00	81.14	1,704.86	852.43	1,828.75	903.15	96.16	-6.05	0.092
140.00	-2.03	-5.00	0.00	-46.95	0.00	46.95	1,664.70	832.35	1,722.65	850.75	102.51	-6.09	0.056
145.00	-1.58	-4.27	0.00	-21.94	0.00	21.94	1,618.02	809.01	1,613.08	796.64	108.89	-6.12	0.029
150.00	0.00	-4.08	0.00	-0.59	0.00	0.59	1,557.27	778.64	1,493.56	737.61	115.29	-6.13	0.001

Site Number: 302538

Code: ANSI/TIA-222-G

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Site Name: Parsonage Hill AKA Wallingford

Engineering Number: 61682021

5/19/2015 11:45:01 AM

Customer: AT&T Mobility

Load Case: 0.9D + 1.6W

105 mph with No Ice (Reduced DL)

24 Iterations

Gust Response Factor : 1.10

Wind Importance Factor : 1.00

Dead Load Factor : 0.90

Wind Load Factor : 1.60

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		425.2	0.0					0.0	0.0	425.2	0.0	0.0	0.0
5.00		842.5	1,050.7					0.0	236.1	842.5	1,286.8	0.0	0.0
10.00		826.7	1,031.1					0.0	236.1	826.7	1,267.2	0.0	0.0
15.00		823.7	1,011.4					0.0	236.1	823.7	1,247.5	0.0	0.0
20.00		842.5	991.8					0.0	236.1	842.5	1,227.9	0.0	0.0
25.00		865.9	972.2					0.0	236.1	865.9	1,208.3	0.0	0.0
30.00		881.9	952.5					0.0	236.1	881.9	1,188.6	0.0	0.0
35.00		892.4	932.9					0.0	236.1	892.4	1,169.0	0.0	0.0
40.00		898.6	913.3					0.0	236.1	898.6	1,149.4	0.0	0.0
45.00		706.0	893.6					0.0	236.1	706.0	1,129.7	0.0	0.0
47.83	Bot - Section 2	454.6	497.7					0.0	133.8	454.6	631.5	0.0	0.0
50.00		566.2	705.4					0.0	102.3	566.2	807.7	0.0	0.0
54.00	Top - Section 1	458.8	1,284.3					0.0	188.9	458.8	1,473.2	0.0	0.0
55.00		548.9	148.1					0.0	47.2	548.9	195.3	0.0	0.0
60.00		912.0	730.5					0.0	236.1	912.0	966.6	0.0	0.0
65.00		906.1	713.7					0.0	236.1	906.1	949.8	0.0	0.0
70.00		898.7	696.9					0.0	236.1	898.7	933.0	0.0	0.0
75.00		889.8	680.0					0.0	236.1	889.8	916.1	0.0	0.0
80.00		879.6	663.2					0.0	236.1	879.6	899.3	0.0	0.0
85.00		868.2	646.4					0.0	236.1	868.2	882.5	0.0	0.0
90.00		855.8	629.5					0.0	236.1	855.8	865.7	0.0	0.0
95.00		494.8	612.7					0.0	236.1	494.8	848.8	0.0	0.0
95.83	Bot - Section 3	423.8	100.5					0.0	39.3	423.8	139.8	0.0	0.0
100.00		437.8	874.6					0.0	196.8	437.8	1,071.3	0.0	0.0
101.00	Top - Section 2	417.7	206.8					0.0	47.2	417.7	254.1	0.0	0.0
105.00	Appertunance(s)	743.5	353.7	636.4	0.0	0.0	71.3	0.0	188.9	1,379.9	613.9	0.0	0.0
110.00		491.0	430.8					0.0	214.0	491.0	644.8	0.0	0.0
111.00	Appertunance(s)	401.9	84.6	2,588.6	0.0	0.0	1,800.0	0.0	42.8	2,990.5	1,927.4	0.0	0.0
115.00		714.3	333.5					0.0	171.2	714.3	504.7	0.0	0.0
120.00		625.4	405.5					0.0	214.0	625.4	619.5	0.0	0.0
123.00	Appertunance(s)	384.7	237.3	6,192.7	0.0	10,642.5	2,929.1	0.0	128.4	6,577.4	3,294.8	0.0	0.0
125.00		528.4	155.7					0.0	52.0	528.4	207.6	0.0	0.0
130.00		449.6	380.3					0.0	130.0	449.6	510.3	0.0	0.0
131.00	Appertunance(s)	257.4	74.5	114.2	0.0	285.6	13.5	0.0	26.0	371.6	114.0	0.0	0.0
133.50	Appertunance(s)	292.2	184.2	1,540.3	0.0	0.0	743.5	0.0	65.0	1,832.5	992.6	0.0	0.0
135.00		465.4	109.0					0.0	28.4	465.4	137.3	0.0	0.0
140.00	Appertunance(s)	703.2	355.1	1,014.6	0.0	0.0	456.3	0.0	94.5	1,717.8	905.9	0.0	0.0
145.00		683.1	342.4					0.0	45.8	683.1	388.2	0.0	0.0
150.00	Appertunance(s)	336.4	329.8	3,739.5	0.0	589.4	1,147.5	0.0	45.8	4,076.0	1,523.1	0.0	0.0
									Totals:	40,920.8	35,093.4	0.00	0.00

Site Number: 302538

Code: ANSI/TIA-222-G

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Site Name: Parsonage Hill AKA Wallingford

Engineering Number: 61682021

5/19/2015 11:45:03 AM

Customer: AT&T Mobility

Load Case: 0.9D + 1.6W

105 mph with No Ice (Reduced DL)

24 Iterations

Gust Response Factor : 1.10

Wind Importance Factor : 1.00

Dead Load Factor : 0.90

Wind Load Factor : 1.60

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-35.00	-40.58	0.00	-3,985.51	0.00	3,985.51	4,644.06	2,322.03	9,415.76	4,650.09	0.00	0.00	0.865
5.00	-33.53	-39.88	0.00	-3,782.63	0.00	3,782.63	4,595.29	2,297.64	9,142.87	4,515.32	0.14	-0.26	0.845
10.00	-32.10	-39.19	0.00	-3,583.23	0.00	3,583.23	4,545.10	2,272.55	8,870.93	4,381.02	0.55	-0.52	0.825
15.00	-30.68	-38.49	0.00	-3,387.26	0.00	3,387.26	4,493.52	2,246.76	8,600.11	4,247.27	1.23	-0.78	0.805
20.00	-29.30	-37.77	0.00	-3,194.79	0.00	3,194.79	4,440.53	2,220.27	8,330.57	4,114.16	2.19	-1.04	0.783
25.00	-27.94	-37.00	0.00	-3,005.97	0.00	3,005.97	4,386.14	2,193.07	8,062.46	3,981.75	3.41	-1.30	0.762
30.00	-26.61	-36.21	0.00	-2,820.95	0.00	2,820.95	4,330.35	2,165.17	7,795.94	3,850.12	4.91	-1.56	0.739
35.00	-25.31	-35.40	0.00	-2,639.89	0.00	2,639.89	4,273.15	2,136.58	7,531.18	3,719.37	6.68	-1.82	0.716
40.00	-24.04	-34.57	0.00	-2,462.90	0.00	2,462.90	4,214.55	2,107.28	7,268.33	3,589.55	8.72	-2.07	0.692
45.00	-22.82	-33.90	0.00	-2,290.04	0.00	2,290.04	4,154.55	2,077.28	7,007.55	3,460.77	11.03	-2.33	0.667
47.83	-22.13	-33.47	0.00	-2,193.99	0.00	2,193.99	4,119.93	2,059.96	6,860.76	3,388.27	12.46	-2.48	0.653
50.00	-21.26	-32.93	0.00	-2,121.47	0.00	2,121.47	4,093.15	2,046.57	6,749.00	3,333.08	13.61	-2.59	0.642
54.00	-19.74	-32.44	0.00	-1,989.75	0.00	1,989.75	3,318.35	1,659.17	5,491.59	2,712.09	15.86	-2.79	0.740
55.00	-19.48	-31.94	0.00	-1,957.31	0.00	1,957.31	3,309.46	1,654.73	5,451.83	2,692.45	16.45	-2.84	0.733
60.00	-18.41	-31.07	0.00	-1,797.60	0.00	1,797.60	3,264.20	1,632.10	5,253.67	2,594.59	19.57	-3.11	0.699
65.00	-17.38	-30.19	0.00	-1,642.26	0.00	1,642.26	3,217.53	1,608.77	5,056.74	2,497.33	22.98	-3.38	0.663
70.00	-16.37	-29.31	0.00	-1,491.31	0.00	1,491.31	3,169.46	1,584.73	4,861.18	2,400.76	26.65	-3.64	0.627
75.00	-15.39	-28.43	0.00	-1,344.77	0.00	1,344.77	3,119.99	1,560.00	4,667.18	2,304.94	30.60	-3.89	0.589
80.00	-14.44	-27.55	0.00	-1,202.63	0.00	1,202.63	3,069.12	1,534.56	4,474.87	2,209.97	34.81	-4.14	0.549
85.00	-13.52	-26.67	0.00	-1,064.88	0.00	1,064.88	3,016.84	1,508.42	4,284.42	2,115.91	39.27	-4.37	0.508
90.00	-12.62	-25.80	0.00	-931.52	0.00	931.52	2,963.16	1,481.58	4,095.99	2,022.86	43.96	-4.60	0.465
95.00	-11.76	-25.26	0.00	-802.52	0.00	802.52	2,908.97	1,454.48	3,910.95	1,931.47	48.89	-4.81	0.420
95.83	-11.62	-24.85	0.00	-781.48	0.00	781.48	2,895.47	1,447.74	3,874.53	1,913.49	49.73	-4.84	0.413
100.00	-10.55	-24.34	0.00	-677.94	0.00	677.94	2,827.97	1,413.98	3,694.98	1,824.81	54.03	-5.01	0.376
101.00	-10.29	-23.92	0.00	-653.61	0.00	653.61	1,940.72	970.36	2,581.43	1,274.87	55.08	-5.05	0.519
105.00	-9.73	-22.52	0.00	-557.94	0.00	557.94	1,916.34	958.17	2,490.95	1,230.18	59.37	-5.19	0.459
110.00	-9.09	-21.99	0.00	-445.36	0.00	445.36	1,884.60	942.30	2,378.33	1,174.57	64.90	-5.38	0.385
111.00	-7.43	-18.84	0.00	-423.37	0.00	423.37	1,878.08	939.04	2,355.89	1,163.48	66.03	-5.42	0.368
115.00	-6.95	-18.10	0.00	-348.02	0.00	348.02	1,851.46	925.73	2,266.41	1,119.29	70.63	-5.56	0.315
120.00	-6.36	-17.42	0.00	-257.54	0.00	257.54	1,816.91	908.46	2,155.32	1,064.43	76.52	-5.70	0.246
123.00	-3.73	-10.55	0.00	-194.62	0.00	194.62	1,795.51	897.76	2,089.15	1,031.75	80.12	-5.77	0.191
125.00	-3.57	-10.01	0.00	-173.51	0.00	173.51	1,780.96	890.48	2,045.25	1,010.07	82.54	-5.81	0.174
130.00	-3.10	-9.52	0.00	-123.45	0.00	123.45	1,743.61	871.81	1,936.34	956.28	88.66	-5.90	0.131
131.00	-3.02	-9.14	0.00	-113.65	0.00	113.65	1,735.97	867.99	1,914.71	945.60	89.90	-5.91	0.122
133.50	-2.22	-7.21	0.00	-90.81	0.00	90.81	1,716.63	858.32	1,860.88	919.02	93.00	-5.94	0.100
135.00	-2.13	-6.74	0.00	-80.00	0.00	80.00	1,704.86	852.43	1,828.75	903.15	94.86	-5.96	0.090
140.00	-1.40	-4.93	0.00	-46.32	0.00	46.32	1,664.70	832.35	1,722.65	850.75	101.12	-6.00	0.055
145.00	-1.09	-4.21	0.00	-21.66	0.00	21.66	1,618.02	809.01	1,613.08	796.64	107.41	-6.03	0.028
150.00	0.00	-4.08	0.00	-0.59	0.00	0.59	1,557.27	778.64	1,493.56	737.61	113.72	-6.04	0.001

Site Number: 302538

Code: ANSI/TIA-222-G

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Site Name: Parsonage Hill AKA Wallingford

Engineering Number: 61682021

5/19/2015 11:45:04 AM

Customer: AT&T Mobility

Load Case: 1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice	23 Iterations
Gust Response Factor : 1.10	Ice Dead Load Factor : 1.00	Wind Importance Factor : 1.00
Dead Load Factor : 1.20		Ice Importance Factor : 1.00
Wind Load Factor : 1.00		

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		75.6	0.0					0.0	0.0	75.6	0.0	0.0	0.0
5.00		150.2	1,775.1					0.0	380.4	150.2	2,155.5	0.0	0.0
10.00		148.1	1,785.8					0.0	390.6	148.1	2,176.4	0.0	0.0
15.00		148.1	1,773.7					0.0	396.0	148.1	2,169.7	0.0	0.0
20.00		151.9	1,754.2					0.0	399.8	151.9	2,154.0	0.0	0.0
25.00		156.5	1,730.8					0.0	402.7	156.5	2,133.5	0.0	0.0
30.00		159.7	1,705.0					0.0	405.2	159.7	2,110.2	0.0	0.0
35.00		162.0	1,677.6					0.0	407.3	162.0	2,084.9	0.0	0.0
40.00		163.5	1,648.9					0.0	409.2	163.5	2,058.1	0.0	0.0
45.00		128.7	1,619.3					0.0	410.8	128.7	2,030.1	0.0	0.0
47.83	Bot - Section 2	82.9	905.2					0.0	233.5	82.9	1,138.7	0.0	0.0
50.00		103.4	1,127.9					0.0	178.9	103.4	1,306.8	0.0	0.0
54.00	Top - Section 1	83.8	2,054.6					0.0	330.9	83.8	2,385.4	0.0	0.0
55.00		100.5	283.1					0.0	82.8	100.5	365.9	0.0	0.0
60.00		167.2	1,395.0					0.0	415.0	167.2	1,810.0	0.0	0.0
65.00		166.5	1,366.8					0.0	416.2	166.5	1,783.0	0.0	0.0
70.00		165.5	1,338.2					0.0	417.3	165.5	1,755.5	0.0	0.0
75.00		164.3	1,309.2					0.0	418.3	164.3	1,727.5	0.0	0.0
80.00		162.8	1,280.0					0.0	419.3	162.8	1,699.3	0.0	0.0
85.00		161.1	1,250.4					0.0	420.2	161.1	1,670.6	0.0	0.0
90.00		159.3	1,220.6					0.0	421.1	159.3	1,641.7	0.0	0.0
95.00		92.2	1,190.6					0.0	422.0	92.2	1,612.5	0.0	0.0
95.83	Bot - Section 3	79.1	196.2					0.0	70.4	79.1	266.6	0.0	0.0
100.00		81.7	1,476.2					0.0	352.4	81.7	1,828.5	0.0	0.0
101.00	Top - Section 2	78.2	350.0					0.0	84.6	78.2	434.6	0.0	0.0
105.00	Appertunance(s)	139.4	763.0	108.3	0.0	0.0	424.8	0.0	338.9	247.7	1,526.7	0.0	0.0
110.00		92.2	930.2					0.0	394.8	92.2	1,325.0	0.0	0.0
111.00	Appertunance(s)	75.7	183.8	543.2	0.0	0.0	5,781.2	0.0	79.0	618.9	6,044.1	0.0	0.0
115.00		134.8	722.9					0.0	316.4	134.8	1,039.3	0.0	0.0
120.00		118.3	879.8					0.0	396.2	118.3	1,276.0	0.0	0.0
123.00	Appertunance(s)	73.0	516.9	1,215.7	0.0	1,976.6	8,194.6	0.0	238.0	1,288.7	8,949.5	0.0	0.0
125.00		100.5	339.9					0.0	114.0	100.5	453.9	0.0	0.0
130.00		85.7	828.8					0.0	285.4	85.7	1,114.3	0.0	0.0
131.00	Appertunance(s)	49.2	163.5	21.2	0.0	53.1	84.8	0.0	57.2	70.4	305.4	0.0	0.0
133.50	Appertunance(s)	55.9	403.5	317.4	0.0	0.0	2,017.8	0.0	143.0	373.2	2,564.3	0.0	0.0
135.00		89.3	239.3					0.0	37.8	89.3	277.1	0.0	0.0
140.00	Appertunance(s)	135.3	777.3	186.8	0.0	0.0	967.8	0.0	126.1	322.1	1,871.2	0.0	0.0
145.00		132.1	751.4					0.0	61.0	132.1	812.4	0.0	0.0
150.00	Appertunance(s)	65.2	725.4	754.2	0.0	216.6	3,902.3	0.0	61.0	819.5	4,688.7	0.0	0.0
Totals:										7,786.50	72,746.8	0.00	0.00

Site Number: 302538

Code: ANSI/TIA-222-G

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Site Name: Parsonage Hill AKA Wallingford

Engineering Number: 61682021

5/19/2015 11:45:06 AM

Customer: AT&T Mobility

Load Case: 1.2D + 1.0Di + 1.0Wi

50 mph with 0.75 in Radial Ice

23 Iterations

Gust Response Factor : 1.10

Ice Dead Load Factor : 1.00

Wind Importance Factor : 1.00

Dead Load Factor : 1.20

Ice Importance Factor : 1.00

Wind Load Factor : 1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-72.74	-7.74	0.00	-808.30	0.00	808.30	4,644.06	2,322.03	9,415.76	4,650.09	0.00	0.00	0.189
5.00	-70.58	-7.66	0.00	-769.58	0.00	769.58	4,595.29	2,297.64	9,142.87	4,515.32	0.03	-0.05	0.186
10.00	-68.40	-7.57	0.00	-731.29	0.00	731.29	4,545.10	2,272.55	8,870.93	4,381.02	0.11	-0.11	0.182
15.00	-66.22	-7.48	0.00	-693.45	0.00	693.45	4,493.52	2,246.76	8,600.11	4,247.27	0.25	-0.16	0.178
20.00	-64.06	-7.38	0.00	-656.06	0.00	656.06	4,440.53	2,220.27	8,330.57	4,114.16	0.45	-0.21	0.174
25.00	-61.92	-7.27	0.00	-619.16	0.00	619.16	4,386.14	2,193.07	8,062.46	3,981.75	0.70	-0.27	0.170
30.00	-59.81	-7.16	0.00	-582.80	0.00	582.80	4,330.35	2,165.17	7,795.94	3,850.12	1.00	-0.32	0.165
35.00	-57.71	-7.04	0.00	-547.02	0.00	547.02	4,273.15	2,136.58	7,531.18	3,719.37	1.36	-0.37	0.161
40.00	-55.65	-6.91	0.00	-511.84	0.00	511.84	4,214.55	2,107.28	7,268.33	3,589.55	1.78	-0.43	0.156
45.00	-53.62	-6.80	0.00	-477.29	0.00	477.29	4,154.55	2,077.28	7,007.55	3,460.77	2.26	-0.48	0.151
47.83	-52.48	-6.74	0.00	-458.01	0.00	458.01	4,119.93	2,059.96	6,860.76	3,388.27	2.55	-0.51	0.148
50.00	-51.17	-6.65	0.00	-443.41	0.00	443.41	4,093.15	2,046.57	6,749.00	3,333.08	2.79	-0.53	0.146
54.00	-48.78	-6.57	0.00	-416.81	0.00	416.81	3,318.35	1,659.17	5,491.59	2,712.09	3.25	-0.58	0.168
55.00	-48.41	-6.49	0.00	-410.25	0.00	410.25	3,309.46	1,654.73	5,451.83	2,692.45	3.38	-0.59	0.167
60.00	-46.60	-6.35	0.00	-377.79	0.00	377.79	3,264.20	1,632.10	5,253.67	2,594.59	4.02	-0.64	0.160
65.00	-44.81	-6.21	0.00	-346.04	0.00	346.04	3,217.53	1,608.77	5,056.74	2,497.33	4.72	-0.70	0.153
70.00	-43.05	-6.06	0.00	-315.01	0.00	315.01	3,169.46	1,584.73	4,861.18	2,400.76	5.48	-0.75	0.145
75.00	-41.32	-5.91	0.00	-284.71	0.00	284.71	3,119.99	1,560.00	4,667.18	2,304.94	6.30	-0.81	0.137
80.00	-39.62	-5.76	0.00	-255.17	0.00	255.17	3,069.12	1,534.56	4,474.87	2,209.97	7.18	-0.86	0.128
85.00	-37.95	-5.60	0.00	-226.38	0.00	226.38	3,016.84	1,508.42	4,284.42	2,115.91	8.10	-0.91	0.120
90.00	-36.30	-5.45	0.00	-198.37	0.00	198.37	2,963.16	1,481.58	4,095.99	2,022.86	9.08	-0.96	0.110
95.00	-34.69	-5.34	0.00	-171.14	0.00	171.14	2,908.97	1,454.48	3,910.95	1,931.47	10.11	-1.00	0.101
95.83	-34.42	-5.27	0.00	-166.68	0.00	166.68	2,895.47	1,447.74	3,874.53	1,913.49	10.29	-1.01	0.099
100.00	-32.59	-5.17	0.00	-144.72	0.00	144.72	2,827.97	1,413.98	3,694.98	1,824.81	11.18	-1.04	0.091
101.00	-32.16	-5.09	0.00	-139.55	0.00	139.55	1,940.72	970.36	2,581.43	1,274.87	11.40	-1.05	0.126
105.00	-30.63	-4.84	0.00	-119.18	0.00	119.18	1,916.34	958.17	2,490.95	1,230.18	12.30	-1.08	0.113
110.00	-29.31	-4.73	0.00	-94.99	0.00	94.99	1,884.60	942.30	2,378.33	1,174.57	13.46	-1.13	0.096
111.00	-23.28	-4.00	0.00	-90.26	0.00	90.26	1,878.08	939.04	2,355.89	1,163.48	13.69	-1.13	0.090
115.00	-22.24	-3.86	0.00	-74.26	0.00	74.26	1,851.46	925.73	2,266.41	1,119.29	14.65	-1.16	0.078
120.00	-20.96	-3.72	0.00	-54.97	0.00	54.97	1,816.91	908.46	2,155.32	1,064.43	15.89	-1.19	0.063
123.00	-12.04	-2.25	0.00	-41.83	0.00	41.83	1,795.51	897.76	2,089.15	1,031.75	16.64	-1.21	0.047
125.00	-11.59	-2.14	0.00	-37.34	0.00	37.34	1,780.96	890.48	2,045.25	1,010.07	17.15	-1.22	0.043
130.00	-10.48	-2.03	0.00	-26.63	0.00	26.63	1,743.61	871.81	1,936.34	956.28	18.43	-1.23	0.034
131.00	-10.17	-1.96	0.00	-24.55	0.00	24.55	1,735.97	867.99	1,914.71	945.60	18.69	-1.24	0.032
133.50	-7.62	-1.53	0.00	-19.66	0.00	19.66	1,716.63	858.32	1,860.88	919.02	19.34	-1.24	0.026
135.00	-7.34	-1.43	0.00	-17.36	0.00	17.36	1,704.86	852.43	1,828.75	903.15	19.74	-1.25	0.024
140.00	-5.48	-1.07	0.00	-10.19	0.00	10.19	1,664.70	832.35	1,722.65	850.75	21.05	-1.26	0.015
145.00	-4.67	-0.92	0.00	-4.83	0.00	4.83	1,618.02	809.01	1,613.08	796.64	22.37	-1.26	0.009
150.00	0.00	-0.82	0.00	-0.22	0.00	0.22	1,557.27	778.64	1,493.56	737.61	23.69	-1.27	0.000

Site Number: 302538

Code: ANSI/TIA-222-G

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Site Name: Parsonage Hill AKA Wallingford

Engineering Number: 61682021

5/19/2015 11:45:07 AM

Customer: AT&T Mobility

Load Case: 1.0D + 1.0W

Serviceability 60 mph

23 Iterations

Gust Response Factor : 1.10

Wind Importance Factor : 1.00

Dead Load Factor : 1.00

Wind Load Factor : 1.00

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		86.8	0.0					0.0	0.0	86.8	0.0	0.0	0.0
5.00		171.9	1,167.4					0.0	262.4	171.9	1,429.8	0.0	0.0
10.00		168.7	1,145.6					0.0	262.4	168.7	1,408.0	0.0	0.0
15.00		168.1	1,123.8					0.0	262.4	168.1	1,386.2	0.0	0.0
20.00		171.9	1,102.0					0.0	262.4	171.9	1,364.3	0.0	0.0
25.00		176.7	1,080.2					0.0	262.4	176.7	1,342.5	0.0	0.0
30.00		180.0	1,058.4					0.0	262.4	180.0	1,320.7	0.0	0.0
35.00		182.1	1,036.6					0.0	262.4	182.1	1,298.9	0.0	0.0
40.00		183.4	1,014.7					0.0	262.4	183.4	1,277.1	0.0	0.0
45.00		144.1	992.9					0.0	262.4	144.1	1,255.3	0.0	0.0
47.83	Bot - Section 2	92.8	553.0					0.0	148.7	92.8	701.6	0.0	0.0
50.00		115.5	783.8					0.0	113.7	115.5	897.5	0.0	0.0
54.00	Top - Section 1	93.6	1,427.0					0.0	209.9	93.6	1,636.9	0.0	0.0
55.00		112.0	164.6					0.0	52.5	112.0	217.0	0.0	0.0
60.00		186.1	811.7					0.0	262.4	186.1	1,074.0	0.0	0.0
65.00		184.9	793.0					0.0	262.4	184.9	1,055.3	0.0	0.0
70.00		183.4	774.3					0.0	262.4	183.4	1,036.6	0.0	0.0
75.00		181.6	755.6					0.0	262.4	181.6	1,017.9	0.0	0.0
80.00		179.5	736.9					0.0	262.4	179.5	999.2	0.0	0.0
85.00		177.2	718.2					0.0	262.4	177.2	980.5	0.0	0.0
90.00		174.7	699.5					0.0	262.4	174.7	961.8	0.0	0.0
95.00		101.0	680.8					0.0	262.4	101.0	943.2	0.0	0.0
95.83	Bot - Section 3	86.5	111.6					0.0	43.7	86.5	155.4	0.0	0.0
100.00		89.3	971.7					0.0	218.6	89.3	1,190.4	0.0	0.0
101.00	Top - Section 2	85.2	229.8					0.0	52.5	85.2	282.3	0.0	0.0
105.00	Appertunance(s)	151.7	393.0	129.9	0.0	0.0	79.2	0.0	209.9	281.6	682.1	0.0	0.0
110.00		100.2	478.6					0.0	237.8	100.2	716.4	0.0	0.0
111.00	Appertunance(s)	82.0	94.0	528.3	0.0	0.0	2,000.0	0.0	47.6	610.3	2,141.6	0.0	0.0
115.00		145.8	370.6					0.0	190.2	145.8	560.8	0.0	0.0
120.00		127.6	450.6					0.0	237.8	127.6	688.4	0.0	0.0
123.00	Appertunance(s)	78.5	263.6	1,263.8	0.0	2,171.9	3,254.6	0.0	142.7	1,342.3	3,660.9	0.0	0.0
125.00		107.8	172.9					0.0	57.8	107.8	230.7	0.0	0.0
130.00		91.8	422.6					0.0	144.4	91.8	567.0	0.0	0.0
131.00	Appertunance(s)	52.5	82.8	23.3	0.0	58.3	15.0	0.0	28.9	75.8	126.7	0.0	0.0
133.50	Appertunance(s)	59.6	204.6	314.4	0.0	0.0	826.1	0.0	72.2	374.0	1,102.9	0.0	0.0
135.00		95.0	121.1					0.0	31.5	95.0	152.6	0.0	0.0
140.00	Appertunance(s)	143.5	394.5	207.1	0.0	0.0	507.0	0.0	105.1	350.6	1,006.6	0.0	0.0
145.00		139.4	380.5					0.0	50.9	139.4	431.3	0.0	0.0
150.00	Appertunance(s)	68.7	366.5	763.2	0.0	120.3	1,275.0	0.0	50.9	831.8	1,692.3	0.0	0.0
									Totals:	8,351.19	38,992.7	0.00	0.00

Site Number: 302538

Code: ANSI/TIA-222-G

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Site Name: Parsonage Hill AKA Wallingford

Engineering Number: 61682021

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Customer: AT&T Mobility

Load Case: 1.0D + 1.0W

Serviceability 60 mph

23 Iterations

Gust Response Factor : 1.10

Wind Importance Factor : 1.00

Dead Load Factor : 1.00

Wind Load Factor : 1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-38.99	-8.28	0.00	-817.58	0.00	817.58	4,644.06	2,322.03	9,415.76	4,650.09	0.00	0.00	0.184
5.00	-37.55	-8.14	0.00	-776.17	0.00	776.17	4,595.29	2,297.64	9,142.87	4,515.32	0.03	-0.05	0.180
10.00	-36.14	-8.01	0.00	-735.45	0.00	735.45	4,545.10	2,272.55	8,870.93	4,381.02	0.11	-0.11	0.176
15.00	-34.74	-7.87	0.00	-695.41	0.00	695.41	4,493.52	2,246.76	8,600.11	4,247.27	0.25	-0.16	0.171
20.00	-33.37	-7.72	0.00	-656.07	0.00	656.07	4,440.53	2,220.27	8,330.57	4,114.16	0.45	-0.21	0.167
25.00	-32.02	-7.57	0.00	-617.45	0.00	617.45	4,386.14	2,193.07	8,062.46	3,981.75	0.70	-0.27	0.162
30.00	-30.70	-7.41	0.00	-579.60	0.00	579.60	4,330.35	2,165.17	7,795.94	3,850.12	1.01	-0.32	0.158
35.00	-29.39	-7.25	0.00	-542.54	0.00	542.54	4,273.15	2,136.58	7,531.18	3,719.37	1.37	-0.37	0.153
40.00	-28.11	-7.08	0.00	-506.29	0.00	506.29	4,214.55	2,107.28	7,268.33	3,589.55	1.79	-0.43	0.148
45.00	-26.85	-6.95	0.00	-470.87	0.00	470.87	4,154.55	2,077.28	7,007.55	3,460.77	2.26	-0.48	0.143
47.83	-26.15	-6.86	0.00	-451.19	0.00	451.19	4,119.93	2,059.96	6,860.76	3,388.27	2.56	-0.51	0.140
50.00	-25.25	-6.75	0.00	-436.32	0.00	436.32	4,093.15	2,046.57	6,749.00	3,333.08	2.79	-0.53	0.137
54.00	-23.61	-6.65	0.00	-409.31	0.00	409.31	3,318.35	1,659.17	5,491.59	2,712.09	3.26	-0.57	0.158
55.00	-23.39	-6.55	0.00	-402.66	0.00	402.66	3,309.46	1,654.73	5,451.83	2,692.45	3.38	-0.58	0.157
60.00	-22.31	-6.38	0.00	-369.89	0.00	369.89	3,264.20	1,632.10	5,253.67	2,594.59	4.02	-0.64	0.149
65.00	-21.25	-6.20	0.00	-338.00	0.00	338.00	3,217.53	1,608.77	5,056.74	2,497.33	4.72	-0.69	0.142
70.00	-20.21	-6.02	0.00	-307.00	0.00	307.00	3,169.46	1,584.73	4,861.18	2,400.76	5.48	-0.75	0.134
75.00	-19.19	-5.84	0.00	-276.89	0.00	276.89	3,119.99	1,560.00	4,667.18	2,304.94	6.29	-0.80	0.126
80.00	-18.19	-5.67	0.00	-247.67	0.00	247.67	3,069.12	1,534.56	4,474.87	2,209.97	7.15	-0.85	0.118
85.00	-17.21	-5.49	0.00	-219.34	0.00	219.34	3,016.84	1,508.42	4,284.42	2,115.91	8.07	-0.90	0.109
90.00	-16.24	-5.31	0.00	-191.90	0.00	191.90	2,963.16	1,481.58	4,095.99	2,022.86	9.04	-0.95	0.100
95.00	-15.30	-5.20	0.00	-165.35	0.00	165.35	2,908.97	1,454.48	3,910.95	1,931.47	10.05	-0.99	0.091
95.83	-15.14	-5.12	0.00	-161.01	0.00	161.01	2,895.47	1,447.74	3,874.53	1,913.49	10.22	-1.00	0.089
100.00	-13.95	-5.01	0.00	-139.69	0.00	139.69	2,827.97	1,413.98	3,694.98	1,824.81	11.11	-1.03	0.081
101.00	-13.67	-4.93	0.00	-134.68	0.00	134.68	1,940.72	970.36	2,581.43	1,274.87	11.33	-1.04	0.113
105.00	-12.99	-4.64	0.00	-114.98	0.00	114.98	1,916.34	958.17	2,490.95	1,230.18	12.21	-1.07	0.100
110.00	-12.28	-4.53	0.00	-91.78	0.00	91.78	1,884.60	942.30	2,378.33	1,174.57	13.35	-1.11	0.085
111.00	-10.15	-3.88	0.00	-87.25	0.00	87.25	1,878.08	939.04	2,355.89	1,163.48	13.58	-1.12	0.080
115.00	-9.59	-3.73	0.00	-71.72	0.00	71.72	1,851.46	925.73	2,266.41	1,119.29	14.53	-1.14	0.069
120.00	-8.90	-3.59	0.00	-53.07	0.00	53.07	1,816.91	908.46	2,155.32	1,064.43	15.74	-1.17	0.055
123.00	-5.27	-2.18	0.00	-40.12	0.00	40.12	1,795.51	897.76	2,089.15	1,031.75	16.48	-1.19	0.042
125.00	-5.04	-2.06	0.00	-35.77	0.00	35.77	1,780.96	890.48	2,045.25	1,010.07	16.98	-1.20	0.038
130.00	-4.47	-1.96	0.00	-25.45	0.00	25.45	1,743.61	871.81	1,936.34	956.28	18.24	-1.21	0.029
131.00	-4.35	-1.88	0.00	-23.43	0.00	23.43	1,735.97	867.99	1,914.71	945.60	18.50	-1.22	0.027
133.50	-3.25	-1.49	0.00	-18.72	0.00	18.72	1,716.63	858.32	1,860.88	919.02	19.14	-1.22	0.022
135.00	-3.10	-1.39	0.00	-16.49	0.00	16.49	1,704.86	852.43	1,828.75	903.15	19.52	-1.23	0.020
140.00	-2.10	-1.02	0.00	-9.55	0.00	9.55	1,664.70	832.35	1,722.65	850.75	20.81	-1.24	0.012
145.00	-1.67	-0.87	0.00	-4.46	0.00	4.46	1,618.02	809.01	1,613.08	796.64	22.11	-1.24	0.007
150.00	0.00	-0.83	0.00	-0.12	0.00	0.12	1,557.27	778.64	1,493.56	737.61	23.41	-1.24	0.000

Equivalent Lateral Forces Method Analysis

(Based on ASCE7-10 Chapters 11, 12, 15)

Spectral Response Acceleration for Short Period (S_s):	0.18
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06
Long-Period Transition Period (T_L):	6
Importance Factor (I_E):	1.00
Site Coefficient F_a :	1.60
Site Coefficient F_v :	1.60
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.19
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.07
Seismic Response Coefficient (C_s):	0.03
Upper Limit C_s	0.03
Lower Limit C_s	0.03
Period based on Rayleigh Method (sec):	2.19
Redundancy Factor (p):	1.30
Seismic Force Distribution Exponent (k):	1.85
Total Unfactored Dead Load:	36.62 k
Seismic Base Shear (E):	1.43 k

Site Number: 302538

Code: ANSI/TIA-222-G

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Site Name: Parsonage Hill AKA Wallingford

Engineering Number: 61682021

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Customer: AT&T Mobility

Equivalent Modal Forces Analysis

(Based on ASCE7-10 Chapters 11, 12 & 15 and ANSI/TIA-G, section 2.7)

Spectral Response Acceleration for Short Period (S_s):	0.18
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06
Importance Factor (I_E):	1.00
Site Coefficient F_a :	1.60
Site Coefficient F_v :	1.60
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.19
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.07
Period Based on Rayleigh Method (sec):	2.19
Redundancy Factor (ρ):	1.30

Load Case (1.2 + 0.2Sds) * DL + E ELFM

Seismic Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
38	147.50	417	1.828	1.667	1.025	0.324	117	359
37	142.50	431	1.706	1.144	0.823	0.250	93	371
36	137.50	500	1.588	0.742	0.654	0.184	80	430
35	134.25	153	1.514	0.536	0.560	0.146	19	131
34	132.25	277	1.469	0.428	0.507	0.124	30	238
33	130.50	112	1.431	0.344	0.464	0.105	10	96
32	127.50	567	1.366	0.222	0.397	0.076	38	488
31	124.00	231	1.292	0.109	0.329	0.046	9	199
30	121.50	406	1.240	0.046	0.286	0.027	9	350
29	117.50	688	1.160	-0.030	0.226	0.000	0	593
28	113.00	561	1.073	-0.084	0.170	-0.025	-12	483
27	110.50	142	1.026	-0.103	0.144	-0.036	-4	122
26	107.50	716	0.971	-0.116	0.117	-0.047	-29	617
25	103.00	603	0.891	-0.122	0.084	-0.058	-31	519
24	100.50	282	0.848	-0.119	0.069	-0.062	-15	243
23	97.92	1,190	0.805	-0.113	0.055	-0.064	-66	1,025
22	95.42	155	0.765	-0.104	0.044	-0.063	-8	134
21	92.50	943	0.719	-0.092	0.034	-0.060	-49	812
20	87.50	962	0.643	-0.068	0.020	-0.048	-40	828
19	82.50	981	0.572	-0.043	0.012	-0.029	-24	844
18	77.50	999	0.505	-0.018	0.007	-0.006	-5	861
17	72.50	1,018	0.442	0.005	0.006	0.017	15	877
16	67.50	1,037	0.383	0.023	0.007	0.036	32	893
15	62.50	1,055	0.328	0.039	0.010	0.048	44	909
14	57.50	1,074	0.278	0.050	0.014	0.056	52	925
13	54.50	217	0.250	0.055	0.017	0.058	11	187
12	52.00	1,637	0.227	0.059	0.020	0.059	84	1,410
11	48.92	897	0.201	0.063	0.023	0.060	47	773
10	46.42	702	0.181	0.065	0.026	0.060	36	604
9	42.50	1,255	0.152	0.068	0.030	0.059	65	1,081
8	37.50	1,277	0.118	0.070	0.035	0.058	64	1,100
7	32.50	1,299	0.089	0.071	0.039	0.057	64	1,119
6	27.50	1,321	0.064	0.072	0.041	0.055	63	1,137
5	22.50	1,343	0.043	0.070	0.042	0.054	63	1,156

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Customer: AT&T Mobility

4	17.50	1,364	0.026	0.067	0.040	0.051	61	1,175
3	12.50	1,386	0.013	0.059	0.034	0.047	57	1,194
2	7.50	1,408	0.005	0.044	0.025	0.038	47	1,213
1	2.50	1,430	0.001	0.018	0.010	0.019	23	1,231
Round T-Arm	150.00	750	1.890	1.980	1.140	0.365	237	646
72" x 12" Panel	150.00	135	1.890	1.980	1.140	0.365	43	116
52" x 12" Panel	150.00	360	1.890	1.980	1.140	0.365	114	310
10' Dipole	150.00	30	1.890	1.980	1.140	0.365	9	26
Stand-Off	140.00	225	1.646	0.929	0.735	0.216	42	194
Ericsson AIR 21, 1.3	140.00	249	1.646	0.929	0.735	0.216	47	214
Ericsson KRY 112 144	140.00	33	1.646	0.929	0.735	0.216	6	28
Argus LLPX310R	133.50	86	1.497	0.494	0.539	0.137	10	74
NextNet BTS-2500	133.50	105	1.497	0.494	0.539	0.137	12	90
DragonWave A-ANT-18G	133.50	27	1.497	0.494	0.539	0.137	3	23
DragonWave Horizon C	133.50	21	1.497	0.494	0.539	0.137	3	18
T-Arm	133.50	560	1.497	0.494	0.539	0.137	67	482
DragonWave A-ANT-11G	133.50	27	1.497	0.494	0.539	0.137	3	23
18" x 12" Junction B	131.00	15	1.442	0.367	0.476	0.111	1	13
Ericsson RRUS 11 (Ba	123.00	330	1.271	0.082	0.311	0.038	11	284
Raycap DC6-48-60-18-	123.00	32	1.271	0.082	0.311	0.038	1	27
Powerwave Allgon LGP	123.00	85	1.271	0.082	0.311	0.038	3	73
36" x 8" x 6" Panel	123.00	75	1.271	0.082	0.311	0.038	2	65
72" x 12" Panel	123.00	270	1.271	0.082	0.311	0.038	9	233
Flat Platform w/ Han	123.00	2,000	1.271	0.082	0.311	0.038	66	1,722
14" x 9" TTA	123.00	30	1.271	0.082	0.311	0.038	1	26
Ericsson RRUS 12 w/	123.00	214	1.271	0.082	0.311	0.038	7	184
CCI OPA-65R-LCUU-H6	123.00	219	1.271	0.082	0.311	0.038	7	189
Flat Platform w/ Han	111.00	2,000	1.035	-0.099	0.149	-0.034	-59	1,722
RFS APXV18-206517S-C	105.00	79	0.926	-0.121	0.098	-0.054	-4	68
		38,993	62.528	19.680	19.967	4.915	1,592	33,579

Load Case (1.2 + 0.2Sds) * DL + E EMAM

Seismic Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
38	147.50	417	1.828	1.667	1.025	0.324	117	359
37	142.50	431	1.706	1.144	0.823	0.250	93	371
36	137.50	500	1.588	0.742	0.654	0.184	80	430
35	134.25	153	1.514	0.536	0.560	0.146	19	131
34	132.25	277	1.469	0.428	0.507	0.124	30	238
33	130.50	112	1.431	0.344	0.464	0.105	10	96
32	127.50	567	1.366	0.222	0.397	0.076	38	488
31	124.00	231	1.292	0.109	0.329	0.046	9	199
30	121.50	406	1.240	0.046	0.286	0.027	9	350
29	117.50	688	1.160	-0.030	0.226	0.000	0	593
28	113.00	561	1.073	-0.084	0.170	-0.025	-12	483
27	110.50	142	1.026	-0.103	0.144	-0.036	-4	122
26	107.50	716	0.971	-0.116	0.117	-0.047	-29	617
25	103.00	603	0.891	-0.122	0.084	-0.058	-31	519
24	100.50	282	0.848	-0.119	0.069	-0.062	-15	243
23	97.92	1,190	0.805	-0.113	0.055	-0.064	-66	1,025
22	95.42	155	0.765	-0.104	0.044	-0.063	-8	134
21	92.50	943	0.719	-0.092	0.034	-0.060	-49	812
20	87.50	962	0.643	-0.068	0.020	-0.048	-40	828
19	82.50	981	0.572	-0.043	0.012	-0.029	-24	844
18	77.50	999	0.505	-0.018	0.007	-0.006	-5	861
17	72.50	1,018	0.442	0.005	0.006	0.017	15	877
16	67.50	1,037	0.383	0.023	0.007	0.036	32	893
15	62.50	1,055	0.328	0.039	0.010	0.048	44	909
14	57.50	1,074	0.278	0.050	0.014	0.056	52	925

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13	54.50	217	0.250	0.055	0.017	0.058	11	187
12	52.00	1,637	0.227	0.059	0.020	0.059	84	1,410
11	48.92	897	0.201	0.063	0.023	0.060	47	773
10	46.42	702	0.181	0.065	0.026	0.060	36	604
9	42.50	1,255	0.152	0.068	0.030	0.059	65	1,081
8	37.50	1,277	0.118	0.070	0.035	0.058	64	1,100
7	32.50	1,299	0.089	0.071	0.039	0.057	64	1,119
6	27.50	1,321	0.064	0.072	0.041	0.055	63	1,137
5	22.50	1,343	0.043	0.070	0.042	0.054	63	1,156
4	17.50	1,364	0.026	0.067	0.040	0.051	61	1,175
3	12.50	1,386	0.013	0.059	0.034	0.047	57	1,194
2	7.50	1,408	0.005	0.044	0.025	0.038	47	1,213
1	2.50	1,430	0.001	0.018	0.010	0.019	23	1,231
Round T-Arm	150.00	750	1.890	1.980	1.140	0.365	237	646
72" x 12" Panel	150.00	135	1.890	1.980	1.140	0.365	43	116
52" x 12" Panel	150.00	360	1.890	1.980	1.140	0.365	114	310
10' Dipole	150.00	30	1.890	1.980	1.140	0.365	9	26
Stand-Off	140.00	225	1.646	0.929	0.735	0.216	42	194
Ericsson AIR 21, 1.3	140.00	249	1.646	0.929	0.735	0.216	47	214
Ericsson KRY 112 144	140.00	33	1.646	0.929	0.735	0.216	6	28
Argus LLPX310R	133.50	86	1.497	0.494	0.539	0.137	10	74
NextNet BTS-2500	133.50	105	1.497	0.494	0.539	0.137	12	90
DragonWave A-ANT-18G	133.50	27	1.497	0.494	0.539	0.137	3	23
DragonWave Horizon C	133.50	21	1.497	0.494	0.539	0.137	3	18
T-Arm	133.50	560	1.497	0.494	0.539	0.137	67	482
DragonWave A-ANT-11G	133.50	27	1.497	0.494	0.539	0.137	3	23
18" x 12" Junction B	131.00	15	1.442	0.367	0.476	0.111	1	13
Ericsson RRUS 11 (Ba	123.00	330	1.271	0.082	0.311	0.038	11	284
Raycap DC6-48-60-18-	123.00	32	1.271	0.082	0.311	0.038	1	27
Powerwave Allgon LGP	123.00	85	1.271	0.082	0.311	0.038	3	73
36" x 8" x 6" Panel	123.00	75	1.271	0.082	0.311	0.038	2	65
72" x 12" Panel	123.00	270	1.271	0.082	0.311	0.038	9	233
Flat Platform w/ Han	123.00	2,000	1.271	0.082	0.311	0.038	66	1,722
14" x 9" TTA	123.00	30	1.271	0.082	0.311	0.038	1	26
Ericsson RRUS 12 w/	123.00	214	1.271	0.082	0.311	0.038	7	184
CCI OPA-65R-LCUU-H6	123.00	219	1.271	0.082	0.311	0.038	7	189
Flat Platform w/ Han	111.00	2,000	1.035	-0.099	0.149	-0.034	-59	1,722
RFS APXV18-206517S-C	105.00	79	0.926	-0.121	0.098	-0.054	-4	68
		38,993	62.528	19.680	19.967	4.915	1,592	33,579

Load Case (0.9 - 0.2Sds) * DL + E ELFM

Seismic (Reduced DL) Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
38	147.50	417	1.828	1.667	1.025	0.324	117	359
37	142.50	431	1.706	1.144	0.823	0.250	93	371
36	137.50	500	1.588	0.742	0.654	0.184	80	430
35	134.25	153	1.514	0.536	0.560	0.146	19	131
34	132.25	277	1.469	0.428	0.507	0.124	30	238
33	130.50	112	1.431	0.344	0.464	0.105	10	96
32	127.50	567	1.366	0.222	0.397	0.076	38	488
31	124.00	231	1.292	0.109	0.329	0.046	9	199
30	121.50	406	1.240	0.046	0.286	0.027	9	350
29	117.50	688	1.160	-0.030	0.226	0.000	0	593
28	113.00	561	1.073	-0.084	0.170	-0.025	-12	483
27	110.50	142	1.026	-0.103	0.144	-0.036	-4	122
26	107.50	716	0.971	-0.116	0.117	-0.047	-29	617
25	103.00	603	0.891	-0.122	0.084	-0.058	-31	519
24	100.50	282	0.848	-0.119	0.069	-0.062	-15	243
23	97.92	1,190	0.805	-0.113	0.055	-0.064	-66	1,025

Site Number: 302538

Code: ANSI/TIA-222-G

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Site Name: Parsonage Hill AKA Wallingford

Engineering Number: 61682021

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Customer: AT&T Mobility

22	95.42	155	0.765	-0.104	0.044	-0.063	-8	134
21	92.50	943	0.719	-0.092	0.034	-0.060	-49	812
20	87.50	962	0.643	-0.068	0.020	-0.048	-40	828
19	82.50	981	0.572	-0.043	0.012	-0.029	-24	844
18	77.50	999	0.505	-0.018	0.007	-0.006	-5	861
17	72.50	1,018	0.442	0.005	0.006	0.017	15	877
16	67.50	1,037	0.383	0.023	0.007	0.036	32	893
15	62.50	1,055	0.328	0.039	0.010	0.048	44	909
14	57.50	1,074	0.278	0.050	0.014	0.056	52	925
13	54.50	217	0.250	0.055	0.017	0.058	11	187
12	52.00	1,637	0.227	0.059	0.020	0.059	84	1,410
11	48.92	897	0.201	0.063	0.023	0.060	47	773
10	46.42	702	0.181	0.065	0.026	0.060	36	604
9	42.50	1,255	0.152	0.068	0.030	0.059	65	1,081
8	37.50	1,277	0.118	0.070	0.035	0.058	64	1,100
7	32.50	1,299	0.089	0.071	0.039	0.057	64	1,119
6	27.50	1,321	0.064	0.072	0.041	0.055	63	1,137
5	22.50	1,343	0.043	0.070	0.042	0.054	63	1,156
4	17.50	1,364	0.026	0.067	0.040	0.051	61	1,175
3	12.50	1,386	0.013	0.059	0.034	0.047	57	1,194
2	7.50	1,408	0.005	0.044	0.025	0.038	47	1,213
1	2.50	1,430	0.001	0.018	0.010	0.019	23	1,231
Round T-Arm	150.00	750	1.890	1.980	1.140	0.365	237	646
72" x 12" Panel	150.00	135	1.890	1.980	1.140	0.365	43	116
52" x 12" Panel	150.00	360	1.890	1.980	1.140	0.365	114	310
10' Dipole	150.00	30	1.890	1.980	1.140	0.365	9	26
Stand-Off	140.00	225	1.646	0.929	0.735	0.216	42	194
Ericsson AIR 21, 1.3	140.00	249	1.646	0.929	0.735	0.216	47	214
Ericsson KRY 112 144	140.00	33	1.646	0.929	0.735	0.216	6	28
Argus LLPX310R	133.50	86	1.497	0.494	0.539	0.137	10	74
NextNet BTS-2500	133.50	105	1.497	0.494	0.539	0.137	12	90
DragonWave A-ANT-18G	133.50	27	1.497	0.494	0.539	0.137	3	23
DragonWave Horizon C	133.50	21	1.497	0.494	0.539	0.137	3	18
T-Arm	133.50	560	1.497	0.494	0.539	0.137	67	482
DragonWave A-ANT-11G	133.50	27	1.497	0.494	0.539	0.137	3	23
18" x 12" Junction B	131.00	15	1.442	0.367	0.476	0.111	1	13
Ericsson RRUS 11 (Ba	123.00	330	1.271	0.082	0.311	0.038	11	284
Raycap DC6-48-60-18-	123.00	32	1.271	0.082	0.311	0.038	1	27
Powerwave Allgon LGP	123.00	85	1.271	0.082	0.311	0.038	3	73
36" x 8" x 6" Panel	123.00	75	1.271	0.082	0.311	0.038	2	65
72" x 12" Panel	123.00	270	1.271	0.082	0.311	0.038	9	233
Flat Platform w/ Han	123.00	2,000	1.271	0.082	0.311	0.038	66	1,722
14" x 9" TTA	123.00	30	1.271	0.082	0.311	0.038	1	26
Ericsson RRUS 12 w/	123.00	214	1.271	0.082	0.311	0.038	7	184
CCI OPA-65R-LCUU-H6	123.00	219	1.271	0.082	0.311	0.038	7	189
Flat Platform w/ Han	111.00	2,000	1.035	-0.099	0.149	-0.034	-59	1,722
RFS APXV18-206517S-C	105.00	79	0.926	-0.121	0.098	-0.054	-4	68
		38,993	62.528	19.680	19.967	4.915	1,592	33,579

Load Case (0.9 - 0.2Sds) * DL + E EMAM

Seismic (Reduced DL) Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
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37	142.50	431	1.706	1.144	0.823	0.250	93	371
36	137.50	500	1.588	0.742	0.654	0.184	80	430
35	134.25	153	1.514	0.536	0.560	0.146	19	131
34	132.25	277	1.469	0.428	0.507	0.124	30	238
33	130.50	112	1.431	0.344	0.464	0.105	10	96
32	127.50	567	1.366	0.222	0.397	0.076	38	488

Site Number: 302538

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Site Name: Parsonage Hill AKA Wallingford

Engineering Number: 61682021

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Customer: AT&T Mobility

31	124.00	231	1.292	0.109	0.329	0.046	9	199
30	121.50	406	1.240	0.046	0.286	0.027	9	350
29	117.50	688	1.160	-0.030	0.226	0.000	0	593
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24	100.50	282	0.848	-0.119	0.069	-0.062	-15	243
23	97.92	1,190	0.805	-0.113	0.055	-0.064	-66	1,025
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RFS APXV18-206517S-C	105.00	79	0.926	-0.121	0.098	-0.054	-4	68
		38,993	62.528	19.680	19.967	4.915	1,592	33,579

Site Number: 302538

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Site Name: Parsonage Hill AKA Wallingford

Engineering Number: 61682021

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Customer: AT&T Mobility

Analysis Summary

Load Case	Reactions						Max Usage	
	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.6W	40.60	0.00	46.70	0.00	0.00	4027.60	0.00	0.88
0.9D + 1.6W	40.58	0.00	35.00	0.00	0.00	3985.51	0.00	0.86
1.2D + 1.0Di + 1.0Wi	7.74	0.00	72.74	0.00	0.00	808.30	0.00	0.19
(1.2 + 0.2Sds) * DL + E ELFM	1.43	0.00	43.60	0.00	0.00	157.09	0.00	0.04
(1.2 + 0.2Sds) * DL + E EMAM	1.57	0.00	46.53	0.00	0.00	157.57	0.00	0.04
(0.9 - 0.2Sds) * DL + E ELFM	1.43	0.00	30.31	0.00	0.00	155.44	0.00	0.04
(0.9 - 0.2Sds) * DL + E EMAM	1.57	0.00	32.35	0.00	0.00	155.30	0.00	0.04
1.0D + 1.0W	8.28	0.00	38.99	0.00	0.00	817.58	0.00	0.18

Site Number: 302538

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Site Name: Parsonage Hill AKA Wallingford

Engineering Number: 61682021

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Customer: AT&T Mobility

Base Summary

Reactions

Original Design			Analysis			
Moment (kip-ft)	Axial (kip)	Shear (kip)	Moment (kip-ft)	Axial (kip)	Shear (kip)	Moment Design %
3,567.17	35.87	30.48	4,027.60	72.74	40.60	83.64

Base Plate

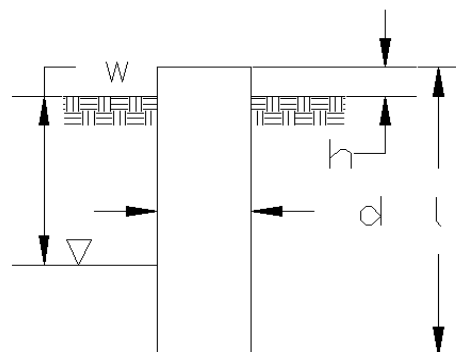
Yield (ksi)	Thick (in)	Width (in)	Style	Poly Sides	Clip Len (in)	Effective Len (in)	Mu (kip-in)	Phi Mn (kip-in)	Ratio
60.0	2.750	63.850	Polygon	12	0.00	9.968	880.34	1017.64	0.87

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
57.85	16	2.25" 18J	2.25	75.00	100.00	Radial	0.00	0.0	213.41	260.00	0.84	204.32	260.00	0.81

Site Name: Parsonage Hill AKA Wallingford, CT
 Site Number: 302538
 Engineer: A.E
 Engineering Number: 61682021
 Date: 05/19/15

Program Last Updated: 5/13/2014
 American Tower Corporation



Design Base Loads (Factored) - Analysis per TIA-222-G Standards

Analyze or Design a Foundation? Analyze
 Foundation Mapped: N
 Moment (M): 4027.6 k-ft
 Shear/Leg (V): 40.6 k
 Axial Load (P): 46.7 k
 Uplift/Leg (U): 0.0 k
 Tower Type (GT / SST / MP): MP

Diameter of Caisson (d): 6.5 ft
 Caisson Embedment (L-h): 21.0 ft
 Caisson Height Above Ground (h): 0.5 ft
 Depth Below Ground Surface to Water Table (w): 99.0 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

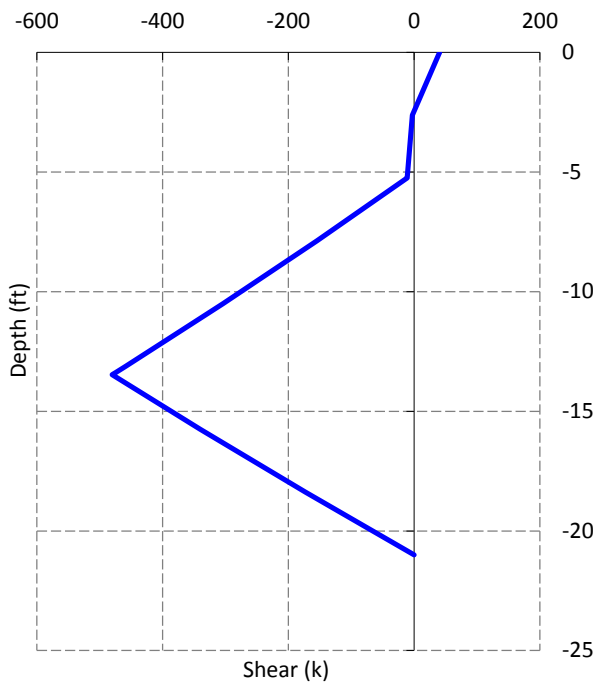
Depth (ft)		γ_{Soil}	Cohesion	ϕ	Ultimate Skin	Ultimate Bearing
Top	Bottom	(pcf)	(psf)	(degree)	Friction (psf)	Pressure (psf)
0.0	3.0	130	0	0	0	0
3.0	5.0	130	0	35	1500	0
5.0	22.0	140	3000	0	7000	20000

Volume of Concrete: 713.4 ft³ = 26.4 yd³
 Weight of Concrete (Buoyancy Effect Considered): 107.0 k
 Average Soil Unit Weight: 137.6 pcf
 Skin Friction Resistance: 2348.3 k
 Compressive Bearing Resistance: 663.7 k
 Pullout Weight (Minus Concrete Weight): 802.6 k
 Nominal Uplift Capacity per Leg ($\phi_s T_n$): 602.0 k
 Nominal Compressive Capacity per Leg ($\phi_s P_n$): 2259.0 k
 P_u : 57.1 k
 $T_u / \phi_s T_n$: 0.00 Result: OK
 $P_u / \phi_s P_n$: 0.03 Result: OK
 Total Lateral Resistance: 2594.2 k
 Inflection Point (Below Ground Surface): 13.5 ft
 Design Overturning Moment At Inflection Point (M_D): 4594.8 k-ft
 Nominal Moment Capacity ($\phi_s M_n$): 7778.4 k-ft
 $M_D / \phi_s M_n$: 0.59 Result: OK
 ϕ_s : 0.75

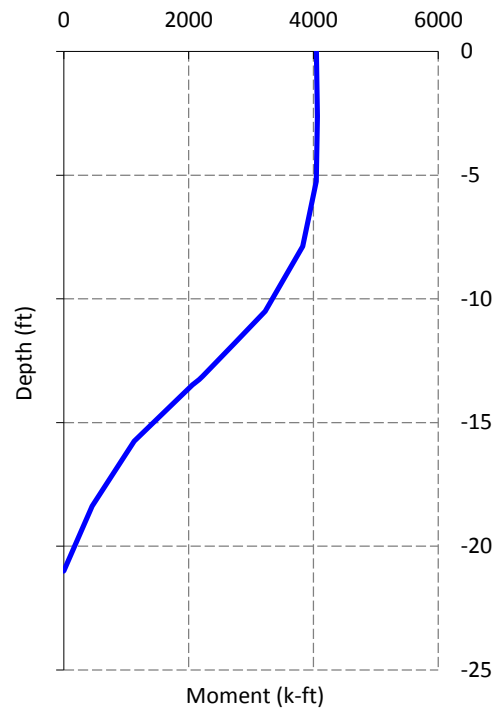
Caisson Strength Capacity

Concrete Compressive Strength (f'_c):	3000 psi
Vertical Steel Rebar Size #:	11
Vertical Steel Rebar Area:	1.56 in ²
# of Vertical Steel Rebars:	38
Vertical Steel Rebar Yield Strength (F_y):	60 ksi
Horizontal Tie / Stirrup Size #:	4
Horizontal Tie / Stirrup Area:	0.20 in ²
Design Horizontal Tie / Stirrup Spacing:	12.0 in
Horizontal Tie / Stirrup Steel Yield Strength (F_y):	60 ksi
Rebar Cage Diameter:	70.0 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_C):	0.65 ACI318-05 - 9.3.2.2
Steel Elastic Modulus:	29000 ksi
Design Moment (M_u):	4064.0 k-ft
Nominal Moment Capacity ($\phi_B M_n$):	9135.1 k-ft - ACI318-05 - 10.2
$M_u / \phi_B M_n$:	0.44 Result: OK
Design Shear (V_u):	410.8 k
Nominal Shear Capacity ($\phi_V V_n$):	488.1 k - ACI318-05 - 11.3.1.1 or 11.5.7.2
$V_u / \phi_V V_n$:	0.84 Result: OK
Design Tension (T_u):	0.0 k
Nominal Tension Capacity ($\phi_T T_n$):	3201.1 k - ACI318-05 - 10.2
$T_u / \phi_T T_n$:	0.00 Result: OK
Design Compression (P_u):	57.1 k
Nominal Compression Capacity ($\phi_P P_n$):	6257.5 k - ACI318-05 - 10.3.6.2
$P_u / \phi_P P_n$:	0.01 Result: OK
Bending Reinforcement Ratio:	0.012 ACI318-05 - 10.8.4 & 10.9.1
$M_u / \phi_B M_n + T_u / \phi_T T_n$:	0.44 Result: OK

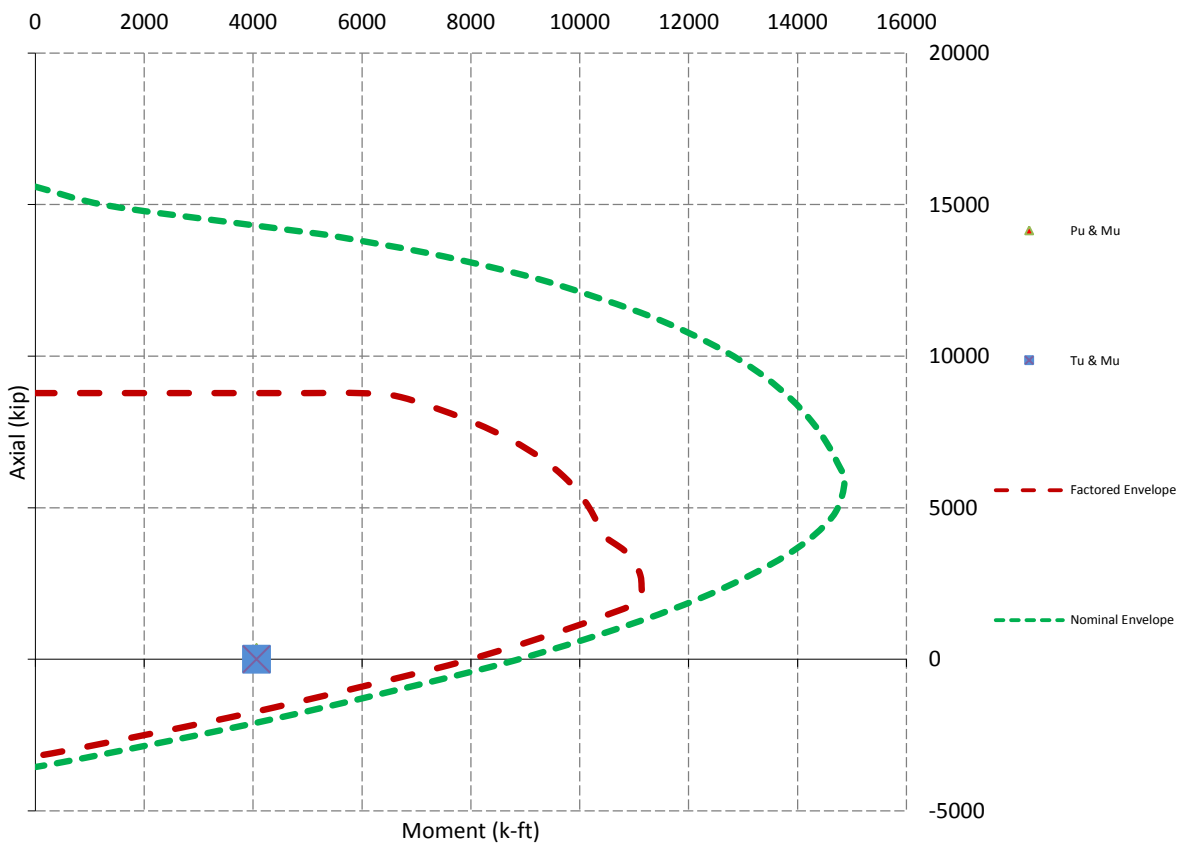
Design Factored Shear / Depth



Design Factored Moment / Depth



Nominal and Factored Moment Capacity and Factored Design Loads



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

AT&T Existing Facility

Site ID: CT2221

Wallingford - Northrop Road
100 Northrop Road
Wallingford, CT 06492

July 9, 2015

EBI Project Number: 6215003894

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	27.53 %

July 9, 2015

AT&T Mobility – New England
Attn: Cameron Syme, RF Manager
550 Cochituate Road
Suite 550 – 13&14
Framingham, MA 01701

Emissions Analysis for Site: **CT2221 – Wallingford - Northrop Road**

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

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed AT&T Wireless antenna facility located at **100 Northrop Road, Wallingford, 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) 4 GSM channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 2) 4 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) 4 UMTS channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 4) 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.
- 5) 2 LTE channel (700 MHz Band) was considered for each sector of the proposed installation. This channel has a transmit power of 60 Watts

- 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 **Powerwave 7770** for 1900 MHz (PCS) and 850 MHz channels and the **CCI OPA-65R-LCUU-H6** for 700 MHz and 1900 MHz (PCS) channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The **Powerwave 7770** has a maximum gain of **11.4 dBd** at its main lobe at 850 MHz and a maximum gain of **13.4 dBd** at its main lobe at 1900 MHz. The **CCI OPA-65R-LCUU-H6** has a maximum gain of **12 dBd** at its main lobe at 700 MHz and a maximum gain of **14.8 dBd** at its main lobe at 1900 MHz. 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 **126 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.

AT&T Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Powerwave 7770	Make / Model:	Powerwave 7770	Make / Model:	Powerwave 7770
Gain:	11.4 / 13.4 dBd	Gain:	11.4 / 13.4 dBd	Gain:	11.4 / 13.4 dBd
Height (AGL):	126 feet	Height (AGL):	126 feet	Height (AGL):	126 feet
Frequency Bands	850 MHz / 1900 MHz(PCS)	Frequency Bands	850 MHz / 1900 MHz(PCS)	Frequency Bands	850 MHz / 1900 MHz(PCS)
Channel Count	8	Channel Count	8	# PCS Channels:	8
Total TX Power:	240	Total TX Power:	240	# AWS Channels:	240
ERP (W):	2,791.80	ERP (W):	2,791.80	ERP (W):	2,791.80
Antenna A1 MPE%	1.38	Antenna B1 MPE%	1.38	Antenna C1 MPE%	1.38
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Powerwave 7770	Make / Model:	Powerwave 7770	Make / Model:	Powerwave 7770
Gain:	11.4 dBd	Gain:	11.4 dBd	Gain:	11.4 dBd
Height (AGL):	126 feet	Height (AGL):	126 feet	Height (AGL):	126 feet
Frequency Bands	850 MHz	Frequency Bands	850 MHz	Frequency Bands	850 MHz
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power:	120	Total TX Power:	120	Total TX Power:	120
ERP (W):	1,359.90	ERP (W):	1,359.90	ERP (W):	1,359.90
Antenna A2 MPE%	0.94	Antenna B2 MPE%	0.94	Antenna C2 MPE%	0.94
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	CCI OPA-65R-LCUU-H6	Make / Model:	CCI OPA-65R-LCUU-H6	Make / Model:	CCI OPA-65R-LCUU-H6
Gain:	12 / 14.8 dBd	Gain:	12 / 14.8 dBd	Gain:	12 / 14.8 dBd
Height (AGL):	126 feet	Height (AGL):	126 feet	Height (AGL):	126 feet
Frequency Bands	700 MHz / 1900 MHz (PCS)	Frequency Bands	700 MHz / 1900 MHz (PCS)	Frequency Bands	700 MHz / 1900 MHz (PCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power:	240	Total TX Power:	240	Total TX Power:	240
ERP (W):	3,172.53	ERP (W):	3,172.53	ERP (W):	3,172.53
Antenna A3 MPE%	1.92	Antenna A3 MPE%	1.92	Antenna A3 MPE%	1.92

Site Composite MPE%	
Carrier	MPE%
AT&T	12.75 %
MetroPCS	11.03 %
Nextel	2.54 %
Clearwire	1.04 %
T-Mobile	0.17
Site Total MPE %:	27.53 %

AT&T Sector 1 Total:	4.25 %
AT&T Sector 2 Total:	4.25 %
AT&T Sector 3 Total:	4.25 %
Site Total:	27.53 %

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:	4.25 %
Sector 2:	4.25 %
Sector 3 :	4.25 %
AT&T Total:	12.75 %
Site Total:	27.53%
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **27.53%** 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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