



March 8, 2016

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

Re: Notice of Exempt Modification – Antenna Swap
Property Address: 438 Bridgeport Ave., Milford, CT 06460
Applicant: AT&T Mobility, LLC

Dear Ms. Bachman:

On behalf of AT&T, please accept this application as notification pursuant to R.C.S.A. §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16-50j-72(b) (2).

AT&T currently maintains a wireless telecommunications facility consisting of nine (9) wireless telecommunication antennas at an antenna center line height of 103-feet on an existing 103 -foot monopole tower, owned by American Tower, and located at 438 Bridgeport Ave., Milford, CT 06460. AT&T now intends to remove (3) Power wave 7770 panel antennas on position four, all sectors 4, while retaining three (3) Power wave 7770 panel antennas on position one, all sectors, three (3) KMW AM-X_CD-16-65-005-RET on position three, all sectors and install three (3) new CCI OPA_65R-LCW-H8 on position two, all sectors (for a total of (9) panel antennas), at the 103-foot level. AT&T also intends to install one DC-6 surge suppressor and 3 RRU-32's on the existing antenna masts as well as remove the top Diplexers from GSM and line and connect the jumpers to the 850 port of Octoport antenna // Add XMU-R503. 1 fiber and two DC trunk lines to follow existing coax.

This facility was permitted the City of Milford's building department on November, 1997 #29282B for Bell Atlantic Mobil-Metro Mobile CTS of New Haven, Inc. ("Metro Mobile" or the "Company") to allow Springwich Cellular Limited Partnership to add antennas and erect an equipment shelter at the existing Metro Mobile tower facility. Subsequent decisions are as follows:

Springwich Cellular Ltd. Partnership notice of intent to modify existing telecommunications facilities located on Farmdale Dr., Waterbury; 77 Pease Rd., Woodbridge; 438 Bridgeport Ave., **Milford**; 405 Brushy Plain Rd, Branford; 8 Dwight St., North Haven; and 310 Orange St., New Haven.

Springwich Cellular Ltd. Partnership notice of intent to modify an existing telecommunications facility located at 438 Bridgeport Avenue in **Milford**



EM-CING-084-060728 - New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 438 Bridgeport Avenue, **Milford**, Connecticut.

EM-CING-084-080917 - New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 438 Bridgeport Avenue, **Milford**, Connecticut.

EM-CING-084-110225 - New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 438 Bridgeport Avenue, **Milford**, Connecticut.

Please accept this letter pursuant to Regulation of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-510j-72(b) (2). In accordance with R.C.S.A., a copy of this letter is being sent to Benjamin G Blake, Mayor, City of Milford, 110 River St Milford, CT 06460. A copy of this letter is also being sent to American Tower Corporation-Tower Owner- at 116 Huntington Ave., 11th floor, Boston, MA 02116 and Charchenko, Henry & Genevieve & Co-Owner C/O Spectrasite Communications P O Box 723597 Prop Tax Dept. Atlanta, GA 31139.

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

1. The proposed modifications will not result in an increase in the height of the existing tower. AT&T's replacement antennas will be installed at the 103-foot level of the 103-foot monopole.
2. The proposed modifications will not involve any changes to ground-mounted equipment and, therefore, will not require an extension of the site boundary.
3. The proposed modifications will not increase the noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the modified facility will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A cumulative worst-case RF emissions calculation for AT&T's modified facility is provided in the RF Emissions Compliance Report, included in Tab 2.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The tower and its foundation can support AT&T's proposed modifications. (See Structural Analysis Report included in Tab 3).

For the foregoing reasons, AT&T respectfully submits that the proposed modifications to the above referenced telecommunications facility constitutes an exempt modification under R.C.S.A. §16-50j-72(b) (2).

Sincerely,

David Barbagallo

Enclosures

CC w/enclosures:

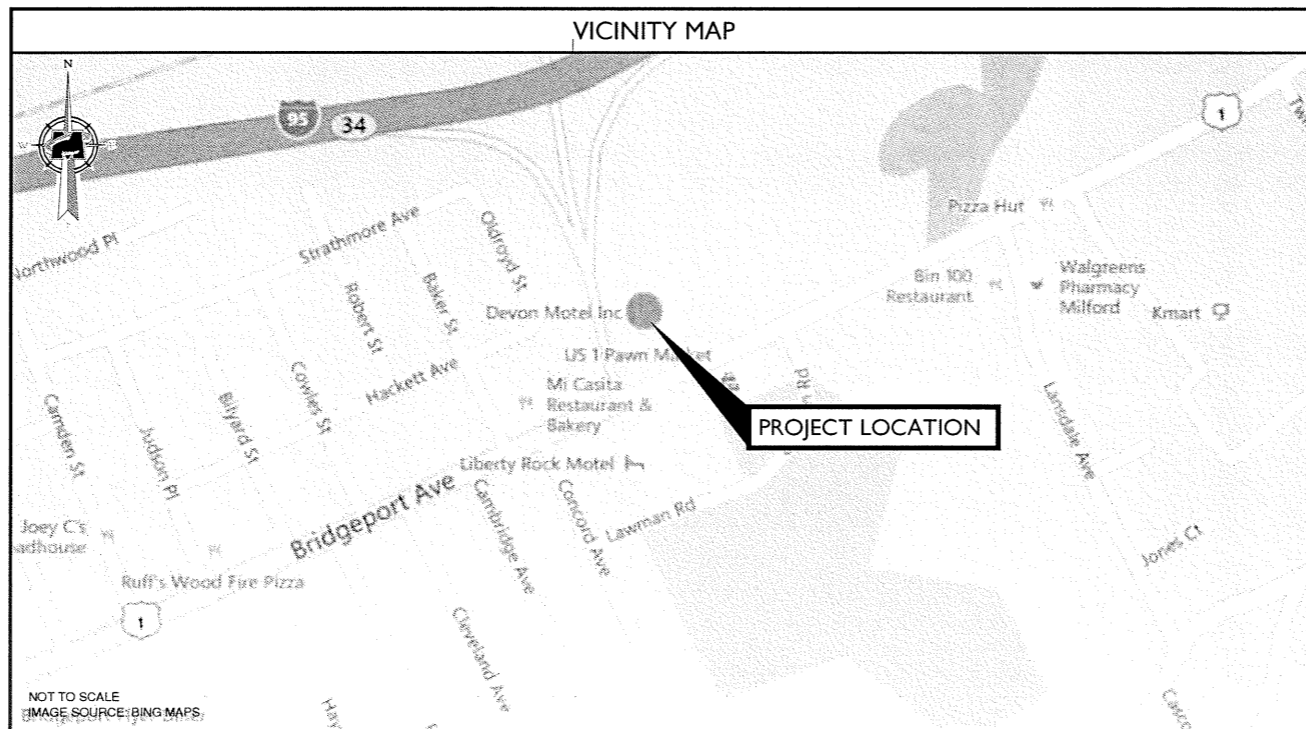
| Benjamin G Blake, Mayor, City of Milford
American Tower Corporation-Tower Owner
Charchenko, Henry & Genevieve & Co-Owner C/O
Spectrasite Communications - Property Owner



**SITE NAME: MILFORD-BRIDGEPORT AVE
 FA NUMBER: 10034978
 SITE NUMBER: CTL02111**

**438 BRIDGEPORT AVENUE
 MILFORD, CT 06460
 COUNTY: NEW HAVEN**

**AMERICAN TOWER SITE NAME: MLFD - MILFORD, CT
 AMERICAN TOWER SITE NUMBER: 302516**



PROJECT TEAM	
CLIENT REPRESENTATIVE	
COMPANY:	SMARTLINK, LLC
ADDRESS:	1362 MELLON ROAD, SUITE 140
CITY, STATE, ZIP:	HANOVER, MD 21076
CONTACT:	RICH WAGNER
E-MAIL:	RWAGNER@SMARTLINKLLC.COM
SITE ACQUISITION	
COMPANY:	SMARTLINK, LLC
ADDRESS:	33 BOSTON POST ROAD WEST, SUITE 210
CITY, STATE, ZIP:	MARLBOROUGH, MA 01752
CONTACT:	TODD OLIVER
PHONE:	(774) 369-3618
E-MAIL:	TODD.OLIVER@SMARTLINKLLC.COM
ENGINEER	
COMPANY:	MASER CONSULTING P.A.
ADDRESS:	400 VALLEY ROAD, SUITE 304
CITY, STATE, ZIP:	MT. ARLINGTON, NJ 07856
CONTACT:	FRANK PAZDEN
PHONE:	(973) 398-3110 x4505
E-MAIL:	FPAZDEN@MASERCONSULTING.COM
RF ENGINEER	
COMPANY:	NEW CINGULAR WIRELESS PCS, LLC
ADDRESS:	550 COCHITUATE RD.
CITY, STATE, ZIP:	FRAMINGHAM, MA 01701
CONTACT:	CAMERON SYME
E-MAIL:	CS6970@ATT.COM
CONSTRUCTION MANAGER	
COMPANY:	SMARTLINK, LLC.
ADDRESS:	33 BOSTON POST ROAD WEST, SUITE 210
CITY, STATE, ZIP:	MARLBOROUGH, MA 01752
CONTACT:	MARK DONNELLY
PHONE:	(617) 515-2080
E-MAIL:	MARK.DONNELLY@SMARTLINKLLC.COM

SITE INFORMATION	
APPLICANT/LESSEE	
NEW CINGULAR WIRELESS PCS, LLC 550 COCHITUATE RD. FRAMINGHAM, MA 01701	
PROPERTY/TOWER OWNER:	
NAME:	AMERICAN TOWER
ADDRESS:	116 HUNTINGTON AVE., 11TH FLOOR
CITY, STATE, ZIP:	BOSTON, MA 02116
SITE ID #:	XXXX
LATITUDE:	41.20660278° N
LONGITUDE:	73.09338889° W
LAT./LONG. TYPE:	NAD 83
AREA OF CONSTRUCTION:	EXISTING EQUIPMENT SHELTER AND MONOPOLE
ZONING/JURISDICTION:	CITY OF MILFORD
CURRENT USE/PROPOSED USE:	UNMANNED TELECOMMUNICATIONS FACILITY
HANDICAP REQUIREMENTS:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. HANDICAPPED ACCESS NOT REQUIRED.
CONSTRUCTION TYPE:	IIB
USE GROUP:	U

CODE COMPLIANCE	
ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THE LATEST EDITIONS OF THE FOLLOWING CODES.	
1. CONNECTICUT STATE BUILDING CODE (2005) & ALL SUBSEQUENT AMENDMENTS	6. AMERICAN INSTITUTE OF STEEL CONSTRUCTION 14 ED.
2. NATIONAL ELECTRIC CODE 2011	7. EIA/TIA-222 REVISION F
3. NATIONAL FIRE PROTECTION ASSOCIATION 70 - 2011	8. TIA 607 FOR GROUNDING
4. LIGHTNING PROTECTION CODE 2011	9. INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS 81
5. AMERICAN CONCRETE INSTITUTE 318	10. IEEE C2 LATEST EDITION
	11. TELCORDIA GR-1275 12. ANSI T1.311

GENERAL CONTRACTOR NOTES	
DO NOT SCALE DRAWINGS	
CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.	

GENERAL NOTES	
THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. A TECHNICIAN WILL VISIT THE SITE AS REQUIRED FOR ROUTINE MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OR EFFECT ON DRAINAGE, NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE IS PROPOSED.	

SHEET	DESCRIPTION
T-1	TITLE SHEET
GN-1	GENERAL NOTES
A-1	ROOFTOP AND EQUIPMENT PLAN
A-2	ELEVATION VIEW AND ANTENNA SCHEDULE
A-3	ANTENNA LAYOUTS
A-4	DETAILS
A-5	RF PLUMBING DIAGRAMS
G-1	GROUNDING DETAILS
S-1	STRUCTURAL DETAILS
S-2	STRUCTURAL GENERAL NOTES

PROJECT DESCRIPTION/SCOPE OF WORK	
LTE WCS WILL BE 3C AT THE SITE WITH BRONZE STANDARD CONFIGURATION 3C PROJECT SCOPE HEREIN BASED ON RFD# 751620, VERSION 2.0, LAST REVISED 10/09/2015	
THIS PROJECT WILL BE COMPRISED OF	
<ul style="list-style-type: none"> (3) NEW ANTENNAS TO REPLACE (3) EXISTING ANTENNAS, (1) PER SECTOR (3) NEW LTE RFRHS, (1) PER SECTOR ADD (1) DC2 POWER AND FIBER DISTRIBUTION BOX ADD (1) FIBER CABLE ADD (2) DC TRUNK CABLES 	

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■ Mt. Laurel, NJ	■ Newburgh, NY	■ Tampa, FL

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smartlink
 1362 MELLON ROAD
 SUITE 140
 HANOVER, MD 21076
 TEL: (410) 582-8043 FAX: (443) 221-2962

at&t
 NEW CINGULAR WIRELESS PCS, LLC
 550 COCHITUATE ROAD
 FRAMINGHAM, MA 01701

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 ALL STATES REQUIRE NOTIFICATION OF EXCAVATIONS OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE.
 Know what's below. Call before you dig.
 FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

SCALE:	JOB NUMBER:
AS SHOWN	15946021A

1	02/25/16	REVISED PER SMARTLINK'S COMMENTS	JRF	FEP
0	10/23/15	ISSUED FOR REVIEW	KROIRAP	FEP
REV	DATE	DESCRIPTION	DRAWN	CHECKED BY

STATE OF CONNECTICUT
 FRANK PAZDEN
 PROFESSIONAL ENGINEER
 LICENSE NO. 28188

SITE NAME:
 MILFORD
 FA# 10034978
 SITE # CTL02111
 438 BRIDGEPORT AVENUE
 MILFORD, CT 06460
 COUNTY OF NEW HAVEN

MT. ARLINGTON OFFICE
 400 Valley Road
 Suite 304
 Mount Arlington, NJ 07856
 Phone: 973.398.3110
 Fax: 973.398.3199
 email: solutions@maserconsulting.com

TITLE SHEET
T-1



smartlink
1362 MELLON ROAD
SUITE 140
HANOVER, MD 21076
TEL: (410) 582-8043 FAX: (443) 221-2962



NEW CINGULAR WIRELESS PCS, LLC
550 COCHITUATE ROAD
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0	10/23/15	ISSUED FOR REVIEW	KRO/RAP	FEP
REV			APPROVED BY	CHECKED BY



IT IS A VIOLATION OF THE PROFESSIONAL ENGINEER ACT, UNLESS THEY ARE A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SITE NAME:
MILFORD
FA# 10034978
SITE # CTL02111
438 BRIDGEPORT AVENUE
MILFORD, CT 06460
COUNTY OF NEW HAVEN

MT. ARLINGTON OFFICE
400 Valley Road
Suite 304
Mount Arlington, NJ 07856
Phone: 973.398.3110
Fax: 973.398.3199
email: solutions@maserconsulting.com

SHEET TITLE:
GENERAL NOTES

SHEET NUMBER:
GN-1

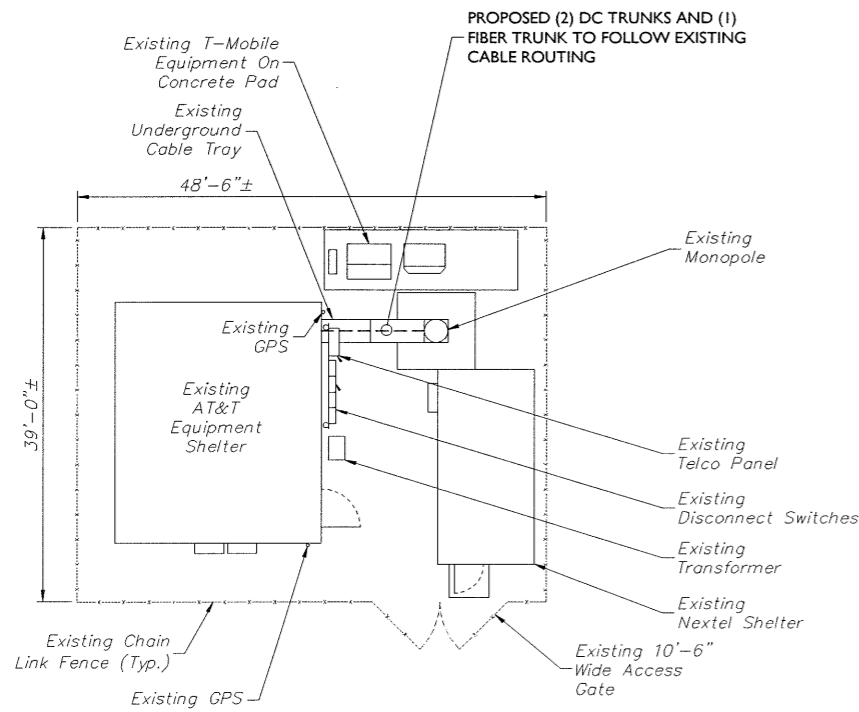
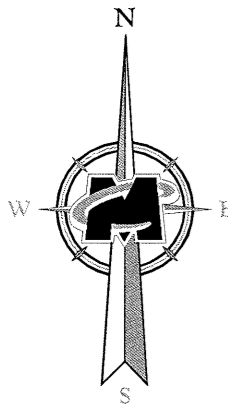
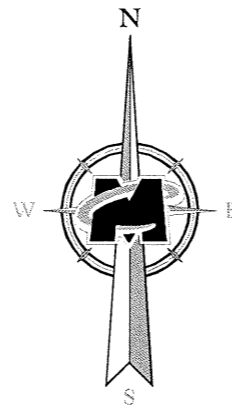
1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. 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 GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 50 HMS OR LESS.
4. THE SUBCONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT.
5. 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.
6. 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.
7. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE EQUIPMENT GROUND RING WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS; 2 AWG STRANDED COPPER FOR OUTDOOR BTS.
8. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED. BACK TO BACK CONNECTIONS ON OPPOSITE SIDES OF THE GROUND BUS ARE PERMITTED.
9. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING, SHALL BE #2 AWG SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
10. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
11. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED. ALL BENDS SHALL BE MADE WITH 12" RADIUS OR LARGER.
12. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
13. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS EXCEPT FOR GROUND BAR CONNECTION FROM MGB TO OUTSIDE EXTERIOR GROUND SHALL ALL BE CADWELD CONNECTIONS.
14. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
15. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED TO THE TOWER GROUND BAR.
16. APPROVED ANTIOXIDANT COATINGS (I.E. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
17. ALL EXTERIOR AND INTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
18. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
19. BOND ALL METALLIC OBJECTS WITHIN 6 FT OF MAIN GROUND WIRES WITH 1-#2 AWG TIN-PLATED COPPER GROUND CONDUCTOR.
20. 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.
21. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/4" IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50.

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
 CONTRACTOR – SMARTLINK
 SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
 OWNER – AT&T (NEW CINGULAR WIRELESS PCS, LLC)
2. ALL SITE WORK SHALL BE COMPLETED AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.
3. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
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.
5. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
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. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
10. THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
11. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY THE RESPONSIBLE ENGINEER. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. SUBCONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING & EXCAVATION.
12. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, AS DIRECTED BY THE RESPONSIBLE ENGINEER, AND SUBJECT TO THE APPROVAL OF THE OWNER AND/OR LOCAL UTILITIES.
13. THE AREAS OF THE OWNER'S PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY SHALL BE GRADED TO A UNIFORM SLOPE AND STABILIZED TO PREVENT EROSION.
14. SUBCONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
15. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
16. THE SUBGRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
17. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.
18. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
19. THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE.

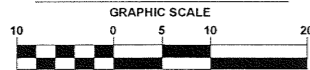
20. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
21. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACTOR.
22. 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.
23. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.
24. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS.
25. 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) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
26. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T MOBILITY SITES."
27. 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.
28. 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 SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
29. SINCE THE CELL SITE IS 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 ADVISED TO BE WORN ALERT OF DANGEROUS EXPOSURE LEVELS.

NOTES:

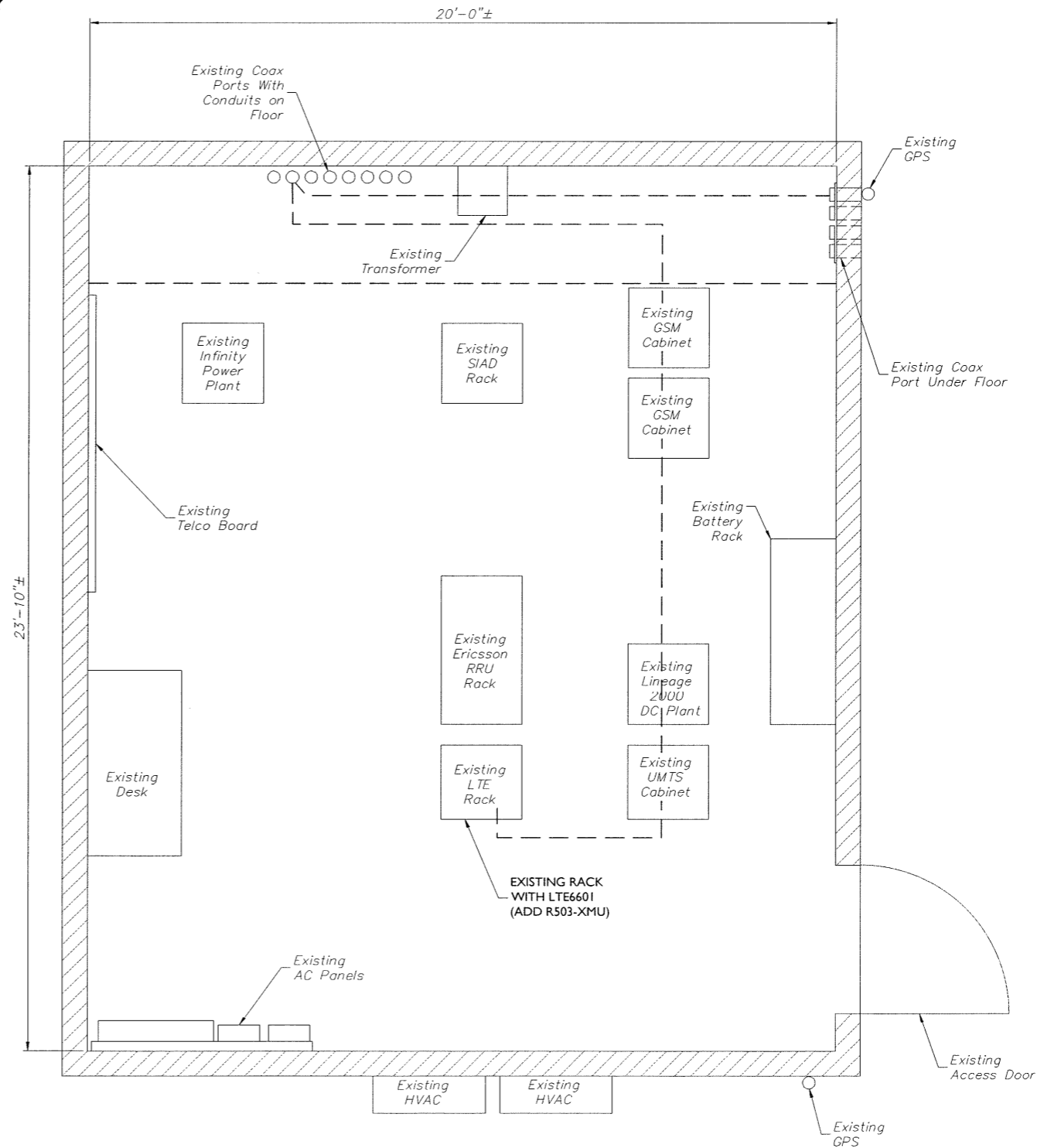
1. THE CONDUIT ROUTING IS DIAGRAMMATICALLY SHOWN ON THE PLANS AND ARE ONLY APPROXIMATIONS. THE EXACT LOCATION AND ROUTING SHALL BE FIELD VERIFIED.
2. ALL DISCONNECTS AND CONTROLLING DEVICES SHALL BE PROVIDED WITH ENGRAVED LAMICOID NAMEPLATES, INDICATING THE CIRCUITS ORIGINATION AND ALL EQUIPMENT TERMINATIONS.
3. SUBCONTRACTOR SHALL PROVIDE ALL CONDUITS AND CIRCUITS AS REQUIRED FOR A COMPLETED SYSTEM AND SHALL BE IN COMPLIANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
4. ALL NEW CABLING TO BE ROUTED ON EXISTING CABLE RACKS.
5. ALL INSTALLED GROUND LUGS MUST BE INSPECTION HOLE LUGS.
6. INSTALLED GROUND LEADS MUST TERMINATE AT MGB, NOT HALO.
7. NO OVERLAPPING GROUND HARDWARE.



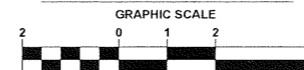
COMPOUND PLAN



(IN FEET)
SCALE: 1" = 10' FOR 24"X36" DRAWINGS
(DO NOT SCALE 11"X17" DRAWINGS)



EQUIPMENT PLAN



(IN FEET)
SCALE: 1" = 2' FOR 24"X36" DRAWINGS
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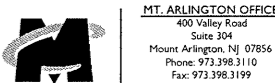
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SHEET TITLE:
**COMPOUND PLAN AND
EQUIPMENT PLAN**

SHEET NUMBER:
A-1

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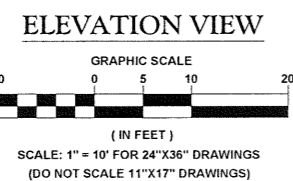
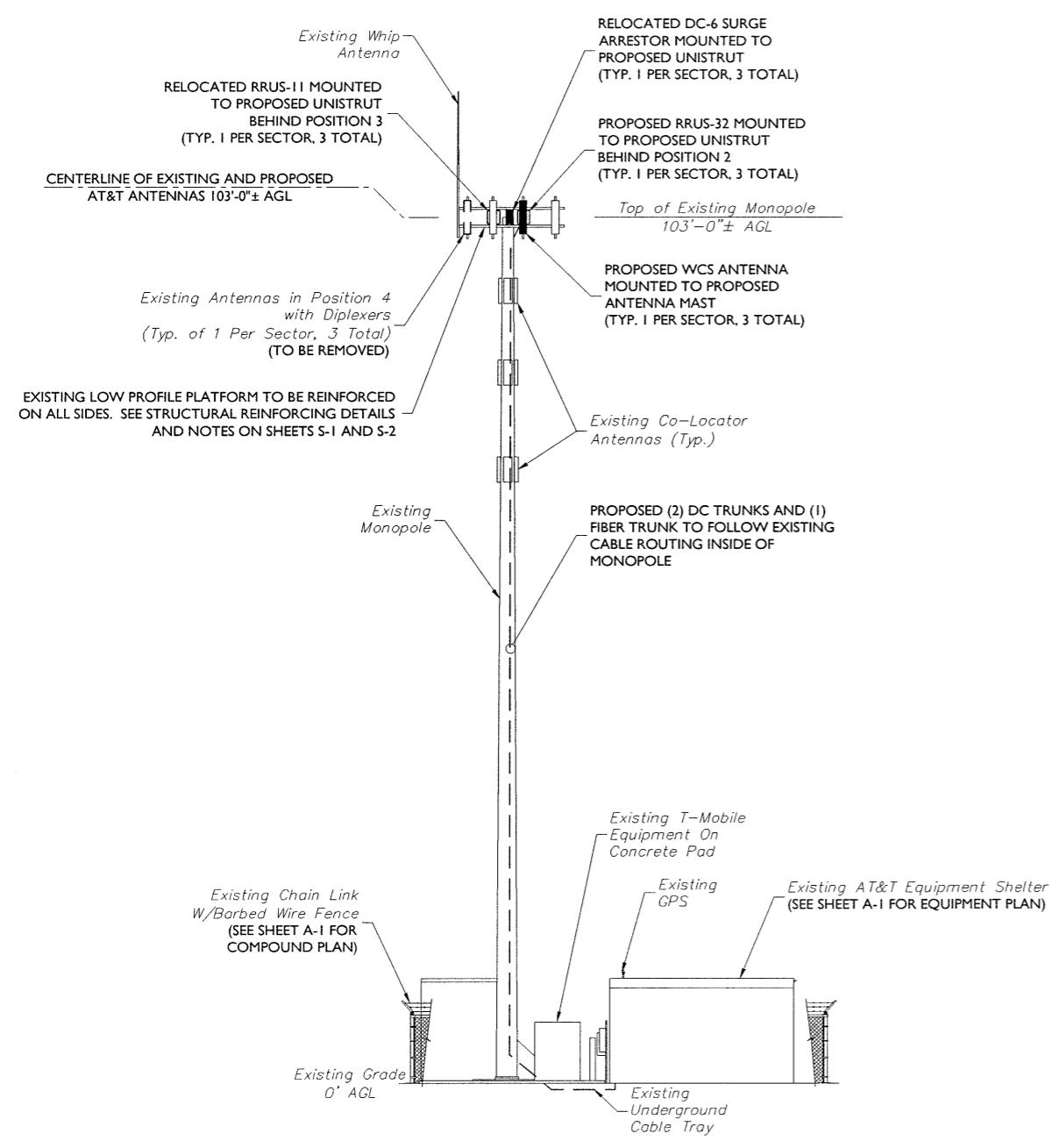
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SHEET TITLE:
ELEVATION VIEW AND ANTENNA SCHEDULE

SHEET NUMBER:
A-2

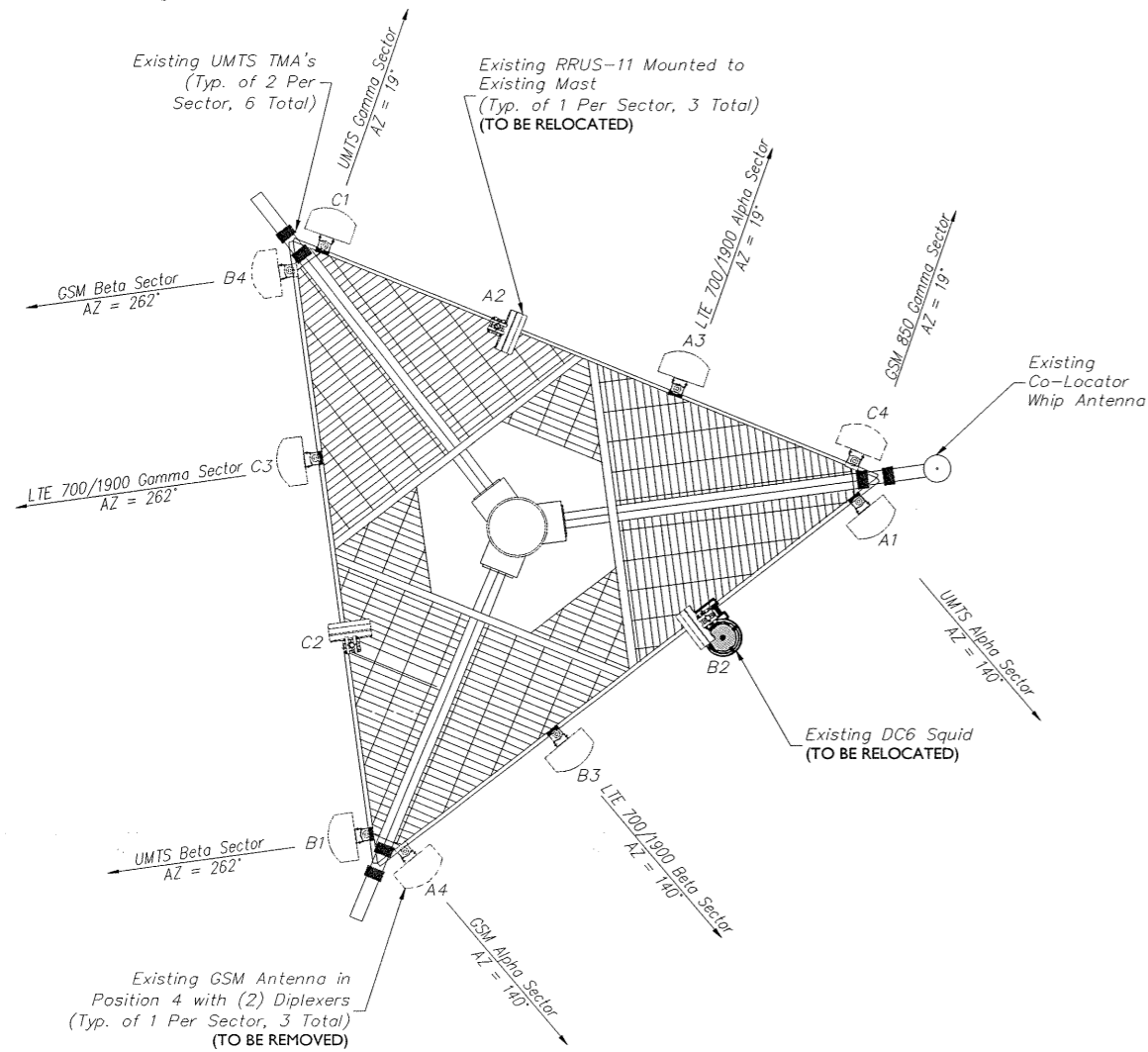
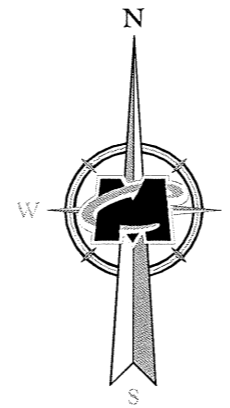
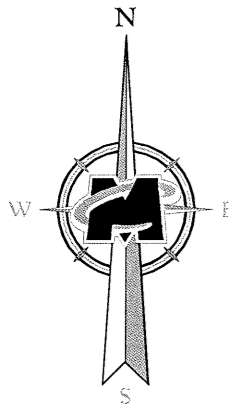
PROPOSED ANTENNA AND RRUS CONFIGURATION												
SECTOR	EXISTING ANTENNA CONFIGURATION	PROPOSED ANTENNA CONFIGURATION	TECHNOLOGY	ANTENNA STATUS	HEIGHT (ft)	WIDTH (ft)	DEPTH (ft)	WEIGHT (lbs)	ANTENNA AZIMUTH	ANT. CL. ELEV. (ft)	RRUS CONFIGURATION	STATUS
ALPHA	A1	Powerwave 7770	Powerwave 7770	UMTS	REMAIN	56.00	11.00	5.00	35.00	140°	103'	-
	A2	VACANT MAST	CCI OPA-65R-LCUJ-H4	WCS LTE GSM	NEW	48.00	14.40	7.30	57.00	19°	103'	RRUS 32 NEW
	A3	KMW AMX-CD-14-65-00T-RET	KMW AMX-CD-14-65-00T-RET	LTE	REMAIN	48.00	11.80	5.90	36.40	19°	103'	(2) RRUS 11 REMAIN
	A4	Powerwave 7770	VACANT MAST	GSM	REMOVE	-	-	-	-	-	-	-
BETA	B1	Powerwave 7770	Powerwave 7770	UMTS	REMAIN	56.00	11.00	5.00	35.00	262°	103'	-
	B2	VACANT MAST	CCI OPA-65R-LCUJ-H4	WCS LTE GSM	NEW	48.00	14.40	7.30	57.00	140°	103'	RRUS 32 NEW
	B3	KMW AMX-CD-14-65-00T-RET	KMW AMX-CD-14-65-00T-RET	LTE	REMAIN	48.00	11.80	5.90	36.40	140°	103'	(2) RRUS 11 REMAIN
	B4	Powerwave 7770	VACANT MAST	GSM	REMOVE	-	-	-	-	-	-	-
GAMMA	C1	Powerwave 7770	Powerwave 7770	UMTS	REMAIN	56.00	11.00	5.00	35.00	19°	103'	-
	C2	VACANT MAST	CCI OPA-65R-LCUJ-H4	WCS LTE GSM	NEW	48.00	14.40	7.30	57.00	262°	103'	RRUS 32 NEW
	C3	KMW AMX-CD-14-65-00T-RET	KMW AMX-CD-14-65-00T-RET	LTE	REMAIN	48.00	11.80	5.90	36.40	262°	103'	(2) RRUS 11 REMAIN
	C4	Powerwave 7770	VACANT MAST	GSM	REMOVE	-	-	-	-	-	-	-

ANTENNA SCHEDULE



STRUCTURAL NOTES:

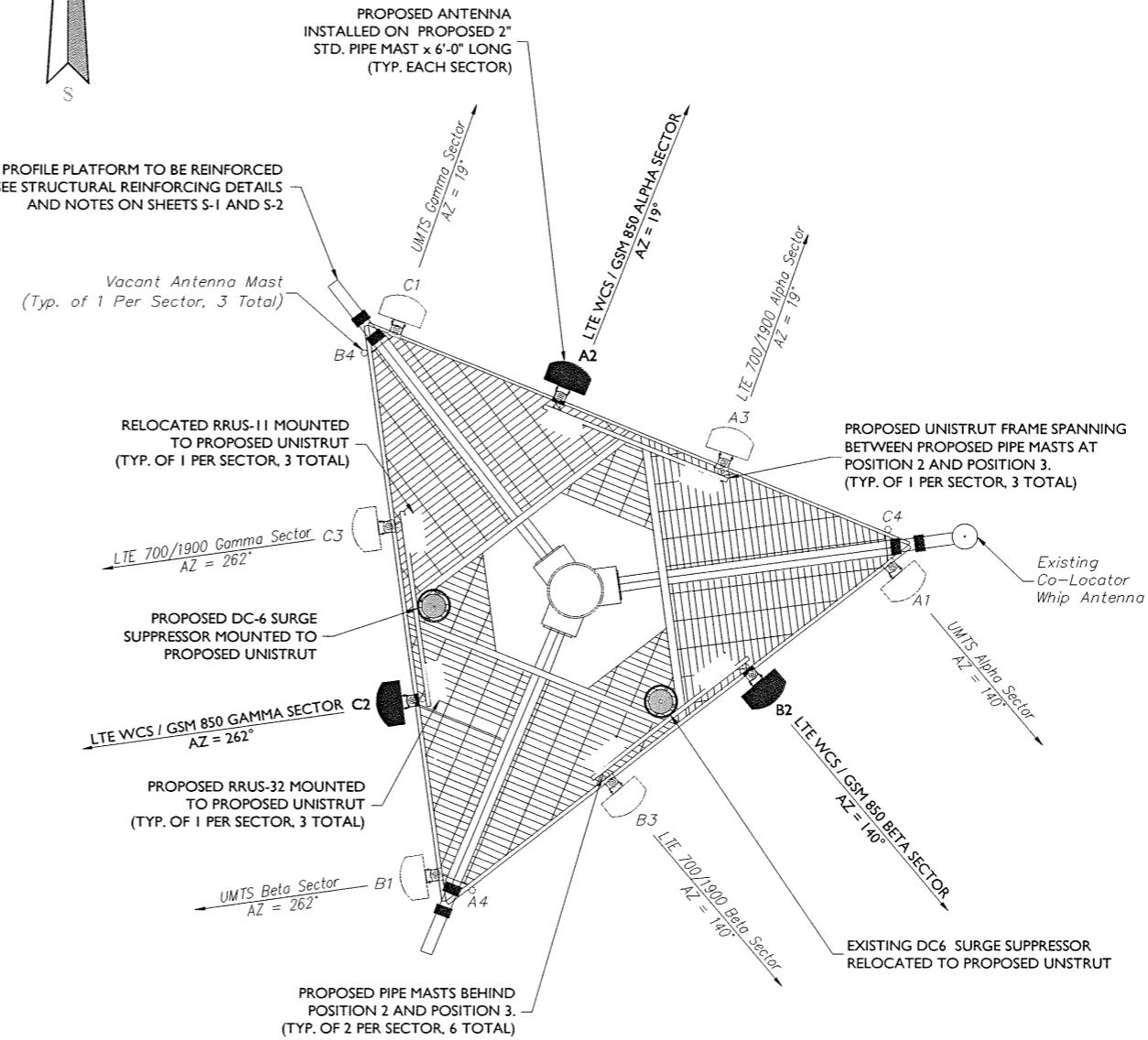
1. A STRUCTURAL ANALYSIS TO DETERMINE IF THE EXISTING STRUCTURE AND FOUNDATION CAN ADEQUATELY SUPPORT THE PROPOSED LOADING HAS NOT BEEN PREPARED/ANALYZED BY MASER AND IS TO BE PERFORMED BY OTHERS.
2. NO CONSTRUCTION OF THE PROPOSED LOADING SHOWN SHALL PROCEED UNTIL ADEQUACY OF EXISTING STRUCTURE AND FOUNDATION, INCLUDING THE PROPOSED AT&T ANTENNA MOUNTING CONFIGURATION SHOWN HEREIN, HAS BEEN CONFIRMED BY SMARTLINK.
3. THE STRUCTURE ELEVATION IS SHOWN FOR INFORMATIONAL PURPOSES ONLY AND MAY NOT REFLECT AS-BUILT FIELD CONDITIONS FOR ALL EXISTING INVENTORY LOADING/ANTENNAS/APPURTENANCES ON STRUCTURE. REFER TO THE LATEST STRUCTURAL ANALYSIS FOR EXISTING STRUCTURE LOADING AND THE PROPOSED METHOD OF ATTACHMENT OF THE PROPOSED ANTENNAS/CABLES.
4. THE CONTRACTOR IS RESPONSIBLE TO CONFIRM THAT ANY IMPROVEMENTS AND REINFORCEMENTS REQUIRED BY THE STRUCTURAL ANALYSIS CERTIFICATION ARE PROPERLY INSTALLED PRIOR TO THE ADDITION OF ANTENNAS, CABLES, SUPPORTS AND APPURTENANCES PROPOSED ON THESE DRAWINGS OR OTHERWISE NOTED IN THE STRUCTURAL ANALYSIS.



EXISTING - ANTENNA LAYOUT
NOT TO SCALE

BIRDS NEST ON
MONOPOLE PLATFORM.
OSPREY NEST
(PROTECTED SPECIES).

EXISTING LOW PROFILE PLATFORM TO BE REINFORCED
ON ALL SIDES. SEE STRUCTURAL REINFORCING DETAILS
AND NOTES ON SHEETS S-1 AND S-2



PROPOSED - ANTENNA LAYOUT
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NOTE:
REMOVE CROSS SECTOR REDUNDANCY IF PRESENT

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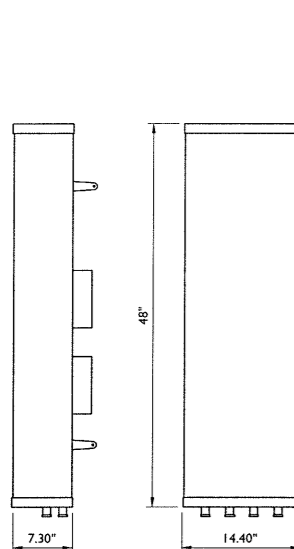
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PROFESSIONAL ENGINEER
FRANK J. RAZDEN
LICENSE NUMBER: PEN 28188

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SHEET TITLE:
ANTENNA LAYOUTS

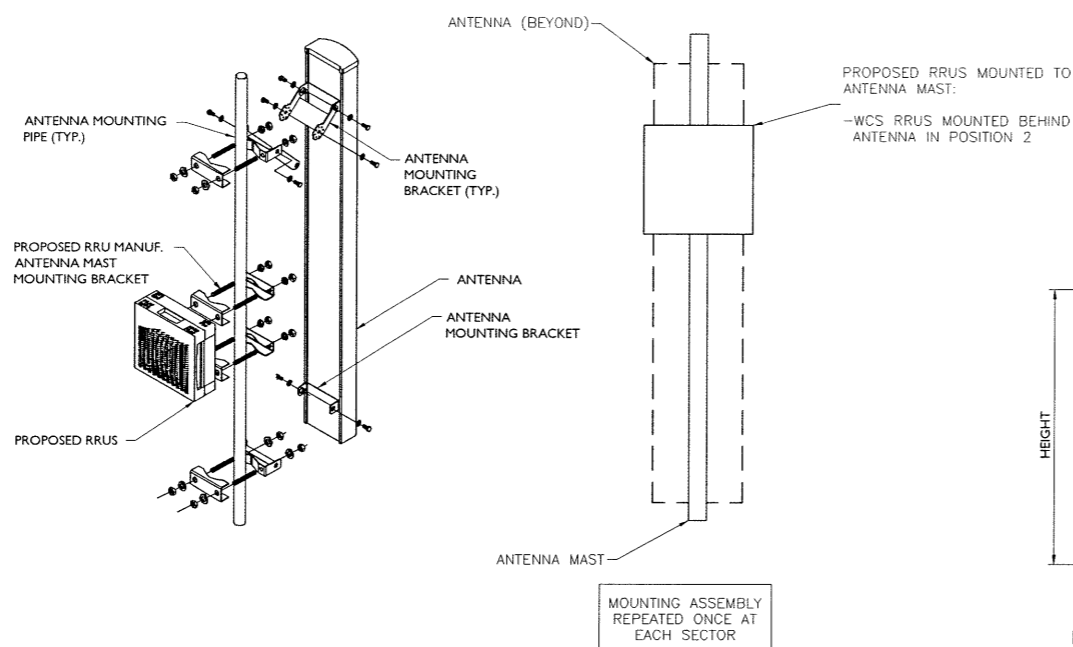
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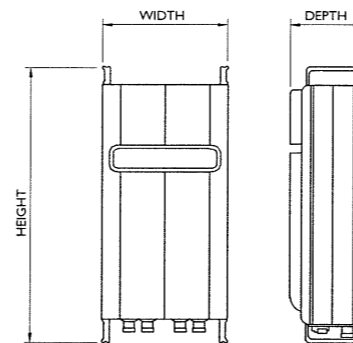
WEIGHT = 57 LBS

CCI OPA-65R-LCUU-H4

ANTENNA DETAIL
NOT TO SCALE



ANTENNA AND RRU MOUNTING DETAILS
NOT TO SCALE



RRUS FRONT VIEW

SIZE AND WEIGHT TABLE

RRUS	WIDTH	DEPTH	HEIGHT	WEIGHT W/O BRACKET
RRUS-32 4X25-WCS (WITH SOLAR SHIELD)	-	-	-	-
RRUS-32 4X25-WCS (WITHOUT SOLAR SHIELD)	12.1"	6.7"	26.7"	60

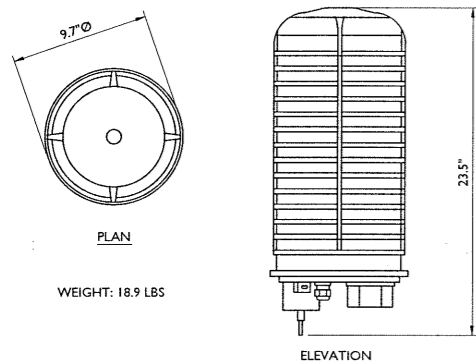
MINIMUM CLEARANCE TABLE

RRUS CABINET	CLEARANCES (INCHES)	COMMENTS
FRONT	-	INSTALLATION ACCESS
REAR	-	ZERO REAR CLEARANCE IS ALLOWED USING SUPPLIED MOUNTING BRACKETS
RIGHT	-	AIR FLOW
LEFT	-	AIR FLOW
TOP	-	AIR FLOW
BOTTOM	-	CONDUIT ROUTING

NOTE:

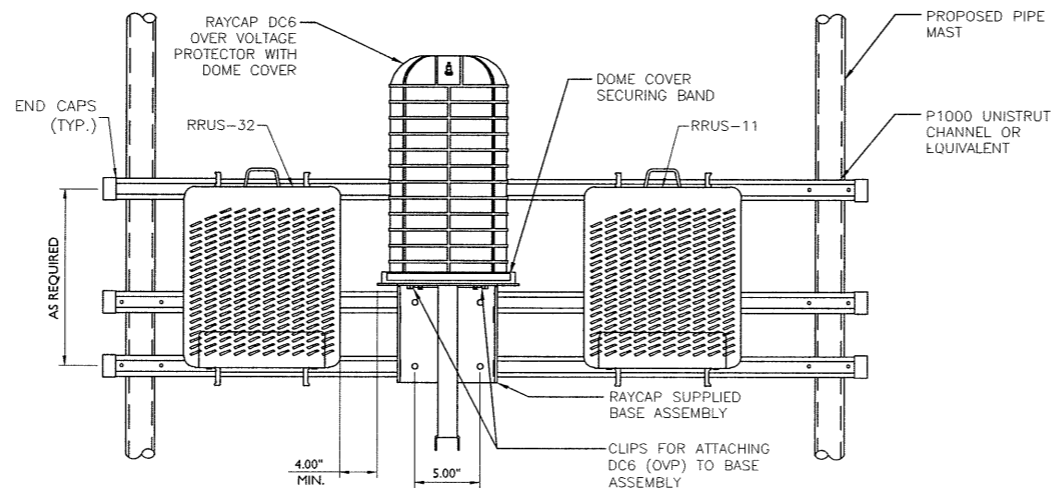
USE 1/2" COAXIAL CABLE W/7/16 DIN MALE CONNECTORS ON BOTH ENDS.

PROPOSED RRUS-32 DETAIL
NOT TO SCALE



WEIGHT: 18.9 LBS

RAYCAP DC6-48-60-18-8F SURGE SUPPRESSOR
NOT TO SCALE

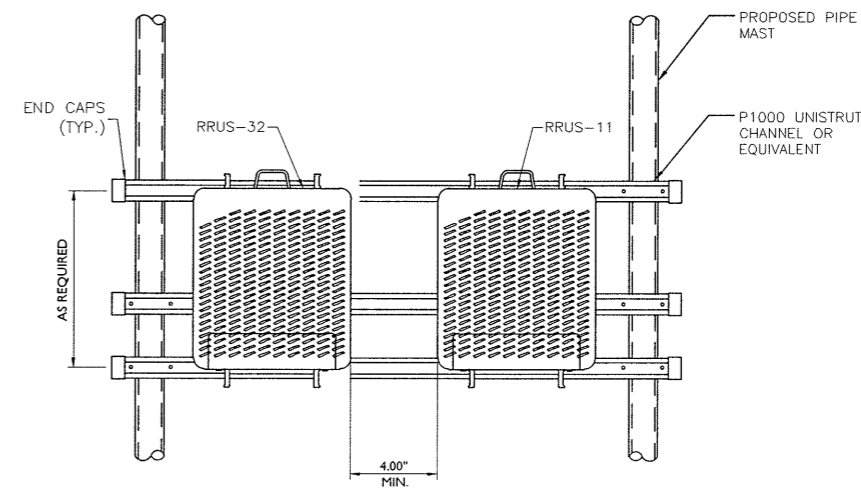


BETA AND GAMMA SECTORS

NOTES:

- ALCATEL-LUCENT (ALU) VIA AT&T SUPPLIES THE RRH. SUBCONTRACTOR SHALL SUPPLY ALL OTHER MATERIALS AND INSTALL ALL MOUNTING HARDWARE. ALU INSTALLS RRH AND MAKES CABLE TERMINATIONS.
- INSTALL HORIZONTAL/VERTICAL UNISTRUT CHANNELS AS REQUIRED TO ALIGN FRAME WITH EQUIPMENT MOUNTING HOLES. FASTEN UNISTRUT CHANNELS TOGETHER WITH 3/8" UNISTRUT BOLTING HARDWARE AND SPRING NUTS.
- EACH UNISTRUT TO BE MOUNTED ON EXISTING VERTICAL PIPE MASTS USING 3/8" Ø U-BOLTS, MINIMUM ONE AT EACH END OF UNISTRUT.
- MOUNT RRUS AND DC6 TO UNISTRUT WITH 3/8" Ø UNISTRUT BOLTING HARDWARE AND SPRING NUTS THROUGH EQUIPMENT MOUNTING HOLES. SUBCONTRACTOR SHALL SUPPLY.
- PAINTING OF THE RRU OR DC6 SHALL BE IN STRICT CONFORMANCE WITH MANUFACTURER'S WRITTEN SPECIFICATIONS.

DC6-48-60-18-8F SURGE SUPPRESSOR MOUNT AND RRU MOUNT
NOT TO SCALE



ALPHA SECTOR

NOTES:

- ALCATEL-LUCENT (ALU) VIA AT&T SUPPLIES THE RRH. SUBCONTRACTOR SHALL SUPPLY ALL OTHER MATERIALS AND INSTALL ALL MOUNTING HARDWARE. ALU INSTALLS RRH AND MAKES CABLE TERMINATIONS.
- INSTALL HORIZONTAL/VERTICAL UNISTRUT CHANNELS AS REQUIRED TO ALIGN FRAME WITH EQUIPMENT MOUNTING HOLES. FASTEN UNISTRUT CHANNELS TOGETHER WITH 3/8" UNISTRUT BOLTING HARDWARE AND SPRING NUTS.
- EACH UNISTRUT TO BE MOUNTED ON EXISTING VERTICAL PIPE MASTS USING 3/8" Ø U-BOLTS, MINIMUM ONE AT EACH END OF UNISTRUT.
- MOUNT RRUS AND DC6 TO UNISTRUT WITH 3/8" Ø UNISTRUT BOLTING HARDWARE AND SPRING NUTS THROUGH EQUIPMENT MOUNTING HOLES. SUBCONTRACTOR SHALL SUPPLY.
- PAINTING OF THE RRU OR DC6 SHALL BE IN STRICT CONFORMANCE WITH MANUFACTURER'S WRITTEN SPECIFICATIONS.

RRU MOUNT
NOT TO SCALE

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FRANK E. PATRICK
REGISTERED PROFESSIONAL ENGINEER
LICENSE NO. 28188
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SHEET TITLE: DETAILS
SHEET NUMBER: A-4



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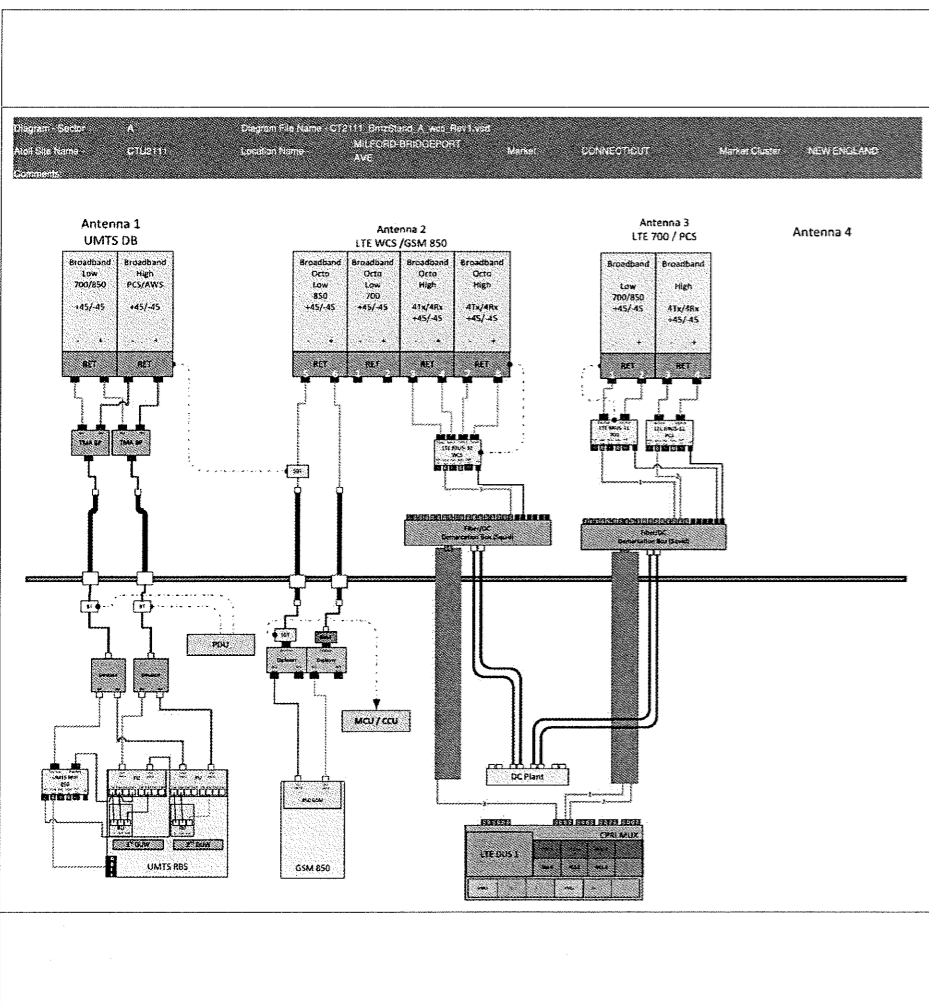
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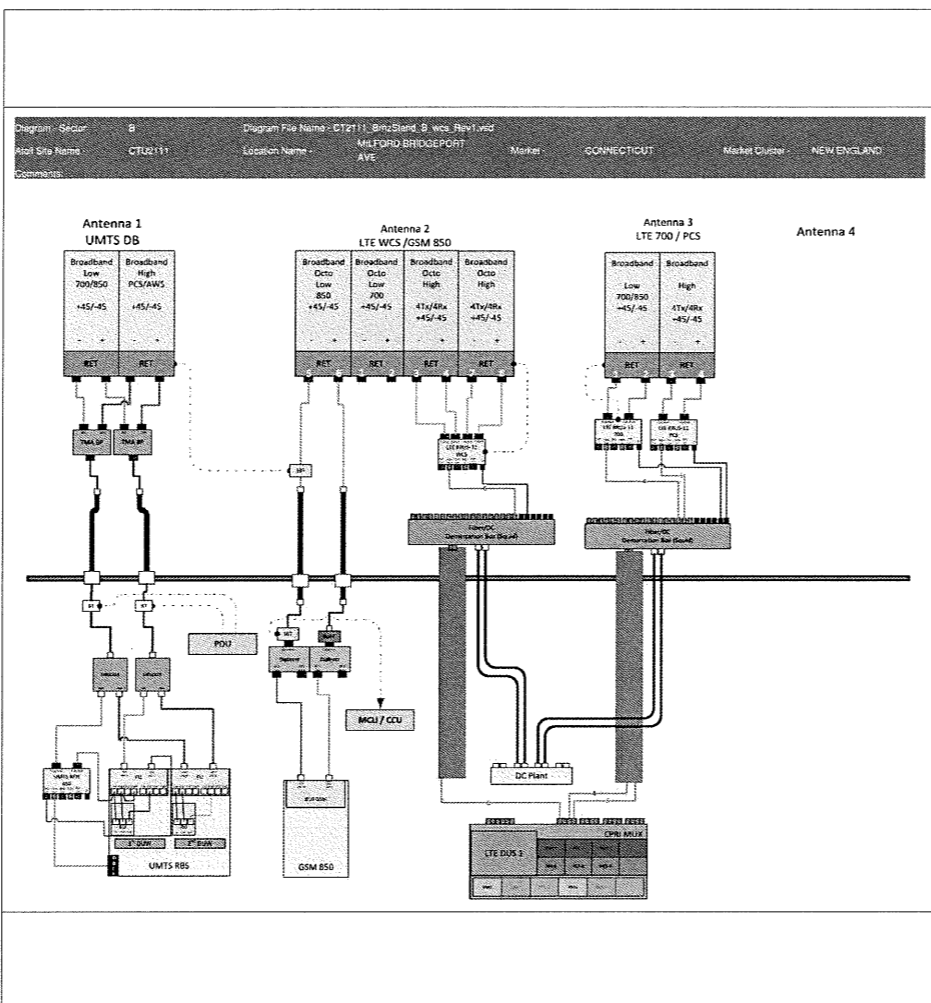
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SHEET TITLE:
RF PLUMBING DIAGRAM

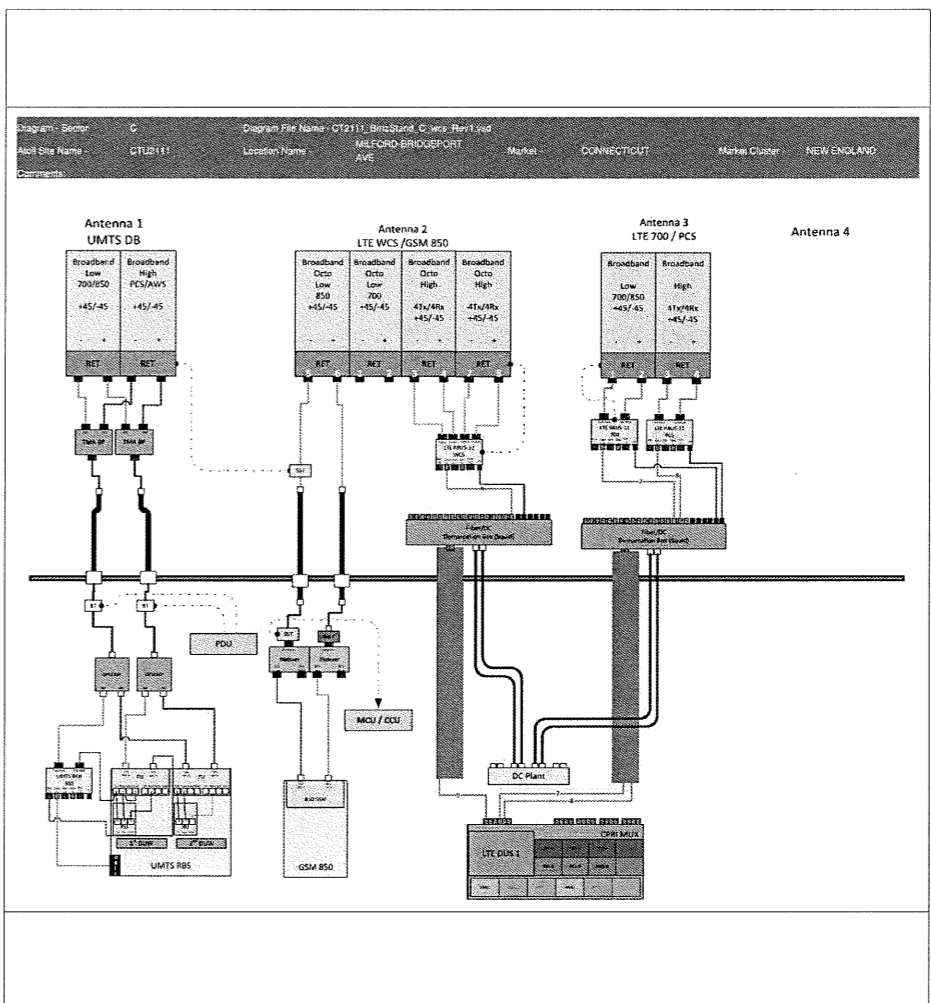
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A-5



ALPHA SECTOR



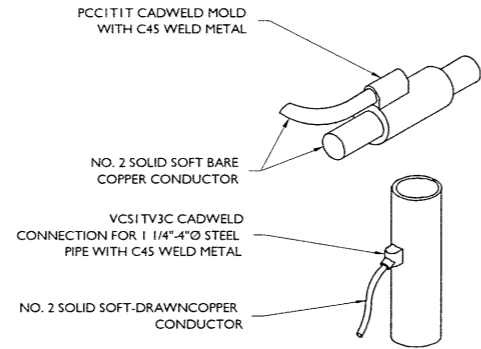
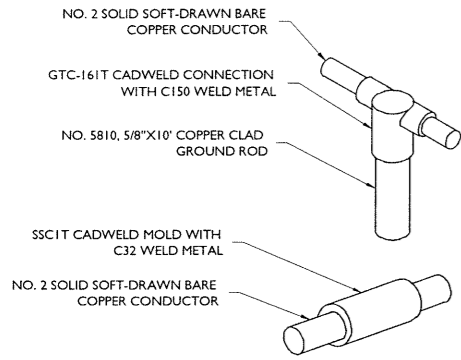
BETA SECTOR



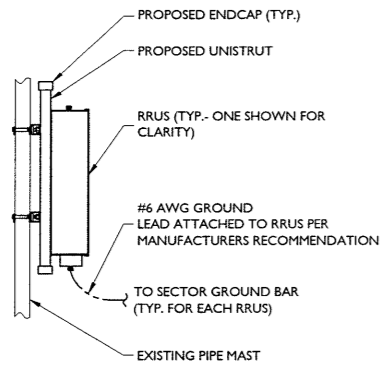
GAMMA SECTOR

BASED ON RF ENGINEERING DESIGN ENTITLED "NEW-ENGLAND_CONNECTICUT_CTU2111_2016-LTE-Next-Carrier_LTE-3C_mm093q_2051A02ITE_10034978_61179_06-29-2015_Final-Approved_v2.00"

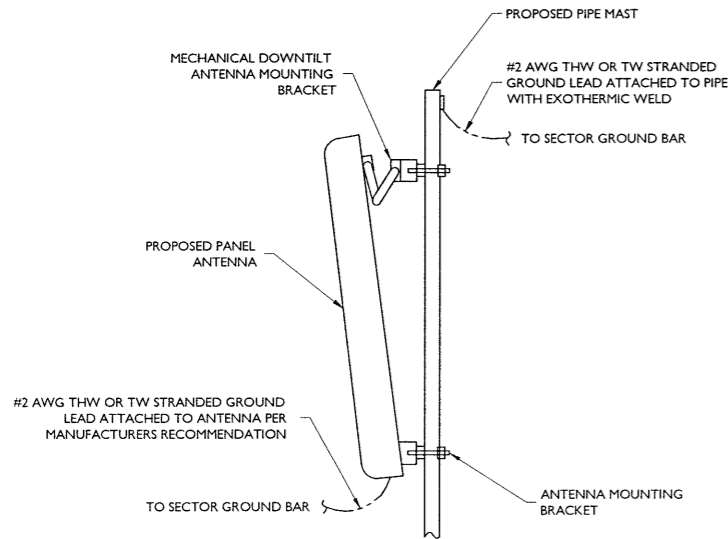
RF PLUMBING DIAGRAMS



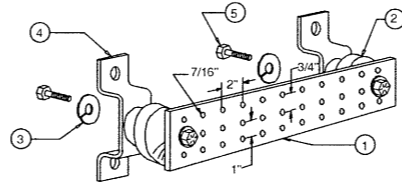
CADWELD DETAILS
NOT TO SCALE



RRH GROUNDING
NOT TO SCALE



ANTENNA GROUNDING
NOT TO SCALE



LEGEND

- 1- TINNED COPPER GROUND BAR, 1/4"x4"x20", NEWTON INSTRUMENT CO. CAT. NO. B-6142 OR EQUAL. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.
- 2- INSULATORS, NEWTON INSTRUMENT CAT. NO. 3061-4
- 3- 5/8" LOCKWASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8
- 4- WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT. NO. A-5056
- 5- 5/8-11 X 1" HHCS BOLTS, NEWTON INSTRUMENT CO. CAT. NO. 3012-1
- 6- EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

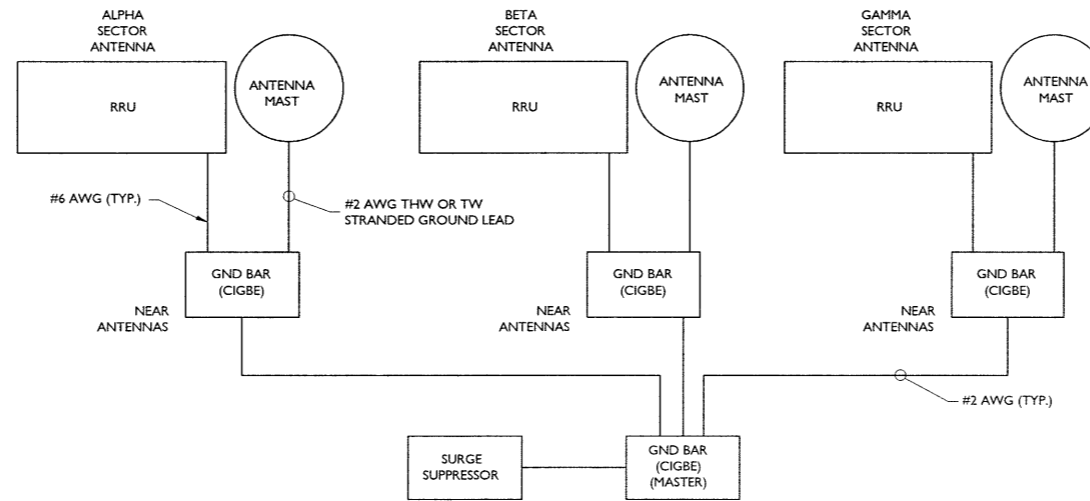
SECTION "P" - SURGE PRODUCERS

- 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.

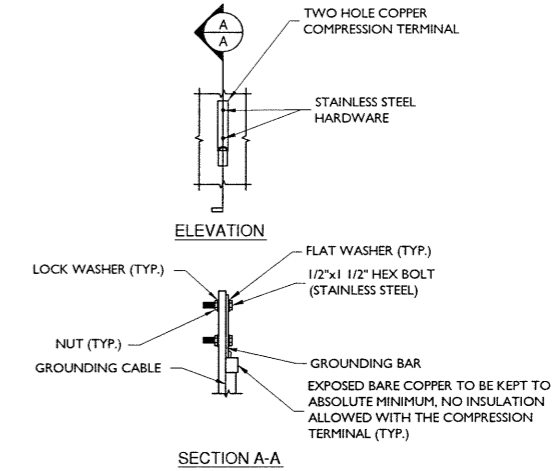
SECTION "A" - SURGE ABSORBERS

- INTERIOR GROUND RING (#2)
- EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2)
- METALLIC COLD WATER PIPE (IF AVAILABLE) (#2)
- BUILDING STEEL (IF AVAILABLE) (#2)

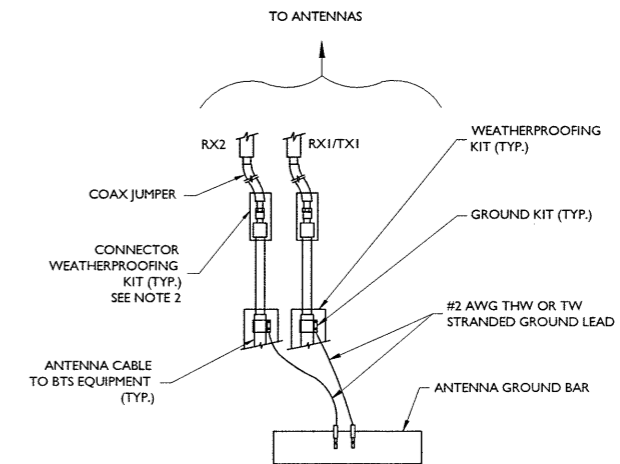
MASTER GROUND BAR
NOT TO SCALE



SCHEMATIC DIAGRAM GROUNDING SYSTEM
NOT TO SCALE



TYPICAL GROUND BAR CONNECTION DETAIL
NOT TO SCALE



NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO ANTENNA GROUND BAR.
2. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT, COLD SHRINK SHALL NOT BE USED.

TYPICAL GROUND WIRE TO GROUNDING BAR
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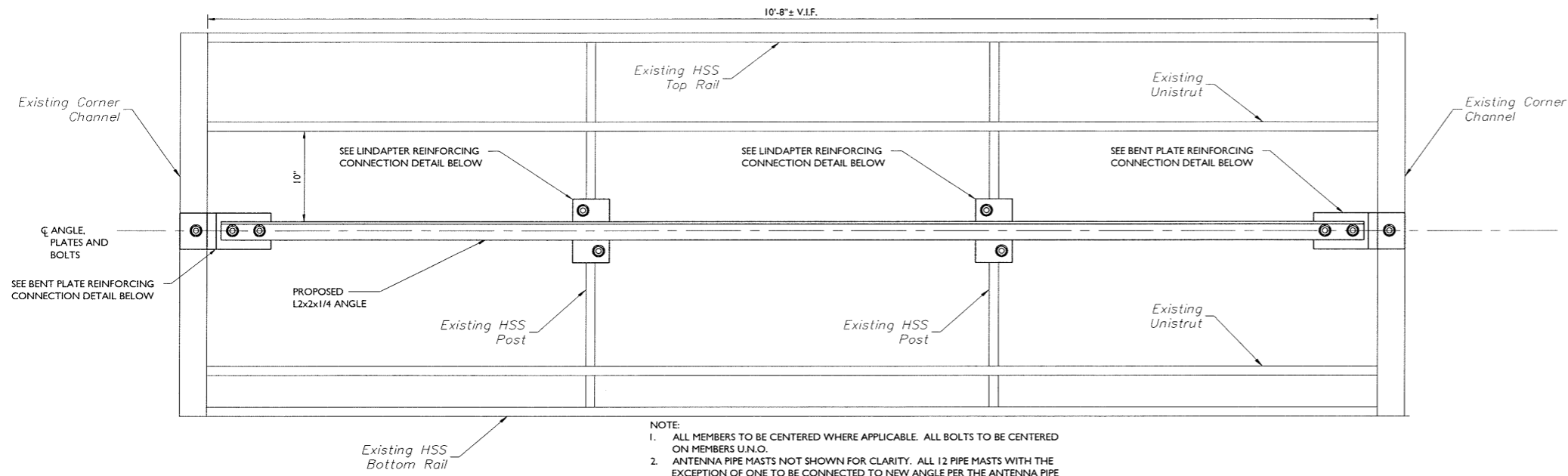
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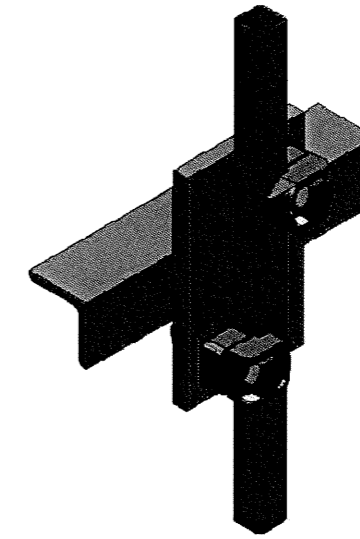
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GROUNDING DETAILS

SHEET NUMBER:
G-1

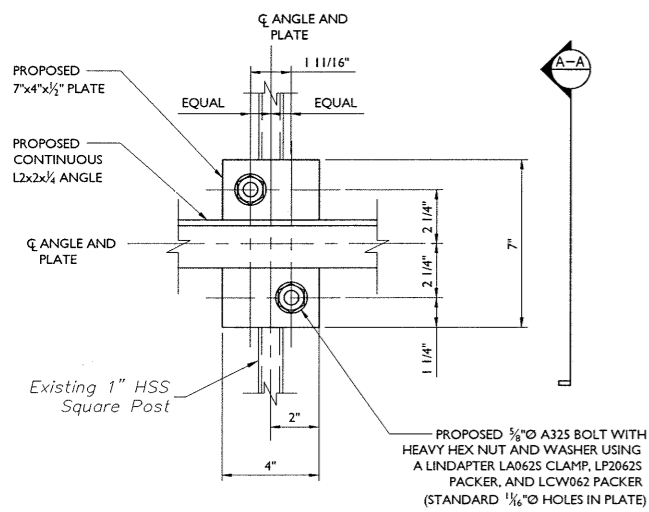


- NOTE:
1. ALL MEMBERS TO BE CENTERED WHERE APPLICABLE. ALL BOLTS TO BE CENTERED ON MEMBERS U.N.O.
 2. ANTENNA PIPE MASTS NOT SHOWN FOR CLARITY. ALL 12 PIPE MASTS WITH THE EXCEPTION OF ONE TO BE CONNECTED TO NEW ANGLE PER THE ANTENNA PIPE MAST CONNECTION DETAIL BELOW.
 3. CONTRACTOR IS TO FIELD VERIFY ALL MEASUREMENTS PRIOR TO ANY DETAILING OR FABRICATION.
 4. MINIMUM EDGE DISTANCE REQUIREMENTS PER THE AISC SPECIFICATION MUST BE MAINTAINED FOR ALL CONNECTED PARTS.
 5. LINDAPTER DISTRIBUTOR CONTACT IS BRIAN BAYDA AT UCC STEELWORK CONNECTIONS WHICH CAN BE REACHED AT 1-610-248-0955 OR BBAYDA@UCCI.CA

PLATFORM REINFORCING ELEVATION (TYPICAL ALL SIDES)
NOT TO SCALE

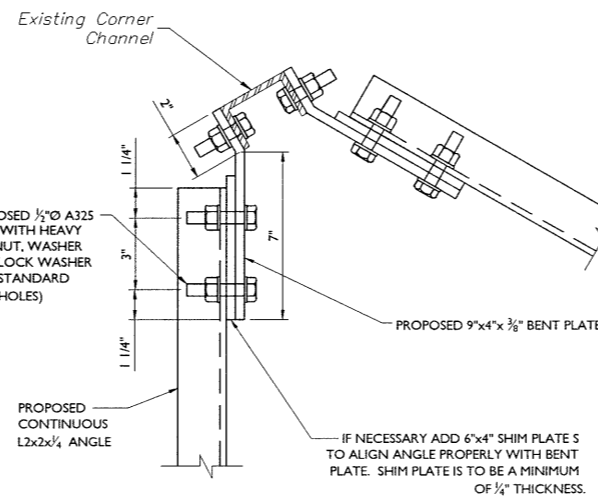
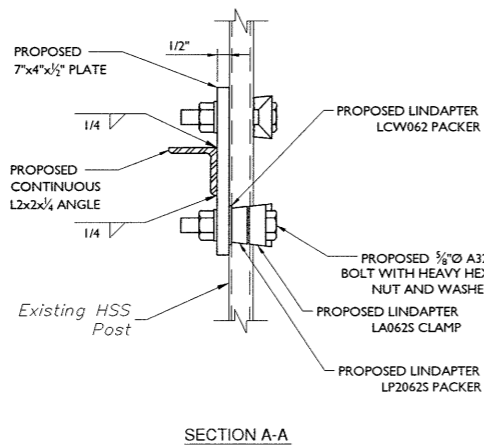


LINDAPTER REINFORCING CONNECTION DETAIL 3D VIEW
NOT TO SCALE



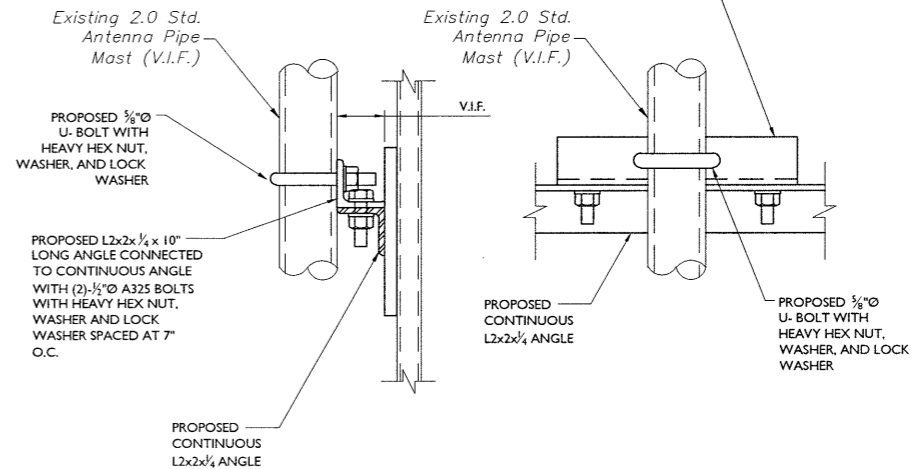
- NOTE:
1. ALL MEMBERS TO BE CENTERED WHERE APPLICABLE. ALL BOLTS TO BE CENTERED ON MEMBERS U.N.O.

LINDAPTER REINFORCING CONNECTION DETAIL
NOT TO SCALE



- NOTE:
1. ALL MEMBERS TO BE CENTERED WHERE APPLICABLE. ALL BOLTS TO BE CENTERED ON MEMBERS U.N.O.

BENT PLATE REINFORCING CONNECTION DETAIL
NOT TO SCALE



- NOTE:
1. ALL MEMBERS TO BE CENTERED WHERE APPLICABLE. ALL BOLTS TO BE CENTERED ON MEMBERS U.N.O.
 2. THE PIPE MAST IN POSITION 2 OF THE ALPHA SECTOR IS ON THE INTERIOR SIDE OF THE PLATFORM AND IS CONNECTED DIRECTLY TO THE HSS MEMBERS PER THE MAPPING REPORT. THIS ADDITIONAL CONNECTION PER THIS DETAIL IS NOT REQUIRED AT THIS ONE LOCATION. IT IS REQUIRED AT THE 11 OTHER EXISTING ANTENNA MASTS LOCATIONS.
 3. THIS CONNECTION IS AN ADDITIONAL CONNECTION TO THE TWO EXISTING ANTENNA MASTS CONNECTIONS AT EACH PIPE MAST. THE EXISTING CONNECTIONS ARE TO REMAIN.

CONNECTION TO EXISTING ANTENNA PIPE MAST
NOT TO SCALE



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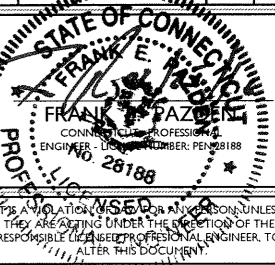


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Fax: 973.398.3199
email: solutions@maserconsulting.com

SHEET TITLE:
STRUCTURAL DETAILS

SHEET NUMBER:
S-1

GENERAL NOTES

- CONTRACTOR IS RESPONSIBLE FOR DISSEMINATION OF REVISIONS TO CONTRACT DOCUMENTS AND REQUIREMENTS TO ALL SUBCONTRACTORS. THE CONTRACTOR SHALL COORDINATE ALL WORK WITH OTHER TRADES AND EQUIPMENT MANUFACTURERS.
- CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS AND EXISTING FIELD CONDITIONS BEFORE PROCEEDING WITH CONSTRUCTION. DETERMINE EXACT LOCATIONS OF EXISTING UTILITIES, GROUNDS, DRAIN PIPES AND VENTS BEFORE COMMENCING WORK. CONTRACTOR SHALL NOTIFY ENGINEER IF ACTUAL CONDITIONS DIFFER SIGNIFICANTLY FROM WHAT IS SHOWN ON DRAWINGS.
- THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING A NEAT AND ORDERLY PROJECT SITE, REMOVE AND DISPOSE OF OFF SITE RUBBISH, WASTE MATERIALS, LITTER, AND ALL FOREIGN SUBSTANCES DAILY.
- INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE ENGINEER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE OWNER'S WRITTEN APPROVAL.
- THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING SUCH COVERING, SHIELDING, AND BARRICADES AS REQUIRED TO PROTECT BYSTANDERS AND PASSERSBY, EQUIPMENT, SUPPLIES, ETC. FROM DUST, DEBRIS AND OTHER CAUSE OF DAMAGE RESULTING FROM CONSTRUCTION. ANY DAMAGE DURING CONSTRUCTION SHALL BE RESTORED TO PREVIOUS CONDITIONS.
- IN AREAS WHERE EXISTING ANTENNA MOUNTS, TRANSMISSION LINES OR OTHER SUPPORTING EQUIPMENT IS TO BE REMOVED, THE EXISTING STRUCTURE SHALL BE REPAIRED AS REQUIRED.
- ALL SAFETY AND OSHA REGULATIONS SHALL BE FOLLOWED STRICTLY. METHODS OF CONSTRUCTION AND ERECTION OF STRUCTURAL MATERIAL ARE THE CONTRACTOR'S RESPONSIBILITY.
- CONTRACTOR TO PROVIDE TEMPORARY SUPPORT FOR ALL EXISTING ANTENNAS, TRANSMISSION LINES OR OTHER APPURTENANCES DURING CONSTRUCTION.
- CONTRACTOR SHALL PROTECT EXISTING APPURTENANCES FROM DAMAGE DURING CONSTRUCTION.
- NO ANTENNAS, CABLES, OR OTHER APPURTENANCES SHALL BE ADDED TO THE TOWER UNTIL THE MODIFICATION WORK IS COMPLETE.
- ALL DIMENSIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL COORDINATE DIMENSIONS WITH TOWER MANUFACTURER OR FIELD VERIFY DIMENSIONS PRIOR TO FABRICATING MEMBERS.
- THE CONTRACTOR SHALL LOCATE ALL UTILITIES IN THE AREA OF CONSTRUCTION AND PREVENT DAMAGE TO THEM. SHOULD DAMAGE OCCUR TO ANY UTILITIES, THE CONTRACTOR IS REQUIRED TO REPAIR THE DAMAGE TO THE SATISFACTION OF THE OWNER AT HIS OWN EXPENSE.
- ALL EXISTING PLANS, DETAILS, DIMENSIONS, AND ELEVATIONS INDICATE EXISTING CONDITIONS AS KNOWN. THE EXISTING INFORMATION SHOWN IS NOT INTENDED TO BE "AS BUILT" AND THE ACTUAL CONSTRUCTION MAY DIFFER FROM THAT SHOWN. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS INCLUDING DIMENSIONS AND ELEVATIONS PRIOR TO STARTING CONSTRUCTION. MINOR VARIATIONS CAN BE EXPECTED AND ANY REQUIRED DEVIATION FROM THE CONTRACT DOCUMENTS SHALL BE APPROVED BY THE ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.
- MODIFICATION DETAILS REPRESENTS TYPICAL CONDITIONS. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DEVIATION AS A RESULT OF SITE SPECIFIC CONDITIONS. REINFORCE ALL TOWER FACES IDENTICALLY, UNLESS OTHERWISE NOTED.
- IN AREAS TO BE MODIFIED, ANY ANTENNA, COAX, OR CONDUIT SHALL BE TEMPORARILY MOVED AND THEN REPLACED AFTER COMPLETION OF WORK. COORDINATE WITH OWNER.
- CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF ALL MATERIAL TO BE REMOVED.
- CONTRACTOR SHALL ENSURE STABILITY OF THE ANTENNA PLATFORM DURING ALL WORK.
- CONTRACTOR IS RESPONSIBLE FOR PROVIDING ADEQUATE TEMPORARY BRACING OF THE STRUCTURE DURING ALL STAGES OF CONSTRUCTION. THE STRUCTURE IS DESIGNED FOR A COMPLETED CONDITION ONLY AND THEREFORE MAY REQUIRE ADDITIONAL SUPPORT BEFORE COMPLETIONS.
- THIS DESIGN ASSUMES THE MONOPOLE AND FOUNDATIONS HAVE BEEN WELL MAINTAINED, IN GOOD COMMON, AND ARE WITHOUT DEFECT. BENT MEMBERS, CORRODED MEMBERS, LOOSE BOLTS, CRACKED WELDS AND OTHER MEMBER DEFECTS HAVE NOT BEEN CONSIDERED. THE TOWER IS ASSUMED TO BE PLUMB AND THE SITE IS ASSUMED TO BE LEVEL. THIS DESIGN IS BEING PROVIDED WITHOUT THE BENEFIT OF A COMMON ASSESSMENT BY MASER CONSULTING P.A.. CONTRACTOR SHALL COMMISSION A COMPLETE CONDITION ASSESSMENT PRIOR TO ORDERING ANY REINFORCING MATERIALS. CONTRACTOR SHALL SUPPLY CONDITION ASSESSMENT TO ENGINEER FOR REVIEW. SEE CONTRACTOR NOTES.
- ALL SUBSTITUTES PROPOSED BY THE CONTRACTOR SHALL BE APPROVED IN WRITING BY THE ENGINEER. CONTRACTOR SHALL PROVIDE DOCUMENTATION TO ENGINEER FOR DETERMINING IF SUBSTITUTE IS SUITABLE FOR USE AND MEETS THE ORIGINAL DESIGN CRITERIA. DIFFERENCES FROM THE ORIGINAL DESIGN, INCLUDING MAINTENANCE, REPAIR AND REPLACEMENT, SHALL BE NOTED. ESTIMATES OF COSTS/CREDITS ASSOCIATED WITH THE SUBSTITUTION (INCLUDING RE-DESIGN COSTS AND COSTS TO SUB-CONTRACTORS) SHALL BE PROVIDED TO THE ENGINEER. CONTRACTOR SHALL PROVIDE ADDITIONAL DOCUMENTATION AND/OR SPECIFICATIONS TO THE ENGINEER AS REQUESTED.
- PROVIDE STRUCTURAL STEEL SHOP DRAWINGS TO ENGINEER FOR APPROVAL PRIOR TO FABRICATION.
- INSPECTION OF THE MODIFICATIONS SHALL BE COMPLETED BY A THIRD PARTY. INSPECTION SHALL TAKE PLACE WITHIN 72 HOURS OF THE COMPLETION OF THE ANTENNA PLATFORM MODIFICATIONS. NO PROPOSED LOADING SHALL BE INSTALLED PRIOR TO INSPECTOR APPROVAL.

DESIGN LOADS

- WIND: TIA/EIA-222-F
BASIC WIND SPEED: 85 MPH, 50 MPH WITH 0.75 INCH ICE THICKNESS
- ANTENNA PLATFORM MODIFICATIONS WERE DESIGNED IN ACCORDANCE TO TIA-222-F AND 2005 CT BUILDING CODE AND ALL SUBSEQUENT AMENDMENTS, AS WELL AS APPLICABLE LOCAL BUILDING CODES.

STRUCTURAL STEEL

- ALL STRUCTURAL STEEL PLATES SHALL CONFORM TO ASTM A 572-50.
- DESIGN, FABRICATION, ERECTION AND WORKMANSHIP SHALL CONFORM TO AISC MANUAL OF STEEL CONSTRUCTION, THIRTEENTH EDITION.
- CONNECTION BOLTS SHALL BE 3/4"Ø ASTM A325N UNLESS OTHERWISE NOTED.
- WELDING SHALL BE PERFORMED BY WELDERS THAT ARE CERTIFIED (AWS "STANDARD QUALIFICATION PROCEDURE") TO PERFORM THE TYPE OF WORK REQUIRED. WELDS SHALL CONFORM TO AMERICAN WELDING SOCIETY (AWS) D1.1 "STRUCTURAL WELDING CODE - STEEL". PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION", 13TH EDITION, WHEN WELD SIZES ARE NOT SHOWN. USE E70XX ELECTRODES FOR ALL WELDING.
- RETURN ALL WELDS AT CORNERS TWICE THE NOMINAL SIZE OF THE WELD MINIMUM, UNLESS OTHERWISE NOTED.
- TO REDUCE WARPING TO A MINIMUM WHEN WELDING TO EXISTING MEMBERS CARRYING LOAD, SHORE OR BRACE EXISTING MEMBER DURING WELDING.
- ALL COPES, BLOCKS, CUT OUTS, AND OTHER CUTTING OF STRUCTURAL MEMBERS SHALL HAVE ALL RE-ENTRANT CORNERS SHAPED, NOTCHED FREE TO A RADIUS OF AT LEAST 1/2".
- CONTRACTOR IS RESPONSIBLE FOR ADEQUATE BRACING OF STEEL CONSTRUCTION.
- ALL NEW STRUCTURAL STEEL SHAPES SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123.
- ALL NEW STEEL BOLTS, NUTS, AND HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153.
- DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED BY COLD GALVANIZING IN ACCORDANCE WITH ASTM A780.
- ALL STRUCTURAL STEEL SHALL ABIDE BY THE FOLLOWING MATERIAL STRENGTH LIST UNLESS OTHERWISE NOTED:

PLATES	ASTM A572 (GR 50)
ANGLES	ASTM A36 (GR 36)
SOLID ROUND	ASTM A572 (GR 50)
BOLTS	ASTM A325 (ALL BOLT HOLES STANDARD SIZE U.N.O.)
NUTS	ASTM A194-2H
WASHERS	ASTM F436
HOT-DIPPED GALVANIZING	ASTM A123
WELDS	E70XX
PAINT	NEW STEEL TO BE PAINTED TO MATCH EXISTING TOWER

CONTRACTOR NOTES

- ALL CONTRACTORS AND LOWER TIER CONTRACTORS MUST ACKNOWLEDGE IN WRITING TO MONOPOLE OWNER AND MASER CONSULTING P.A. THAT THEY HAVE OBTAINED, UNDERSTAND, AND WILL FOLLOW MONOPOLE OWNER STANDARDS OF PRACTICE, CONSTRUCTION GUIDELINES, ALL SITE AND TOWER SAFETY PROCEDURES, ALL PRODUCT LIMITATIONS AND INSTALLATION PROCEDURES USED ON SITE, AND PROPOSED MODIFICATIONS DESCRIBED. RECEIPT OF ACKNOWLEDGMENT MUST OCCUR PRIOR TO BEGINNING CONSTRUCTION OR CLIMBING. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO PROVIDE THIS DOCUMENTATION FOR MONOPOLE OWNER AND MASER CONSULTING P.A. ON COMPANY LETTERHEAD AND THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO OBTAIN THIS DOCUMENTATION FROM LOWER TIER SUBCONTRACTORS (ON SUBCONTRACTOR LETTERHEAD) AND DELIVER IT TO MONOPOLE OWNER AND MASER CONSULTING P.A.
- IF THE CONTRACTOR DISCOVERS ANY EXISTING CONDITIONS THAT ARE NOT REPRESENTED ON THESE DRAWINGS, OR ANY CONDITIONS THAT WOULD INTERFERE WITH THE INSTALLATION OF THE MODIFICATIONS, MASER CONSULTING P.A. SHALL BE CONTACTED IMMEDIATELY TO EVALUATE THE SIGNIFICANCE OF THE DEVIATION.
- IT IS ASSUMED THAT ANY STRUCTURAL MODIFICATION WORK SPECIFIED ON THESE PLANS WILL BE ACCOMPLISHED BY KNOWLEDGEABLE WORKMEN WITH TELECOMMUNICATION CONSTRUCTION EXPERIENCE. THIS INCLUDES PROVIDING THE NECESSARY CERTIFICATIONS TO THE MONOPOLE OWNER AND ENGINEER.
- THESE DRAWINGS DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION METHODS, MEANS, TECHNIQUES, SEQUENCES, AND PROCEDURES.
- THE CONTRACTOR IS SOLELY RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PROGRAMS AND PRECAUTIONS IN CONNECTION WITH THIS WORK.
- THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING; ANY PROBLEMS WITH ACCESS, INTERFERENCE, ETC. SHALL BE RESOLVED PRIOR TO MOBILIZATION. THE CONTRACTOR MUST VISIT THE SITE PRIOR TO ORDERING ANY MATERIAL AND MUST RESOLVE ALL ISSUES WITH THE OWNER PREVENTING A CONTINUOUS INSTALLATION. CONTRACTOR SHALL NOTE ALL ANTENNAS, MOUNTS, COAX, LIGHTING, CLIMBING SUPPORTS, STEP BOLTS, PORT HOLES, AND ANY OTHER MONOPOLE APPURTENANCES IN THE REGION OF THE MODIFICATIONS.
- CONTRACTOR IS RESPONSIBLE FOR TEMPORARILY REMOVING ALL COAX, T-BRACKETS, ANTENNA MOUNTS, AND ANY OTHER MONOPOLE APPURTENANCE THAT MAY INTERFERE WITH THE ANTENNA PLATFORM MODIFICATIONS. ALL MONOPOLE APPURTENANCES MUST BE REPLACED AND/OR RESTORED TO ITS ORIGINAL LOCATION. ANY CARRIER DOWNTIME MUST BE COORDINATED WITH THE MONOPOLE OWNER IN WRITING.
- SOME ATTACHMENTS MAY REQUIRE CUSTOM MODIFICATIONS TO PROPERLY FIT THE MODIFIED REGION OF THE STRUCTURE. THESE CUSTOMIZATIONS ARE DESIGNED BY OTHERS AND MUST BE APPROVED BY THE ENGINEER PRIOR TO REMOVING SUCH ATTACHMENTS. ANY CARRIER DOWNTIME MUST BE COORDINATED WITH THE TOWER OWNER IN WRITING.
- CONTRACTOR SHALL ONLY WORK WITHIN THE LIMITS OF THE MONOPOLE OWNER'S PROPERTY OR LEASE AREA AND APPROVED EASEMENTS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY WORK IS WITHIN THESE BOUNDARIES. CONTRACTOR SHALL EMPLOY A SURVEYOR AS REQUIRED. ANY WORK OUTSIDE THESE BOUNDARIES SHALL BE APPROVED IN WRITING BY THE LAND OWNER PRIOR TO MOBILIZATION. CONSTRUCTION STAKING AND BOUNDARY MARKING IS THE RESPONSIBILITY OF THE CONTRACTOR.

- WORK SHALL ONLY BE PERFORMED DURING CALM DRY DAYS (WINDS LESS THAN 10-MPH) CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY LOCAL ANTENNA PLATFORM SHORING, TEMPORARY GLOBAL ANTENNA PLATFORM SHORING, AND ALL SHORING OF SURROUNDING BUILDINGS, PADS, AND OTHER OUTDOOR SITE OBSTRUCTIONS. ALL SHORING, TEMPORARY BRACING, AND TEMPORARY SUPPORTS ARE THE RESPONSIBILITY OF THE CONTRACTOR.
- MODIFICATIONS SHOWN SHALL BE INSTALLED ON ALL FACES OF THE EXISTING PLATFORM.



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0	10/23/15	REVIEW	JORAP	FEP
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438 BRIDGEPORT AVENUE
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COUNTY OF NEW HAVEN

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400 Valley Road
Suite 304
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Phone: 973.398.3110
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SHEET TITLE:
STRUCTURAL GENERAL NOTES

SHEET NUMBER:
S-2



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CORPORATION

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Structural Analysis Report

Structure : 100.5 ft Monopole
ATC Site Name : Mlfd - Milford, CT
ATC Site Number : 302516
Engineering Number : 64274222
Proposed Carrier : AT&T Mobility
Carrier Site Name : Milford-Bridgeport Ave.
Carrier Site Number : CTL02111/FA#10034978
Site Location : 438 Bridgeport Ave
Milford, CT 06460-4105
41.206611,-73.093400
County : New Haven
Date : November 18, 2015
Max Usage : 70%
Result : Pass

Reviewed by:
William Garrett, PE
Chief Engineer



Prepared By:
Zachary A. Medoff

Nov 20 2015 1:54 PM

COA: PEC.0001553



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Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 100.5 ft monopole to reflect the change in loading by AT&T Mobility.

Supporting Documents

Tower Drawings	Spectra Site #CT-0052, dated May 31, 2002
Foundation Drawing	Spectra Site #CT-0052, dated January, 2003
Geotechnical Report	AET Job #002GT03, dated January 7, 2003
Modifications	Spectra Site #CT-0052, dated January 14, 2003

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 & 2009 CT Amendment w/ 2013 Revisions
Structure Class:	II
Exposure Category:	B
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	$S_s = 0.20$, $S_1 = 0.06$
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					
100.0	109.0	1	15' Omni	Platform w/ Handrails	-	Abandoned
	102.0	6	Powerwave LGP21401		(12) 1 5/8" Coax (2) 3" Conduit	AT&T Mobility
		1	Raycap DC6-48-60-18-8F			
		6	Ericsson RRUS 11 (Band 12)			
		3	KMW AM-X-CD-14-65-00T-RET			
		3	Powerwave 7770.00			
89.0	92.0	3	RFS APX86-909014L-CT0-00	Flush	(6) 7/8" Coax	Sprint Nextel
80.0	82.0	6	RFS APX86-909014L-CT0-00	Flush	(9) 7/8" Coax	
73.0	73.0	3	Kathrein Smart Bias Tee	Flush	(18) 7/8" Coax	T-Mobile
		6	Andrew E15S08P80			
	72.0	3	RFS APX16PV-16PVL-A			
		3	Andrew LNX-6515DS-VTM			

Equipment to be Removed

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
100.0	102.0	3	Powerwave 7770.00	-	(2) 0.74" 8 AWG 7 (1) 0.28" RG-6	AT&T Mobility
		6	Powerwave LGP 21902			

Proposed Equipment

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
100.0	102.0	3	Ericsson RRUS 32	Platform w/ Handrails	(4) 0.78" 8 AWG 6 (2) 0.39" Fiber Trunk	AT&T Mobility
		3	CCI OPA-65R-LCUU-H4			
	100.0	1	Raycap DC6-48-60-18-8F			

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	36%	Pass
Shaft	65%	Pass
Base Plate	40%	Pass
Reinforcement	70%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	1,399.2	60%

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

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
100.0	Raycap DC6-48-60-18-8F	AT&T Mobility	0.799	0.775
	Ericsson RRUS 32			
	CCI OPA-65R-LCUU-H4			

*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:

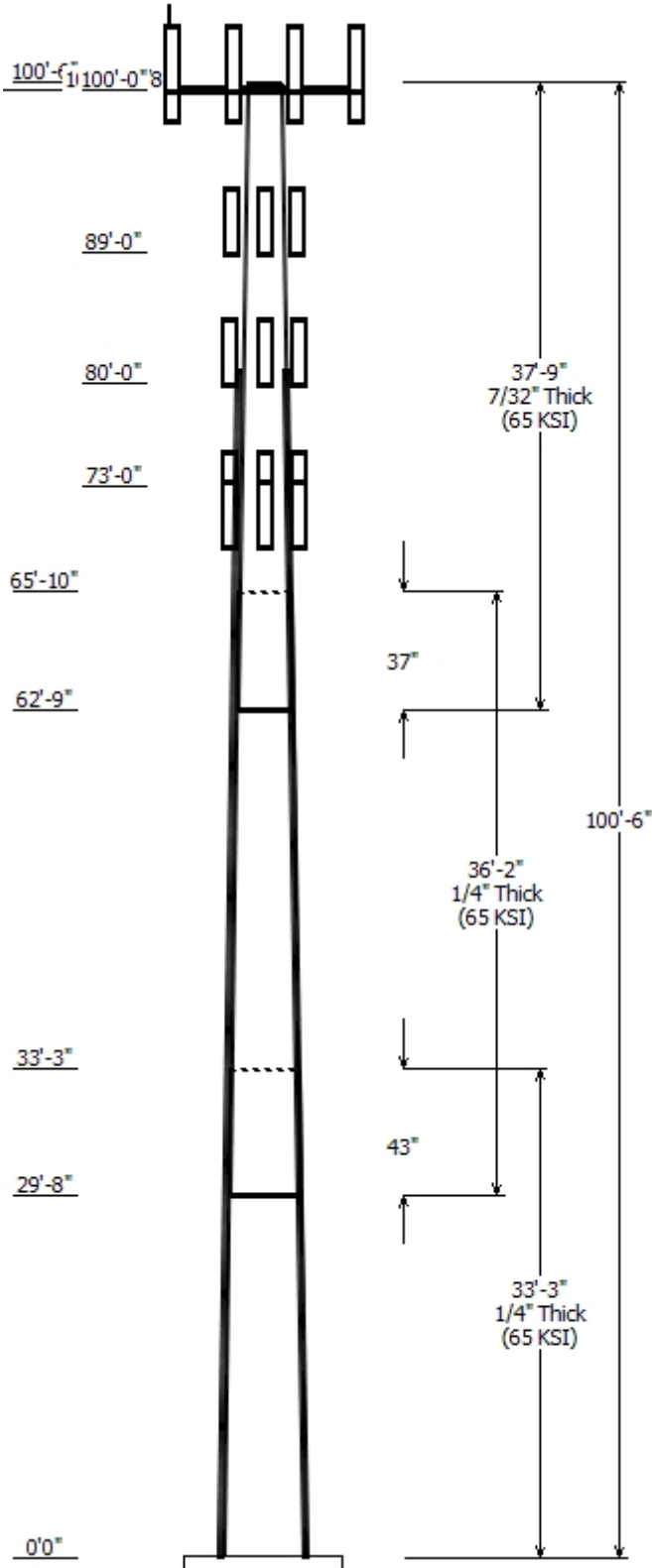
- Information supplied by the client regarding the structure itself, antenna, mounts and feed line loading on the structure and its components, or other relevant information.
- Information from drawings in the possession of American Tower Corporation, or generated by field inspections or measurements 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 :	302516
Code :	ANSI/TIA-222-G
Description :	100 ft ITT Meyer Type "D" Monopole
Client :	AT&T MOBILITY
Struct Class :	II
Location :	Mlfd - Milford, CT
Shape :	12 Sides
Exposure :	B
Height :	100.50 (ft)
Topo :	1
Base Elev (ft):	0.00
Taper:	0.17848(in/ft)

Sections Properties								
Shaft Section	Length (ft)	Diameter (in)		Thick Joint (in)	Type	Overlap		Steel Grade (ksi)
		Top	Bottom			Length (in)	Taper (in/ft)	
1	33.250	26.06	32.00	0.250		0.000	0.178500	65
2	36.167	20.75	27.20	0.250	Slip Joint	43.000	0.178500	65
3	37.750	15.00	21.73	0.219	Slip Joint	37.000	0.178500	65

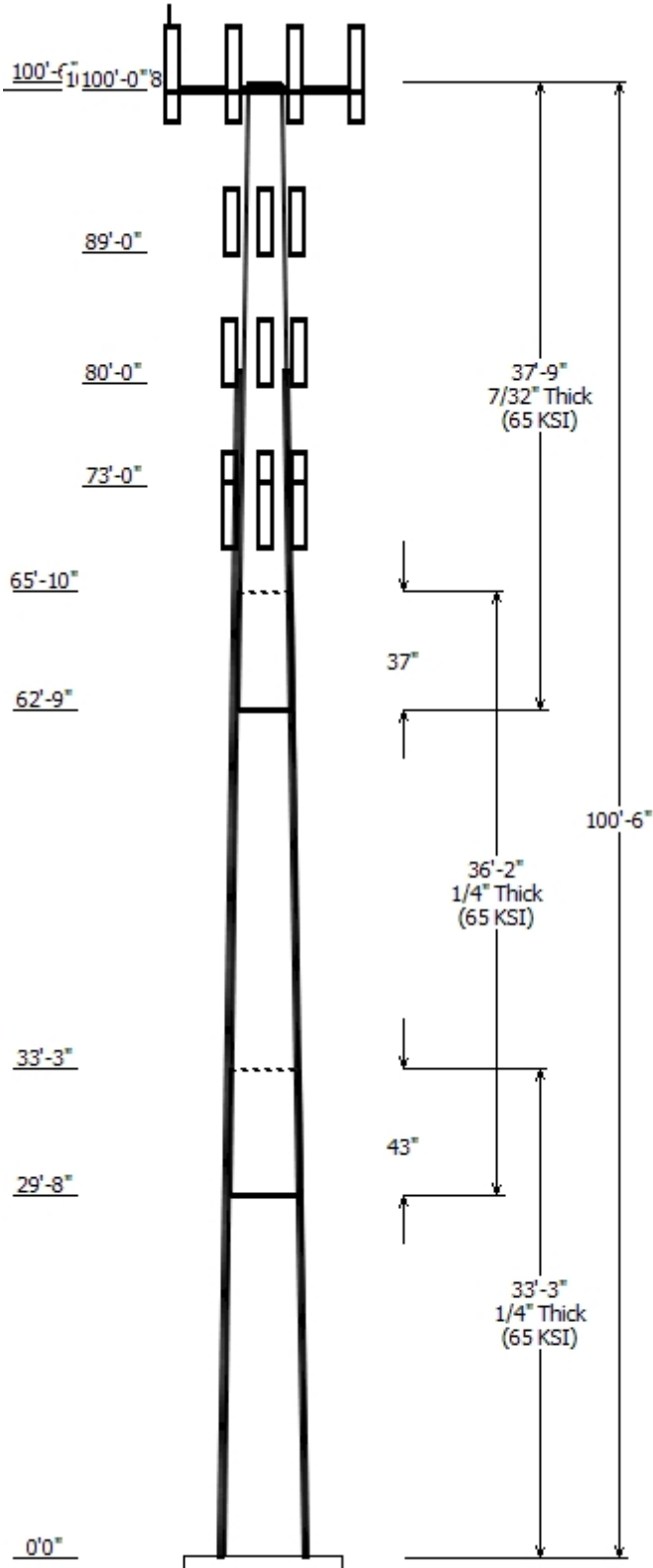
Discrete Appurtenance			
Attach Elev (ft)	Force Elev (ft)	Qty	Description
100.010	109.010	1	15' Omni
100.000	100.000	1	Raycap DC6-48-60-18-8F
100.000	102.000	3	CCI OPA-65R-LCUU-H4
100.000	102.000	3	Ericsson RRUS 32
100.000	102.000	3	Powerwave 7770.00
100.000	102.000	3	KMW AM-X-CD-14-65-00T-RET
100.000	102.000	6	Powerwave LGP21401
100.000	102.000	1	Raycap DC6-48-60-18-8F
100.000	102.000	6	Ericsson RRUS 11 (Band 12)
100.000	100.000	1	Flat Platform w/ Handrails
89.000	92.000	3	RFS APX86-909014L-CT0-00
80.000	82.000	6	RFS APX86-909014L-CT0-00
73.000	73.000	3	Kathrein Scala Smart Bias Tee
73.000	72.000	3	RFS APX16PV-16PVL-A
73.000	72.000	3	Andrew LNX-6515DS-VTM
73.000	72.000	6	Andrew E15S08P80

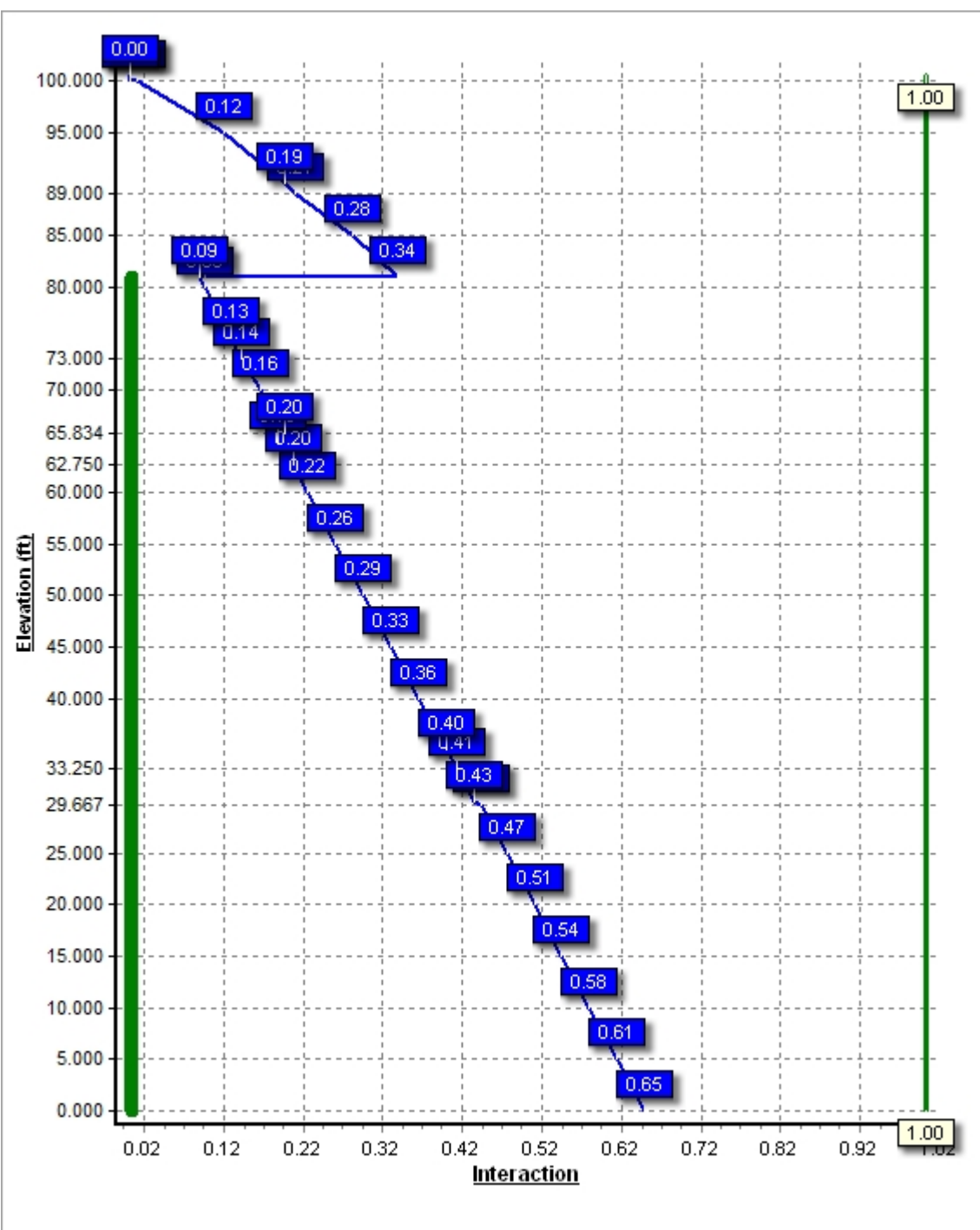
Linear Appurtenance			
Elev (ft)		Description	Exposed To Wind
From	To		
0.000	73.000	7/8" Coax	Yes
0.000	80.000	7/8" Coax	Yes
0.000	85.000	#20 DYWIDAG	Yes
0.000	89.000	7/8" Coax	Yes
0.000	100.0	0.39" Fiber Trunk	No
0.000	100.0	0.78" 8 AWG 6	No
0.000	100.0	1 5/8" Coax	No
0.000	100.0	3" Conduit	No

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
1.0D + 1.0W	Serviceability 60 mph

Reactions			
Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	1399.20	20.60	22.98
0.9D + 1.6W	1383.66	20.52	17.22
1.2D + 1.0Di + 1.0Wi	271.31	3.88	39.60
(1.2 + 0.2Sds) * DL + E E LFM	86.13	1.10	22.65
(1.2 + 0.2Sds) * DL + E EMAM	137.30	1.60	22.65
1.0D + 1.0W	285.46	4.23	19.19

Dish Deflections			
Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
	0.00	0.000	0.000





Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: 64274222

11/18/2015 3:43:00 PM

Customer: AT&T MOBILITY

Analysis Parameters

Location:	New Haven County, CT		
Code:	ANSI/TIA-222-G	Height (ft):	100.
Shape:	12 Sides	Base Diameter (in):	32.00
Pole Type:	Taper	Top Diameter (in):	15.00
Pole Manufacturer:	ITT Meyer	Taper (in/ft) :	0.178

Ice & Wind Parameters

Structure Class:	II	Design Wind Speed Without Ice:	105 mph
Exposure Category:	B	Design Wind Speed With Ice:	50 mph
Topographic Category:	1	Operational Wind Speed:	60 mph
Crest Height:	0.0 ft	Design Ice Thickness:	0.75 in

Seismic Parameters

Analysis Method:	Equivalent Modal Analysis & Equivalent Lateral Force Methods		
Site Class:	D - Stiff Soil		
Period Based on Rayleigh Method (sec):	1.53		
T _L (sec):	6	p:	1.3
S _s :	0.198	S ₁ :	0.063
F _a :	1.600	F _v :	2.400
S _{ds} :	0.211	S _{d1} :	0.101
		C _s :	0.044
		C _s Max:	0.044
		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
1.0D + 1.0W	Serviceability 60 mph

Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: 64274222

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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	33.250	0.2500	65		0.00	2,622	32.00	0.00	25.56	3288.6	32.15	128.00	26.06	33.25	20.78	1767.8	25.79	104.26	0.178483
2-12	36.167	0.2500	65	Slip	43.00	2,351	27.20	29.67	21.70	2012.3	27.01	108.82	20.75	65.83	16.50	885.2	20.10	83.00	0.178483
3-12	37.750	0.2188	65	Slip	37.00	1,642	21.73	62.75	15.16	895.9	24.48	99.37	15.00	100.50	10.41	290.4	16.23	68.57	0.178483
Shaft Weight						6,614													

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		
100.01	15' Omni	1	40.00	4.500	1.00	227.23	9.705	1.00	0.000	9.000
100.00	CCI OPA-65R-LCUU-H4	3	57.00	6.080	0.78	210.96	7.078	0.78	0.000	2.000
100.00	Ericsson RRUS 11 (Band 12)	6	50.00	2.570	0.67	127.28	3.191	0.67	0.000	2.000
100.00	Ericsson RRUS 32	3	50.80	2.690	0.67	131.81	3.384	0.67	0.000	2.000
100.00	Flat Platform w/ Handrails	1	2000.00	42.400	1.00	3,364.04	62.529	1.00	0.000	0.000
100.00	KMW AM-X-CD-14-65-00T-	3	36.40	4.990	0.78	161.00	5.931	0.78	0.000	2.000
100.00	Powerwave 7770.00	3	35.00	5.510	0.77	163.23	6.517	0.77	0.000	2.000
100.00	Powerwave LGP21401	6	14.10	1.100	0.50	45.80	1.542	0.50	0.000	2.000
100.00	Raycap DC6-48-60-18-8F	1	20.00	1.110	1.00	96.34	1.702	1.00	0.000	0.000
100.00	Raycap DC6-48-60-18-8F	1	20.00	1.110	1.00	96.34	1.702	1.00	0.000	2.000
89.00	RFS APX86-909014L-CT0-00	3	24.20	8.470	0.81	205.82	9.807	0.81	0.000	3.000
80.00	RFS APX86-909014L-CT0-00	6	24.20	8.470	0.81	203.31	9.790	0.81	0.000	2.000
73.00	Andrew E15S08P80	6	11.00	0.470	0.50	27.40	0.676	0.50	0.000	-1.000
73.00	Andrew LNX-6515DS-VTM	3	51.30	11.430	0.84	292.72	12.974	0.84	0.000	-1.000
73.00	Kathrein Scala Smart Bias	3	3.30	0.090	0.50	9.21	0.229	0.50	0.000	0.000
73.00	RFS APX16PV-16PVL-A	3	39.60	6.040	0.66	157.47	7.029	0.66	0.000	-1.000
Totals		52	3568.60			10,203.35			Number of Loadings : 16	

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Diameter (in)	Coax Weight (lb/ft)	Flat	Projected Width (in)	Exposed To Wind	Carrier
0.00	100.00	2	0.39" Fiber Trunk	0.39	0.06	N	0.00	N	AT&T Mobility
0.00	100.00	4	0.78" 8 AWG 6	0.78	0.59	N	0.00	N	AT&T Mobility
0.00	100.00	12	1 5/8" Coax	1.98	0.82	N	0.00	N	AT&T Mobility
0.00	100.00	2	3" Conduit	3.50	7.58	N	0.00	N	AT&T Mobility
0.00	89.00	6	7/8" Coax	1.09	0.33	N	3.27	Y	Sprint Nextel
0.00	85.00	4	#20 DYWIDAG	2.50	0.00	N	4.73	Y	--
0.00	80.00	9	7/8" Coax	1.09	0.33	N	1.94	Y	Sprint Nextel
0.00	73.00	18	7/8" Coax	1.09	0.33	N	0.00	Y	T-Mobile

Additional Steel

Elev From (ft)	Elev To (ft)	Qty	Description	Fy (ksi)	Offset (in)	— Intermediate Connections —			Connectors	Continuation?
						Description	Spacing (in)	Len (in)		
0.00	81.00	4	SOL #20 All Thread	80	2.08	6" Angle Bracket	30.0	3.31	5/8" A36 U-Bolt	Yes

Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: 64274222

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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)	Additional Reinforcing		
												Area (in ²)	Ix (in ⁴)	Weight (lb)
0.00		0.2500	32.000	25.559	3,288.6	32.15	128.00	69.6	198.5	0.0	0.0	19.64	3,676	0.0
5.00		0.2500	31.108	24.840	3,019.0	31.20	124.43	70.7	187.5	0.0	428.7	19.64	3,509	334.0
10.00		0.2500	30.215	24.122	2,764.6	30.24	120.86	71.7	176.8	0.0	416.5	19.64	3,345	334.0
15.00		0.2500	29.323	23.404	2,524.9	29.28	117.29	72.8	166.3	0.0	404.3	19.64	3,186	334.0
20.00		0.2500	28.430	22.685	2,299.4	28.33	113.72	73.8	156.2	0.0	392.1	19.64	3,030	334.0
25.00		0.2500	27.538	21.967	2,087.8	27.37	110.15	74.9	146.5	0.0	379.9	19.64	2,878	334.0
29.67	Bot - Section 2	0.2500	26.705	21.296	1,902.4	26.48	106.82	75.8	137.6	0.0	343.5	19.64	2,740	311.7
30.00		0.2500	26.646	21.248	1,889.6	26.41	106.58	75.9	137.0	0.0	48.7	19.64	2,813	22.3
33.25	Top - Section 1	0.2500	26.565	21.184	1,872.5	26.33	106.26	76.0	136.2	0.0	469.3	19.64	2,717	217.1
35.00		0.2500	26.253	20.933	1,806.6	25.99	105.01	76.4	132.9	0.0	125.4	19.64	2,667	116.9
40.00		0.2500	25.361	20.214	1,626.9	25.04	101.44	77.4	123.9	0.0	350.0	19.64	2,524	334.0
45.00		0.2500	24.468	19.496	1,459.5	24.08	97.87	78.5	115.2	0.0	337.8	19.64	2,386	334.0
50.00		0.2500	23.576	18.777	1,304.1	23.12	94.30	79.5	106.9	0.0	325.6	19.64	2,252	334.0
55.00		0.2500	22.683	18.059	1,160.0	22.17	90.73	80.5	98.8	0.0	313.4	19.64	2,121	334.0
60.00		0.2500	21.791	17.341	1,027.0	21.21	87.16	81.6	91.0	0.0	301.1	19.64	1,994	334.0
62.75	Bot - Section 3	0.2500	21.300	16.945	958.4	20.69	85.20	81.9	86.9	0.0	160.4	19.64	1,926	183.7
65.00		0.2500	20.899	16.622	904.6	20.26	83.59	81.9	83.6	0.0	243.4	19.64	1,931	150.3
65.83	Top - Section 2	0.2188	21.187	14.770	828.9	23.81	96.86	78.7	75.6	0.0	89.0	19.64	1,911	55.7
70.00		0.2188	20.444	14.246	743.8	22.90	93.46	79.7	70.3	0.0	205.7	19.64	1,811	278.3
73.00		0.2188	19.908	13.869	686.3	22.24	91.01	80.5	66.6	0.0	143.5	19.64	1,740	200.4
75.00		0.2188	19.551	13.617	649.6	21.81	89.38	80.9	64.2	0.0	93.5	19.64	1,694	133.6
80.00		0.2188	18.659	12.989	563.7	20.71	85.30	81.9	58.4	0.0	226.3	19.64	1,581	334.0
81.00	Reinf. Top	0.2188	18.480	12.863	547.5	20.49	84.48	81.9	57.2	0.0	44.0	19.64	1,559	66.8
85.00		0.2188	17.766	12.360	485.8	19.62	81.22	81.9	52.8	0.0	171.7			
89.00		0.2188	17.053	11.857	428.9	18.74	77.95	81.9	48.6	0.0	164.8			
90.00		0.2188	16.874	11.732	415.4	18.53	77.14	81.9	47.6	0.0	40.1			
95.00		0.2188	15.982	11.103	352.1	17.43	73.06	81.9	42.6	0.0	194.3			
100.0		0.2188	15.089	10.474	295.6	16.34	68.98	81.9	37.9	0.0	183.6			
100.0		0.2188	15.087	10.473	295.5	16.34	68.97	81.9	37.8	0.0	0.4			
100.5		0.2188	15.000	10.412	290.4	16.23	68.57	81.9	37.4	0.0	17.4			
											6,614.4			
												5,410.8		

Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: 64274222

11/18/2015 3:43:00 PM

Customer: AT&T MOBILITY

Load Case: 1.2D + 1.6W	105 mph with No Ice	22 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		269.8	0.0					0.0	0.0	269.8	0.0	0.0	0.0
5.00		531.9	514.5					158.2	631.0	690.2	1,145.5	0.0	0.0
10.00		516.7	499.8					158.2	631.0	674.9	1,130.8	0.0	0.0
15.00		501.4	485.2					158.2	631.0	659.6	1,116.2	0.0	0.0
20.00		486.1	470.5					158.2	631.0	644.4	1,101.5	0.0	0.0
25.00		455.7	455.8					158.2	631.0	613.9	1,086.8	0.0	0.0
29.67	Bot - Section 2	231.9	412.2					147.7	588.9	379.6	1,001.2	0.0	0.0
30.00		167.1	58.5					10.5	42.1	177.7	100.5	0.0	0.0
33.25	Top - Section 1	233.7	563.1					104.1	410.2	337.8	973.3	0.0	0.0
35.00		317.4	150.5					57.0	220.9	374.4	371.3	0.0	0.0
40.00		470.9	420.0					166.4	631.0	637.2	1,051.1	0.0	0.0
45.00		469.9	405.4					171.0	631.0	640.9	1,036.4	0.0	0.0
50.00		466.6	390.7					175.3	631.0	642.0	1,021.7	0.0	0.0
55.00		461.4	376.0					179.3	631.0	640.7	1,007.1	0.0	0.0
60.00		353.6	361.4					183.0	631.0	536.6	992.4	0.0	0.0
62.75	Bot - Section 3	227.3	192.5					102.1	347.1	329.5	539.6	0.0	0.0
65.00		140.8	292.1					84.3	283.9	225.1	576.0	0.0	0.0
65.83	Top - Section 2	225.3	106.8					31.4	105.2	256.8	212.0	0.0	0.0
70.00		320.2	246.8					158.3	525.8	478.5	772.6	0.0	0.0
73.00	Appertunance(s)	220.2	172.2	1,796.3	0.0	-1,790.5	418.3	115.3	378.6	2,131.7	969.1	0.0	0.0
75.00		301.8	112.2					77.5	238.2	379.3	350.4	0.0	0.0
80.00	Appertunance(s)	256.5	271.6	1,813.9	0.0	3,627.8	174.2	195.7	595.4	2,266.1	1,041.2	0.0	0.0
81.00	Reinf. Top	208.1	52.8					31.0	115.5	239.0	168.3	0.0	0.0
85.00		333.4	206.0					124.7	141.4	458.1	347.4	0.0	0.0
89.00	Appertunance(s)	200.6	197.8	937.3	0.0	2,811.8	87.1	0.0	141.4	1,137.8	426.3	0.0	0.0
90.00		194.7	48.2					0.0	33.0	194.7	81.1	0.0	0.0
95.00		316.7	233.1					0.0	164.9	316.7	398.0	0.0	0.0
100.00	Appertunance(s)	155.4	220.3	4,083.7	0.0	4,135.2	3,554.6	0.0	164.9	4,239.2	3,939.8	0.0	0.0
100.01		15.1	0.4					0.0	0.0	15.1	0.4	0.0	0.0
100.50		14.8	20.9					0.0	0.0	14.8	20.9	0.0	0.0
Totals:										20,602.1	22,979.0	0.00	0.00

Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: 64274222

11/18/2015 3:43:01 PM

Customer: AT&T MOBILITY

Load Case: 1.2D + 1.6W

105 mph with No Ice

22 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	-22.98	-20.60	0.00	-1,399.20	0.00	1,399.20	1,602.06	801.03	2,099.85	1,037.04	0.00	0.00	0.646
5.00	-21.74	-20.01	0.00	-1,296.18	0.00	1,296.18	1,580.35	790.18	2,012.72	994.01	0.15	-0.28	0.611
10.00	-20.52	-19.43	0.00	-1,196.11	0.00	1,196.11	1,557.29	778.65	1,925.54	950.95	0.58	-0.55	0.577
15.00	-19.32	-18.85	0.00	-1,098.97	0.00	1,098.97	1,532.89	766.44	1,838.45	907.94	1.30	-0.81	0.543
20.00	-18.15	-18.26	0.00	-1,004.74	0.00	1,004.74	1,507.13	753.57	1,751.60	865.05	2.30	-1.08	0.508
25.00	-17.00	-17.70	0.00	-913.42	0.00	913.42	1,480.03	740.02	1,665.15	822.35	3.56	-1.33	0.474
29.67	-15.97	-17.33	0.00	-830.82	0.00	830.82	1,453.52	726.76	1,584.95	782.75	4.98	-1.56	0.441
30.00	-15.85	-17.17	0.00	-825.04	0.00	825.04	1,451.58	725.79	1,579.24	779.93	5.09	-1.58	0.431
33.25	-14.85	-16.84	0.00	-769.23	0.00	769.23	1,448.96	724.48	1,571.57	776.14	6.23	-1.74	0.410
35.00	-14.45	-16.49	0.00	-739.76	0.00	739.76	1,438.64	719.32	1,541.68	761.38	6.88	-1.82	0.398
40.00	-13.36	-15.87	0.00	-657.30	0.00	657.30	1,408.25	704.12	1,456.82	719.47	8.91	-2.04	0.363
45.00	-12.30	-15.24	0.00	-577.94	0.00	577.94	1,376.50	688.25	1,372.88	678.01	11.17	-2.26	0.328
50.00	-11.25	-14.59	0.00	-501.77	0.00	501.77	1,343.41	671.70	1,290.00	637.08	13.64	-2.46	0.293
55.00	-10.23	-13.94	0.00	-428.82	0.00	428.82	1,308.97	654.48	1,208.33	596.75	16.31	-2.64	0.258
60.00	-9.24	-13.37	0.00	-359.13	0.00	359.13	1,273.18	636.59	1,128.02	557.09	19.17	-2.81	0.223
62.75	-8.70	-13.03	0.00	-322.35	0.00	322.35	1,249.04	624.52	1,081.13	533.93	20.82	-2.90	0.204
65.00	-8.12	-12.78	0.00	-293.03	0.00	293.03	1,225.22	612.61	1,040.04	513.64	22.20	-2.97	0.185
65.83	-7.91	-12.52	0.00	-282.38	0.00	282.38	1,046.77	523.39	903.83	446.37	22.73	-2.99	0.195
70.00	-7.14	-12.02	0.00	-230.20	0.00	230.20	1,022.39	511.19	851.15	420.35	25.39	-3.10	0.163
73.00	-6.28	-9.84	0.00	-194.15	0.00	194.15	1,004.25	502.12	813.67	401.84	27.36	-3.17	0.140
75.00	-5.94	-9.45	0.00	-174.46	0.00	174.46	991.89	495.94	788.93	389.62	28.70	-3.22	0.127
80.00	-5.03	-7.13	0.00	-123.58	0.00	123.58	957.40	478.70	725.96	358.52	32.12	-3.31	0.093
81.00	-4.87	-6.89	0.00	-116.45	0.00	116.45	948.14	474.07	711.89	351.58	32.81	-3.32	0.088
81.00	-4.87	-6.89	0.00	-116.45	0.00	116.45	948.14	474.07	711.89	351.58	32.81	-3.32	0.337
85.00	-4.53	-6.42	0.00	-88.90	0.00	88.90	911.07	455.53	657.00	324.47	35.62	-3.38	0.279
89.00	-4.17	-5.27	0.00	-60.41	0.00	60.41	874.00	437.00	604.31	298.45	38.53	-3.56	0.207
90.00	-4.09	-5.07	0.00	-55.14	0.00	55.14	864.74	432.37	591.48	292.11	39.28	-3.60	0.194
95.00	-3.70	-4.74	0.00	-29.78	0.00	29.78	818.40	409.20	529.41	261.45	43.13	-3.74	0.119
100.00	-0.05	-0.25	0.00	-1.95	0.00	1.95	772.07	386.03	470.77	232.50	47.09	-3.81	0.008
100.01	-0.02	-0.02	0.00	-0.01	0.00	0.01	771.98	385.99	470.66	232.44	47.10	-3.81	0.000
100.50	0.00	-0.01	0.00	0.00	0.00	0.00	767.43	383.72	465.10	229.69	47.49	-3.81	0.000

Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: 64274222

11/18/2015 3:43:01 PM

Customer: AT&T MOBILITY

Load Case: 0.9D + 1.6W

105 mph with No Ice (Reduced DL)

22 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		269.8	0.0					0.0	0.0	269.8	0.0	0.0	0.0
5.00		531.9	385.9					158.2	473.3	690.2	859.1	0.0	0.0
10.00		516.7	374.9					158.2	473.3	674.9	848.1	0.0	0.0
15.00		501.4	363.9					158.2	473.3	659.6	837.1	0.0	0.0
20.00		486.1	352.9					158.2	473.3	644.4	826.1	0.0	0.0
25.00		455.7	341.9					158.2	473.3	613.9	815.1	0.0	0.0
29.67	Bot - Section 2	231.9	309.2					147.7	441.7	379.6	750.9	0.0	0.0
30.00		167.1	43.8					10.5	31.6	177.7	75.4	0.0	0.0
33.25	Top - Section 1	233.7	422.3					104.1	307.6	337.8	730.0	0.0	0.0
35.00		317.4	112.9					57.0	165.6	374.4	278.5	0.0	0.0
40.00		470.9	315.0					166.4	473.3	637.2	788.3	0.0	0.0
45.00		469.9	304.0					171.0	473.3	640.9	777.3	0.0	0.0
50.00		466.6	293.0					175.3	473.3	642.0	766.3	0.0	0.0
55.00		461.4	282.0					179.3	473.3	640.7	755.3	0.0	0.0
60.00		353.6	271.0					183.0	473.3	536.6	744.3	0.0	0.0
62.75	Bot - Section 3	227.3	144.4					102.1	260.3	329.5	404.7	0.0	0.0
65.00		140.8	219.1					84.3	212.9	225.1	432.0	0.0	0.0
65.83	Top - Section 2	225.3	80.1					31.4	78.9	256.8	159.0	0.0	0.0
70.00		320.2	185.1					158.3	394.4	478.5	579.5	0.0	0.0
73.00	Appertunance(s)	220.2	129.2	1,796.3	0.0	-1,790.5	313.7	115.3	284.0	2,131.7	726.9	0.0	0.0
75.00		301.8	84.2					77.5	178.6	379.3	262.8	0.0	0.0
80.00	Appertunance(s)	256.5	203.7	1,813.9	0.0	3,627.8	130.7	195.7	446.5	2,266.1	780.9	0.0	0.0
81.00	Reinf. Top	208.1	39.6					31.0	86.6	239.0	126.2	0.0	0.0
85.00		300.6	154.5					124.7	106.1	425.2	260.5	0.0	0.0
89.00	Appertunance(s)	167.7	148.3	937.3	0.0	2,811.8	65.3	0.0	106.1	1,104.9	319.7	0.0	0.0
90.00		194.7	36.1					0.0	24.7	194.7	60.9	0.0	0.0
95.00		316.7	174.8					0.0	123.7	316.7	298.5	0.0	0.0
100.00	Appertunance(s)	155.4	165.2	4,083.7	0.0	4,135.2	2,666.0	0.0	123.7	4,239.2	2,954.8	0.0	0.0
100.01		15.1	0.3					0.0	0.0	15.1	0.3	0.0	0.0
100.50		14.8	15.7					0.0	0.0	14.8	15.7	0.0	0.0
Totals:										20,536.3	17,234.2	0.00	0.00

Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: 64274222

11/18/2015 3:43:02 PM

Customer: AT&T MOBILITY

Load Case: 0.9D + 1.6W

105 mph with No Ice (Reduced DL)

22 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	-17.22	-20.52	0.00	-1,383.66	0.00	1,383.66	1,602.06	801.03	2,099.85	1,037.04	0.00	0.00	0.637
5.00	-16.27	-19.91	0.00	-1,281.05	0.00	1,281.05	1,580.35	790.18	2,012.72	994.01	0.15	-0.27	0.602
10.00	-15.34	-19.30	0.00	-1,181.51	0.00	1,181.51	1,557.29	778.65	1,925.54	950.95	0.58	-0.54	0.568
15.00	-14.42	-18.70	0.00	-1,085.01	0.00	1,085.01	1,532.89	766.44	1,838.45	907.94	1.29	-0.80	0.534
20.00	-13.53	-18.10	0.00	-991.54	0.00	991.54	1,507.13	753.57	1,751.60	865.05	2.27	-1.06	0.500
25.00	-12.65	-17.52	0.00	-901.05	0.00	901.05	1,480.03	740.02	1,665.15	822.35	3.52	-1.32	0.466
29.67	-11.87	-17.15	0.00	-819.29	0.00	819.29	1,453.52	726.76	1,584.95	782.75	4.92	-1.55	0.434
30.00	-11.78	-16.99	0.00	-813.58	0.00	813.58	1,451.58	725.79	1,579.24	779.93	5.03	-1.56	0.424
33.25	-11.02	-16.65	0.00	-758.37	0.00	758.37	1,448.96	724.48	1,571.57	776.14	6.15	-1.72	0.403
35.00	-10.71	-16.30	0.00	-729.24	0.00	729.24	1,438.64	719.32	1,541.68	761.38	6.80	-1.80	0.391
40.00	-9.89	-15.67	0.00	-647.76	0.00	647.76	1,408.25	704.12	1,456.82	719.47	8.80	-2.02	0.357
45.00	-9.08	-15.03	0.00	-569.42	0.00	569.42	1,376.50	688.25	1,372.88	678.01	11.03	-2.23	0.322
50.00	-8.29	-14.39	0.00	-494.26	0.00	494.26	1,343.41	671.70	1,290.00	637.08	13.47	-2.42	0.288
55.00	-7.52	-13.74	0.00	-422.32	0.00	422.32	1,308.97	654.48	1,208.33	596.75	16.11	-2.61	0.253
60.00	-6.78	-13.18	0.00	-353.64	0.00	353.64	1,273.18	636.59	1,128.02	557.09	18.93	-2.77	0.219
62.75	-6.37	-12.84	0.00	-317.39	0.00	317.39	1,249.04	624.52	1,081.13	533.93	20.55	-2.86	0.200
65.00	-5.94	-12.60	0.00	-288.50	0.00	288.50	1,225.22	612.61	1,040.04	513.64	21.92	-2.93	0.182
65.83	-5.78	-12.34	0.00	-278.00	0.00	278.00	1,046.77	523.39	903.83	446.37	22.43	-2.95	0.191
70.00	-5.21	-11.84	0.00	-226.58	0.00	226.58	1,022.39	511.19	851.15	420.35	25.06	-3.06	0.160
73.00	-4.59	-9.68	0.00	-191.06	0.00	191.06	1,004.25	502.12	813.67	401.84	27.00	-3.13	0.137
75.00	-4.34	-9.29	0.00	-171.71	0.00	171.71	991.89	495.94	788.93	389.62	28.32	-3.17	0.124
80.00	-3.68	-6.99	0.00	-121.63	0.00	121.63	957.40	478.70	725.96	358.52	31.70	-3.26	0.091
81.00	-3.56	-6.74	0.00	-114.65	0.00	114.65	948.14	474.07	711.89	351.58	32.38	-3.28	0.086
81.00	-3.56	-6.74	0.00	-114.65	0.00	114.65	948.14	474.07	711.89	351.58	32.38	-3.28	0.330
85.00	-3.31	-6.31	0.00	-87.68	0.00	87.68	911.07	455.53	657.00	324.47	35.15	-3.33	0.274
89.00	-3.05	-5.19	0.00	-59.63	0.00	59.63	874.00	437.00	604.31	298.45	38.02	-3.51	0.203
90.00	-3.00	-5.00	0.00	-54.43	0.00	54.43	864.74	432.37	591.48	292.11	38.76	-3.55	0.190
95.00	-2.71	-4.67	0.00	-29.43	0.00	29.43	818.40	409.20	529.41	261.45	42.55	-3.69	0.116
100.00	-0.04	-0.25	0.00	-1.95	0.00	1.95	772.07	386.03	470.77	232.50	46.46	-3.76	0.008
100.01	-0.01	-0.02	0.00	-0.01	0.00	0.01	771.98	385.99	470.66	232.44	46.47	-3.76	0.000
100.50	0.00	-0.01	0.00	0.00	0.00	0.00	767.43	383.72	465.10	229.69	46.86	-3.76	0.000

Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: 64274222

11/18/2015 3:43:03 PM

Customer: AT&T MOBILITY

Load Case: 1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice	21 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		40.9	0.0					0.0	0.0	40.9	0.0	0.0	0.0
5.00		81.1	756.6					39.5	897.8	120.7	1,654.4	0.0	0.0
10.00		79.4	763.6					41.4	929.9	120.9	1,693.5	0.0	0.0
15.00		77.5	755.5					42.4	946.4	119.9	1,701.9	0.0	0.0
20.00		75.6	742.3					43.0	957.9	118.6	1,700.3	0.0	0.0
25.00		71.2	726.6					43.5	966.8	114.7	1,693.4	0.0	0.0
29.67	Bot - Section 2	36.3	662.7					41.0	909.0	77.3	1,571.7	0.0	0.0
30.00		26.2	76.8					2.9	65.1	29.2	141.9	0.0	0.0
33.25	Top - Section 1	36.7	739.4					29.2	636.6	65.9	1,375.9	0.0	0.0
35.00		50.1	245.1					16.1	343.8	66.2	588.9	0.0	0.0
40.00		74.5	684.2					47.6	985.8	122.1	1,670.1	0.0	0.0
45.00		74.7	664.2					49.6	990.7	124.3	1,654.9	0.0	0.0
50.00		74.6	643.6					51.5	995.0	126.1	1,638.6	0.0	0.0
55.00		74.2	622.5					53.2	999.0	127.4	1,621.6	0.0	0.0
60.00		57.1	601.1					54.9	1,002.7	112.0	1,603.8	0.0	0.0
62.75	Bot - Section 3	36.8	322.5					30.9	553.0	67.7	875.5	0.0	0.0
65.00		22.8	399.1					25.6	453.1	48.4	852.2	0.0	0.0
65.83	Top - Section 2	36.7	146.3					9.6	168.1	46.3	314.4	0.0	0.0
70.00		52.3	438.4					48.4	841.2	100.6	1,279.6	0.0	0.0
73.00	Appertunance(s)	36.1	307.5	294.7	0.0	-292.7	1,612.3	35.4	607.0	366.3	2,526.9	0.0	0.0
75.00		49.8	201.3					23.9	331.3	73.7	532.6	0.0	0.0
80.00	Appertunance(s)	42.4	485.9	297.1	0.0	594.3	1,248.9	60.7	829.6	400.2	2,564.4	0.0	0.0
81.00	Reinf. Top	34.6	95.4					9.0	145.9	43.7	241.3	0.0	0.0
85.00		54.7	371.1					36.5	263.2	91.3	634.3	0.0	0.0
89.00	Appertunance(s)	33.8	357.6	153.8	0.0	461.4	632.0	0.0	190.8	187.6	1,180.3	0.0	0.0
90.00		39.5	87.9					0.0	33.0	39.5	120.8	0.0	0.0
95.00		64.7	422.7					0.0	164.9	64.7	587.6	0.0	0.0
100.00	Appertunance(s)	31.9	401.3	781.8	0.0	712.4	6,738.6	0.0	164.9	813.8	7,304.8	0.0	0.0
100.01		3.1	0.8					0.0	0.0	3.1	0.8	0.0	0.0
100.50		3.1	38.6					0.0	0.0	3.1	38.6	0.0	0.0
Totals:										3,836.17	39,364.8	0.00	0.00

Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: 64274222

11/18/2015 3:43:04 PM

Customer: AT&T MOBILITY

Load Case: 1.2D + 1.0Di + 1.0Wi

50 mph with 0.75 in Radial Ice

21 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	-39.60	-3.88	0.00	-271.31	0.00	271.31	1,602.06	801.03	2,099.85	1,037.04	0.00	0.00	0.138
5.00	-37.94	-3.79	0.00	-251.91	0.00	251.91	1,580.35	790.18	2,012.72	994.01	0.03	-0.05	0.131
10.00	-36.24	-3.70	0.00	-232.94	0.00	232.94	1,557.29	778.65	1,925.54	950.95	0.11	-0.11	0.124
15.00	-34.54	-3.61	0.00	-214.43	0.00	214.43	1,532.89	766.44	1,838.45	907.94	0.25	-0.16	0.117
20.00	-32.84	-3.52	0.00	-196.38	0.00	196.38	1,507.13	753.57	1,751.60	865.05	0.45	-0.21	0.110
25.00	-31.14	-3.42	0.00	-178.80	0.00	178.80	1,480.03	740.02	1,665.15	822.35	0.69	-0.26	0.103
29.67	-29.57	-3.35	0.00	-162.84	0.00	162.84	1,453.52	726.76	1,584.95	782.75	0.97	-0.31	0.096
30.00	-29.42	-3.33	0.00	-161.73	0.00	161.73	1,451.58	725.79	1,579.24	779.93	0.99	-0.31	0.094
33.25	-28.05	-3.26	0.00	-150.92	0.00	150.92	1,448.96	724.48	1,571.57	776.14	1.21	-0.34	0.089
35.00	-27.46	-3.21	0.00	-145.21	0.00	145.21	1,438.64	719.32	1,541.68	761.38	1.34	-0.36	0.087
40.00	-25.79	-3.09	0.00	-129.16	0.00	129.16	1,408.25	704.12	1,456.82	719.47	1.74	-0.40	0.080
45.00	-24.13	-2.98	0.00	-113.69	0.00	113.69	1,376.50	688.25	1,372.88	678.01	2.18	-0.44	0.072
50.00	-22.49	-2.85	0.00	-98.82	0.00	98.82	1,343.41	671.70	1,290.00	637.08	2.66	-0.48	0.065
55.00	-20.87	-2.72	0.00	-84.56	0.00	84.56	1,308.97	654.48	1,208.33	596.75	3.18	-0.52	0.058
60.00	-19.26	-2.60	0.00	-70.95	0.00	70.95	1,273.18	636.59	1,128.02	557.09	3.74	-0.55	0.050
62.75	-18.39	-2.53	0.00	-63.79	0.00	63.79	1,249.04	624.52	1,081.13	533.93	4.07	-0.57	0.047
65.00	-17.54	-2.48	0.00	-58.09	0.00	58.09	1,225.22	612.61	1,040.04	513.64	4.34	-0.58	0.043
65.83	-17.22	-2.43	0.00	-56.03	0.00	56.03	1,046.77	523.39	903.83	446.37	4.44	-0.59	0.045
70.00	-15.94	-2.32	0.00	-45.89	0.00	45.89	1,022.39	511.19	851.15	420.35	4.96	-0.61	0.038
73.00	-13.42	-1.93	0.00	-38.92	0.00	38.92	1,004.25	502.12	813.67	401.84	5.35	-0.62	0.033
75.00	-12.89	-1.86	0.00	-35.06	0.00	35.06	991.89	495.94	788.93	389.62	5.61	-0.63	0.030
80.00	-10.33	-1.43	0.00	-25.18	0.00	25.18	957.40	478.70	725.96	358.52	6.28	-0.65	0.023
81.00	-10.09	-1.38	0.00	-23.75	0.00	23.75	948.14	474.07	711.89	351.58	6.42	-0.65	0.022
81.00	-10.09	-1.38	0.00	-23.75	0.00	23.75	948.14	474.07	711.89	351.58	6.42	-0.65	0.078
85.00	-9.45	-1.29	0.00	-18.21	0.00	18.21	911.07	455.53	657.00	324.47	6.97	-0.66	0.067
89.00	-8.27	-1.09	0.00	-12.59	0.00	12.59	874.00	437.00	604.31	298.45	7.54	-0.70	0.052
90.00	-8.15	-1.05	0.00	-11.50	0.00	11.50	864.74	432.37	591.48	292.11	7.69	-0.71	0.049
95.00	-7.57	-0.98	0.00	-6.23	0.00	6.23	818.40	409.20	529.41	261.45	8.45	-0.74	0.033
100.00	-0.27	-0.08	0.00	-0.59	0.00	0.59	772.07	386.03	470.77	232.50	9.23	-0.75	0.003
100.01	-0.04	0.00	0.00	0.00	0.00	0.00	771.98	385.99	470.66	232.44	9.24	-0.75	0.000
100.50	0.00	0.00	0.00	0.00	0.00	0.00	767.43	383.72	465.10	229.69	9.31	-0.75	0.000

Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: 64274222

11/18/2015 3:43:04 PM

Customer: AT&T MOBILITY

Load Case: 1.0D + 1.0W	Serviceability 60 mph	21 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		55.1	0.0					0.0	0.0	55.1	0.0	0.0	0.0
5.00		108.6	428.7					33.5	525.8	142.1	954.6	0.0	0.0
10.00		105.4	416.5					33.5	525.8	138.9	942.4	0.0	0.0
15.00		102.3	404.3					33.5	525.8	135.8	930.1	0.0	0.0
20.00		99.2	392.1					33.5	525.8	132.7	917.9	0.0	0.0
25.00		93.0	379.9					33.5	525.8	126.5	905.7	0.0	0.0
29.67	Bot - Section 2	47.3	343.5					31.3	490.8	78.6	834.3	0.0	0.0
30.00		34.1	48.7					2.2	35.1	36.3	83.8	0.0	0.0
33.25	Top - Section 1	47.7	469.3					22.1	341.8	69.8	811.1	0.0	0.0
35.00		64.8	125.4					12.2	184.0	77.0	309.4	0.0	0.0
40.00		96.1	350.0					35.7	525.8	131.8	875.9	0.0	0.0
45.00		95.9	337.8					37.0	525.8	132.9	863.7	0.0	0.0
50.00		95.2	325.6					38.2	525.8	133.5	851.4	0.0	0.0
55.00		94.2	313.4					39.3	525.8	133.5	839.2	0.0	0.0
60.00		72.2	301.1					40.4	525.8	112.5	827.0	0.0	0.0
62.75	Bot - Section 3	46.4	160.4					22.6	289.3	69.0	449.7	0.0	0.0
65.00		28.7	243.4					18.7	236.6	47.5	480.0	0.0	0.0
65.83	Top - Section 2	46.0	89.0					7.0	87.7	53.0	176.7	0.0	0.0
70.00		65.3	205.7					35.3	438.2	100.6	643.9	0.0	0.0
73.00	Appertunance(s)	44.9	143.5	366.6	0.0	-365.4	348.6	25.8	315.5	437.3	807.6	0.0	0.0
75.00		61.6	93.5					17.4	198.5	79.0	292.0	0.0	0.0
80.00	Appertunance(s)	52.4	226.3	370.2	0.0	740.4	145.2	44.0	496.1	466.5	867.7	0.0	0.0
81.00	Reinf. Top	42.5	44.0					7.2	96.3	49.6	140.2	0.0	0.0
85.00		61.3	171.7					28.9	117.8	90.2	289.5	0.0	0.0
89.00	Appertunance(s)	34.2	164.8	191.3	0.0	573.8	72.6	0.0	117.8	225.5	355.3	0.0	0.0
90.00		39.7	40.1					0.0	27.5	39.7	67.6	0.0	0.0
95.00		64.6	194.3					0.0	137.4	64.6	331.7	0.0	0.0
100.00	Appertunance(s)	31.7	183.6	833.4	0.0	843.9	2,962.2	0.0	137.4	865.1	3,283.2	0.0	0.0
100.01		3.1	0.4					0.0	0.0	3.1	0.4	0.0	0.0
100.50		3.0	17.4					0.0	0.0	3.0	17.4	0.0	0.0
Totals:										4,230.95	19,149.2	0.00	0.00

Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: 64274222

11/18/2015 3:43:05 PM

Customer: AT&T MOBILITY

Load Case: 1.0D + 1.0W

Serviceability 60 mph

21 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	-19.19	-4.23	0.00	-285.46	0.00	285.46	1,602.06	801.03	2,099.85	1,037.04	0.00	0.00	0.137
5.00	-18.23	-4.10	0.00	-264.32	0.00	264.32	1,580.35	790.18	2,012.72	994.01	0.03	-0.06	0.129
10.00	-17.28	-3.98	0.00	-243.80	0.00	243.80	1,557.29	778.65	1,925.54	950.95	0.12	-0.11	0.122
15.00	-16.35	-3.86	0.00	-223.89	0.00	223.89	1,532.89	766.44	1,838.45	907.94	0.27	-0.17	0.115
20.00	-15.43	-3.74	0.00	-204.61	0.00	204.61	1,507.13	753.57	1,751.60	865.05	0.47	-0.22	0.108
25.00	-14.52	-3.62	0.00	-185.92	0.00	185.92	1,480.03	740.02	1,665.15	822.35	0.73	-0.27	0.100
29.67	-13.68	-3.54	0.00	-169.04	0.00	169.04	1,453.52	726.76	1,584.95	782.75	1.02	-0.32	0.093
30.00	-13.60	-3.51	0.00	-167.86	0.00	167.86	1,451.58	725.79	1,579.24	779.93	1.04	-0.32	0.091
33.25	-12.79	-3.44	0.00	-156.45	0.00	156.45	1,448.96	724.48	1,571.57	776.14	1.27	-0.35	0.087
35.00	-12.48	-3.37	0.00	-150.44	0.00	150.44	1,438.64	719.32	1,541.68	761.38	1.40	-0.37	0.084
40.00	-11.60	-3.24	0.00	-133.60	0.00	133.60	1,408.25	704.12	1,456.82	719.47	1.82	-0.42	0.077
45.00	-10.73	-3.11	0.00	-117.40	0.00	117.40	1,376.50	688.25	1,372.88	678.01	2.28	-0.46	0.070
50.00	-9.88	-2.97	0.00	-101.87	0.00	101.87	1,343.41	671.70	1,290.00	637.08	2.78	-0.50	0.062
55.00	-9.04	-2.84	0.00	-87.00	0.00	87.00	1,308.97	654.48	1,208.33	596.75	3.32	-0.54	0.055
60.00	-8.22	-2.72	0.00	-72.81	0.00	72.81	1,273.18	636.59	1,128.02	557.09	3.91	-0.57	0.047
62.75	-7.77	-2.65	0.00	-65.33	0.00	65.33	1,249.04	624.52	1,081.13	533.93	4.24	-0.59	0.044
65.00	-7.29	-2.60	0.00	-59.37	0.00	59.37	1,225.22	612.61	1,040.04	513.64	4.52	-0.60	0.040
65.83	-7.11	-2.55	0.00	-57.20	0.00	57.20	1,046.77	523.39	903.83	446.37	4.63	-0.61	0.042
70.00	-6.47	-2.44	0.00	-46.60	0.00	46.60	1,022.39	511.19	851.15	420.35	5.17	-0.63	0.035
73.00	-5.66	-1.99	0.00	-39.28	0.00	39.28	1,004.25	502.12	813.67	401.84	5.57	-0.65	0.030
75.00	-5.37	-1.91	0.00	-35.29	0.00	35.29	991.89	495.94	788.93	389.62	5.84	-0.65	0.027
80.00	-4.51	-1.44	0.00	-24.99	0.00	24.99	957.40	478.70	725.96	358.52	6.54	-0.67	0.020
81.00	-4.37	-1.39	0.00	-23.55	0.00	23.55	948.14	474.07	711.89	351.58	6.68	-0.68	0.019
81.00	-4.37	-1.39	0.00	-23.55	0.00	23.55	948.14	474.07	711.89	351.58	6.68	-0.68	0.072
85.00	-4.08	-1.30	0.00	-18.00	0.00	18.00	911.07	455.53	657.00	324.47	7.25	-0.69	0.060
89.00	-3.73	-1.07	0.00	-12.24	0.00	12.24	874.00	437.00	604.31	298.45	7.84	-0.72	0.045
90.00	-3.66	-1.03	0.00	-11.18	0.00	11.18	864.74	432.37	591.48	292.11	8.00	-0.73	0.043
95.00	-3.33	-0.96	0.00	-6.04	0.00	6.04	818.40	409.20	529.41	261.45	8.78	-0.76	0.027
100.00	-0.06	-0.05	0.00	-0.40	0.00	0.40	772.07	386.03	470.77	232.50	9.59	-0.78	0.002
100.01	-0.02	0.00	0.00	0.00	0.00	0.00	771.98	385.99	470.66	232.44	9.59	-0.78	0.000
100.50	0.00	0.00	0.00	0.00	0.00	0.00	767.43	383.72	465.10	229.69	9.67	-0.78	0.000

Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: 64274222

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Customer: AT&T MOBILITY

Equivalent Lateral Forces Method Analysis

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

Spectral Response Acceleration for Short Period (S_s):	0.20
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 :	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.21
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Seismic Response Coefficient (C_s):	0.04
Upper Limit C_s	0.04
Lower Limit C_s	0.03
Period based on Rayleigh Method (sec):	1.53
Redundancy Factor (p):	1.30
Seismic Force Distribution Exponent (k):	1.51
Total Unfactored Dead Load:	19.19 k
Seismic Base Shear (E):	1.10 k

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

Seismic Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
29	100.26	17	19	0.002	2	22
28	100.01	0	0	0.000	0	0
27	97.50	321	329	0.037	40	399
26	92.50	332	314	0.035	38	412
25	89.50	68	61	0.007	7	84
24	87.00	283	244	0.027	30	351
23	83.00	289	232	0.026	28	360
22	80.50	140	107	0.012	13	174
21	77.50	722	523	0.058	64	897
20	74.00	292	197	0.022	24	363
19	71.50	459	294	0.033	36	570
18	67.92	644	381	0.043	47	800
17	65.42	177	99	0.011	12	220
16	63.88	480	259	0.029	32	596
15	61.38	450	229	0.026	28	559
14	57.50	827	381	0.043	47	1,027
13	52.50	839	337	0.038	41	1,043
12	47.50	851	294	0.033	36	1,058
11	42.50	864	252	0.028	31	1,073
10	37.50	876	211	0.024	26	1,088
9	34.13	309	65	0.007	8	384
8	31.62	811	151	0.017	19	1,008
7	29.83	84	14	0.002	2	104

Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: 64274222

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Customer: AT&T MOBILITY

6	27.33	834	125	0.014	15	1,036
5	22.50	906	101	0.011	12	1,125
4	17.50	918	70	0.008	9	1,140
3	12.50	930	43	0.005	5	1,155
2	7.50	942	20	0.002	2	1,171
1	2.50	955	4	0.000	0	1,186
15' Omni	100.01	40	43	0.005	5	50
Powerwave LGP21401	100.00	85	90	0.010	11	105
Raycap DC6-48-60-18-	100.00	20	21	0.002	3	25
Raycap DC6-48-60-18-	100.00	20	21	0.002	3	25
Ericsson RRUS 11 (Ba	100.00	300	319	0.036	39	373
Ericsson RRUS 32	100.00	152	162	0.018	20	189
KMW AM-X-CD-14-65-00	100.00	109	116	0.013	14	136
Powerwave 7770.00	100.00	105	112	0.012	14	130
CCI OPA-65R-LCUU-H4	100.00	171	182	0.020	22	212
Flat Platform w/ Han	100.00	2,000	2,128	0.238	261	2,484
RFS APX86-909014L-CT	89.00	73	65	0.007	8	90
RFS APX86-909014L-CT	80.00	145	110	0.012	14	180
Kathrein Scala Smart	73.00	10	7	0.001	1	12
Andrew E15S08P80	73.00	66	44	0.005	5	82
RFS APX16PV-16PVL-A	73.00	119	79	0.009	10	148
Andrew LNX-6515DS-VT	73.00	154	102	0.011	12	191
		19,189	8,952	1.000	1,098	23,838

Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: 64274222

11/18/2015 3:43:05 PM

Customer: AT&T MOBILITY

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

Seismic Equivalent Lateral Forces Method

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	-22.65	-1.10	0.00	-86.13	0.00	86.13	1,602.06	801.03	2,099.85	1,037.04	0.00	0.00	0.047
5.00	-21.48	-1.10	0.00	-80.62	0.00	80.62	1,580.35	790.18	2,012.72	994.01	0.01	-0.02	0.045
10.00	-20.32	-1.10	0.00	-75.10	0.00	75.10	1,557.29	778.65	1,925.54	950.95	0.04	-0.03	0.043
15.00	-19.18	-1.10	0.00	-69.58	0.00	69.58	1,532.89	766.44	1,838.45	907.94	0.08	-0.05	0.041
20.00	-18.06	-1.09	0.00	-64.08	0.00	64.08	1,507.13	753.57	1,751.60	865.05	0.14	-0.07	0.038
25.00	-17.02	-1.08	0.00	-58.62	0.00	58.62	1,480.03	740.02	1,665.15	822.35	0.22	-0.08	0.036
29.67	-16.92	-1.08	0.00	-53.58	0.00	53.58	1,453.52	726.76	1,584.95	782.75	0.31	-0.10	0.034
30.00	-15.91	-1.06	0.00	-53.22	0.00	53.22	1,451.58	725.79	1,579.24	779.93	0.32	-0.10	0.033
33.25	-15.53	-1.06	0.00	-49.77	0.00	49.77	1,448.96	724.48	1,571.57	776.14	0.39	-0.11	0.032
35.00	-14.44	-1.03	0.00	-47.92	0.00	47.92	1,438.64	719.32	1,541.68	761.38	0.43	-0.12	0.031
40.00	-13.36	-1.00	0.00	-42.77	0.00	42.77	1,408.25	704.12	1,456.82	719.47	0.56	-0.13	0.028
45.00	-12.31	-0.96	0.00	-37.77	0.00	37.77	1,376.50	688.25	1,372.88	678.01	0.70	-0.14	0.026
50.00	-11.26	-0.92	0.00	-32.95	0.00	32.95	1,343.41	671.70	1,290.00	637.08	0.86	-0.16	0.023
55.00	-10.24	-0.88	0.00	-28.33	0.00	28.33	1,308.97	654.48	1,208.33	596.75	1.03	-0.17	0.021
60.00	-9.68	-0.85	0.00	-23.95	0.00	23.95	1,273.18	636.59	1,128.02	557.09	1.22	-0.18	0.018
62.75	-9.08	-0.81	0.00	-21.63	0.00	21.63	1,249.04	624.52	1,081.13	533.93	1.32	-0.19	0.017
65.00	-8.86	-0.80	0.00	-19.79	0.00	19.79	1,225.22	612.61	1,040.04	513.64	1.41	-0.19	0.016
65.83	-8.06	-0.75	0.00	-19.12	0.00	19.12	1,046.77	523.39	903.83	446.37	1.44	-0.19	0.016
70.00	-7.49	-0.72	0.00	-15.99	0.00	15.99	1,022.39	511.19	851.15	420.35	1.62	-0.20	0.014
73.00	-6.70	-0.66	0.00	-13.84	0.00	13.84	1,004.25	502.12	813.67	401.84	1.74	-0.20	0.013
75.00	-5.80	-0.59	0.00	-12.52	0.00	12.52	991.89	495.94	788.93	389.62	1.83	-0.21	0.011
80.00	-5.45	-0.57	0.00	-9.54	0.00	9.54	957.40	478.70	725.96	358.52	2.05	-0.21	0.009
81.00	-5.09	-0.54	0.00	-8.98	0.00	8.98	948.14	474.07	711.89	351.58	2.10	-0.22	0.009
81.00	-5.09	-0.54	0.00	-8.98	0.00	8.98	948.14	474.07	711.89	351.58	2.10	-0.22	0.031
85.00	-4.73	-0.51	0.00	-6.83	0.00	6.83	911.07	455.53	657.00	324.47	2.28	-0.22	0.026
89.00	-4.56	-0.49	0.00	-4.80	0.00	4.80	874.00	437.00	604.31	298.45	2.47	-0.23	0.021
90.00	-4.15	-0.45	0.00	-4.31	0.00	4.31	864.74	432.37	591.48	292.11	2.52	-0.24	0.020
95.00	-3.75	-0.41	0.00	-2.05	0.00	2.05	818.40	409.20	529.41	261.45	2.77	-0.25	0.012
100.00	-0.02	0.00	0.00	0.00	0.00	0.00	772.07	386.03	470.77	232.50	3.04	-0.25	0.000
100.01	0.00	0.00	0.00	0.00	0.00	0.00	771.98	385.99	470.66	232.44	3.04	-0.25	0.000
100.50	0.00	0.00	0.00	0.00	0.00	0.00	767.43	383.72	465.10	229.69	3.06	-0.25	0.000

Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: 64274222

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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):	0.20
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 :	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.21
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Period Based on Rayleigh Method (sec):	1.53
Redundancy Factor (ρ):	1.30

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)
29	100.26	17	1.881	1.932	1.123	0.404	6	22
28	100.01	0	1.871	1.883	1.105	0.398	0	0
27	97.50	321	1.779	1.444	0.941	0.335	93	399
26	92.50	332	1.601	0.782	0.672	0.226	65	412
25	89.50	68	1.499	0.498	0.541	0.170	10	84
24	87.00	283	1.416	0.315	0.449	0.130	32	351
23	83.00	289	1.289	0.106	0.327	0.075	19	360
22	80.50	140	1.213	0.017	0.264	0.048	6	174
21	77.50	722	1.124	-0.055	0.202	0.021	13	897
20	74.00	292	1.025	-0.103	0.144	-0.001	0	363
19	71.50	459	0.957	-0.118	0.111	-0.011	-5	570
18	67.92	644	0.863	-0.120	0.074	-0.018	-10	800
17	65.42	177	0.801	-0.112	0.054	-0.018	-3	220
16	63.88	480	0.763	-0.104	0.044	-0.017	-7	596
15	61.38	450	0.705	-0.088	0.031	-0.011	-4	559
14	57.50	827	0.619	-0.060	0.017	0.000	0	1,027
13	52.50	839	0.516	-0.022	0.008	0.019	13	1,043
12	47.50	851	0.422	0.011	0.006	0.034	25	1,058
11	42.50	864	0.338	0.036	0.009	0.045	33	1,073
10	37.50	876	0.263	0.053	0.016	0.049	37	1,088
9	34.13	309	0.218	0.060	0.021	0.050	13	384
8	31.62	811	0.187	0.064	0.025	0.050	35	1,008
7	29.83	84	0.167	0.066	0.028	0.049	4	104
6	27.33	834	0.140	0.069	0.032	0.048	35	1,036
5	22.50	906	0.095	0.071	0.038	0.046	36	1,125
4	17.50	918	0.057	0.071	0.041	0.044	35	1,140
3	12.50	930	0.029	0.068	0.040	0.040	32	1,155
2	7.50	942	0.011	0.056	0.032	0.033	27	1,171
1	2.50	955	0.001	0.026	0.014	0.016	13	1,186
15' Omni	100.01	40	1.872	1.884	1.105	0.398	14	50
Powerwave LGP21401	100.00	85	1.871	1.883	1.105	0.398	29	105
Raycap DC6-48-60-18-	100.00	20	1.871	1.883	1.105	0.398	7	25
Raycap DC6-48-60-18-	100.00	20	1.871	1.883	1.105	0.398	7	25
Ericsson RRUS 11 (Ba	100.00	300	1.871	1.883	1.105	0.398	103	373

Site Number: 302516

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Customer: AT&T MOBILITY

Ericsson RRUS 32	100.00	152	1.871	1.883	1.105	0.398	53	189
KMW AM-X-CD-14-65-00	100.00	109	1.871	1.883	1.105	0.398	38	136
Powerwave 7770.00	100.00	105	1.871	1.883	1.105	0.398	36	130
CCI OPA-65R-LCUU-H4	100.00	171	1.871	1.883	1.105	0.398	59	212
Flat Platform w/ Han	100.00	2,000	1.871	1.883	1.105	0.398	689	2,484
RFS APX86-909014L-CT	89.00	73	1.482	0.458	0.522	0.162	10	90
RFS APX86-909014L-CT	80.00	145	1.198	0.002	0.253	0.043	5	180
Kathrein Scala Smart	73.00	10	0.997	-0.111	0.130	-0.006	0	12
Andrew E15S08P80	73.00	66	0.997	-0.111	0.130	-0.006	0	82
RFS APX16PV-16PVL-A	73.00	119	0.997	-0.111	0.130	-0.006	-1	148
Andrew LNX-6515DS-VT	73.00	154	0.997	-0.111	0.130	-0.006	-1	191
		19,189	47.230	25.692	18.751	6.413	1,604	23,838

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Site Name: Mlfd - Milford, CT

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11/18/2015 3:43:06 PM

Customer: AT&T MOBILITY

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

Seismic Equivalent Modal Analysis Method

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	-22.65	-1.60	0.00	-137.30	0.00	137.30	1,602.06	801.03	2,099.85	1,037.04	0.00	0.00	0.071
5.00	-21.48	-1.58	0.00	-129.32	0.00	129.32	1,580.35	790.18	2,012.72	994.01	0.01	-0.03	0.068
10.00	-20.32	-1.55	0.00	-121.43	0.00	121.43	1,557.29	778.65	1,925.54	950.95	0.06	-0.05	0.065
15.00	-19.18	-1.53	0.00	-113.65	0.00	113.65	1,532.89	766.44	1,838.45	907.94	0.13	-0.08	0.062
20.00	-18.06	-1.50	0.00	-106.02	0.00	106.02	1,507.13	753.57	1,751.60	865.05	0.23	-0.11	0.059
25.00	-17.02	-1.47	0.00	-98.52	0.00	98.52	1,480.03	740.02	1,665.15	822.35	0.36	-0.14	0.056
29.67	-16.92	-1.47	0.00	-91.67	0.00	91.67	1,453.52	726.76	1,584.95	782.75	0.51	-0.16	0.054
30.00	-15.91	-1.43	0.00	-91.18	0.00	91.18	1,451.58	725.79	1,579.24	779.93	0.52	-0.16	0.053
33.25	-15.52	-1.42	0.00	-86.52	0.00	86.52	1,448.96	724.48	1,571.57	776.14	0.63	-0.18	0.051
35.00	-14.43	-1.39	0.00	-84.03	0.00	84.03	1,438.64	719.32	1,541.68	761.38	0.70	-0.19	0.050
40.00	-13.36	-1.36	0.00	-77.10	0.00	77.10	1,408.25	704.12	1,456.82	719.47	0.92	-0.22	0.047
45.00	-12.30	-1.33	0.00	-70.32	0.00	70.32	1,376.50	688.25	1,372.88	678.01	1.16	-0.24	0.044
50.00	-11.26	-1.32	0.00	-63.67	0.00	63.67	1,343.41	671.70	1,290.00	637.08	1.42	-0.27	0.041
55.00	-10.23	-1.32	0.00	-57.08	0.00	57.08	1,308.97	654.48	1,208.33	596.75	1.72	-0.29	0.038
60.00	-9.67	-1.32	0.00	-50.49	0.00	50.49	1,273.18	636.59	1,128.02	557.09	2.03	-0.31	0.034
62.75	-9.08	-1.33	0.00	-46.86	0.00	46.86	1,249.04	624.52	1,081.13	533.93	2.22	-0.33	0.033
65.00	-8.86	-1.33	0.00	-43.88	0.00	43.88	1,225.22	612.61	1,040.04	513.64	2.37	-0.34	0.031
65.83	-8.06	-1.34	0.00	-42.77	0.00	42.77	1,046.77	523.39	903.83	446.37	2.43	-0.34	0.032
70.00	-7.49	-1.34	0.00	-37.20	0.00	37.20	1,022.39	511.19	851.15	420.35	2.74	-0.36	0.029
73.00	-6.69	-1.34	0.00	-33.18	0.00	33.18	1,004.25	502.12	813.67	401.84	2.97	-0.37	0.026
75.00	-5.79	-1.32	0.00	-30.51	0.00	30.51	991.89	495.94	788.93	389.62	3.12	-0.38	0.024
80.00	-5.44	-1.31	0.00	-23.91	0.00	23.91	957.40	478.70	725.96	358.52	3.53	-0.39	0.020
81.00	-5.08	-1.29	0.00	-22.60	0.00	22.60	948.14	474.07	711.89	351.58	3.61	-0.40	0.019
81.00	-5.08	-1.29	0.00	-22.60	0.00	22.60	948.14	474.07	711.89	351.58	3.61	-0.40	0.070
85.00	-4.73	-1.25	0.00	-17.46	0.00	17.46	911.07	455.53	657.00	324.47	3.95	-0.41	0.059
89.00	-4.55	-1.23	0.00	-12.44	0.00	12.44	874.00	437.00	604.31	298.45	4.30	-0.44	0.047
90.00	-4.14	-1.17	0.00	-11.20	0.00	11.20	864.74	432.37	591.48	292.11	4.40	-0.45	0.043
95.00	-3.74	-1.07	0.00	-5.36	0.00	5.36	818.40	409.20	529.41	261.45	4.88	-0.48	0.025
100.00	-0.02	-0.01	0.00	0.00	0.00	0.00	772.07	386.03	470.77	232.50	5.39	-0.49	0.000
100.01	0.00	0.00	0.00	0.00	0.00	0.00	771.98	385.99	470.66	232.44	5.39	-0.49	0.000
100.50	0.00	0.00	0.00	0.00	0.00	0.00	767.43	383.72	465.10	229.69	5.44	-0.49	0.000

Site Number: 302516

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Site Name: Mlfd - Milford, CT

Engineering Number: 64274222

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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	20.60	0.00	22.98	0.00	0.00	1399.20	0.00	0.65
0.9D + 1.6W	20.52	0.00	17.22	0.00	0.00	1383.66	0.00	0.64
1.2D + 1.0Di + 1.0Wi	3.88	0.00	39.60	0.00	0.00	271.31	0.00	0.14
(1.2 + 0.2Sds) * DL + E ELFM	1.10	0.00	22.65	0.00	0.00	86.13	0.00	0.05
(1.2 + 0.2Sds) * DL + E EMAM	1.60	0.00	22.65	0.00	0.00	137.30	0.00	0.07
1.0D + 1.0W	4.23	0.00	19.19	0.00	0.00	285.46	0.00	0.14

Additional Steel Summary

Elev From (ft)	Elev To (ft)	Member	Intermediate Connectors			Upper Termination Connectors				Lower Termination Connectors				Max Member		
			VQ/I (lb/in)	Shear Applied (kips)	Shear phiVn (kips)	MQ/I (kips)	phiVn (kips)	Num Reqd	Num Actual	MQ/I (kips)	phiVn (kips)	Num Reqd	Num Actual	Pu (kip)	phiPn (kip)	Ratio
0.00	81.0	(4) SOL-#20 All Thre	313.0	9.4	16.8	40.9	12.0	4	7	0.0	12.0	0	0	231.3	330.5	0.700

Base/Flange Plate	Plate Type	Baseplate
	Pole Diameter	32 in
	Pole Thickness	0.25 in
	Plate Length	44 in
	Plate Thickness	2 in
	Plate Fy	60 ksi
	Weld Length	0.3125 in
	ϕ_s Resistance	2087.53 k-in
	Applied	825.36 k-in
Stiffeners	#	12 <i>Show</i>
	Thickness	0.5 in
	Length	5.5 in
	Height	10 in
	Chamfer	1 in
	Offset Angle	0°
	Fy	36 ksi

Code Rev. **G**

Date 11/18/2015
 Engineer Z. Medoff
 Site # 302516
 Carrier AT&T Mobility

Moment 1399.2 k-ft
 Axial 23.0 k

Bolts	#	8
	Bolt Circle	44 in
	(R)adial / (S)quare	S
	Bolt Gap	6 in
	Diameter	2.25 in
	Hole Diameter	2.625 in
	Type	A615-75
	Fy	75 ksi
	Fu	100 ksi
	ϕ_s Resistance	259.82 k
Applied	94.33 k	
Reinforcement	#	4
	DYW. Circle	36.88 in
	Offset Angle	0°
	Type	#20
	Diameter	2.5 in
	Fu	100 ksi
ϕ_s Resistance	392.70 k	
Applied	165.63 k	
Extra Bolts O	#	0

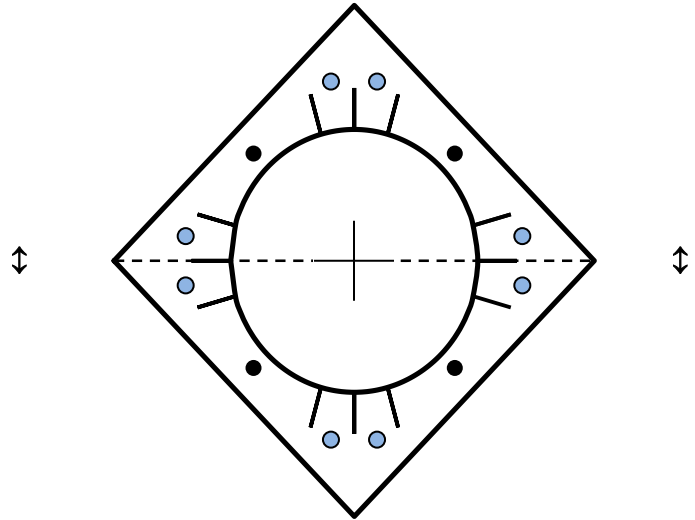


Plate Stress Ratio:
0.40 (Pass)

Bolt Stress Ratio:
0.36 (Pass)

Reinforcement Stress Ratio:
0.42 (Pass)

Rock Anchor Foundation Calc

Rev. G

Anchor bolt diameter	2.25 in
Pull-out capacity	60 kips
x $\phi_s = 0.75$	45
Offset from edge	0.5 ft
# Rows (along length)	5
# Cols (along width)	5
Foundation length	8 ft
Design Moment	1399.2 ft-kips

Bolt Distance	0.5	2.25	4	5.75	7.5	
Num	5	2	2	2	5	
Force Capacity	3	13.5	24	34.5	45	TOTAL
Moment Capacity	7.5	60.75	192	396.75	1687.5	2344.5

Ratio	0.60
	OK

StartAntennaData

It is advisable to provide an ID (ant 1) for all antennas

ID	Name	(MHz) Freq	Trans Power	Trans Count	Coax Len	Coax Type	Other Losses	Input Power
1	AT&T MOBILITY LLC	850	12.50240221	2	0			25.00480443
1	AT&T MOBILITY LLC	1900	8.851228341	1	0			8.851228341
1	AT&T MOBILITY LLC	1900	15.38161775	1	0			15.38161775
2	AT&T MOBILITY LLC (Proposed)	850	12.94176372	1	0			12.94176372
2	AT&T MOBILITY LLC (Proposed)	2300	23.93315254	1	0			23.93315254
3	AT&T MOBILITY LLC	737	33.03689864	1	0			33.03689864
3	AT&T MOBILITY LLC	1900	43.55108695	1	0			43.55108695
4	AT&T MOBILITY LLC	850	12.50240221	2	0			25.00480443
4	AT&T MOBILITY LLC	1900	8.851228341	1	0			8.851228341
4	AT&T MOBILITY LLC	1900	15.38161775	1	0			15.38161775
5	AT&T MOBILITY LLC (Proposed)	850	12.94176372	1	0			12.94176372
5	AT&T MOBILITY LLC (Proposed)	2300	23.93315254	1	0			23.93315254
6	AT&T MOBILITY LLC	737	33.03689864	1	0			33.03689864
6	AT&T MOBILITY LLC	1900	43.55108695	1	0			43.55108695
7	AT&T MOBILITY LLC	850	12.50240221	2	0			25.00480443
7	AT&T MOBILITY LLC	1900	8.851228341	1	0			8.851228341
7	AT&T MOBILITY LLC	1900	15.38161775	1	0			15.38161775
8	AT&T MOBILITY LLC (Proposed)	850	12.94176372	1	0			12.94176372
8	AT&T MOBILITY LLC (Proposed)	2300	23.93315254	1	0			23.93315254
9	AT&T MOBILITY LLC	737	33.03689864	1	0			33.03689864
9	AT&T MOBILITY LLC	1900	43.55108695	1	0			43.55108695

StartSymbolData

Calc			(ft)	(ft)	(ft)		(ft)	dBd	BWdth
Power	Mfg	Model	X	Y	Z	Type	Aper	Gain	Pt Dir
	Powerwave	7770	55.88	57.89	100.7085	Panel	4.583	11.51	82;140
	Powerwave	7770	55.88	57.89	100.7085	Panel	4.583	13.41	86;140
	Powerwave	7770	55.88	57.89	100.7085	Panel	4.583	13.41	86;140
	CCI Antennas	OPA-65R-LCUU-H4	50.05	60.62		101 Panel	4	11.36	60;19
	CCI Antennas	OPA-65R-LCUU-H4	50.05	60.62		101 Panel	4	14.26	61.1;19
	KMW	AM-X-CD-14-65-00T	52.92	59.56		101 Panel	4	11.66	67;19
	KMW	AM-X-CD-14-65-00T	52.92	59.56		101 Panel	4	13.86	65;19
	Powerwave	7770	48.35	52.3	100.7085	Panel	4.583	11.51	82;262
	Powerwave	7770	48.35	52.3	100.7085	Panel	4.583	13.41	86;262
	Powerwave	7770	48.35	52.3	100.7085	Panel	4.583	13.41	86;262
	CCI Antennas	OPA-65R-LCUU-H4	53.55	55.94		101 Panel	4	11.36	60;140
	CCI Antennas	OPA-65R-LCUU-H4	53.55	55.94		101 Panel	4	14.26	61.1;140
	KMW	AM-X-CD-14-65-00T	51.23	53.99		101 Panel	4	11.66	67;140
	KMW	AM-X-CD-14-65-00T	51.23	53.99		101 Panel	4	13.86	65;140
	Powerwave	7770	47.19	61.67	100.7085	Panel	4.583	11.51	82;19
	Powerwave	7770	47.19	61.67	100.7085	Panel	4.583	13.41	86;19
	Powerwave	7770	47.19	61.67	100.7085	Panel	4.583	13.41	86;19
	CCI Antennas	OPA-65R-LCUU-H4	47.82	55.28		101 Panel	4	11.36	60;262
	CCI Antennas	OPA-65R-LCUU-H4	47.82	55.28		101 Panel	4	14.26	61.1;262
	KMW	AM-X-CD-14-65-00T	47.28	58.25		101 Panel	4	11.66	67;262
	KMW	AM-X-CD-14-65-00T	47.28	58.25		101 Panel	4	13.86	65;262

LOCATION 438 Bridgeport Avenue LOT NO. PERMIT NO. #29282B

OWNER: H. Charchenko/NEXTEL-Tenant DATE ISSUED: 11-21-97

CLASSIFICATION: erect an unmanned telecommunications equipment shelter

COST: \$40,000.00 CERTIFICATE OF OCCUPANCY:

CONTRACTOR Highland Construction Bud Powell Contracting

DIMENSIONS OF BUILDINGS: 7' x 11'

PLUMBER

ELECTRICIAN Berlepsch/#23875/11-26-97/\$7,500.00

HEATING CONTRACTOR

Bell Atlantic Mobile
20 Alexander Drive
P.O. Box 5029
Wallingford, CT 06492
203 269-8858

David S. Malko, P.E.
General Manager - Engineering

October 22, 1993

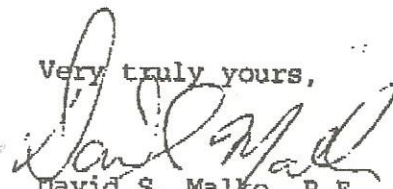
The Honorable Frederick L. Lisman, Mayor
City of Milford
City Hall
River Street
Milford, CT 06460

Dear Mayor Lisman:

Metro Mobile CTS of New Haven, Inc. ("Metro Mobile" or the "Company") plans to allow Springwich Cellular Limited Partnership to add antennas and erect an equipment shelter at the existing Metro Mobile tower facility in Milford. As required by Section 16-50j-73 of the Regulations of Connecticut State Agencies (R.C.S.A.), please accept this letter and the attached letter to the Connecticut Siting Council dated October 22, 1993, as notice of intent of our exempt modification to an existing tower facility pursuant to R.C.S.A. Section 16-50j-72(b).

The attached letter fully sets forth the Company's proposal. However, if you have any questions or require any further information on our plans or the Siting Council's procedures, please contact the undersigned or Mr. Joel M. Rinebold, Executive Director, Connecticut Siting Council at 827-7682.

Very truly yours,



David S. Malko, P.E.
General Manager - Engineering

Attachment

Springwich Cellular Limited Partnership
500 Enterprise Drive
Rocky Hill, Connecticut 06067
Phone (860) 513-7755

SPRINGWICH CELLULAR LIMITED PARTNERSHIP

July 11, 1997

Peter J. Tyrrell
General Counsel

Mr. Mortimer A. Gelston, Chairman
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

RECEIVED

JUL 24 1997

CONNECTICUT
SITING COUNCIL

Dear Chairman Gelston:

Enclosed please find a Notice of Intent to Modify an Exempt Tower and Associated Equipment for a tower owned by Springwich Cellular Limited Partnership ("SCLP") located at 438 Bridgeport Avenue in Milford, Connecticut. SCLP proposes to share use of the facility with Smart SMR of New York, (Nextel Communications). This facility will be used to expand and improve system coverage in the Stratford/Devon/Milford area.

The attached pages detail the required information. As is shown in the attachment, the proposed addition meets all the necessary criteria established in the Regulations of Connecticut State Agencies Section 16-50j-72 (b) (2), and is this an exempt facility pursuant to Section 16-59j-73.

Thank you for your cooperation.

Sincerely,

Peter J. Tyrrell

cc Honorable Frederick L. Lisman
Mayor of Milford

Susan Bellion
Nextel Communications

438 BRIDGEPORT AVENUE, MILFORD, CONNECTICUT

Pursuant to Section 16-50I (a) (5) of the Connecticut General Statutes and Section 16-50j-72 (b) (2), as amended, of the Regulations of Connecticut State Agencies, Springwiche Cellular Limited Partnership (SCLP) hereby notifies the Connecticut Siting Council of its intent to modify an existing SCLP owned communications facility located at 438 Bridgeport Avenue in Milford. SCLP plans to permit shared use of the facility with Smart SMR of New York, Inc. (D/B/A Nextel Communications) by making land and tower space available for their equipment.

Background

The Bridgeport Avenue facility is the site of a 100 foot free standing monopole tower that is currently being used by SCLP to provide cellular system coverage in Milford. SCLP has an equipment building located within the fenced compound.

Discussion

Smart SMR of New York, Inc. (Nextel) plans to install nine (9) antennas on the → monopole, center mounted at the 92 foot level. They also plan on installing a six (6) foot by ten (10) foot equipment cabinet within the existing fenced area (see attached diagram). The power density information and related calculations are presented on the following page.

MILFORD

All power density figures shown are calculated according to the FCC adopted ANSI/NCRP standards for Radio Frequency (RF) emissions from radio telecommunications facilities. Based on these standards, the maximum power density calculations were computed as specified by the methodology outlined in the FCC OST Bulletin No.65. This computation is a worst case approximation of RF intensity at the base of the tower (i.e. the closest accessible point to the antennae) and assumes exposure from the main horizontal antenna beam. The calculations indicate that the maximum power density level for the Springwiche antennas would be 0.1067 milliwatts per square centimeter (or 18.197% of the ANSI/NCRP permissible standard) at this particular site.

To obtain the total power density effect of all combined antenna/radio systems at this site requires that each individual antenna/radio system be calculated separately and then the resultant percentage of each limit then be summed for the total impact. The following table lists each individual antenna system appearing along the tower position that offers the worst-case exposure scenario.

RADIO/ANTENNA SYSTEM DATA MILFORD

<u>Service</u>	<u>Band</u>	<u>Transmitted Power</u>	<u>Power Density</u>	<u>Percent Max. Exposure</u>
Cellular	880 MHz	100w @ 19 channels	0.1067	18.197 %
Paging	931 MHz	640w @ 1 channel	0.0320	5.156 %
Nextel	851 MHz	100w @ 6 channels	0.0398	7.021 %

Total Percent of Maximum Permissible Exposure
(Main horizontal beam)
(at base of tower)

The total power density calculations is approximately 30.37% of the current Connecticut (and ANSI) power density level standards for non-ionizing radiation. The levels demonstrated in this case are well below the maximum standard levels, as calculated for multiple antenna/radio systems , in accordance with OST Bulletin No. 65 guidelines.

Conclusion

The proposed addition does not constitute a "modification" of an existing facility as defined in Connecticut General Statutes Section 16-50I (d). This is because there is no change in the facility's height. There is no extension of the boundaries of the site. There will be no increase in noise levels at the site's boundary by six (6) decibels or more, and the total radio frequency electromagnetic radiation is not at or above the standard set forth in Section 22 (a) - 162 of the Connecticut General Statutes. The addition will not have a substantially adverse environmental effect.

For the reasons discussed above, SCLP requests that the Council acknowledge that this Notice of Modification meets the Council's exemption criteria.

203-783-3245

shharris@ci.milford.ct.us

From: David Barbagallo [<mailto:david.barbagallo@smartlinkllc.com>]

Sent: Thursday, March 10, 2016 12:05 PM

To: Stephen H. Harris

Cc: Michael Pattison

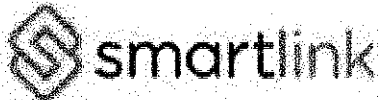
Subject: CTL02111 initial zoning information ; 438 Bridgeport Ave.

Dear Mr. Harris,

Please see the attached documentation pertaining to initial zoning discussions that was eventually permitted on 11-21-97 # 29282B. This is to confirm that I have performed my due Diligence required by the Connecticut Siting Council's requirements for obtaining any and all initial zoning decisions that the town of Milford, CT has on file in the zoning office for the above referenced site.

A returned confirmation email that we viewed and discussed what was filed is greatly appreciated.

Regards,



David Barbagallo | Real Estate Specialist

Smartlink

33 Boston Post Rd. West, Suite 210

Marlborough, MA 01752

(M) 860-681-7708

David.barbagallo@smartlinkllc.com

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Sent: Thursday, March 10, 2016 12:05 PM

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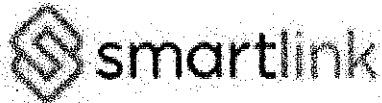
Subject: CTL02111 initial zoning information ; 438 Bridgeport Ave.

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Regards,



David Barbagallo | Real Estate Specialist

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David.barbagallo@smartlinkllc.com

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RF COMPLIANCE EXPERTS

A BUSINESS OF FDH VELOCITEL

200 North Glebe Road, Suite 1000, Arlington, VA 22203-3728
703.276.1100 • 703.276.1169 fax
info@sitesafe.com • www.sitesafe.com



**SmartLink, LLC on behalf of
AT&T Mobility, LLC
Site FA – 10034978
Site ID – CT2111 (3C)
USID – 61179
Site Name – Milford Bridgeport
Avenue
Site Compliance Report**

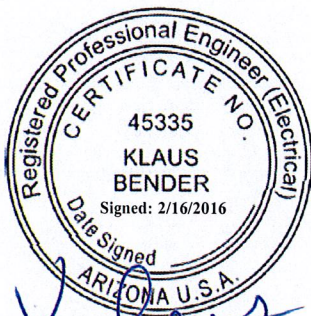
**438 Bridgeport Avenue
Milford, CT 06460**

Latitude: N41-12-23.77
Longitude: W73-5-36.20
Structure Type: Monopole

Report generated date: February 16, 2016
Report by: Young Kim
Customer Contact: Kristen Smith

**AT&T Mobility, LLC will be compliant when the
remediation recommended in section 5.2 or
other appropriate remediation is implemented.**

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Klaus Bender

**Klaus Bender
Registered Professional Engineer (Electrical)
Expires December 31, 2018**





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1 General Site Summary

1.1 Report Summary

AT&T Mobility, LLC	Summary
Access to Antennas Locked?	No
RF Sign(s) @ access point(s)	None
RF Sign(s) @ antennas	None
Barrier(s) @ sectors	None
Max cumulative simulated Radio Frequency Exposure (RFE) level on Ground Level	<5% of General Public limit
FCC & AT&T Compliant?	Will Be Compliant

Note: Data concerning all other carriers on site was unavailable and therefore not included.

The following documents were provided by the client and were utilized to create this report:

RFDS: NEW-ENGLAND_CONNECTICUT_CTU2111_2016-LTE-Next-Carrier_LTE-3C_mm093q_2051A02ITE_10034978_61179_06-29-2015_Final-Approved_v2.00

CD's: 10034978_AE201_102315_CTL02111.Rev0.CD MJP

RF Configuration Datasheet: CT_33 sites with power density form

2 Map of Site

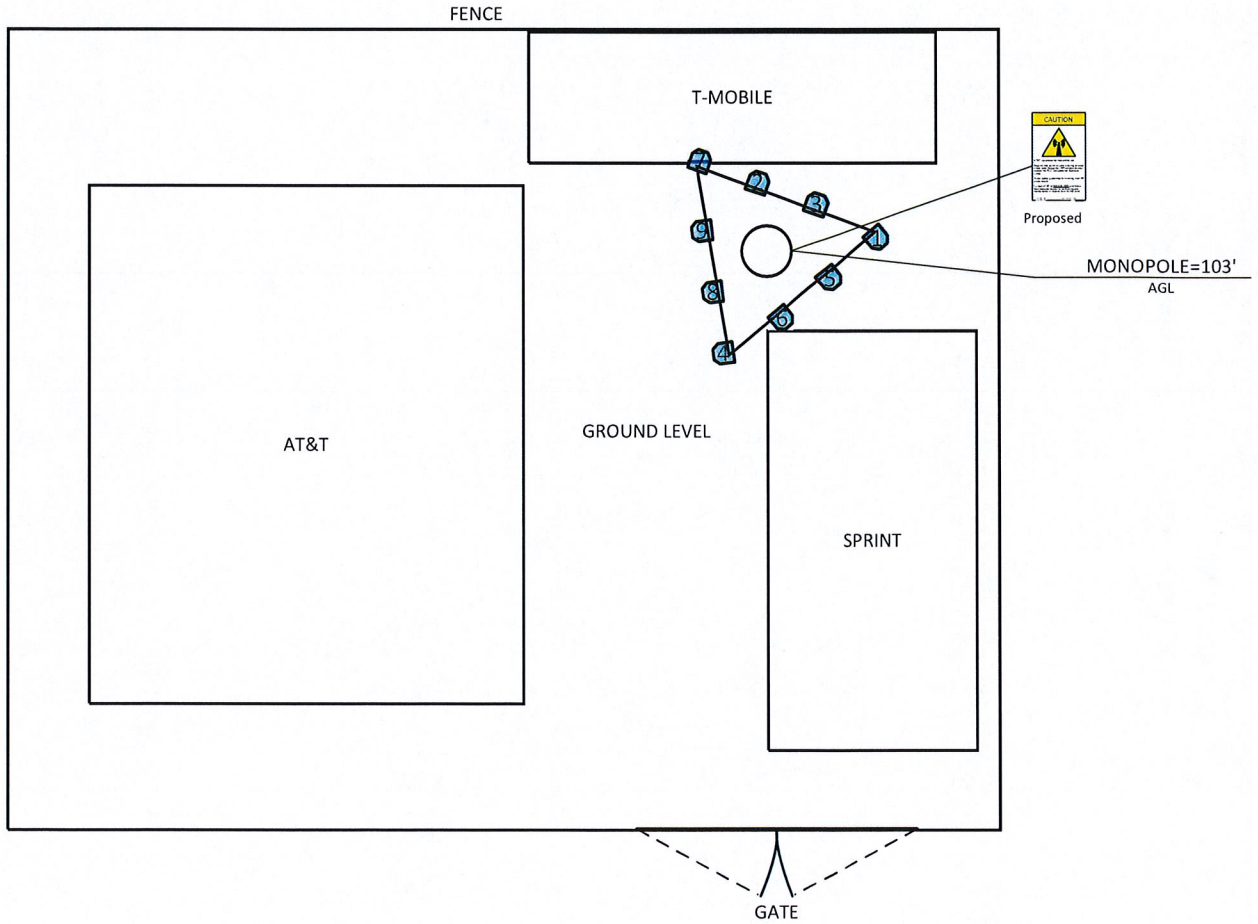
In the RF Emissions Simulations below all heights are reflected with respect to main site level. In most rooftop cases this is the height of the main rooftop and in other cases this can be ground level. Each different height area, rooftop, or platform level is labeled with its height relative to the main site level. Emissions are calculated appropriately based on the relative height and location of that area to all antennas.

The Antenna Inventory heights are referenced to the same level.

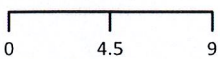
The following diagrams are included:

- Site Map
- RF Emissions Diagram
- Elevation View

Site Map For: Milford Bridgeport Avenue



(Feet)



www.sitesafe.com
Site Name: Milford Bridgeport Avenue

AT&T MOBILITY LLC	VERIZON WIRELESS	T-MOBILE	METROPCS	CRICKET COMMUNICATIONS	CLEARWIRE	SPRINT

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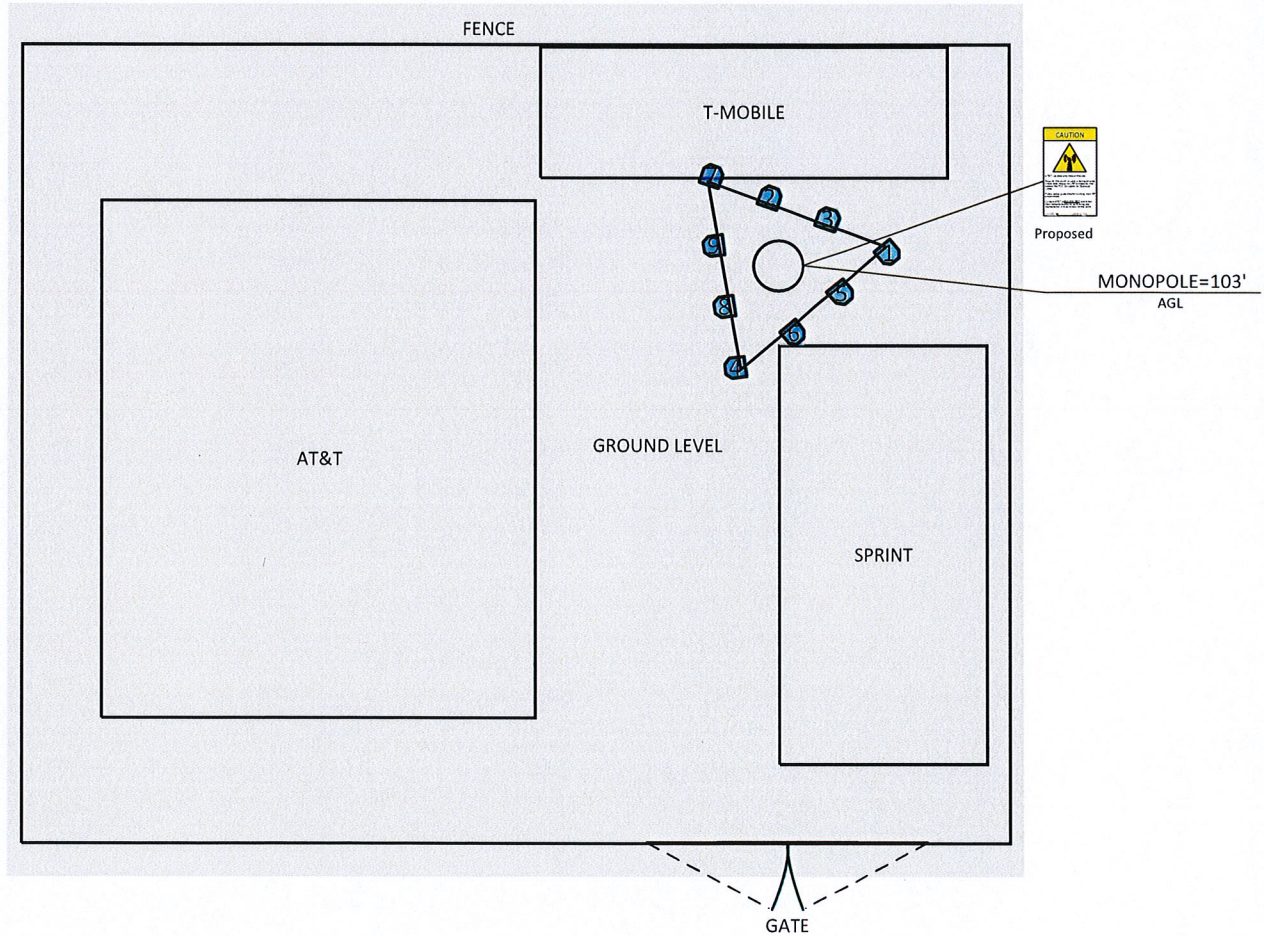
3 Antenna Inventory

The following antenna inventory was obtained by the customer and utilized to create the site model diagrams:

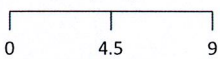
Ant ID	Operator	Antenna Make & Model	Type	TX Freq (MHz)	Az (Deg)	Hor BW (Deg)	Ant Len (ft)	Ant Gain (dBd)	2G GSM Radio(s)	3G UMTS Radio(s)	4G Radio(s)	Total ERP (Watts)	X	Y	Z (AGL)
1	AT&T MOBILITY LLC	Powerwave 7770	Panel	850	140	82	4.6	11.51	0	2	0	353.3	55.9	57.9	100.7
1	AT&T MOBILITY LLC	Powerwave 7770	Panel	1900	140	86	4.6	13.41	0	1	0	193.7	55.9	57.9	100.7
1	AT&T MOBILITY LLC	Powerwave 7770	Panel	1900	140	86	4.6	13.41	0	1	0	336.6	55.9	57.9	100.7
2	AT&T MOBILITY LLC (Proposed)	CCI Antennas OPA-65R-LCUU-H4	Panel	850	19	60	4	11.36	1	0	0	176.7	50.1	60.6	101
2	AT&T MOBILITY LLC (Proposed)	CCI Antennas OPA-65R-LCUU-H4	Panel	2300	19	61.1	4	14.26	0	0	1	637	50.1	60.6	101
3	AT&T MOBILITY LLC	KMW AM-X-CD-14-65-00T	Panel	737	19	67	4	11.66	0	0	1	483.2	52.9	59.6	101
3	AT&T MOBILITY LLC	KMW AM-X-CD-14-65-00T	Panel	1900	19	65	4	13.86	0	0	1	1057.2	52.9	59.6	101
4	AT&T MOBILITY LLC	Powerwave 7770	Panel	850	262	82	4.6	11.51	0	2	0	353.3	48.4	52.3	100.7
4	AT&T MOBILITY LLC	Powerwave 7770	Panel	1900	262	86	4.6	13.41	0	1	0	193.7	48.4	52.3	100.7
4	AT&T MOBILITY LLC	Powerwave 7770	Panel	1900	262	86	4.6	13.41	0	1	0	336.6	48.4	52.3	100.7
5	AT&T MOBILITY LLC (Proposed)	CCI Antennas OPA-65R-LCUU-H4	Panel	850	140	60	4	11.36	1	0	0	176.7	53.6	55.9	101
5	AT&T MOBILITY LLC (Proposed)	CCI Antennas OPA-65R-LCUU-H4	Panel	2300	140	61.1	4	14.26	0	0	1	637	53.6	55.9	101
6	AT&T MOBILITY LLC	KMW AM-X-CD-14-65-00T	Panel	737	140	67	4	11.66	0	0	1	483.2	51.2	54	101
6	AT&T MOBILITY LLC	KMW AM-X-CD-14-65-00T	Panel	1900	140	65	4	13.86	0	0	1	1057.2	51.2	54	101
7	AT&T MOBILITY LLC	Powerwave 7770	Panel	850	19	82	4.6	11.51	0	2	0	353.3	47.2	61.7	100.7
7	AT&T MOBILITY LLC	Powerwave 7770	Panel	1900	19	86	4.6	13.41	0	1	0	193.7	47.2	61.7	100.7
7	AT&T MOBILITY LLC	Powerwave 7770	Panel	1900	19	86	4.6	13.41	0	1	0	336.6	47.2	61.7	100.7
8	AT&T MOBILITY LLC (Proposed)	CCI Antennas OPA-65R-LCUU-H4	Panel	850	262	60	4	11.36	1	0	0	176.7	47.8	55.3	101
8	AT&T MOBILITY LLC (Proposed)	CCI Antennas OPA-65R-LCUU-H4	Panel	2300	262	61.1	4	14.26	0	0	1	637	47.8	55.3	101
9	AT&T MOBILITY LLC	KMW AM-X-CD-14-65-00T	Panel	737	262	67	4	11.66	0	0	1	483.2	47.3	58.3	101
9	AT&T MOBILITY LLC	KMW AM-X-CD-14-65-00T	Panel	1900	262	65	4	13.86	0	0	1	1057.2	47.3	58.3	101

NOTE: X, Y and Z indicate relative position of the antenna to the origin location on the site, displayed in the model results diagram. Specifically, the Z reference indicates the bottom of the antenna height **above ground level (AGL)**. The distance to the bottom of the antenna is calculated by subtracting half of the length of the antenna from the antenna centerline. Effective Radiated Power (ERP) is provided by the operator or based on Sitesafe experience. The values used in the modeling may be greater than are currently deployed.

RF Emissions Simulation For: Milford Bridgeport Avenue

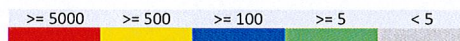


(Feet)



www.sitesafe.com
Site Name: Milford Bridgeport Avenue

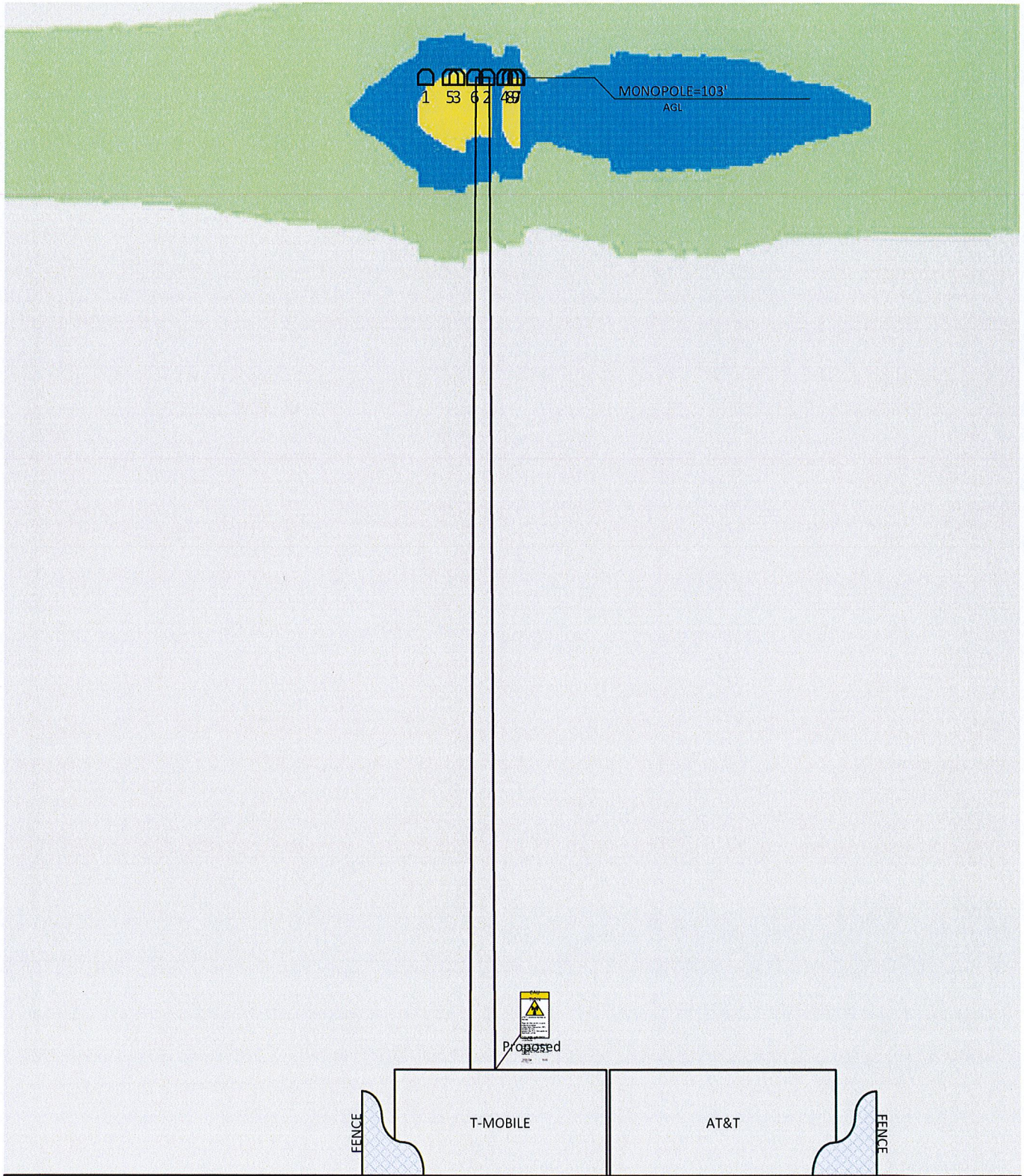
% of FCC Public Exposure Limit
Spatial average 0' - 6'



AT&T MOBILITY LLC	VERIZON WIRELESS	T-MOBILE	METROPCS	CRICKET COMMUNICATIONS	CLEARWIRE	SPRINT

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RF Emissions Simulation For: Milford Bridgeport Avenue
Elevation View – North

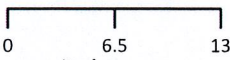


Proposed

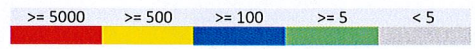
% of FCC Public Exposure Limit
Spatial average 0' - 6'



(Feet)



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Site Name: Milford Bridgeport Avenue



AT&T MOBILITY LLC	VERIZON WIRELESS	T-MOBILE	METROPCS	CRICKET COMMUNICATIONS	CLEARWIRE	SPRINT

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5 Site Compliance

5.1 Site Compliance Statement

Upon evaluation of the cumulative RF emission levels from all operators at this site, RF hazard signage and antenna locations, Sitesafe has determined that:

AT&T Mobility, LLC will be compliant when the remediation recommended in section 5.2 or other appropriate remediation is implemented.

The compliance determination is based on General Public RFE levels derived from theoretical modeling, RF signage placement, proposed antenna inventory and the level of restricted access to the antennas at the site. Any deviation from the AT&T Mobility, LLC's proposed deployment plan could result in the site being rendered non-compliant.

Modeling is used for determining compliance and the percentage of MPE contribution.

5.2 Actions for Site Compliance

Based on FCC regulations, common industry practice, and our understanding of AT&T Mobility, LLC RF Safety Policy requirements, this section provides a statement of recommendations for site compliance. Recommendations have been proposed based on our understanding of existing access restrictions, signage, and an analysis of predicted RFE levels.

The site will be made compliant if the following changes are implemented:

Monopole Base

Yellow caution 2 sign required.



6 Engineer Certification

The professional engineer whose seal appears on the cover of this document hereby certifies and affirms that:

I am registered as a Professional Engineer in the jurisdiction indicated in the professional engineering stamp on the cover of this document; and

That I am an employee of Sitesafe, Inc., in Arlington, Virginia, at which place the staff and I provide RF compliance services to clients in the wireless communications industry; and

That I am thoroughly familiar with the Rules and Regulations of the Federal Communications Commission (FCC) as well as the regulations of the Occupational Safety and Health Administration (OSHA), both in general and specifically as they apply to the FCC Guidelines for Human Exposure to Radio-frequency Radiation; and

That I have thoroughly reviewed this Site Compliance Report and believe it to be true and accurate to the best of my knowledge as assembled by and attested to by Young Kim.

February 16, 2016

Appendix A – Statement of Limiting Conditions

Sitesafe has provided computer generated model(s) in this Site Compliance Report to show approximate dimensions of the site, and the model is included to assist the reader of the compliance report to visualize the site area, and to provide supporting documentation for Sitesafe's recommendations.

Sitesafe may note in the Site Compliance Report any adverse physical conditions, such as needed repairs, that Sitesafe became aware of during the normal research involved in creating this report. Sitesafe will not be responsible for any such conditions that do exist or for any engineering or testing that might be required to discover whether such conditions exist. Because Sitesafe is not an expert in the field of mechanical engineering or building maintenance, the Site Compliance Report must not be considered a structural or physical engineering report.

Sitesafe obtained information used in this Site Compliance Report from sources that Sitesafe considers reliable and believes them to be true and correct. Sitesafe does not assume any responsibility for the accuracy of such items that were furnished by other parties. When conflicts in information occur between data collected by Sitesafe provided by a second party and data collected by Sitesafe, the data will be used.

Appendix B – Regulatory Background Information

FCC Rules and Regulations

In 1996, the Federal Communication Commission (FCC) adopted regulations for the evaluating of the effects of RF emissions in 47 CFR § 1.1307 and 1.1310. The guideline from the FCC Office of Engineering and Technology is Bulletin 65 ("OET Bulletin 65"), *Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields*, Edition 97-01, published August 1997. Since 1996 the FCC periodically reviews these rules and regulations as per their congressional mandate.

FCC regulations define two separate tiers of exposure limits: Occupational or "Controlled environment" and General Public or "Uncontrolled environment". The General Public limits are generally five times more conservative or restrictive than the Occupational limit. These limits apply to *accessible* areas where workers or the general public may be exposed to Radio Frequency (RF) electromagnetic fields.

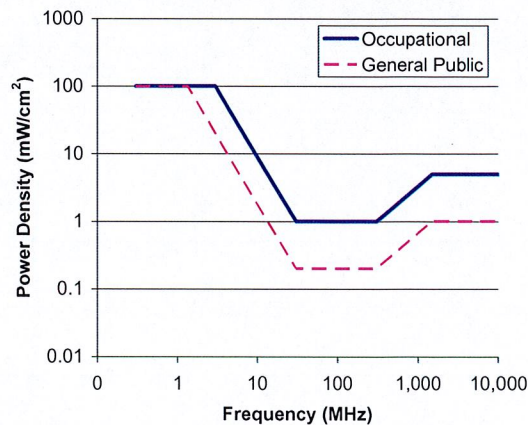
Occupational or Controlled limits apply in situations in which persons are exposed as a consequence of their employment and where those persons exposed have been made fully aware of the potential for exposure and can exercise control over their exposure.

An area is considered a Controlled environment when access is limited to these aware personnel. Typical criteria are restricted access (i.e. locked or alarmed doors, barriers, etc.) to the areas where antennas are located coupled with proper RF warning signage. A site with Controlled environments is evaluated with Occupational limits.

All other areas are considered Uncontrolled environments. If a site has no access controls or no RF warning signage it is evaluated with General Public limits.

The theoretical modeling of the RF electromagnetic fields has been performed in accordance with OET Bulletin 65. The Maximum Permissible Exposure (MPE) limits utilized in this analysis are outlined in the following diagram:

FCC Limits for Maximum Permissible Exposure (MPE)
Plane-wave Equivalent Power Density



Limits for Occupational/Controlled Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f ²)*	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6

Limits for General Population/Uncontrolled Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f ²)*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

f = frequency in MHz *Plane-wave equivalent power density

OSHA Statement

The General Duty clause of the OSHA Act (Section 5) outlines the occupational safety and health responsibilities of the employer and employee. The General Duty clause in Section 5 states:

- (a) Each employer –
 - (1) shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees;
 - (2) shall comply with occupational safety and health standards promulgated under this Act.
- (b) Each employee shall comply with occupational safety and health standards and all rules, regulations, and orders issued pursuant to this Act which are applicable to his own actions and conduct.

OSHA has defined Radiofrequency and Microwave Radiation safety standards for workers who may enter hazardous RF areas. Regulation Standards 29 CFR § 1910.147 identify a generic Lock Out Tag Out procedure aimed to control the unexpected energization or start up of machines when maintenance or service is being performed.

Appendix C – Safety Plan and Procedures

The following items are general safety recommendations that should be administered on a site by site basis as needed by the carrier.

General Maintenance Work: Any maintenance personnel required to work immediately in front of antennas and / or in areas indicated as above 100% of the Occupational MPE limits should coordinate with the wireless operators to disable transmitters during their work activities.

Training and Qualification Verification: All personnel accessing areas indicated as exceeding the General Population MPE limits should have a basic understanding of EME awareness and RF Safety procedures when working around transmitting antennas. Awareness training increases a workers understanding to potential RF exposure scenarios. Awareness can be achieved in a number of ways (e.g. videos, formal classroom lecture or internet based courses).

Physical Access Control: Access restrictions to transmitting antennas locations is the primary element in a site safety plan. Examples of access restrictions are as follows:

- Locked door or gate
- Alarmed door
- Locked ladder access
- Restrictive Barrier at antenna (e.g. Chain link with posted RF Sign)

RF Signage: Everyone should obey all posted signs at all times. RF signs play an important role in properly warning a worker prior to entering into a potential RF Exposure area.

Assume all antennas are active: Due to the nature of telecommunications transmissions, an antenna transmits intermittently. Always assume an antenna is transmitting. Never stop in front of an antenna. If you have to pass by an antenna, move through as quickly and safely as possible thereby reducing any exposure to a minimum.

Maintain a 3 foot clearance from all antennas: There is a direct correlation between the strength of an EME field and the distance from the transmitting antenna. The further away from an antenna, the lower the corresponding EME field is.

Site RF Emissions Diagram: Section 4 of this report contains an RF Diagram that outlines various theoretical Maximum Permissible Exposure (MPE) areas at the site. The modeling is a worst case scenario assuming a duty cycle of 100% for each transmitting antenna at full power. This analysis is based on one of two access control criteria: General Public criteria means the access to the site is uncontrolled and anyone can gain access. Occupational criteria means the access is restricted and only properly trained individuals can gain access to the antenna locations.

Appendix D – RF Emissions

The RF Emissions Simulation(s) in this report display theoretical spatially averaged percentage of the Maximum Permissible Exposure for all systems at the site unless otherwise noted. These diagrams use modeling as prescribed in OET Bulletin 65 and assumptions detailed in Appendix E.

The key at the bottom of each RF Emissions Simulation indicates percentages displayed referenced to FCC General Public Maximum Permissible Exposure (MPE) limits. Color coding on the diagram is as follows:

- Areas indicated as Gray are predicted to be below 5% of the MPE limits. **Gray represents areas more than 20 times below the most conservative exposure limit.**
- Green represents areas are predicted to be between 5% and 100% of the MPE limits. **Green areas are accessible to anyone.**
- Blue represents areas predicted to exceed the General Public MPE limits but are less than Occupational limits. **Blue areas should be accessible only to RF trained workers.**
- Yellow represents areas predicted to exceed Occupational MPE limits. **Yellow areas should be accessible only to RF trained workers able to assess current exposure levels.**
- Red represents areas predicted to have exposure more than 10 times the Occupational MPE limits. **Red indicates that the RF levels must be reduced prior to access.** An RF Safety Plan is required which outlines how to reduce the RF energy in these areas prior to access.

Appendix E – Assumptions and Definitions

General Model Assumptions

In this site compliance report, it is assumed that all antennas are operating at **full power at all times**. Software modeling was performed for all transmitting antennas located on the site. Sitesafe has further assumed a 100% duty cycle and maximum radiated power.

The site has been modeled with these assumptions to show the maximum RF energy density. Sitesafe believes this to be a *worst-case* analysis, based on best available data. Areas modeled to predict emissions greater than 100% of the applicable MPE level may not actually occur, but are shown as a *worst-case* prediction that could be realized real time. Sitesafe believes these areas to be safe for entry by occupationally trained personnel utilizing appropriate personal protective equipment (in most cases, a personal monitor).

Thus, at any time, if power density measurements were made, we believe the real-time measurements would indicate levels below those depicted in the RF emission diagram(s) in this report. By modeling in this way, Sitesafe has conservatively shown exclusion areas – areas that should not be entered without the use of a personal monitor, carriers reducing power, or performing real-time measurements to indicate real-time exposure levels.

Use of Generic Antennas

For the purposes of this report, the use of "Generic" as an antenna model, or "Unknown" for an operator means the information about a carrier, their FCC license and/or antenna information was not provided and could not be obtained while on site. In the event of unknown information, Sitesafe will use our industry specific knowledge of equipment, antenna models, and transmit power to model the site. If more specific information can be obtained for the unknown measurement criteria, Sitesafe recommends remodeling of the site utilizing the more complete and accurate data. Information about similar facilities is used when the service is identified and associated with a particular antenna. If no information is available regarding the transmitting service associated with an unidentified antenna, using the antenna manufacturer's published data regarding the antenna's physical characteristics makes more conservative assumptions.

Where the frequency is unknown, Sitesafe uses the closest frequency in the antenna's range that corresponds to the highest Maximum Permissible Exposure (MPE), resulting in a conservative analysis.

Definitions

5% Rule – The rules adopted by the FCC specify that, in general, at multiple transmitter sites actions necessary to bring the area into compliance with the guidelines are the shared responsibility of all licensees whose transmitters produce field strengths or power density levels at the area in question in excess of 5% of the exposure limits. In other words, any wireless operator that contributes 5% or greater of the MPE limit in an area that is identified to be greater than 100% of the MPE limit is responsible taking corrective actions to bring the site into compliance.

Compliance – The determination of whether a site is safe or not with regards to Human Exposure to Radio Frequency Radiation from transmitting antennas.

Decibel (dB) – A unit for measuring power or strength of a signal.

Duty Cycle – The percent of pulse duration to the pulse period of a periodic pulse train. Also, may be a measure of the temporal transmission characteristic of an intermittently transmitting RF source such as a paging antenna by dividing average transmission duration by the average period for transmission. A duty cycle of 100% corresponds to continuous operation.

Effective (or Equivalent) Isotropic Radiated Power (EIRP) – The product of the power supplied to the antenna and the antenna gain in a given direction relative to an isotropic antenna.

Effective Radiated Power (ERP) – In a given direction, the relative gain of a transmitting antenna with respect to the maximum directivity of a half wave dipole multiplied by the net power accepted by the antenna from the connecting transmitter.

Gain (of an antenna) – The ratio of the maximum intensity in a given direction to the maximum radiation in the same direction from an isotropic radiator. Gain is a measure of the relative efficiency of a directional antennas as compared to an omni directional antenna.

General Population/Uncontrolled Environment – Defined by the FCC, as an area where exposure to RF energy may occur to persons who are **unaware** of the potential for exposure and who have no control of their exposure. General Population is also referenced as General Public.

Generic Antenna – For the purposes of this report, the use of "Generic" as an antenna model means the antenna information was not provided and could not be obtained while on site. In the event of unknown information, Sitesafe will use our industry specific knowledge of antenna models to select a worst case scenario antenna to model the site.

Isotropic Antenna – An antenna that is completely non-directional. In other words, an antenna that radiates energy equally in all directions.

Maximum Measurement – This measurement represents the single largest measurement recorded when performing a spatial average measurement.

Maximum Permissible Exposure (MPE) – The maximum levels of RF exposure a person may be exposed to without harmful effect and with acceptable safety factor.

Occupational/Controlled Environment – Defined by the FCC, as an area where Radio Frequency Radiation (RFR) exposure may occur to persons who are **aware** of the

potential for exposure as a condition of employment or specific activity and can exercise control over their exposure.

OET Bulletin 65 – Technical guideline developed by the FCC's Office of Engineering and Technology to determine the impact of Radio Frequency radiation on Humans. The guideline was published in August 1997.

OSHA (Occupational Safety and Health Administration) – Under the Occupational Safety and Health Act of 1970, employers are responsible for providing a safe and healthy workplace for their employees. OSHA's role is to promote the safety and health of America's working men and women by setting and enforcing standards; providing training, outreach and education; establishing partnerships; and encouraging continual process improvement in workplace safety and health. For more information, visit www.osha.gov.

Radio Frequency (RF) – The frequencies of electromagnetic waves which are used for radio communications. Approximately 3 kHz to 300 GHz.

Radio Frequency Exposure (RFE) – The amount of RF power density that a person is or might be exposed to.

Spatial Average Measurement – A technique used to average a minimum of ten (10) measurements taken in a ten (10) second interval from zero (0) to six (6) feet. This measurement is intended to model the average power density an average sized human will be exposed to at a location.

Transmitter Power Output (TPO) – The radio frequency output power of a transmitter's final radio frequency stage as measured at the output terminal while connected to a load.

Appendix F – References

The following references can be followed for further information about RF Health and Safety.

Sitesafe, Inc.

<http://www.sitesafe.com>

FCC Radio Frequency Safety

<http://www.fcc.gov/encyclopedia/radio-frequency-safety>

National Council on Radiation Protection and Measurements (NCRP)

<http://www.ncrponline.org>

Institute of Electrical and Electronics Engineers, Inc., (IEEE)

<http://www.ieee.org>

American National Standards Institute (ANSI)

<http://www.ansi.org>

Environmental Protection Agency (EPA)

<http://www.epa.gov/radtown/wireless-tech.html>

National Institutes of Health (NIH)

<http://www.niehs.nih.gov/health/topics/agents/emf/>

Occupational Safety and Health Agency (OSHA)

<http://www.osha.gov/SLTC/radiofrequencyradiation/>

International Commission on Non-Ionizing Radiation Protection (ICNIRP)

<http://www.icnirp.org>

World Health Organization (WHO)

<http://www.who.int/peh-emf/en/>

National Cancer Institute

<http://www.cancer.gov/cancertopics/factsheet/Risk/cellphones>

American Cancer Society (ACS)

http://www.cancer.org/docroot/PED/content/PED_1_3X_Cellular_Phone_Towers.asp?sitearea=PED

European Commission Scientific Committee on Emerging and Newly Identified Health Risks

http://ec.europa.eu/health/ph_risk/committees/04_scenihp/docs/scenihp_o_022.pdf

Fairfax County, Virginia Public School Survey

<http://www.fcps.edu/fts/safety-security/RFEESurvey/>

UK Health Protection Agency Advisory Group on Non-ionising Radiation

http://www.hpa.org.uk/webw/HPAweb&HPAwebStandard/HPAweb_C/1317133826368

Norwegian Institute of Public Health

<http://www.fhi.no/dokumenter/545eea7147.pdf>