

May 6, 2014

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

| Re: | Notice of Exempt Modification – Addition of Three (3) Remote Radio Units |
|-------------------|--|
| Property Address: | 175 Dickinson Road, South Glastonbury, CT 06073 (the "Property") |
| Applicant: | New Cingular Wireless PCS, LLC ("AT&T") |

Dear Ms. Bachman:

AT&T currently maintains a wireless telecommunications facility on an existing 180-foot tower owned by SBA Properties, Inc. and located on the Property ("Tower"). AT&T's facility consists of nine (9) wireless telecommunication antennas at a height of 137-feet. The Connecticut Siting Council (the "Council") approved AT&T's use of the tower in the following prior decisions; EM-AT&T-054-020228, EM-CING-054-040210, EM-CING-054-081117, and EM-CING-054-120515. In its 6/1/2012 decision (the "Decision"), the Council approved for AT&T to install six (6) Remote Radio Units (" RRU"s) but AT&T installed only three (3). AT&T now intends to install the remaining three (3) RRUs to complete the installation. This Exempt Modification Application is necessary because the 6/1/2012decision is over one year old. Please refer to Tab 1 for further specifications of the new RRUs.

Please accept this application as notification pursuant to R.C.S.A. §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16-50j-72(b) (2). In accordance with R.C.S.A. §16-50j-73, a copy of this letter is being sent to Stewart ("Chip") Beckett, III, Chairman of the Glastonbury Town Council, 2155 Main Street, Glastonbury, CT 06033. A copy of this letter is also being sent to Brian R. Bronzi and Randall S. Chapman, P.O. Box 7, Troy, ME 04987-0007, owners of the property where the tower is located.

Connecticut Siting Council AT&T Exempt Mod Application Glastonbury, CT 06073 May 6, 2014

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 new RRUs will be installed at the 137-foot level of the 180-foot tower.
- 2. The proposed modifications will not involve any changes to ground-mounted equipment and, therefore, will not require and 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 RF emissions calculation for AT&T's modified facility was provided in the application which led to the 6/1/2012 Decision. Further, attached as Tab 3 please find an RF Emissions Compliance Report prepared by Site Safe, nc. and the Power Density calculations provided by the Council.
- 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 (<u>Tab 2</u>).

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,

Adam F. Braillard

cc:

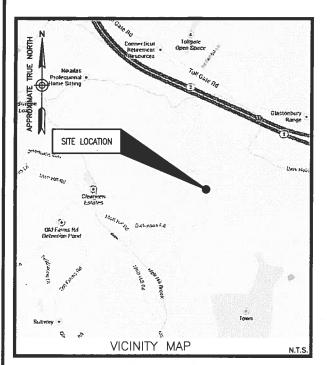
Stewart ("Chip") Beckett, III, Chairman of the Glastonbury Town Council Brian R. Bronzi and Randall S. Chapman, Owners of the Property

Enclosures

33 Boston Post Road • Suite 210 • Marlborough, MA 01752 www.smartlinkllc.com



| SITE NAI SI 17 SOUTH | A Constant of the second state of the second s | | <image/> |
|---|--|--|--|
| SITE COORDINATES: LATITUDE: N 41' 39' 21.09" LONGITUDE: W 72' 31' 23.88" (PER EXISTING FAA 1-A SURVEY) <u>ELEVATION DATA</u> GRADE ELEVATION AT TOWER = 478'± A.M.S.L ELEVATION BASED UPON FIELD SURVEY, NAVD 88 <u>ANTENNA ELEVATION (TO TOP OF ANTENNA)</u> ALPHA SECTOR: 140'-0'± A.G.L BETA SECTOR: 140'-0'± A.G.L GAMMA SECTOR: 140'-0'± A.G.L | SITE NAME: GLASTONBURY SOUTH SITE NUMBER: CT1124 LOCATION: 175 GLASTONBURY ROAD, SOUTH GLASTONBURY, CT 06073 ATP LICANT/LESSEE: AT&T MOBILITY 500 ENTERPRISE DRIVE, SUITE JA ROCKY HILL, CONNECTICUT 06067 | SHEET NUMBER DESCRIPTION T-1 TTLE SHEET G-1 GENERAL NOTES C-1 SITE PLAN & EQUIPMENT PLANS C-2 ANTENNA LAYOUTS & ELEVATIONS C-3 CONSTRUCTION DETAILS E-1 GROUNDING NOTES & DETAILS | ROBERT J, FOLEY, P.E. CT LICENSE NO. PENDO29056 |
| SITE INFORMATION | | | DRAWN BY: FG |
| • ADD (1) RRUS PER SECTOR FOR A TOTAL OF (3) NEW RRUS. | PROJECT INFORMATION THIS DOCUMENT WAS DEVELOPED TO REFLECT A SPECIFIC SITE AND ITS SITE CONDITIONS AND IS NOT TO BE USED FOR ANOTHER SITE OR WHEN OTHER CONDITIONS PERTAIN. REUSE OF THIS DOCUMENT IS AT THE SOLE RISK OF THE USER. | | REVIEWED BY: BSH CHECKED BY: CHN PROJECT NUMBER: 50063024 JOB NUMBER: 50063032 SITE ADDRESS: 175 DICKINSON ROAD |
| PROJECT DESCRIPTION | A.D.A. COMPLIANCE: FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. | SHEET INDEX | SOUTH GLASTONBURY, CT 06073 HARTFORD COUNTY SHEET TILE |
| | | F3 | TITLE SHEET Sheet number T — 1 |



DIRECTIONS FROM 500 ENTERPRISE DRIVE, ROCKY HILL, CT:

TAKE 1-91 N TO CT-3 N TO CT-2 E.TAKE EXIT 10 FOR CT-83 TOWARD E GLASTONBURY/MANCHESTER. TURN RIGHT ONTO CT-83 S/MANCHESTER RD. TURN LEFT ONTO NEW LONDON TURNPIKE. CONTINUE ONTO WASSUC RD. TURN RIGHT ONTO COUNTRY CLUB RD. TAKE THE 2ND LEFT ONTO MOTT HILL RD. SLIGHT LEFT ONTO DICKINSON RD. DESTINATION WILL BE ON THE LEFT.

GENERAL NOTES:

- 1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY: PROJECT MANAGEMENT - SMARTLINK
 - CONTRACTOR GENERAL CONTRACTOR (CONSTRUCTION) OWNER AT&T MOBILITY
 - OEM ORIGINAL EQUIPMENT MANUFACTURER
- PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILLARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF PROJECT
- ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE 3.
- ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
- 5. DRAWINGS PROVIDED HERE ARE NOT TO SCALE UNLESS OTHERWISE NOTED AND ARE INTENDED TO SHOW OUTLINE ONLY.
- UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS. 6.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE. 7.
- IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY PROJECT MANAGEMENT. 8.
- CONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. CONTRACTOR SHALL UTILIZE EXISTING TRAYS 9. AND/OR SHALL ADD NEW TRAYS AS NECESSARY. CONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH PROJECT MANAGEMENT.
- 10. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
- 11. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
- 12. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION
- 13. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
- 14. CONTRACTOR SHALL NOTIFY DEWBERRY 48 HOURS IN ADVANCE OF POURING CONCRETE, OR BACKFILLING TRENCHES, SEALING ROOF AND WALL PENETRATIONS & POST DOWNS, FINISHING, NEW WALLS OR FINAL ELECTRICAL CONNECTIONS FOR ENGINEER REVIEW.
- 15. CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND, CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED, CONTRACTOR SHALL NOTIFY PROJECT MANAGEMENT OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
- 16. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY CONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH LAND LORD. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
- 17. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. GOULPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPROSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

SITE WORK GENERAL NOTES:

- THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION
- 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 CONTRACTOR, EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO: A) FALL PROTECTION 2.
- B) CONFINED SPACE
- C) ELECTRICAL SAFETY D) TRENCHING & EXCAVATION
- 3. ALL SITE WORK SHALL BE AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.
- IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES, TOP SOIL AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
- ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION 5. 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, SUBJECT TO THE APPROVAL OF CONTRACTOR, OWNER AND/OR LOCAL UTILITIES.
- 6. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION.
- 7. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE AT&T SPECIFICATION FOR SITE SIGNAGE.
- 8. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE TRANSMISSION EQUIPMENT AND TOWER AREAS.
- NO FILL OR EMBANKWENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT. 9.
- 10. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION, SEE SOIL COMPACTION NOTES.
- 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. 11.
- 12. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL JURISDICTION'S GUIDELINES FOR EROSION AND SEDIMENT CONTROL.

CONCRETE AND REINFORCING STEEL NOTES:

- ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.
- ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE. A HIGHER STRENGTH (4000 PSI) MAY BE USED. ALL CONCRETING WORK SHALL BE DONE IN COORDANCE WITH 401 THE COORDANCE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.
- 3. REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE (UNO). SPLICES SHALL BE CLASS "B" AND ALL HOOKS SHALL BE STANDARD, UNO.
- THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:

CONCRETE CAST AGAINST EARTH.......3 IN. CONCRETE EXPOSED TO EARTH OR WEATHER: CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:

- A CHAMFER 3/4" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNO, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.
- INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR, SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR CONTRACTOR APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDED TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS. ALL EXPANSION/WEDGE ANCHORS SHALL BE STAINLESS STEEL OR HOT DIPPED GALVANIZED. EXPANSION BOLTS SHALL BE PROVIDED BY DANGET/FENTERD OR ADPONTO 6. RAMSET/REDHEAD OR APPROVED EQUAL.
- CONCRETE CYLINDER TEST IS NOT REQUIRED FOR SLAB ON GRADE WHEN CONCRETE IS LESS THAN 50 CUBIC YARDS (IBC 1905.6.2.3) IN THAT EVENT THE FOLLOWING RECORDS SHALL BE PROVIDED BY THE CONCRETE SUPPLIER;
- (A) RESULTS OF CONCRETE CYLINDER TESTS PERFORMED AT THE SUPPLIER'S PLANT.
- (B) CERTIFICATION OF MINIMUM COMPRESSIVE STRENGTH FOR
- THE CONCRETE GRADE SUPPLIED. FOR GREATER THAN 50 CUBIC YARDS THE GC SHALL PERFORM THE CONCRETE CYLINDER TEST.
- AS AN ALTERNATIVE TO ITEM 7, TEST CYLINDERS SHALL BE TAKEN INITIALLY AND THEREAFTER FOR EVERY 50 YARDS OF CONCRETE FROM EACH DIFFERENT BATCH PLANT.
- EQUIPMENT SHALL NOT BE PLACED ON NEW PADS FOR SEVEN DAYS AFTER PAD IS POURED, UNLESS IT IS VERIFIED BY CYLINDER TESTS THAT COMPRESSIVE STRENGTH HAS BEEN ATTAINED.

STRUCTURAL STEEL NOTES:

- ALL STEEL WORK SHALL BE PAINTED OR GALVANIZED IN ACCORDANCE WITH THE DRAWINGS UNLESS NOTED OTHERWISE. STRUCTURAL STEEL SHALL BE ASTM-A-35 UNLESS OTHERWISE NOTED ON THE SITE SPECIFIC DRAWINGS. STELL DESION, INSTALLATION AND BOLTING SHALL BE PERFORMED IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "MANUAL OF STEEL CONSTRUCTION".
- ALL WELDING SHALL BE PERFORMED USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION". PAINTED SURFACES SHALL BE TOUCHED UP.
- Bolted connections shall be astm a325 bearing type (3/4"0) connections and shall have minimum of two bolts unless noted otherwise.
- NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE 5/8" DIA. ASTM A 307 BOLTS UNLESS NOTED
- INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR, SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR CONTRACTOR APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS. ALL EXPANSION/WEDGE ANCHORS SHALL BE STAINLESS STEEL OR HOT DIPPED GALVANIZED. EXPANSION BOLTS SHALL BE PROVIDED BY RAMSET/REDHEAD OR APPROVED EQUAL.
- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ENGINEER REVIEW & APPROVAL ON PROJECTS REQUIRING STRUCTURAL STEEL.
- 7. ALL STRUCTURAL STEEL WORK SHALL BE DONE IN ACCORDANCE WITH AISC SPECIFICATIONS.
- SOIL COMPACTION NOTES FOR SLAB ON GRADE:
- EXCAVATE AS REQUIRED TO REMOVE VEGETATION & TOPSOIL EXPOSE UNDISTURBED NATURAL SUBGRADE AND PLACE CRUSHED STONE AS REQUIRED.
- COMPACTION CERTIFICATION: AN INSPECTION AND WRITTEN CERTIFICATION BY A QUALIFIED GEOTECHNICAL TECHNICIAN OR ENGINEER IS ACCEPTABLE. 2.
- AS AN ALTERNATIVE TO INSPECTION AND WRITTEN CERTIFICATION, THE "UNDISTURBED SOIL" BASE SHALL BE COMPACTED WITH "COMPACTION EQUIPMENT", LISTED BELOW, TO AT LEAST 90% MODIFIED PROCTOR MAXIMUM DENSITY PER ASTM D 1557 METHOD C. 3
- COMPACTED SUBBASE SHALL BE UNIFORM & LEVELED. PROVIDE 6" MINIMUM CRUSHED STONE OR GRAVEL COMPACTED IN 3" LIFTS ABOVE COMPACTED SOIL. GRAVEL SHALL BE NATURAL OR CRUSHED WITH 100% PASSING 1"
- AS AN ALTERNATIVE TO ITEMS 2 AND 3 PROOFROLL THE SUBGRADE SOILS WITH 5 PASSES OF A MEDIUM SIZED VIBRATORY PLATE COMPACTOR (SUCH AS BOMAG BPR 30/38) OR HAND-OPERATED SINGLE DRUM VIBRATORY ROLLER (SUCH AS BOMAG BW 55E). ANY SOFT AREAS THAT ARE ENCOUNTERED SHOULD BE REMOVED AND REPLACED WITH A WELL-GRADED GRANULAR FILL, AND COMPACTED AS STATED ABOVE.

COMPACTION EQUIPMENT:

1. HAND OPERATED DOUBLE DRUM, VIBRATORY ROLLER, VIBRATORY PLATE COMPACTOR OR JUMPING JACK COMPACTOR. CONSTRUCTION NOTES

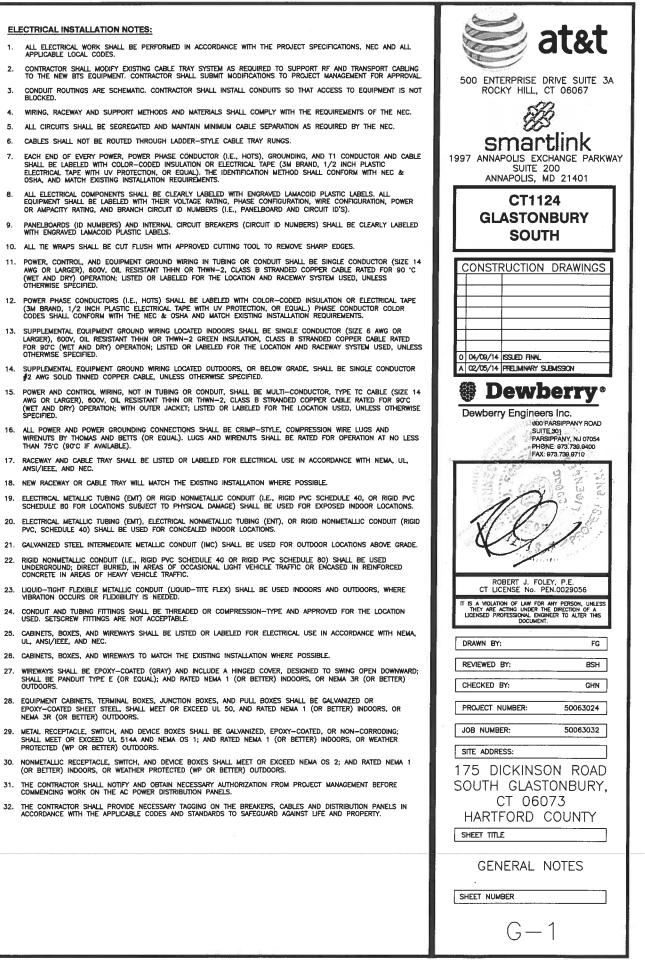
1. FIELD VERIFICATION

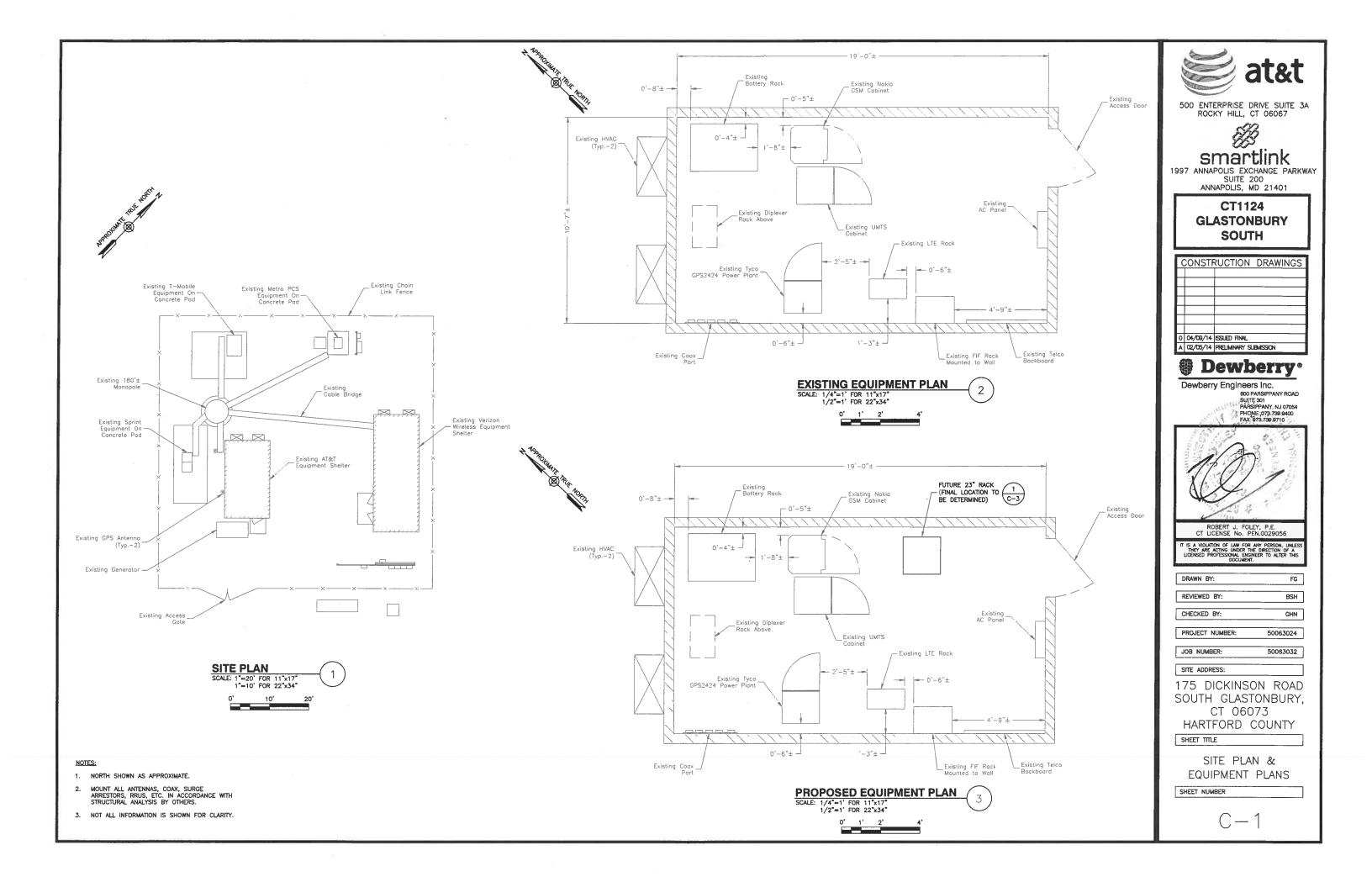
- CONTRACTOR SHALL FIELD VERIFY SCOPE OF WORK, AT&T ANTENNA PLATFORM LOCATION AND ANTENNAS TO BE REPLACED.
- COORDINATION OF WORK: CONTRACTOR SHALL COORDINATE RF WORK AND PROCEDURES WITH PROJECT MANAGEMENT. 2.
- 3.

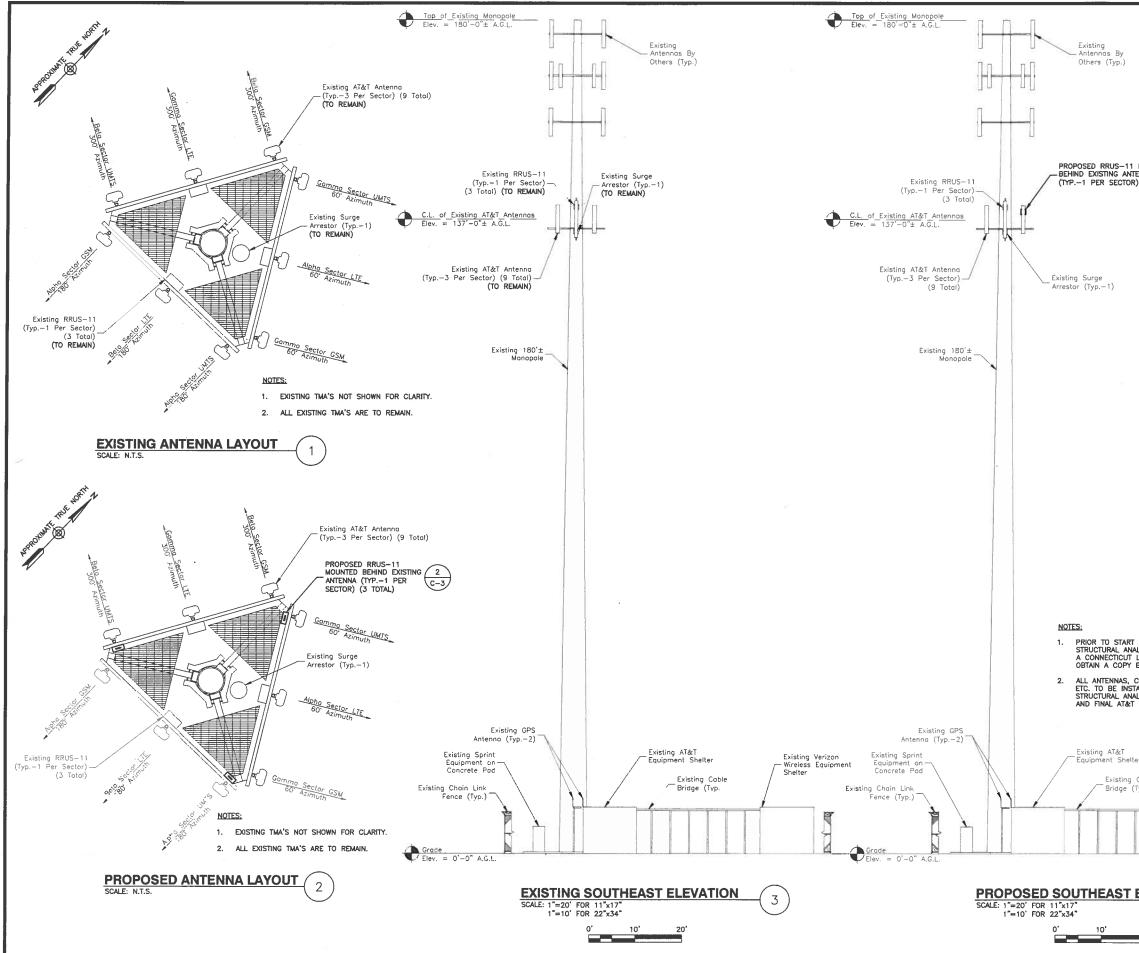
CABLE LADDER RACK: CONTRACTOR SHALL FURNISH AND INSTALL CABLE LADDER RACK, CABLE TRAY, AND CONDUIT AS REQUIRED TO SUPPORT CABLES TO THE NEW BTS LOCATION.

ELECTRICAL INSTALLATION NOTES:

- CONTRACTOR SHALL MODIFY EXISTING CABLE TRAY SYSTEM AS REQUIRED TO SUPPORT RF AND TRANSPORT CABLING TO THE NEW BTS EQUIPMENT. CONTRACTOR SHALL SUBMIT MODIFICATIONS TO PROJECT MANAGEMENT FOR APPROVAL.
- CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT
- WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
- 5. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
- ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH ENGRAVED LAWACOID PLASTIC LABELS. ALL EQUIPMENT SHALL BE LABELED WITH THEIR VOLTAGE RATING, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER 8. OR AMPACITY RATING, AND BRANCH CIRCUIT ID NUMBERS (I.E., PANELBOARD AND CIRCUIT ID'S).
- PANELBOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS.
- 10. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES
- POWER, CONTROL, AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE CONDUCTOR (SIZE 14 AWG OR LARGER), 600V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS 11. OTHERWISE SPECIFIED.
- 12. POWER PHASE CONDUCTORS (I.E., HOTS) SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2 INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUIL) PHASE CONDUCTOR COLOR CODES SHALL CONFORM WITH THE NEC & OSHA AND MATCH EXISTING INSTALLATION REQUIREMENTS.
- 13. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE CONDUCTOR (SIZE 6 AWG OR LARGER), 600V, OIL RESISTANT THHN OR THWN-2 GREEN INSULATION, CLASS B STRANDED COPPER CABLE RATED FOR 80°C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.
- 14. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED DUTDOORS, OR BELOW GRADE, SHALL BE SINGLE CONDUCTOR #2 AWG SOLID TINNED COPPER CABLE, UNLESS OTHERWISE SPECIFIED.
- POWER AND CONTROL WIRING, NOT IN TUBING OR CONDUIT, SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (SIZE 14 AWG OR LARGER), 600V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90°C (WET AND DRY) OPERATION; WITH OUTER JACKET; LISTED OR LABELED FOR THE LOCATION USED, UNLESS OTHERWISE SPECIFIED 15 SPECIFIED.
- 16. ALL POWER AND POWER GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRENUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRENUTS SHALL BE RATED FOR OPERATION AT NO LESS THAN 75'C (90'C IF AVAILABLE).
- 17. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEWA, UL, ANSI/IEEE, AND NEC.
- 18. NEW RACEWAY OR CABLE TRAY WILL MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.
- ELECTRICAL METALLIC TUBING (EMT) OR RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40, OR RIGID PVC SCHEDULE 80 FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
- 20. ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NONMETALLIC TUBING (ENT), OR RIGID NONMETALLIC CONDUIT (RIGID PVC, SCHEDULE 40) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
- 22. RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80) SHALL BE USED UNDERGROUND; DIRECT BURIED, IN AREAS OF OCCASIONAL LIGHT VEHICLE TRAFFIC OR ENCASED IN REINFORCED CONCRETE IN AREAS OF HEAVY VEHICLE TRAFFIC.
- 23. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
- 24. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SETSCREW FITTINGS ARE NOT ACCEPTABLE.
- 25. CABINETS, BOXES, AND WIREWAYS SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEWA, UL. ANSI/IEEE. AND NEC.
- 26. CABINETS, BOXES, AND WIREWAYS TO MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.
- WIREWAYS SHALL BE EPOXY-COATED (GRAY) AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARD; SHALL BE PANDUIT TYPE E (OR EQUAL); AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS. 27.
- 28. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES, AND PULL BOXES SHALL BE CALVANIZED OR EPOXY-COATED SHEET STEEL, SHALL MEET OR EXCEED UL 50, AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.
- 29. METAL RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED, OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
- NONMETALLIC RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS. 30.
- THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM PROJECT MANAGEMENT BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS. 31.







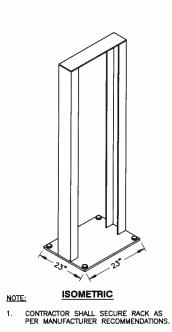
| | 500 ENTERPRISE DRIVE SUITE 3A ROCKY HILL, CT 06067 |
|---|--|
| r mounted Tenna R) (3 total) | Smartlink 1997 ANNAPOLIS EXCHANGE PARKWAY SUITE 200 ANNAPOLIS, MD 21401 CT1124 |
| | CONSTRUCTION DRAWINGS |
| | 0 04/09/14 ISSLED FINAL A 02/05/14 PRELIMINARY SLEMISSION |
| | ROBERT J. FOLEY, P.E. CT LICENSE No. PEN.0029056 |
| T OF ANY WORK, A PASSING ALYSIS SHALL BE PROVIDED BY LICENSED P.E., CONTRACTOR TO BEFORE STARTING ANY WORK. COAX, SURGE ARRESTORS, RRUS, TALLED IN ACCORDANCE WITH | T IS A VIOLITON OF LWE FOR ANY PERSON, UNLESS THEY ARE ATING UNDER THE DERECTION OF A LICENSED PROFESSIONAL ENGINEER TO ALTER THIS DOCUMENT. DRAWN BY: FG REVIEWED BY: BSH CHECKED BY: GHN |
| ALYSIS PROVIDED BY OTHERS T RF DATA SHEET. ter Existing Verizon Wireless Equipment Cable Shelter | PROJECT NUMBER: 50063024 JOB NUMBER: 50063032 SITE ADDRESS: 175 DICKINSON ROAD SOUTH GLASTONBURY, |
| | CT 06073 HARTFORD COUNTY SHEET TITLE ANTENNA LAYOUTS & ELEVATIONS |
| ELEVATION 4 | SHEET NUMBER |

| EXISTING ANTENNA SCHEDULE | | | |
|---------------------------|---------------------------------------|---|--|
| <u>Sector</u> Alpha: | MAKE POWERWAVE KMW POWERWAVE | MODEL ∦ 7770 AM-X-CD-16-65-00T-RET 7770 | <u>SIZE (INCHES)</u> 55x11x5 72.0"x11.8"x5.9" 55x11x5 |
| BETA: | POWERWAVE KMW POWERWAVE | 7770 AM-X-CD-16-65-00T-RET 7770 | 55x11x5 72.0"x11.8"x5.9" 55x11x5 |
| GAMMA: | POWERWAVE KMW POWERWAVE | 7770 AM-X-CD-16-65-00T-RET 7770 | 55x11x5 72.0"x11.8"x5.9" 55x11x5 |
| PROPOSED ANTENNA SCHEDULE | | | |
| <u>SECTOR</u> ALPHA: | MAKE POWERWAVE KMW POWERWAVE | MODEL. 7770 AM-X-CD-16-65-00T-RET 7770 | <u>SIZE (INCHES)</u> 55x11x5 72.0"x11.8"x5.9" 55x11x5 |

| BETA: | POWERWAVE | 7770 | 55x11x5 |
|--------|-----------|-----------------------|------------------|
| | KMW | AM-X-CD-16-65-00T-RET | 72.0"x11.8"x5.9" |
| | POWERWAVE | 7770 | 55x11x5 |
| GAMMA: | POWERWAVE | 7770 | 55x11x5 |
| | KMW | AM-X-CD-16-65-00T-RET | 72.0"x11.8"x5.9" |
| | POWERWAVE | 7770 | 55x11x5 |

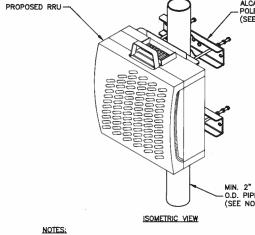
PROPOSED RRH'S SCHEDULE

| <u>SECTOR</u> ALPHA: | MAKE ERICSSON | MODEL# RRUS-11 | <u>SiZE (INCHES)</u> 19.7x17.0x7.2 |
|-------------------------|------------------|-------------------|---------------------------------------|
| BETA: | ERICSSON | RRUS-11 | 19.7x17.0x7.2 |
| gamma: | ERICCSON | RRUS-11 | 19.7x17.0x7.2 |



23" x 23" INDOOR RACK SCALE: N.T.S

1



- ALCATEL-LUCENT (ALU) VIA AT&T SUPPLIES RRU, RRU POLE-MOUNTING BRACKET. SUBCONTRACTOR SHALL SUPPLY POLE/PIPE AND INSTALL ALL MOUNTING HARDWARE INCLUDING ALU RRU POLE-MOUNTING BRACKET. ALU INSTALLS RRU AND MAKES CABLE TERMINATIONS.
- 2. FOR POLE DIAMETERS FROM 6 INCHES TO 15 INCHES, ALCATEL-LUCENT CAN SUPPLY A PAIR OF POLE MOUNTING METAL BANDS WITH BOLTING WELDMENT.

RRU DETAIL 2

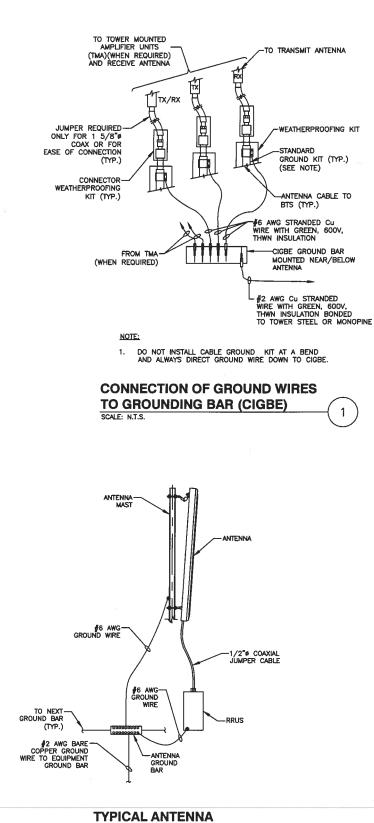
ALCATEL-LUCENT SUPPLIED POLE MOUNTING BRACKET (SEE NOTE 2)

MIN. 2" O.D. TO MAX. 6" — O.D. PIPE, GALVANIZED (SEE NOTE 2)

| at&t |
|--|
| 500 ENTERPRISE DRIVE SUITE 3A ROCKY HILL, CT 06067 |
| 1997 ANNAPOLIS EXCHANGE PARKWAY SUITE 200 ANNAPOLIS, MD 21401 |
| CT1124 GLASTONBURY SOUTH |
| CONSTRUCTION DRAWINGS |
| |
| |
| 0 04/09/14 ISSUED FINAL |
| |
| Dewberry Engineers Inc. |
| 600 PARSIPPANY ROAD SUITE 301 PARSI, PANY, NJ 07054 PHONE: 973, 739, 9400 |
| FAX: 973.739.9710 |
| 12 |
| |
| |
| ROBERT J. FOLEY, P.E. |
| CT LICENSE No. PEN.0029056 |
| IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER TO ALTER THIS DOCUMENT. |
| DRAWN BY: FG |
| REVIEWED BY: BSH CHECKED BY: GHN |
| PROJECT NUMBER: 50063024 |
| JOB NUMBER: 50063032 |
| SITE ADDRESS: |
| 175 DICKINSON ROAD SOUTH GLASTONBURY, CT 06073 |
| HARTFORD COUNTY |
| CONSTRUCTION DETAILS |
| SHEET NUMBER |
| C-3 |

GROUNDING NOTES:

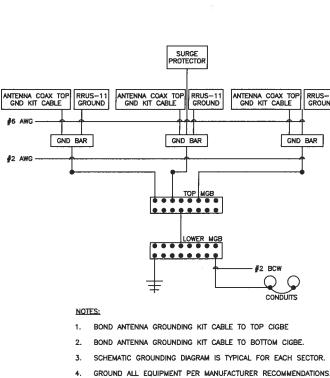
- THE CONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHD. THE STRE-SPECIFIC (UL, LP), OR NFAL LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TA GROUNDING STANDARDS. THE CONTRACTOR SHALL REPORT ANY VOLATIONS OR ADVERSE FINDINGS TO THE ENGINEER FOR RESOLUTION.
- 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. ALL AVALABLE GROUNDING ELECTRODES SHALL BE 2. CONNECTED TOGETHER IN ACCORDANCE WITH THE NEC
- THE CONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS. USE OF OTHER METHODS MUST BE PRE-APPROVED BY THE ENGINEER IN WRITING.
- THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS ON TOWER SITES AND 10 OHMS OR LESS ON ROOFTOP SITES. WHEN ADDING ELECTRODES, CONTRACTOR SHALL MAINTAIN A MINIMUM DISTANCE BETWEEN THE ADDED ELECTRODE AND ANY OTHER EXISTING ELECTRODE EQUAL TO THE BURIED LENGTH OF THE ROD. IDEALLY, CONTRACTOR SHALL STRIVE TO KEEP THE SEPARATION DISTANCE EQUAL TO TWICE THE BURIED LENGTH OF THE RODS.
- THE CONTRACTOR 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.
- METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUTY WITH 5 AVG COPPER WIRE AND UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
- 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 TRANSMISSION EQUIPMENT
- 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.
- ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
- USE OF 90' BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45' BENDS CAN BE ADEQUATELY SUPPORTED. IN ALL CASES, BENDS SHALL BE MADE WITH A MINIMUM BEND RADIUS OF B 10. INCHES.
- EACH INTERIOR TRANSMISSION CABINET FRAME/PLINTH SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH 6 AWG STRANDED, GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRE UNLESS NOTED OTHERWISE IN THE DETAILS. EACH OUTDOOR CABINET FRAME/PLINTH SHALL BE DIRECTLY CONNECTED TO THE BURIED GROUND RING WITH 2 AWG SOLID TIN-PLATED COPPER WIRE UNLESS NOTED OTHERWISE IN THE DETAILS.
- 12. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING, SHALL BE 2 AWG SOLID TIN-PLATED COPPER UNLESS OTHERWISE INDICATED.
- 13. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE. CONNECTIONS TO ABOVE GRADE UNITS SHALL BE MADE WITH EXOTHERMIC WELDS WHERE PRACTICAL OR WITH 2 HOLE MECHANICAL TYPE BRASS CONNECTORS WITH STANLESS STEEL HARDWARE, INCLUDING SET SCREWS. HIGH PRESSURE CRIMP CONNECTORS MAY ONLY BE USED WITH WRITTEN PERMISSION FROM SMARTLINK MARKET RESENTATIVE
- EXOTHERMIC WELDS SHALL BE PERMITTED ON TOWERS ONLY WITH THE EXPRESS APPROVAL OF THE TOWER MANUFACTURER OR THE CONTRACTORS STRUCTURAL ENGINEER.
- ALL WIRE TO WIRE GROUND CONNECTIONS TO THE INTERIOR GROUND RING SHALL BE FORMED USING HIGH PRESS CRIMPS OR SPLIT BOLT CONNECTORS WHERE INDICATED IN THE DETAILS.
- 16. ON ROOFTOP SITES WHERE EXOTHERMIC WELDS ARE A FIRE HAZARD COPPER COMPRESSION CAP CONNECTORS MAY BE USED FOR WIRE TO WIRE CONNECTORS. 2 HOLE MECHANICAL TYPE BRASS CONNECTORS WITH STAINLESS SITEL HARDWARE, INCLUDING SET SCREWS SHALL BE USED FOR CONNECTION TO ALL ROOFTOP TRANSMISSION EQUIPMENT AND STRUCTURAL STEEL.
- COAX BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR USING TWO-HOLE MECHANICAL TYPE BRASS CONNECTORS AND STAINLESS STEEL HARTWARE
- APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND 18. CONNECTIONS.
- 19. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
- MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC. 20.
- BOND ALL METALLIC OBJECTS WITHIN 6 FT OF THE BURIED GROUND RING WITH 2 AWG SOLD TIN-PLATED COPPER GROUND CONDUCTOR, DURING DCAVATION FOR NEW GROUND CONDUCTORS, IF EXISTING GROUND CONDUCTORS ARE ENCOUNTERED, BOND EXISTING GROUND CONDUCTORS 21. TO NEW CONDUCTORS.
- 22. 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 OF 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 WITH LISTED BONDING FITTINGS.



GROUNDING DETAIL

SCALE: N.T.S

3



SCHEMATIC GROUNDING DIAGRAM SCALE: N.T.S.

| ĺ | NAL |
|---|-----|
| | |

- TWO HOLE COPPER

COMPRESSION TERI

GROUND BAR

-FLAT WASHER (TYP.)

-1/2"x1 1/2" HEX BOLT

GROUND BAR

STAINLESS

HARDWARF

CABLE

GROUNDING

FLAT WASHER (TYP.)-

LOCK WASHER (TYP.)-

FRONT

NOTES:

#6 AWG

#2 AWG -

GROUNDING CABLE

NUT (TYP.)

STEEL

40

ELEVATION

SECTION 'A-A'

TYPICAL GROUND BAR

EXPOSED BARE COPPER TO BE KEPT TO ABSOLUTE MINIMUM, NO INSULATION ALLOWED WITHIN THE COMPRESSION TERMINAL (TYP.)

1. DOUBLING UP OR STACKING OF CONNECTIONS IS NOT PERMITTED. 2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.

| SCALE: N.T.S. (2) | |
|---|--|
| | |
| SURGE PROTECTOR | |
| ANTENNA COAX TOP RRUS-11 GND KIT CABLE GROUND ANTENNA COAX TOP RRUS-11 GND KIT CABLE GROUND | |
| | |
| | |
| | |
| | |
| | |
| ND ANTENNA GROUNDING KIT CABLE TO TOP CIGBE ND ANTENNA GROUNDING KIT CABLE TO BOTTOM CIGBE. | |
| TEMATIC GROUNDING KI CABLE TO BOTTOM CIGBE. | |

| 1 | \frown | |
|----|----------|---|
| -(| 4 |) |

| 🢓 at&t |
|---|
| 500 ENTERPRISE DRIVE SUITE 3A ROCKY HILL, CT 06067 Smartlink 1997 ANNAPOLIS EXCHANGE PARKWAY |
| SUITE 200 ANNAPOLIS, MD 21401 |
| CT1124 GLASTONBURY SOUTH |
| CONSTRUCTION DRAWINGS |
| |
| |
| |
| 0 04/09/14 ISSUED FINAL |
| 0 04/09/14 ISSUED FINAL A 02/05/14 PRELIMINARY SUBMISSION |
| Dewberry* |
| Dewberry Engineers Inc. 600 PARSIPPANY ROAD |
| SUITE 301 PARSIPPANY, NJ 07054 PHONE 973,739,9400 |
| FAX: 973.739.8710 |
| A. |
| 1 Dec |
| ROBERT J. FOLEY, P.E. |
| ROBERT J. FOLEY, P.E. CT LICENSE NO. PEN.0029056 IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE ORECTION OF A LICENSED PROFESSIONAL ENGINEER TO ALTER THS DECLINET. |
| DOCUMENT. |
| DRAWN BY: FG |
| REVIEWED BY: BSH |
| CHECKED BY: GHN |
| PROJECT NUMBER: 50063024 |
| JOB NUMBER: 50063032 |
| SITE ADDRESS: |
| 175 DICKINSON ROAD SOUTH GLASTONBURY, CT 06073 |
| HARTFORD COUNTY |
| |
| GROUNDING NOTES & DETAILS |
| SHEET NUMBER |
| E-1 |



Todd Oliver Smartlink, LLC Market Manager, NE 33 Boston Post Road, Suite 210 Marlborough, MA 01752

Reference: Smartlink LLC Site, Glastonbury South, 175 Dickinson Road South Glatonbury, CT

Date: 24 April 2014

1. This letter will address the additional RF impact that adding AT&T LTE antennas to the referenced site. Attached are two documents which cover the modeled RF emissions from the site.

2. The first report, "RF Emissions Compliance Report," for the site complied by Sitesafe, uses the antenna patterns for the antennas at the site to calculate the General Public Maximum Permissible Exposure (MPE) on the ground. The total MPE of all the carriers is 2.301% (based on the General Public MPE) based on this modeling, with AT&T antennas emitting a maximum of 0.644% of the General Public MPE on the ground.

3. The second attachment has the calculations, used by the Connecticut Siting Council, which assumes the maximum antenna gain transmits in a spherical pattern where the worst case results would be at the base of the tower. That calculation, based on the existing antennas, gives a result of 36.84% of the General Public MPE, with the AT&T antennas emitting 17.13% of the General Public MPE on the ground, using the modeling predictions used by Connecticut Siting Council.

4. In either case, the site is compliant with FCC guidelines. If you have any questions regarding this site, the compliance report, please contact me at 719-434-0700 or dcotton@sitesafe.com.

Director, RF Compliance

ATTACHMENT 1



RF EMISSIONS COMPLIANCE REPORT

Smartlink on behalf of AT&T Mobility, LLC

AT&T Mobility, LLC Site FA: 10042319 AT&T Mobility, LLC USID: 140409 AT&T Mobility, LLC Site ID: CT1124 AT&T Mobility, LLC Site Name: Glastonbury South 175 Dickinson Road South Glatonbury, CT 4/25/2014

Report Status:

AT&T Mobility, LLC Is Compliant

Prepared By:

Sitesafe, Inc.

200 North Glebe Road, Suite 1000

Arlington, VA 22203

Voice 703-276-1100 Fax 703-276-1169 Engineering Statement in Re: Electromagnetic Energy Analysis AT&T Mobility, LLC South Glatonbury, CT

My signature on the cover of this document indicates:

That I am registered as a Professional Engineer in the jurisdiction indicated; and

That I have extensive professional experience in the wireless communications engineering industry; and

That I am an employee of Sitesafe, Inc. in Arlington, Virginia; and

That I am thoroughly familiar with the Rules and Regulations of the Federal Communications Commission ("the FCC" and "the FCC Rules") both in general and specifically as they apply to the FCC's Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; and

That the technical information serving as the basis for this report was supplied by AT&T Mobility, LLC (See attached Site Summary and Carrier documents), and that AT&T Mobility, LLC's installations involve communications equipment, antennas and associated technical equipment at a location referred to as the "Glastonbury South" ("the site"); and

That AT&T Mobility, LLC proposes to operate at the site with transmit antennas listed in the carrier summary and with a maximum effective radiated power as specified by AT&T Mobility, LLC and shown on the worksheet, and that worst-case 100% duty cycle have been assumed; and

That this analysis has been performed with the assumption that the ground immediately surrounding the tower is primarily flat or falling; and

That at this time, the FCC requires that certain licensees address specific levels of radiofrequency energy to which workers or members of the public might possibly be exposed (at \$1.1307(b) of the FCC Rules); and

That such consideration of possible exposure of humans to radio-frequency radiation must utilize the standards set by the FCC, which is the Federal Agency having jurisdiction over communications facilities; and

That the FCC rules define two tiers of permissible exposure guidelines: 1) "uncontrolled environments," defined as situations in which persons may not be aware of (the "general public"), or may not be able to control their exposure to a transmission facility; and (2) "controlled environments," which defines situations in which persons are aware of their potential for exposure (industry personnel); and

That this statement specifically addresses the uncontrolled environment (which is more conservative than the controlled environment) and the limit set forth in the FCC rules for licensees of AT&T Mobility, LLC's operating frequency as shown on the attached antenna worksheet; and



That when applying the uncontrolled environment standards, the predicted Maximum Power Density at two meters above ground level from the proposed AT&T Mobility, LLC operation is no more than 0.644% of the maximum in any accessible area on the ground and

That it is understood per FCC Guidelines and OET65 Appendix A, that regardless of the existent radio-frequency environment, only those licenses whose contributions exceed five percent of the exposure limit pertinent to their operation(s) bear any responsibility for bringing any non-compliant area(s) into compliance; and

That when applying the uncontrolled environment standards, the cumulative predicted energy density from the proposed operation is no more than 2.301% of the maximum in any accessible area up to two meters above the ground per OET-65; and

That the calculations provided in this report are based on data provided by the client and antenna pattern data supplied by the antenna manufacturer, in accordance with FCC guidelines listed in OET-65. Horizontal and vertical antenna patterns are combined for modeling purposes to accurately reflect the energy two meters above ground level where on-axis energy refers to maximum energy two meters above the ground along the azimuth of the antenna and where area energy refers to the maximum energy anywhere two meters above the ground regardless of the antenna azimuth, accounting for cumulative energy from multiple antennas for the carrier and frequency range indicated; and

That the Occupational Safety and Health Administration has policies in place which address worker safety in and around communications sites, thus individual companies will be responsible for their employees' training regarding Radio Frequency Safety.

In summary, it is stated here that the proposed operation at the site would not result in exposure of the Public to excessive levels of radio-frequency energy as defined in the FCC Rules and Regulations, specifically 47 CFR 1.1307 and that AT&T Mobility, LLC's proposed operation is completely compliant.

Finally, it is stated that access to the tower should be restricted to communication industry professionals, and approved contractor personnel trained in radio-frequency safety; and that the instant analysis addresses exposure levels at two meters above ground level and does not address exposure levels on the tower, or in the immediate proximity of the antennas.



Note: Sitesafe has used data obtained from the "Connecticut Siting Council" to create this report. The manufacturer antenna patterns for AT&T Mobility, LLC were used to determine the RF emissions from the AT&T Mobility, LLC antennas. Generic antennas were used for the other carriers on the tower as this information was not available, or provided at the time the study was conducted. Sitesafe has also referenced the AT&T Mobility, LLC construction diagram for this site. The construction drawings have referenced that RRU (Remote Radio Unit's) will be installed with the existing antennas, these antennas have been labeled as "proposed" in this report.

The following documents below were the primary sources of data used to create this report. The primary document was the "Connecticut Siting Council" document. The AT&T Mobility, LLC construction diagram was referenced when appropriate.

Connecticut Siting Council: AlphaExMPowDens 4-16-14

AT&T Mobility, LLC Construction Diagram: 10042319.AE201.140409 (CT1124) Dewberry Rev 0

^[1] This Power Density information was taken from the Connecticut Siting Council database dated April 16, 2014.

^[2] This Power Density information is based on worse case assumptions from AT&T's radio frequency engineers.

EXISTING ANTENNA SCHEDULE

| <u>sector</u> Alpha: | MAKE POWERWAVE KMW POWERWAVE | MODEL# 7770 AM-X-CD-16-65-00T-RET 7770 | <u>SIZE (INCHES)</u> 55x11x5 72.0"x11.8"x5.9" 55x11x5 |
|-------------------------|---------------------------------------|---|--|
| BETA: | POWERWAVE | 7770 | 55x11x5 |
| | KMW | AM-X-CD-16-65-00T-RET | 72.0"x11.8"x5.9" |
| | POWERWAVE | 7770 | 55x11x5 |
| GAMMA: | POWERWAVE | 7770 | 55x11x5 |
| | KMW | AM-X-CD-16-65-00T-RET | 72.0"x11.8"x5.9" |
| | POWERWAVE | 7770 | 55x11x5 |

PROPOSED ANTENNA SCHEDULE

| <u>SECTOR</u> ALPHA: | MAKE POWERWAVE KMW POWERWAVE | <u>MODEL#</u> 7770 AM-X-CD-16-65-00T-RET 7770 | <u>SIZE (INCHES)</u> 55x11x5 72.0"x11.8"x5.9" 55x11x5 |
|-------------------------|---------------------------------------|--|--|
| BETA: | POWERWAVE | 7770 | 55x11x5 |
| | KMW | AM-X-CD-16-65-00T-RET | 72.0"x11.8"x5.9" |
| | POWERWAVE | 7770 | 55x11x5 |
| GAMMA: | POWERWAVE | 7770 | 55x11x5 |
| | KMW | AM-X-CD-16-65-00T-RET | 72.0"x11.8"x5.9" |
| | POWERWAVE | 7770 | 55x11x5 |

PROPOSED RRH'S SCHEDULE

| <u>SECTOR</u> ALPHA: | MAKE ERICSSON | MODEL# RRUS-11 | <u>SIZE (INCHES)</u> 19.7x17.0x7.2 |
|-------------------------|------------------|-------------------|---------------------------------------|
| BETA: | ERICSSON | RRUS-11 | 19.7x17.0x7.2 |
| GAMMA: | ERICCSON | RRUS-11 | 19.7x17.0x7.2 |



AT&T Mobility, LLC (Proposed) Glastonbury South Site Summary

| Carrier | Area Maximum Percentage MPE |
|-------------------------------|-----------------------------|
| AT&T Mobility, LLC | 0.143 % |
| AT&T Mobility, LLC | 0.045 % |
| AT&T Mobility, LLC | 0.158 % |
| AT&T Mobility, LLC (Proposed) | 0.119 % |
| AT&T Mobility, LLC (Proposed) | 0.179 % |
| MetroPCS (Pocket) | 0.198 % |
| Sprint-Nextel | 0.116 % |
| T-Mobile (VoiceStream) | 0.143 % |
| Verizon Wireless | 0.24 % |
| Verizon Wireless | 0.162 % |
| Verizon Wireless | 0.234 % |
| Verizon Wireless | 0.565 % |
| Composite Site MPE: | 2.301 % |



ATTACHMENT 2

| TS-V'Stream-054-010130 | Glastonbury - 175 Dickinson Road | VoiceStream | 4 | 470 | 177 | 0.0216 | 1930 | 1.0000 | 2.16% | |
|------------------------|----------------------------------|-----------------------|----|------------|------------|--------|-------------|--------|-------|--------|
| EM-Pocket-054-080917 | Glastonbury - 175 Dickinson Road | Pocket (now MetroPCS) | 3 | 631 | 147 | 0.0315 | 2130 | 1.0000 | 3.15% | |
| EM-VER-054-130805 | Glastonbury - 175 Dickinson Road | Verizon cellular | 9 | 243 | 167 | 0.0282 | 869 | 0.5793 | 4.87% | |
| EM-VER-054-130805 | Glastonbury - 175 Dickinson Road | Verizon PCS | 11 | 229 | 167 | 0.0325 | 1970 | 1.0000 | 3.25% | |
| EM-VER-054-130805 | Glastonbury - 175 Dickinson Road | Verizon AWS | 1 | 1750 | 167 | 0.0226 | 2145 | 1.0000 | 2.26% | |
| EM-VER-054-130805 | Glastonbury - 175 Dickinson Road | Verizon LTE | 1 | 802 | 167 | 0.0103 | 698 | 0.4653 | 2.22% | |
| EM-Sprint-054-121126 | Glastonbury - 175 Dickinson Road | Sprint CDMA/LTE | 2 | 625 | 157.4 | 0.0181 | 1900 | 1.0000 | 1.81% | |
| EM-CING-054-120515 | Glastonbury - 175 Dickinson Road | AT&T UMTS | 2 | 565 | 137 | 0.0216 | 880 | 0.5867 | 3.69% | |
| EM-CING-054-120515 | Glastonbury - 175 Dickinson Road | AT&T UMTS | 2 | 875 | 137 | 0.0335 | 1900 | 1.0000 | 3.35% | |
| EM-CING-054-120515 | Glastonbury - 175 Dickinson Road | AT&T GSM | 1 | 283 | 137 | 0.0054 | 880 | 0.5867 | 0.92% | |
| EM-CING-054-120515 | Glastonbury - 175 Dickinson Road | AT&T GSM | 4 | 525 | 137 | 0.0402 | 1900 | 1.0000 | 4.02% | |
| EM-CING-054-120515 | Glastonbury - 175 Dickinson Road | AT&T LTE | 1 | 1313 | 137 | 0.0252 | 734 | 0.4893 | 5.14% | 36.84% |

Power Density Calculations

| TS-V'Strear Glastonbur VoiceStrea | 4 | 470 | 177 | 0.0216 | 1930 | 1.0000 | 2.16% | |
|-----------------------------------|----|------|------------|--------|-------------|--------|-------|--------|
| EM-Pocket Glastonbuı Pocket (no | 3 | 631 | 147 | 0.0315 | 2130 | 1.0000 | 3.15% | |
| EM-VER-05 Glastonbui Verizon cel | 9 | 243 | 167 | 0.0282 | 869 | 0.5793 | 4.87% | |
| EM-VER-05 Glastonbui Verizon PC | 11 | 229 | 167 | 0.0325 | 1970 | 1.0000 | 3.25% | |
| EM-VER-05 Glastonbui Verizon AV | 1 | 1750 | 167 | 0.0226 | 2145 | 1.0000 | 2.26% | |
| EM-VER-05 Glastonbui Verizon LTI | 1 | 802 | 167 | 0.0103 | 698 | 0.4653 | 2.22% | |
| EM-Sprint- Glastonbui Sprint CDN | 2 | 625 | 157.4 | 0.0181 | 1900 | 1.0000 | 1.81% | |
| EM-CING-0 Glastonbui AT&T UMT | 2 | 565 | 137 | 0.0216 | 880 | 0.5867 | 3.69% | |
| EM-CING-0 Glastonbui AT&T UMT | 2 | 875 | 137 | 0.0335 | 1900 | 1.0000 | 3.35% | |
| EM-CING-0 Glastonbur AT&T GSM | 1 | 283 | 137 | 0.0054 | 880 | 0.5867 | 0.92% | |
| EM-CING-0 Glastonbui AT&T GSM | 4 | 525 | 137 | 0.0402 | 1900 | 1.0000 | 4.02% | |
| EM-CING-0 Glastonbu: AT&T LTE | 1 | 1313 | 137 | 0.0252 | 734 | 0.4893 | 5.14% | 36.84% |



FDH Engineering, Inc., 6521 Meridien Dr. Raleigh, NC 27616, Ph. 919.755.1012, Fax 919.755.1031

SBA Network Services, Inc. Structural Analysis for

176' Monopole Tower

AT&T Site Name: Glastonbury South AT&T Site ID: CT1124 SBA Site Name: Glastonbury SBA Site ID: CT02216-S

FDH Project Number 12-04838E S1

| Tower Components 63.9% Sufficient Foundation 65.6% Sufficient | 63.9% | Analysis Results |
|---|-------|------------------|
|---|-------|------------------|

Prepared By:

Randy C. Williame

Randy C. Williams, EI Project Engineer

FDH Engineering, Inc. 6521 Meridien Dr. Raleigh, NC 27616 (919) 755-1012 info@fdh-inc.com

CUT + CUT +

Christopher M. Murphy, PE CT PE License No. 25842 President

Christopher M. Hurpher

Reviewed By:

May 11, 2012

Prepared pursuant to TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures and 2005 Connecticut Building Code

Revision Date: 06/17/11

TABLE OF CONTENTS

| EXECUTIVE SUMMARY |
|----------------------|
| Conclusions |
| Recommendation |
| APPURTENANCE LISTING |
| RESULTS |
| GENERAL COMMENTS |
| LIMITATIONS |
| APPENDX 7 |

EXECUTIVE SUMMARY

At the request of SBA Network Services, Inc., FDH Engineering, Inc. performed a structural analysis of the monopole located in Glastonbury, CT to determine whether the tower is structurally adequate to support both the existing and proposed loads pursuant to the *Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, TIAIEIA*-222-F and 2005 Information pertaining to the existing/proposed antenna loading, current tower geometry, geotechnical data, foundation dimensions, and member sizes was obtained from: Connecticut Building Code.

- Paul J. Ford & Co. (Job No. 29200-887) original design drawings dated June 19, 2000
 - SBA Network Services, Inc.

The basic design wind speed per the TIA/EIA-222-F standards and 2005 Connecticut Building Code is 80 mph without ice and 38 mph with 1" radial ice. Ice is considered to increase in thickness with height.

Conclusions

provided the foundation was designed and constructed to support the original design reactions (see Paul J. Ford & Co. Job No. 29200-887), the foundation should have the necessary capacity to support the existing and proposed loading. For a With the existing and proposed antennas from AT&T in place at 137 ft, the tower meets the requirements of the *TIA/EIA-222- F* standards and 2005 *Connecticut Building Code* provided the **Recommendations** listed below are satisfied. Furthermore, more detailed description of the analysis of the tower, see the Results section of this report. Our structural analysis has been performed assuming all information provided to FDH Engineering. Inc. is accurate (i.e., the steel data, tower layout, existing antenna loading, and proposed antenna loading) and that the tower has been properly erected and maintained per the original design drawings.

Recommendations

To ensure the requirements of the TIA/EIA-222-F standards and 2005 Connecticut Building Code are met with the existing and proposed loading in place, we have the following recommendations:

- The proposed coax should be installed inside the pole's shaft but may be installed outside the pole's shaft in a single row if necessary. ÷
 - The proposed diplexers and RRUs should be installed directly behind the existing and proposed antennas. 2

m

APPURTENANCE LISTING

The proposed and existing antennas with their corresponding cables/coax lines are shown in Table 1. If the actual layout determined in the field deviates from the layout, FDH Engineering, Inc. should be contacted to perform a revised analysis.

Table 1 - Appurtenance Loading

Existing Loading:

| Antenna Elevation (ft) | Description | Coax and Lines ¹ | Camer | Mount Elevation (ft) | Mount Type |
|------------------------------|---|--------------------------------|--------------------------|----------------------------|--------------------------|
| 177 | (6) EMS RR90-17-02DP w/ Mount Pipe (12) MHAs | (12) 1-5/8' | T-Mobile | 176 | (3) T-Arms |
| 167 | (4) Antel LPA-80063/4CF w/ Mount Pipe (3) Antel BXA-70063/4CF W/ Mount Pipe (3) Antel BXA-171085/8BF w/ Mount Pipe (2) RFS APL868013 w/ Mount Pipe (6) FD9R6004/2C-3L Diplexers | (12) 1-5/8' | Verizon | 167 | (1) Low Profile Platform |
| 157 | (12) Decibel DB980H90E-M w/ Mount Pipe | (12) 1-5/8' | Sprint | 157 | (1) Low Profile Platform |
| 147 | (3) Kathrein 742 213 w/ Mount Pipe | (6) 1-5/8' | Pocket Communications | 147 | Flush mount |
| 137 | (6) Powerwave 7770.00 w/ Mount Pipe (6) Powerwave LGP21401 TMAs (6) Diplexers | (12) 1-5/8' 2 | AT&T | 137 | (1) Low Profile Platform |
| 1. Coax installed inside t | l inside the pole shaft unless otherwise noted. | | | | |

2. AT&T has (3) 1-5/8 coax installed outside the pole shaft in a single row.

Proposed Loading:

| Mouni Type | (1) Low Profile Platform |
|------------------------------|--|
| Mount Elevation (ft) | 137 |
| Cârtier | АТ&Т |
| Coax and Lines | (12) 1-5/8' (1) 3' Flex Conduit |
| Description | (6) Powerwave 7770.00 w/ Mount Pipe (3) KMW AM-X-CD-16-65-00T w/ Mount Pipe (6) Powerwave LGP21401 TMAs (6) Ericsson RRUS-11 RRUs (6) Powerwave LGP21903 Diplexers (1) Raycap DC 48-60-18-8F Surge Arrestor (3) Andrew ABT-DFDM-ADBH |
| Antenna Elevation (ft) | 137 |

4

RESULTS

The following yield strength of steel for individual members was used for analysis:

| Yield Strength | 65 ksi | 50 ksi | 75 ksi |
|----------------|----------------------|------------|--------------|
| Member Type | Tower Shaft Sections | Base Plate | Anchor Bolts |

Table 2 - Material Strength

Table 3 displays the summary of the ratio (as a percentage) of force in the member to their capacities. Values greater than 100% indicate locations where the maximum force in the member exceeds its capacity. *Note: Capacities up to 100% are considered acceptable.* **Table 4** displays the maximum foundation reactions.

If the assumptions outlined in this report differ from actual field conditions, FDH Engineering, Inc. should be contacted to perform a revised analysis. Furthermore, as no information pertaining to the allowable twist and sway requirements for the existing or proposed appurtenances was provided, deflection and rotation were not taken into consideration when performing this analysis.

See the Appendix for detailed modeling information

Table 3 - Summary of Working Percentage of Structural Components

| Pass Fail | Pass | Pass | Pass | Pass | Pass | Pass | |
|-------------------|------------------|------------------------|-------------------------|---------------------|--------------------------|-----------------------|---|
| % Capacity | 40.2 | 17.72 | 9.63 | 63.9 | 52.5 | 47.7 | |
| Size | TP32.817x24x0.25 | TP41.133x31.4796x0.375 | TP49.002x39.3487x0.4375 | TP56.55x46.8957x0.5 | (24) 2.25"Ø w/ BC = 64"Ø | 66" SQ. PL. x 3" Thk. | |
| Component Type | Pole | Pole | Pole | Pole | Anchor Bolts | Base Plate | |
| Elevation ft | 176 - 131.25 | 131.25 - 86.5 | 86.5 - 42.75 | 42.75 - 0 | | | *C association include 1.0 allocates attacks increases for mind |
| Section No. | [] | 12 | [] | L4 | | | *C |

Capacities include 1/3 allowable stress increase for wind.

Table 4 - Maximum Base Reactions

| Original Design (TIA/EIA-222-F) | 47 k | 38 k | 5,100 k-ft | |
|-------------------------------------|-------|-------|------------|---|
| Current Analysis (TIAIEIA-222 F) | 51 K* | 27 k | 3,344 k-ft | a svial loading chould not control the foundation analysis |
| Base Reactions | Axial | Shear | Moment | * Dor our evolution of with foundations of similar time, the avial loading should not control the foundation analysis |

er our experience with foundations of similar type, the axial loading should not control the foundation analysis.

ഹ

GENERAL COMMENTS

This engineering analysis is based upon the theoretical capacity of the structure. It is not a condition assessment of the tower and its foundation. It is the responsibility of SBA Network Services, Inc. to verify that the tower modeled and analyzed is the correct structure (with accurate antenna loading information) modeled. If there are substantial modifications to be made or the assumptions made in this analysis are not accurate, FDH Engineering, Inc. should be notified immediately to perform a revised analysis.

LIMITATIONS

All opinions and conclusions are considered accurate to a reasonable degree of engineering certainty based upon the evidence available at the time of this report. All opinions and conclusions are subject to revision based upon receipt of new or additional/updated information. All services are provided exercising a level of care and diligence equivalent to the standard and care of our profession. No other warranty or guarantee, expressed or implied, is offered. Our services are confidential in nature and we will not release this report to any other party without the client's consent. The use of this engineering work is limited to the express purpose for which it was commissioned and it may not be reused, or distributed for any other purpose without the written consent of FDH Engineering, Inc.

APPENDIX

~

| | ING ELEVATION | | Pipe 157 | Pipe 157 | 157 | | cet 147 | cet 147 | | (工) 137 (工) 137 | | # Mount 137 | # Mount 137 | | | 137 | | 137 | 137 | 137 137 | | | 13/ | - | / Fu | | TOWER DESIGN NOTES Tower is located in Hartford County, Connecticut. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard. Tower is also designed for a 38 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height. Deflections are based upon a 50 mph wind. TOWER RATING: 63.9% | | | | | lot: Glastonbury, CT - CT02216-S Project 12-04838E S1 Client SBA Network Services, Inc. Drawn by: Randy Williams App'd: Code: TIA/EIA-222-F Path: Code: TIA/EIA-222-F |
|----------------|---------------|-----|---|---|--|--|--|--|--|--|--|--|--|-----------------------------|------------------------------|---|------------------------------|---|--|--|-----------------------------|--|----------------------------|----------|-----------------------------------|--------------------|--|----------------------|--|------------------|--|---|
| | ~ - | | <u> </u> | (aprint) (4) DB980H90E-M w/Mount Pipe | Low Profile Platform (Sprint) | 742 213 w/ Mount Pipe (Pocket Communications) | 742 213 w/ Mount Pipe (Pocket Communications) | 742 213 w/ Mount Pipe (Pocket Communications) | (2) 7770.00 W/Mount Pipe (ATT) | (2) 7770.00 W/Mount Pipe (A (2) 7770.00 W/Mount Pipe (A | KMW AM-X-CD-16-65-00T w/ Mount Pipe (ATT) | RMW AM-X-CD-16-65-00T w/ Mount Pipe (ATT) | RMW AM-X-CD-16-65-00T w/ Mount | (2) LGP21401 TMA (ATT) | (2) LGP21401 TMA (ATT) | (2) LGP21903 Diplexer (ATT | (2) LGP2 1903 Diplexer (ATT) | (2) RRUS-11 (ATT) | (2) RRUS-11 (ATT) | ABT-DFDM-ADBH (ATT) ABT-DFDM-ADBH (ATT) | ABT-DFDM-ADBH (ATT) | Arrestor (ATT) | Low Profile Platform (ALL) | STRENGTH | GRAUE | 1 | TOWER DESIGN NOTES ounty, Connecticut. basic wind in accordance with the TIA 8 mph basic wind with 1.00 in ice. Ice 50 mph wind. | | | | | bury, CT - CT0221(8E S1 work Services, Inc. ^{Drawn} 222-F |
| | SIGNED APPUF | 176 | 1/6 | 176 | 176 | 176 176 | 176 | 1/6 | 167 | 167 | 167 | 167 | 167 | 167 | 167 | 167 | | | | 167 | 167 | 167 | | MATERIAL | 80 ksi | | TOWER DI rad County, Connet mph basic wind in ar a 38 mph basic v on a 50 mph wind. | | | | | |
| | DES | | (2) KK90-17-020P williount Pipe (T-Mobile) | (2) RR90-17-02DP wMount Pipe (T-Moble) | (2) RR90-17-02DP wMount Pipe (T-Mobile) | (4) MHA (T-Mobile) [4] MHA (T-Mobile) | (4) MHA (T-Mobile) | (3) I-AMTS (1-MND016) Low Profile Platform (Verizon) | (2) LPA-80063/4CF w/ Mount Pipe (Verizon) | LPA-80063/4CF w/ Mount Pipe (Verizon) | LPA-80063/4CF w/ Mount Pipe (Verizon) | BXA-70063/4CF W/ Mount Pipe (Verizon) | BXA-70063/4CF W/ Mount Pipe (Verizon) | BX4-70063/4CF W/ Mount Pipe | EXA-171085/8BF w/ Mount Pipe | (Verizon) BXA-171085(8BF w/ Mount Fine | (Verizon) | BAAT I/ 1055/36F W/ MOUNT PIPE (Verizon) | APL868013 w/ Mount Pipe (Verizon) APL868013 w/ Mount Pipe (Verizon) | (2) FD9R6004/2C-3L diplexer | (2) FD9R6004/2C-3L diplexer | (Venzon) [2] FD9R6004/2C-3L diplexer Monimon | (VERIZOR) | | GRAUE Fy A572-65 65 ksi | | Tower is located in Hartfc Tower designed for a 80. Tower is also designed fc Tower is also designed fc In thickness with height. Deflections are based up TOWER RATING: 63.9% | | AXIAL 72 K 8 K 998 kip-ft TORQUE 0 kip-ft AXIAL 38 mph WIND - 1.0000 in ICE | 27 K 3344 kip-ft | TORQUE 1 kip-ft REACTIONS - 80 mph WIND | FDH Engineering, Inc. 6521 Meridien Drive Raleigh, North Carolina Tower Analysis Phone: (919) 755-1012 FAX: (919) 755-1031 |
| | | | | | | | | <u> </u> | | | | - | | | | | | | | <u> </u> | = | 0 | | | _ | | | | | 27.57 | RF. | |
| 176.0 h | | | | 200000 <u>2</u> 0 200000 <u>2</u> 0 | | | | 1 | | | 131.3 1 | | | | | | | | _ | | <u>- </u> | 86.5 ft | | | | | | 42.8 ft | | 4 | <u>100</u> | |
| | 3't | | | | | | | | | | 1 ¹ 2 | | | | | | | | | | 00-710 | | | | | 10.1 | | 13.6 | | Weight (K) 34.2 | | |
| ┝ | 35.8170 | | | | | | | | 93-729 021-1330 | | | | | | | | | | 39-629 | 229∀ | | | | 46.0020 | | 0055.95 | | Bot Dia (in) | | | | |
| Ľ | 54.0000 | | | | | | | | 9624.15 | | | | | | | | | | | | | | | 784£.95 | | Z96 8'97 | | (ni) si Ū qoT | | | | |
| | 97.4 | | | | | | | 272 | | | | | | | | | | | | | | 9.25 | | | | Socket Length (ft) | | | | | | |
| - | | | | | 00971 | 0 | | | | | | | | | | 092 | | | | | | | | | | | 9267-0 | | 0.5000 | | Thickness (in) | |
| - | | | | | 81 81 | , | | | | $\overline{}$ | | | | | ~ | 8 | | | | | _ | | | | | | 18 48.00 | | 49.00 | | Length (ft) | |
| ┝ | | | | | 92 77 I | | | | | | 1 | | | | | 40 UL | | | | | | \neg | | | | | 3 | \rightarrow | 00 67 7 | | Section | |
| L | | | | | | | | | | | | | | | | | | | | | | | | | | | - | | · · | | | |