

May 21 2015

Members of the Siting Council Connecticut Siting Council Ten Franklin Square New Britain, CT 06051

RE: Notice of Exempt Modification

3114 Albany Ave., West Hartford, CT 06117

Longitude: -72 47 48 Latitude: 41 47 47

T-Mobile Site#: CT11765A_VOLTE

Members of the Siting Council:

On behalf of T-Mobile, Northeast Site Solutions (NSS) is submitting an exempt modification application to the Connecticut Siting Council for modification of existing equipment at a tower facility located at 3114 Albany Ave., West

Hartford, CT 06117

The 3114 Albany Ave., West Hartford, CT 06117 facility consists of a 346.3' Guyed Tower owned and operated by SBA. In order to accommodate technological changes and enhance system performance in the State of Connecticut, T-Mobile plans to modify the equipment configurations at many of its existing cell sites. Please accept this letter and attachments as notification, pursuant to R.C.S.A. Section 16-50j-73, of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2). In compliance with R.C.S.A. Section 16-50j-73, a copy of this letter and attachments is being sent to the chief elected official of the municipality in which the affected cell site is located.

As part of T-Mobile's VOLTE Project, T-Mobile desires to upgrade their equipment to meet the new standards of 4G technology. The new equipment will allow customers to download files and browse the internet at a high rate of speed while also allowing their phones to be compatible with the latest 4G technology.

Attached is a summary of the planned modifications, including power density calculations reflecting the change in T-Mobile's operations at the site along with the required fee of \$625.

The changes to the facility do not constitute modifications as defined in Connecticut General Statutes significantly changed or altered. Rather, the planned changes to



the facility fall squarely within those activities explicitly provided for in R.C.S.A. Section 16-50j-72(b)(2).

- 1. The overall height of the structure will be unaffected.
- 2. The proposed changes will not extend the site boundaries. There will be no effect on the site compound other than the new equipment cabinet.
- 3. The proposed changes will not increase the noise level at the existing facility by six decibels or more.
- 4. The changes in radio frequency power density will not increase the calculated "worst case" power density for the combined operations at the site to a level at or above the applicable standard for uncontrolled environments as calculated for a mixed frequency site.

For the foregoing reasons, Northeast Site Solutions (NSS) on behalf of T-Mobile, respectfully submits that the proposed changes at the referenced site constitute exempt modifications under R.C.S.A. Section 16-50j-72(b)(2).

Please feel free to call me at 860.209.4690 with any questions you may have concerning this matter.

Sincerely,

Denise Sabo

Mobile: 860-209-4690 Fax: 413-521-0558

Office: 199 Brickyard Rd, Farmington, CT 06032 Email: denise@northeastsitesolutions.com

cc: West Hartford Town Hall SBA Communications Corporation EDUCATIONAL MEDIA FOUNDATION

Exhibit A

T - Mobile -

T-MOBILE NORTHEAST LLC

SITE #: CT11765A

SITE NAME: CT765/MARLIN GUYED TOWER

SITE ADDRESS: 3114 ALBANY AVE WEST HARTFORD, CT, 06117 WIRELESS BROADBAND FACILITY **CONSTRUCTION DRAWINGS** (4E-GU19 CONFIGURATION)

VICINITY MAP Rd 44 LOCATION

DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ARCHITECT IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

CALL BEFORE YOU DIG:

CALL 800 922 4455, OR 811

CALL THREE WORKING DAYS PRIOR TO DIGGING SAFETY PRECAUTIONS SHALL BE IMPLEMENTED BY CONTRACTOR(S) AT ALTRENCHING IN ACCORDANCE WITH CURRENT OSHA STANDARDS.

COLOR CODE FOR UTILITY LOCATIONS

ELECTRIC - RED GAS/OIL - YELLOW PROPOSED EXCAVATION - WHITE TEL/CATV - ORANGE RECLAIMED WATER

GENERAL NOTES

- . THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES. RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY MUNICIPAL AND LITHLITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK. THE WORK PERFORMED ON THE PROJECT AND THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES.
- THE ARCHITECT/ENGINEER HAVE MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION AND CONSTRUCT DOCUMENTS THE COMPLETE SCOPE OF WORK. THE CONTRACTOR BIDDING THE JOB IS NEVERTHELESS CAUTIONED THAT MINOR OMISSIONS OR ERRORS IN THE DRAWINGS AND OR SPECIFICATIONS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE
- THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) THE T-MOBILE REPRESENTATIVE OF ANY CONFLICTS, ERRORS, OR OMISSIONS PRIOR TO THE SUBMISSION OF THE CONTRACTOR'S PROPOSAL OR PERFORMANCE OF WORK. IN THE EVENT OF DISCREPANCIES. THE CONTRACTOR SHALL PRICE THE MORE COSTLY OR EXPENSIVE WORK, UNLESS DIRECTED IN
- THE SCOPE OF WORK SHALL INCLUDE FURNISHING OF ALL MATERIALS, EQUIPMENT, LABOR AND ALL OTHER MATERIALS AND LABOR DEEMED NECESSARY TO COMPLETE THE WORK/PROJECT AS DESCRIBED HEREIN.
- THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION OF BIDS OR PERFORMING WORK TO FAMILIARIZE HIMSELF WITH THE FIELD CONDITIONS AND TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE
- THE CONTRACTOR SHALL OBTAIN AUTHORIZATION TO PROCEED WITH CONSTRUCTION PRIOR TO STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED BY THE CONSTRUCTION DRAWINGS/CONTRACT
- . THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S / VENDOR'S SPECIFICATIONS UNLESS NOTED OTHERWISE OR WHERE LOCAL CODES OR
- THE CONTRACTOR SHALL PROVIDE A FULL SET OF CONSTRUCTION DOCUMENTS AT THE SITE UPDATED WITH THE LATEST REVISIONS. AND ADDENDUM OR CLARIFICATIONS AVAILABLE FOR THE USE BY ALL PERSONNEL INVOLVED WITH THE PROJECT

- 9. 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 CONTRACT.
- 10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY PERMITS AND INSPECTIONS WHICH ARE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY, OR LOCAL GOVERNMENT AUTHORITY
- 11. THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, EASEMENTS, PAVING, CURBING ETC., DURING CONSTRUCTION, UPON COMPLETION OF WORK, THE CONTRACTOR SHALL REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DUE TO CONSTRUCTION ON OR ABOUT THE PROPERTY
- 12. THE CONTRACTOR SHALL KEEP THE GENERAL WORK AREA CLEAN AND HAZARD FREE DURING CONSTRUCTION AND DISPOSE OF ALL DIRT DEBRIS RUBBISH AND REMOVE FOUIPMENT NOT SPECIFIED AS REMAINING ON PROPERTY, PREMISES SHALL BE LEFT IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE
- 13. THE CONTRACTOR SHALL COMPLY WITH ALL OSHA REQUIREMENTS. AS WELL AS THE LATEST EDITIONS OF ANY PERTINENT STATE SAFFTY REGULATIONS.
- 14. THE CONTRACTOR SHALL NOTIFY THE T-MOBILE REPRESENTATIVE WHERE A CONFLICT OCCURS ON ANY OF THE CONTRACT DOCUMENTS. THE CONTRACTOR IS NOT TO ORDER MATERIAL OR CONSTRUCT ANY PORTION OF THE WORK THAT IS IN CONFLICT UNTIL CONFLICT IS RESOLVED BY THE T-MOBILE REPRESENTATIVE
- 15. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC., ON THE JOB.
- 16. THE CONTRACTOR SHALL RETURN ALL DISTURBED AREAS TO THEIR ORIGINAL CONDITION AT THE COMPLETION OF WORK.
- 17. ATLANTIS GROUP, INC. HAS NOT CONDUCTED A STRUCTURAL ANALYSIS FOR THIS PROJECT AND DOES NOT ASSUME ANY LIABILITY FOR THE ADEQUACY OF THE STRUCTURE AND COMPONENTS.
- 18. REFER TO STRUCTURAL ANALYSIS DOCUMENT ENTITLED, "STRUCTURAL ANALYSIS FOR SBA NETWORK SERVICES , INC." PREPARED BY FDH VELOCITEL, "T-MOBILE SITE ID CT11765A DATED MAY 04, 2015

SITE INFORMATION

SITE NUMBER: CT11765A

SITE NAME: SITE ADDRESS:

CT765/MARLIN GUYED TOWER 3114 ALBANY AVE WEST HARTFORD, CT, 06117

LAT./LONG.:

N 41.79639564 / W -72.79667 HARTFORD COUNTY

JURISDICTION: PROPERTY OWNER:

3114 ALBANY AVE. WEST HARTFORD, CT 06117

PROJECT SUB-CONTRACTORS

T-MORILE NORTHEAST, LLC. 35 GRIFFIN ROAD SOUTH BLOOMFIELD. CT 06002 (860) 692-7100

PROJECT MANAGER LISA LIN ALLEN

NORTHEAST SITE SOLUTIONS 54 MAIN STREET STURBRIDGE, MA 01566 (508) 434-5237

ARCHITECT/ENGINEER: ATLANTIS GROUP INC. 1340 CENTRE STREET SUITE 212 NEWTON CENTER, MA 02459 (617) 965-0789

CODE COMPLIANCE

ONNECTICUT STATE BUILDING CODE

2005 CONNECTICUT BUILDING CODE WITH 2013 AMENDMENT 2011 NATIONAL ELECTRICAL CODE

USE GROUP: N/A CONSTRUCTION TYPE: 2F

DESCRIPTION T-1 | TITLE SHEET N-1 GENERAL AND ELECTRICAL NOTES A-1 SITE PLAN A-2 | ELEVATION E-1 GROUNDING DIAGRAM E-2 GROUNDING DETAILS

SHEET INDEX

T - Mobile-

T-MOBILE NORTHEAST, LLC

35 GRIFFIN ROAD SOUT BLOOMFIELD, CT 06002

→ \TLANTIS GROUP

340 Centre Street, Suite 21 Newton Center, MA 02459 Office: 617-965-0789 Fax: 617-213-5056

	SUBMITTALS	
DATE	DESCRIPTION	REVISION
03/11/15	ISSUED FOR REVIEW	A
03/13/15	REVISED PER COMMENTS	0
03/13/15	REVISED PER COMMENTS	1
05/07/15	FINAL CD	2
03/21/15	REVISED PER COMMENTS	3

DEPT.	DATE	APP'D	REVISIONS
RFE			
RF MAN.			
ZONING			
OPS			
CONSTR.			
SITE AC.			

PROJECT NO:	CT11765A
DRAWN BY:	MB
CHECKED BY:	SM

PROFESSIONAL SEAL

THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTE WORK OF T-MOBILE, ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED

SITE NUMBER CT11765A

SITE NAME

CT765/MARLIN GUYED TOWER

SITE ADDRESS 3114 ALBANY AVE

WEST HARTFORD, CT, 0611

SHEET TITLE

TITLE SHEET

SHEET NUMBER

| =

ELECTRICAL NOTES:

- 1. INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, PLANT SERVICES AND ADMINISTRATIVE TASKS REQUIRED TO COMPLETE AND MAKE OPERABLE THE ELECTRICAL WORK SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN, INCLUDING BUT NOT LIMITED TO THE
- FOLLOWING:

 A. PREPARE AND SUBMIT SHOP DRAWINGS, DIAGRAMS AND
- B. PROCURE ALL NECESSARY PERMITS AND APPROVALS AND PAY ALL REQUIRED FEES AND CHARGES IN CONNECTION WITH THE WORK OF THIS CONTRACT.
- C. SUBMIT AS-BUILT DRAWINGS. OPERATING AND MAINTENANCE INSTRUCTIONS AND MANUALS.
- D. EXECUTE ALL CUTTING, DRILLING, ROUGH AND FINISH
 PATCHING OF EXISTING OR NEWLY INSTALLED CONSTRUCTION REQUIRED FOR THE WORK OF THIS CONTRACT. FOR SLAB PENETRATIONS THROUGH POST TENSION SLABS, X-RAY EXACT AREA OF PENETRATION PRIOR TO PERFORMING WORK COORDINATE ALL X-RAY WORK WITH BUILDING ENGINEER.
- E. PROVIDE HANGERS, SUPPORTS, FOUNDATIONS, STRUCTURAL FRAMING SUPPORTS, AND BASES FOR CONDUIT AND FOLIPMENT PROVIDED OR INSTALLED LINDER THE WORK OF HIS CONTRACT. PROVIDE COUNTER FLASHING, SLEEVES AND SEALS FOR FLOOR AND WALL PENETRATIONS
- F. MAINTAIN ALL EXISTING ELECTRICAL SERVICES IN THE BUILDING AREAS NOT AFFECTED BY THE ALTERATION DURING THE PROGRESS OF THE WORK INCLUDING PROVIDING ALL TEMPORARY JUMPERS. CONDUITS, CAPS, PROTECTIVE DEVICES, CONNECTIONS AND EQUIPMENT REQUIRED. PROVIDE TEMPORARY LIGHT AND POWER FOR CONSTRUCTION
- 2. IT IS THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS TO CALL FOR AN INSTALLATION THAT IS COMPLETE IN EVERY RESPECT. IT IS NOT THE INTENT TO GIVE EVERY DETAIL ON THE DRAWINGS AND IN THE SPECIFICATIONS. IF AN ITEM OF WORK IS INDICATED IN THE DRAWINGS. IT IS CONSIDERED SUFFICIENT FOR INCLUSION IN THE CONTRACT. FURNISH AND INSTALL ALL MATERIAL AND EQUIPMENT USUALLY FURNISHED OR NEEDED TO MAKE A COMPLETE INSTALLATION WHETHER OR NOT SPECIFICALLY MENTIONED IN THE CONTRACT DOCUMENTS.

GENERAL REQUIREMENTS

- 1. PROVIDE ALL WORK IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND LOCAL AND STATE ELECTRICAL
- 2. THE ELECTRICAL PLANS ARE DIAGRAMMATIC ONLY. REFER TO THE ARCHITECTURAL PLANS FOR THE EXACT DIMENSIONS OF THE BUILDING.
- 3. LOAD CALCULATIONS ARE BASED ON EXISTING BUILDING INFORMATION/DRAWINGS PROVIDED TO ENGINEERING. CONTRACTOR IS TO VERIFY ALL EXISTING RATINGS AND LOADS PRIOR TO PURCHASING OF SPECIFIED EQUIPMENT FOR COMPLIANCE TO NEC. CONTRACTOR TO NOTIFY ENGINEER OF ANY DISCREPANCIES AND REQUEST FURTHER DIRECTION BY
- . EXISTING BUILDING EQUIPMENT IS NOTED ON THE DRAWINGS. NEW OR RELOCATED EQUIPMENT IS SHOWN WITH SOLID LINES.
 FUTURE EQUIPMENT (NOT IN THIS CONTRACT) IS DEPICTED WITH
 SHADED LINES. REQUEST CLARIFICATION OF DRAWINGS OR OF SPECIFICATIONS PRIOR TO PRICING OR INSTALLATION.

GENERAL

- A. AFTER CAREFULLY STUDYING THE DRAWINGS AND SPECIFICATIONS, AND BEFORE SUBMITTING THE PROPOSAL, MAKE A MANDATORY SITE VISIT TO ASCERTAIN CONDITIONS OF THE SITE, AND THE NATURE AND EXACT QUANTITY OF WORK TO BE PERFORMED. NO EXTRA COMPENSATION WILL BE ALLOWED FOR FAILURE TO NOTIFY THE OWNER. IN WRITING. OF ANY DISCREPANCIES THAT MAY HAVE BEEN NOTED BETWEEN THE EXISTING CONDITIONS AND THE DRAWINGS AND
- B. VERIFY ALL MEASUREMENTS AT THE SITE AND BE RESPONSIBLE FOR CORRECTNESS OF SAME.
 6. QUALITY, WORKMANSHIP, MATERIALS AND SAFETY
- A. PROVIDE NEW MATERIALS AND EQUIPMENT OF A DOMESTIC MANUFACTURER BY THOSE REGULARLY ENGAGED IN THE PRODUCTION AND MANUFACTURE OF SPECIFIED MATERIALS AND EQUIPMENT, WHERE UL, OR OTHER AGENCY, HAS ESTABLISHED STANDARDS FOR MATERIALS, PROVIDE MATERIALS WHICH ARE LISTED AND LABELED ACCORDINGLY. THE COMMERCIALLY STANDARD ITEMS OF EQUIPMENT AND THE SPECIFIC NAMES MENTIONED HEREIN ARE INTENDED FOR THE
- PROPER FUNCTIONING OF THE WORK.

 B. WORK SHALL BE PERFORMED BY WORKMEN SKILLED IN THE TRADE REQUIRED FOR THE WORK. INSTALL MATERIALS AND EQUIPMENT TO PRESENT A NEAT APPEARANCE WHEN COMPLETED AND IN ACCORDANCE WITH THE APPROVED RECOMMENDATIONS OF THE MANUFACTURER AND IN ACCORDANCE WITH CONTRACT DOCUMENTS
- C. PROVIDE LABOR, MATERIALS, APPARATUS AND APPLIANCES ESSENTIAL TO THE FUNCTIONING OF THE SYSTEMS DESCRIBED OR INDICATED HEREIN, OR WHICH MAY BE REASONABLY IMPLIED AS ESSENTIAL WHENEVER MENTIONED IN THI CONTRACT DOCUMENT OR NOT.
- D. MAKE WRITTEN REQUESTS FOR SUPPLEMENTARY INSTRUCTIONS TO ARCHITECT/ENGINEER IN CASE OF DOUBT AS TO WORK INTENDED OR IN EVENT OF NEED FOR
- E. PERFORMANCE AND MATERIAL REQUIREMENTS SCHEDULED OR SPECIFIED ARE MINIMUM STANDARD ACCEPTABLE. THE RIGHT TO JUDGE THE QUALITY OF EQUIPMENT THAT DEVIATES FROM THE CONTRACT DOCUMENT REMAINS SOLELY ARCHITECT/ENGINEER. CONTRACT DOCUMENT OR NOT

1. GUARANTEE MATERIALS. PARTS AND LABOR FOR WORK FOR ONE YEAR FROM THE DATE OF ISSUANCE OF OCCUPANCY PERMIT. DURING THAT PERIOD. MAKE GOOD FAULTS OR IMPERFECTIONS THAT MAY ARISE DUE TO DEFECTS OR OMISSIONS IN MATERIALS OR WORKMANSHIP WITH NO ADDITIONAL COMPENSATION AND AS

CI FANING

- 1. REMOVE ALL CONSTRUCTION DEBRIS RESULTING FROM THE
- 2. CLEAN EQUIPMENT AND SYSTEMS FOLLOWING THE COMPLETION OF THE PROJECT TO THE SATISFACTION OF THE ENGINEER.

COORDINATION AND SUPERVISION

 CAREFULLY LAY OUT ALL WORK IN ADVANCE TO AVOID UNNECESSARY CUTTING, CHANNELING, CHASING OR DRILLING OF FLOORS, WALLS, PARTITIONS, CEILINGS OR OTHER SURFACES. WHERE SUCH WORK IS NECESSARY, HOWEVER, PATCH AND REPAIR THE WORK IN AN APPROVED MANNER BY SKILLED MECHANICS AT NO ADDITIONAL COST TO THE OWNER. RENDER FULL COOPERATION TO OTHER TRADES WHERE WORK WILL B INSTALLED IN CLOSE PROXIMITY TO WORK OF OTHER TRADES. ASSIST IN WORKING OUT SPACE CONDITIONS IF WORK IS INSTALLED BEFORE COORDINATION WITH OTHER TRADES, OR CAUSES INTERFERENCE, MAKE CHANGES NECESSARY TO CORRECT CONDITIONS WITHOUT EXTRA CHARGE.

- 1 AS-RIJIT DRAWINGS:
- A. UPON COMPLETION OF THE WORK, FURNISH TO THE OWNER "AS-BUILT" DRAWINGS.
- A LIPON COMPLETION OF THE WORK FULLY INSTRUCT T-MOBILE AS TO THE OPERATION AND MAINTENANCE OF ALL MATERIAL, FOUIPMENT AND SYSTEMS.
- B. PROVIDE 3 COMPLETE BOUND SETS OF INSTRUCTIONS FOR OPERATING AND MAINTAINING ALL SYSTEMS AND EQUIPMENT.

CUTTING AND PATCHING

- I. PROVIDE ALL CUTTING, DRILLING, ROUGH AND FINISH PATCHING REQUIRED TO COMPLETE THE WORK.
 2. OBTAIN OWNER APPROVAL PRIOR TO CUTTING THROUGH FLOORS
- OR WALLS FOR PIPING OR CONDUIT

TESTS, INSPECTION AND APPROVAL

- . BEFORE ENERGIZING ANY ELECTRICAL INSTALLATION, INSPECT EACH UNIT IN DETAIL. TIGHTEN ALL BOLTS AND CONNECTIONS (TORQUE-TIGHTEN WHERE REQUIRED) AND DETERMINE THAT ALL COMPONENTS ARE ALIGNED, AND THE EQUIPMENT IS IN SAFE. OPERATIONAL CONDITION.

 2. PROVIDE THE COMPLETE ELECTRICAL SYSTEM FREE OF GROUND
- FAULTS AND SHORT CIRCUITS SUCH THAT THE SYSTEM WILL OPERATE SATISFACTORILY UNDER FULL LOAD CONDITIONS, WITHOUT EXCESSIVE HEATING AT ANY POINT IN THE SYSTEM.

SPECIAL REQUIREMENTS

- 1. DO NOT LEAVE ANY WORK INCOMPLETE NOR ANY HAZARDOUS SITUATIONS CREATED WHICH WILL AFFECT THE LIFE OR SAFETY OF THE PUBLIC AND/OR BUILDING OCCUPANTS. DO NOT INTERFERE WITH OR CUTOFF ANY OF THE EXISTING SERVICES WITHOUT THE OWNER'S WRITTEN PERMISSION.
- 2. WHEN NECESSARY TO TEMPORARILY DISCONNECT ANY EXISTING BUILDING UTILITIES AND SERVICE SYSTEMS, INCLUDING FEEDER OR BRANCH CIRCUITING SUPPLYING EXISTING FACILITIES, CONFER WITH THE OWNER AND ARRANGE THE PERIOD OF INTERRUPTION FOR A TIME MUTUALLY AGREED UPON. SHUTDOWN NOTE: SCHEDULE AND NOTIFY OWNER 48 HOURS PRIOR TO SHUTDOWN. ALL SHUTDOWN WORK TO BE SCHEDULED AT A TIME CONVENIENT TO OWNER.

- 1. ROUTE ALL GROUNDING CONDUCTORS AS SHOWN ON CONDUIT/GROUNDING RISER.
- 2 ROLLTE 500 KCMIL CIL THEN CONDUCTOR FROM THE MGR LOCATION TO BUILDING STEEL. VERIFY BUILDING STEEL IS EFFECTIVELY GROUNDED PER NEC TO THE MAIN SERVICE
- GROUNDING ELECTRODE CONDUCTOR (GEC).

 3. MAKE ALL GROUND CONNECTIONS FROM MGB TO ELECTRICAL EQUIPMENT WITH 2 HOLE, CRIMP TYPE, BURNDY COMPRESSION TERMINATIONS SIZED AS REQUIRED
- 4. USE 1 HOLE, CRIMP TYPE, BURNDY COMPRESSIONS TERMINATIONS, SIZED AS REQUIRED, AT EQUIPMENT GROUND
- 5. HIRE AN INDEPENDENT LAB TO PERFORM THE SPECIFIED OHMS TESTING. PROVIDE 4 SETS OF THE CERTIFIED DOCUMENTS TO THE OWNER FOR VERIFICATION PRIOR TO THE PROJECT

RACEWAYS

- 1. ALL WIRING TO BE INSTALLED IN CONDUIT SYSTEMS IN ACCORDANCE WITH THE FOLLOWING:
- A. EXTERIOR FEEDERS AND CONTROL, WHERE UNDERGROUND, TO BE IN SCH 40 PVC.
- B. EXTERIOR, ABOVE GROUND POWER CONDUITS TO BE GALVANIZED RIGID STEEL (RGS).
- C. ALL TELECOMMUNICATION CONDUITS, INTERIOR/EXTERIOR, TO
- D. INSTALL PULL ROPES IN ALL NEW EMPTY CONDUITS INSTALLED ON THIS PROJECT.
- E. ALL TELECOM CONDUITS AND PULL BOXES INSTALLED ON THIS PROJECT TO BE LABELED "T-MOBILE". OWNER WILL PROVIDE LABELS FOR CONTRACTOR TO INSTALL F. INTERIOR FEEDERS TO BE INSTALLED IN E.M.T. WITH STEEL
- COMPRESSION FITTINGS G. MINIMUM SIZE CONDUIT TO BE 3/4" TRADE SIZE
- UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
 H. FINAL CONNECTIONS TO MOTORS AND VIBRATING EQUIPMENT TO BE INSTALLED IN LIQUID-TIGHT FLEXIBLE METAL CONDUIT.
- I. CONDUIT TO BE RUN CONCEALED IN CEILINGS, FINISHED AREAS OR DRYWALL PARTITIONS, UNLESS OTHERWISE NOTED
- J. THE ROUTING OF CONDUITS INDICATED ON THE DRAWINGS IS DIAGRAMMATIC. BEFORE INSTALLING ANY WORK, EXAMINE THE WORKING LAYOUTS AND SHOP DRAWINGS OF THE OTHER TRADES TO DETERMINE THE EXACT LOCATIONS AND
- K. ALL EXTERIOR MOUNTING HARDWARE TO BE GALVANIZED STEEL. COORDINATE WITH BUILDING ENGINEER PRIOR TO ATTACHING TO BUILDING STRUCTURE.

RACEWAYS CONT'D

- L. PENETRATIONS OF WALLS, FLOORS AND ROOFS, FOR THE PASSAGE OF ELECTRICAL RACEWAYS, TO BE PROPERLY SEALED AFTER INSTALLATION OF RACEWAYS SO AS TO MAINTAIN THE STRUCTURAL OR WATERPROOF INTEGRITY OF THE WALL, FLOOR OR ROOF SYSTEM TO BE PENETRATED.
 SEAL ALL CONDUIT PENETRATIONS THROUGH FIRE OR SMOKE RATED WALLS, CEILINGS OR SMOKE TIGHT CORRIDOR PARTITIONS TO MAINTAIN PROPER RATING OF WALL OR
- M. PROVIDE ALL CONDUIT ENDS WITH INSULATED METALLIC
- GROUNDING BUSHINGS.
 N. CONDUIT TO BE SUPPORTED AT MAXIMUM DISTANCE OF 8'-0", OR AS REQUIRED BY NEC, IN HORIZONTAL AND VERTICAL DIRECTIONS.
- O. PROVIDE STAINLESS STEEL BLANK COVER PLATES FOR ALL JUNCTION BOXES AND/OR OUTLET BOXES NOT USED IN EXPOSED AREAS. PROVIDE ALL OTHER UNUSED BOXES WITH STANDARD STEEL COVER PLATES.
- P. WHERE APPLICABLE, PROVIDE ROOFTOP CONDUIT SUPPORT SYSTEM, CONFORMING TO ROOFTOP WARRANTY REQUIREMENTS,

WIRES AND CARLES

- 1. CONTRACTOR TO COORDINATE WITH EQUIPMENT SUPPLIER AND VENDOR FOR EXACT EQUIPMENT OVER—CURRENT PROTECTION VOLTAGE, WIRE SIZE AND PLUG CONFIGURATION, IF APPLICABLE,
- 2. ALL EQUIPMENT/DEVICES TO BE PROVIDED WITH INSULATED GROUND CONDUCTOR 3. ALL WIRE AND CABLE TO BE 600VOLT, COPPER, WITH THWN/
- THHN INSULATION EXCEPT AS NOTED 4. WIRE FOR POWER AND LIGHTING WILL NOT BE LESS THAN NO.
- 12AWG. ALL WIRE NO. 8 AND LARGER TO BE STRANDED. 5. CONTROL WIRING IS NOT TO BE LESS THAN NO. 14AWG, FLEXIBLE IN SINGLE CONDUCTORS OR MULTI-CONDUCTOR CABLES. CONTROL WIRING WILL CONSIST OF MULTI-CONDUCTOR CABLES WHEREVER POSSIBLE, CABLES TO BE PROVIDED WITH AN OVERALL FLAME-RETARDANT, EXTRUDED JACKET AND RATED
- FOR PLENUM USE, ALL CONTROL WIRE TO BE 600VOLT RATED 6. WIRE PREVIOUSLY PULLED INTO CONDUIT IS CONSIDERED USED AND IS NOT TO BE RE-PULLED. 7. HOME RUNS AND BRANCH CIRCUIT WIRING FOR 20A, 120V
- CIRCUITS: LENGTH (FT.) HOME RUN WIRE SIZE NO. 12 NO. 10 51 TO 100 101 TO 150
- 8. VOLTAGE DROP IS NOT TO EXCEED 3%. 9. MAKE ALL CONNECTIONS WITH UL APPROVED, SOLDERLESS, PRESSURE TYPE INSULATED CONNECTORS: SCOTCHLOK OR AND APPROVED EQUAL.
- 1. ALL RECEPTACLES INSTALLED IN THIS PROJECT TO BE GROUNDING TYPE, WITH GROUNDING PIN SLOT CONNECTED TO DEVICE GROUND SCREW FOR GROUND WIRE CONNECTION. DISCONNECT SWITCHES AND FUSES
- 1. DISCONNECT SWITCHES TO BE VOLTAGE—RATED TO SUIT THE CHARACTERISTICS OF THE SYSTEM FROM WHICH THEY ARE
- 2. PROVIDE HEAVY-DUTY, METAL-ENCLOSED, EXTERNALLY-OPERATED DISCONNECT SWITCHES, FUSED OR UNFUSED, OF SUCH TYPE AND SIZE AS REQUIRED TO PROPERLY PROTECT OR DISCONNECT THE LOAD FOR WHICH THEY ARE INTENDED.
- 3 PROVIDE NEMA 1 DISCONNECT SWITCHES FOR INTERIOR INSTALLATION, NEMA 3R FOR EXTERIOR INSTALLATION.
- 4 DISCONNECT SWITCHES TO BE MANUFACTURED BY A. GENERAL ELECTRIC COMPANY
- B SQUARE-D PROVIDE RK-1 TYPE FUSES, UNLESS NOTED OTHERWISE. INSTALLATION
- 1. INSTALL DISCONNECT SWITCHES WHERE INDICATED ON DRAWINGS
- 2. INSTALL FUSES IN FUSIBLE DISCONNECT SWITCHES. FUSES
- MUST MATCH IN TYPE AND RATING.

 3. FUSES TO BE MOUNTED SO THAT THE LABELS SHOWING THEIR RATINGS CAN BE READ WITHOUT REQUIRING FUSE REMOVAL. 4. FURNISH AND DEPOSIT SPARE FUSES AT THE JOB SITE AS
- A. THREE SPARES FOR EACH TYPE AND SIZE, IN EXCESS OF
- 60A, USED FOR INITIAL FUSING. B. TEN PERCENT SPARES FOR EACH TYPE AND SIZE, UP TO AND INCLUDING 60A, USED FOR INITIAL FUSING, IN NO CASE WILL LESS THAN THREE FUSES OF ONE PARTICULAR TYPE AND SIZE BE FURNISHED.

GENERAL NOTES:

INTENT

- 1. THESE SPECIFICATIONS AND CONSTRUCTION DRAWINGS ACCOMPANYING THEM DESCRIBE THE WORK TO BE DONE AND THE MATERIALS TO BE FURNISHED FOR CONSTRUCTION.
- 2. THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO BE FULLY EXPLANATORY AND SUPPLEMENTARY. HOWEVER, SHOULD ANYTHING BE SHOWN, INDICATED, OR SPECIFIED ON ONE AND NOT THE OTHER, IT SHALL BE DONE THE SAME AS IF SHOWN INDICATED OR SPECIFIED IN BOTH
- 3. THE INTENTION OF THE DOCUMENTS IS TO INCLUDE ALL LABOR AND MATERIALS REASONABLY NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE WORK AS STIPULATED IN THE CONTRACT.
- 4. THE PURPOSE OF THE SPECIFICATIONS IS TO INTERPRET THE INTENT OF THE DRAWINGS AND TO DESIGNATE THE METHOD OF THE PROCEDURE, TYPE AND QUALITY OF MATERIALS REQUIRED TO COMPLETE THE WORK.
- 5. MINOR DEVIATIONS FROM THE DESIGN LAYOUT ARE ANTICIPATED AND SHALL BE CONSIDERED AS PART OF THE WORK. NO CHANGES THAT ALTER THE CHARACTER OF THE WORK WILL BE MADE OR PERMITTED BY THE OWNER WITHOUT ISSUING A

CONFLICTS

- 1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATIONS
 OF ALL MEASUREMENTS AT THE SITE BEFORE ORDERING ANY MATERIALS OR DOING ANY WORK. NO EXTRA CHARGE OR COMPENSATION SHALL BE ALLOWED DUE TO DIFFERENCE BETWEEN ACTUAL DIMENSIONS AND DIMENSIONS INDICATED ON THE CONSTRUCTION DRAWINGS. ANY SUCH DISCREPANCY IN DIMENSION WHICH MAY BE FOUND SHALL BE SUBMITTED TO THE OWNER FOR CONSIDERATION BEFORE THE CONTRACTOR
- PROCEEDS WITH THE WORK IN THE AFFECTED AREAS.

 2. THE BIDDER, IF AWARDED THE CONTRACT, WILL NOT BE ALLOWED ANY EXTRA COMPENSATION BY REASON OF ANY MATTER OR THING CONCERNING SUCH BIDDER MIGHT HAVE FULLY INFORMED THEMSELVES PRIOR TO THE BIDDING
- 3. NO PLEA OF IGNORANCE OF CONDITIONS THAT EXIST, OR OF DIFFICULTIES OR CONDITIONS THAT MAY BE ENCOUNTERED, OR OF ANY OTHER RELEVANT MATTER CONCERNING THE WORK TO BE PERFORMED IN THE EXECUTION OF THE WORK WILL BE ACCEPTED AS AN EXCUSE FOR ANY FAILURE OR OMISSION ON THE PART OF THE CONTRACTOR TO FULFILL EVERY DETAIL OF ALL THE REQUIREMENTS OF THE CONTRACT DOCUMENTS

CONTRACTS AND WARRANTIES

- 1. CONTRACTOR IS RESPONSIBLE FOR APPLICATION AND PAYMENT OF CONTRACTOR LICENSES AND BONDS
- 2. SEE MASTER CONTRACTION SERVICES AGREEMENT FOR ADDITIONAL DETAILS.

 ALL MATERIALS MUST BE STORED IN A LEVEL AND DRY FASHION
 AND IN A MANNER THAT DOES NOT NECESSARILY OBSTRUCT THE RECOMMENDATIONS OF THE ASSOCIATED MANUFACTURER.

- 1. THE CONTRACTORS SHALL, AT ALL TIMES, KEEP THE SITE FREE FROM ACCUMULATION OF WASTE MATERIALS OR RUBBISH CAUSED BY THEIR EMPLOYEES AT WORK AND AT THE COMPLETION OF THE WORK. THEY SHALL REMOVE ALL RUBBISH FROM AND ABOUT THE BUILDING AREA, INCLUDING ALL THEIR TOOLS, SCAFFOLDING AND SURPLUS MATERIALS AND SHALL LEAVE THEIR WORK CLEAN AND READY TO USE
- EXTERIOR A. VISUALLY INSPECT EXTERIOR SURFACES AND REMOVE ALL TRACES OF SOIL, WASTE MATERIALS, SMUDGES AND OTHER
- B. REMOVE ALL TRACES OF SPLASHED MATERIALS FROM ADJACENT SURFACES.
 C. IF NECESSARY, TO ACHIEVE A UNIFORM DEGREE OF
- CLEANLINESS, HOSE DOWN THE EXTERIOR OF THE STRUCTURE. A. VISUALLY INSPECT INTERIOR SURFACE AND REMOVE ALL TRACES OF SOIL, WASTE MATERIALS, SMUDGES AND OTHER FOREIGN MATTER FROM WALLS, FLOOR, AND CEILING.

B. REMOVE ALL TRACES OF SPLASHED MATERIALS FROM

ADJACENT SURFACES. C. REMOVE PAINT DROPPINGS, SPOTS, STAINS, AND DIRT FROM FINISHED SURFACES.

CHANGE ORDER PROCEDURE:
1. REFER TO SECTION 17 OF SIGNED MCSA: SEE PROFESSIONAL SERVICE AGREEMENT FOR MCSA

RELATED DOCUMENTS AND COORDINATION

1. GENERAL CARPENTRY, ELECTRICAL AND ANTENNA DRAWINGS ARE INTERRELATED. IN PERFORMANCE OF THE WORK, THE CONTRACTOR MUST REFER TO ALL DRAWINGS. ALL COORDINATION TO BE THE RESPONSIBILITY OF THE CONTRACTOR

- 1. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AS REQUIRED AND LISTED IN THESE SPECIFICATIONS TO THE OWNER FOR
- 2. ALL SHOP DRAWINGS SHALL BE REVIEWED, CHECKED AND CORRECTED BY CONTRACTOR PRIOR TO SUBMITTAL TO THE

PRODUCTS AND SUBSTITUTIONS

- 1. SUBMIT 3 COPIES OF EACH REQUEST FOR SUBSTITUTION. IN EACH REQUEST, IDENTIFY THE PRODUCT OR FABRICATION OR INSTALLATION METHOD TO BE REPLACED BY THE SUBSTITUTION. INCLUDE RELATED SPECIFICATION SECTION AND DRAWING NUMBERS AND COMPLETE DOCUMENTATION SHOWING COMPLIANCE WITH THE REQUIREMENTS FOR SUBSTITUTIONS
 2. SUBMIT ALL NECESSARY PRODUCT DATA AND CUT SHEETS
- WHICH PROPERLY INDICATE AND DESCRIBE THE ITEMS,
 PRODUCTS AND MATERIALS BEING INSTALLED. THE CONTRACTOR SHALL, IF DEEMED NECESSARY BY THE OWNER, SUBMIT ACTUAL SAMPLES TO THE OWNER FOR APPROVAL IN LIEU OF CUT

ARCHITECTURAL SYMBOLS

STORAGE

38

DETAIL REFERENCE KEY

- DRAWING DETAIL NUMBER-

EXISTING N.I.C.

LSHEET NUMBER OF DETAIL-

- REFER TO

RE: 2/A-3

QUALITY ASSURANCE

1. ALL WORK SHALL BE IN ACCORDANCE WITH APPLICABLE LOCAL,
STATE AND FEDERAL REGULATIONS. THESE SHALL INCLUDE, BUT
NOT BE LIMITED TO THE APPLICABLE CODES SET FORTH BY THE LOCAL GOVERNING BODY, SEE "CODE COMPLIANCE" T-1.

ADMINISTRATION 1. BEFORE THE COMMENCEMENT OF ANY WORK, THE CONTRACTOR

WILL ASSIGN A PROJECT MANAGER WHO WILL ACT AS A SINGLE POINT OF CONTACT FOR ALL PERSONNEL INVOLVED IN THIS PROJECT. THIS PROJECT MANAGER WILL DEVELOP A MASTER SCHEDULE FOR THE PROJECT WHICH WILL BE SUBMITTED TO THE OWNER PRIOR TO THE COMMENCEMENT OF ANY WORK.
2. SUBMIT A BAR TYPE PROGRESS CHART, NOT MORE THAN 3

- DAYS AFTER THE DATE ESTABLISHED FOR COMMENCEMENT OF THE WORK ON THE SCHEDULE, INDICATING A TIME BAR FOR EACH MAJOR CATEGORY OR UNIT OF WORK TO BE PERFORMED AT THE SITE, PROPERLY SEQUENCED AND COORDINATED WITH OTHER ELEMENTS OF WORK AND SHOWING COMPLETION OF THE WORK SUFFICIENTLY IN ADVANCE OF THE DATE ESTABLISHED FOR SUBSTANTIAL COMPLETION OF THE WORK.

 3. PRIOR TO COMMENCING CONSTRUCTION, THE OWNER SHALL
- SCHEDULE AN ON-SITE MEETING WITH ALL MAJOR PARTIES. THIS WOULD INCLUDE, BUT NOT LIMITED TO, THE OWNER, PROJECT MANAGER, CONTRACTOR, LAND OWNER REPRESENTATIVE, LOCAL TELEPHONE COMPANY, TOWER ERECTION FOREMAN (IF SUBCONTRACTED).
 4. CONTRACTOR SHALL BE EQUIPPED WITH SOME MEANS OF
- CONSTANT COMMUNICATIONS, SUCH AS A MOBILE PHONE OR A BEEPER. THIS EQUIPMENT WILL NOT BE SUPPLIED BY THE
- OWNER, NOR WILL WIRELESS SERVICE BE ARRANGED.
 5. DURING CONSTRUCTION, CONTRACTOR MUST ENSURE THAT EMPLOYEES AND SUBCONTRACTORS WEAR HARD HATS AT ALL TIMES. CONTRACTOR WILL COMPLY WITH ALL WPCS SAFETY REQUIREMENTS IN THEIR AGREEMENT.
- 6. PROVIDE WRITTEN DAILY UPDATES ON SITE PROGRESS TO THE
- 7. COMPLETE INVENTORY OF CONSTRUCTION MATERIALS AND FOUIPMENT IS REQUIRED PRIOR TO START OF CONSTRUCTION 8. NOTIFY THE OWNER/PROJECT MANAGER IN WRITING NO LESS
 THAN 48 HOURS IN ADVANCE OF CONCRETE POURS. TOWER ERECTIONS, AND EQUIPMENT CABINET PLACEMENTS.

INSURANCE AND BONDS
1. CONTRACTOR, AT THEIR OWN EXPENSE, SHALL CARRY AND MAINTAIN, FOR THE DURATION OF THE PROJECT, ALL INSURANCE, AS REQUIRED AND LISTED. AND SHALL NOT COMMENCE WITH THEIR WORK UNTIL THEY HAVE PRESENTED AN ORIGINAL CERTIFICATE OF INSURANCE STATING ALL COVERAGES TO THE OWNER. REFER TO THE MASTER AGREEMENT FOR REQUIRED INSURANCE LIMITS.

ADJ

AGL

CLG

DWG

ELEC

TYP VIF

UON

WWF

CONC

DIA OR Ø

APPROX

THE OWNER SHALL BE NAMED AS AN ADDITIONAL INSURED ON ALL POLICIES. 3. CONTRACTOR MUST PROVIDE PROOF OF INSURANCE

ADJUSTABLE

APPROXIMATE

CFILING

CONCRETE

DIAMETER

DRAWING

ELECTRICAL

EACH

CONTINUOUS

ABOVE GROUND LINE

BASE TRANSMISSION STATION CABINET

DRAWN BY CHECKED BY **ABBREVIATIONS**

PROFESSIONAL SEAL

T - Mobile -

T-MOBILE NORTHEAST, LLC

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FAX:(860) 692-7159

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GROUP

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Newton Center, MA 02459 Office: 617-965-0789

Fax: 617-213-5056

SUBMITTALS

DESCRIPTION

ISSUED FOR REVIEW

FINAL CD

REVISIONS

CT11765A

SM

03/13/15 REVISED PER COMMENTS

03/21/15 REVISED PER COMMENTS

DEPT. DATE APP'D

PROJECT NO:

ZONING

SITE AC.

03/13/15 REVISED PER COMMENTS

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SITE NUMBER

CT765/MARLIN GUYED TOWER SITE ADDRESS

WEST HARTFORD, CT, 06117

SHEET TITLE **GENERAL** AND ELECTRICAL

ELEV EQ ELEVATION **EQUAL** EQUIP EGB EQUIPMENT EQUIPMENT GROUND BAR **EXISTING** (E) EXT FXTFRIOR FINISHED FLOOR FF GA **GAUGE** GALV GALVANIZED GENERAL CONTRACTOR GRND LG MAX GROUND MAXIMUM MECH MECHANICAL MICROWAVE DISH MW MFR MANUFACTURER MGB MASTER GROUND BAR MIN MINIMUM MTL METAL (N) NIC NEW NOT IN CONTRACT NTS OC NOT TO SCALE ON CENTER OPP **OPPOSITE** (P) PCS PPC PROPOSED PERSONAL COMMUNICATION SYSTEM POWER PROTECTION CABINET SQUARE FOOT SHT SIM SS STL SHEET SIMII AR STAINLESS STEEL STEEL TOP OF CONCRETE TOC TOM TOP OF MASONRY

TYPICAL

VERIFY IN FIELD

UNLESS OTHERWISE NOTED

WELDED WIRE FABRIC

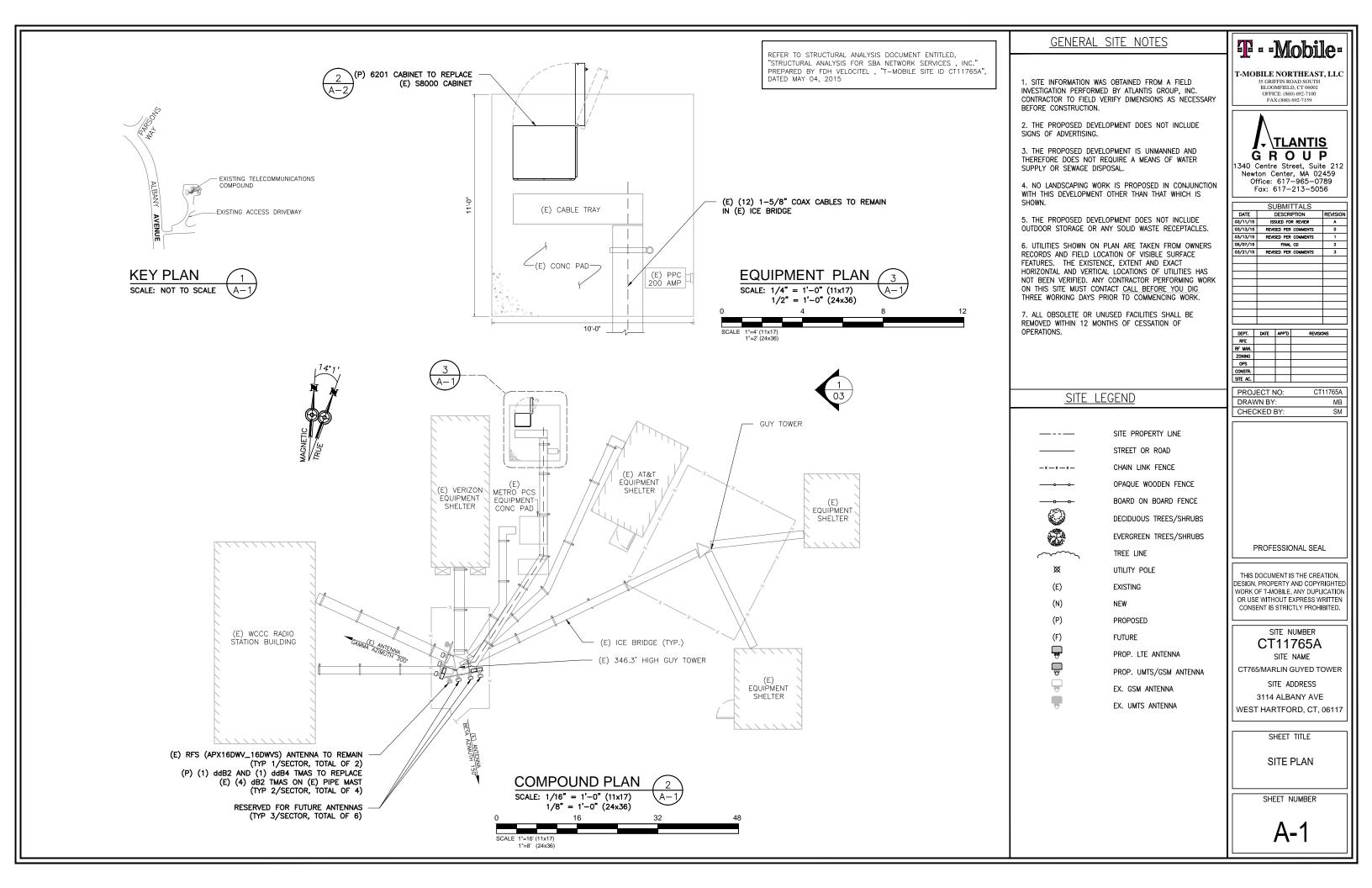
CONSENT IS STRICTLY PROHIBITED.

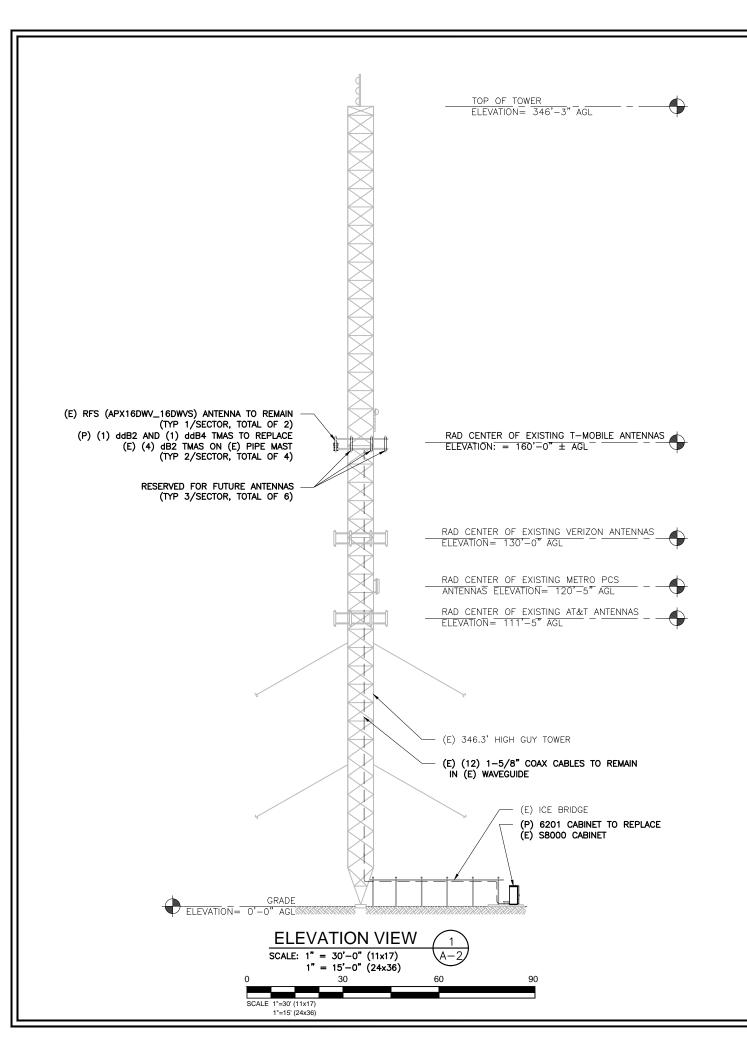
CT11765A SITE NAME

3114 ALBANY AVE

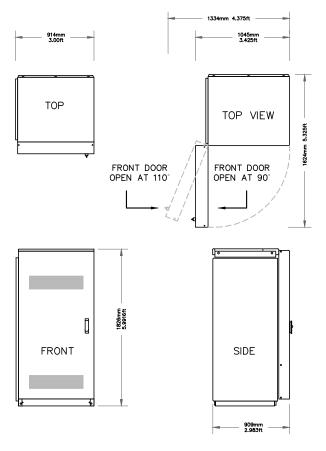
NOTES

SHEET NUMBER



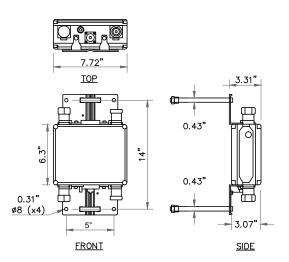


REFER TO STRUCTURAL ANALYSIS DOCUMENT ENTITLED,
"STRUCTURAL ANALYSIS FOR SBA NETWORK SERVICES , INC."
PREPARED BY FDH VELOCITEL , "T-MOBILE SITE ID CT11765A",
DATED MAY 04, 2015



ERICSSON RBS 6201 EQUIPMENT CABINET

SCALE: N.T.S



ddB2 AND ddB4



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DEPT.	DATE	APP'D	REVISIONS
RFE			
RF MAN.			
ZONING			
OPS			
CONSTR.			
SITE AC.			

П	PROJECT NO:	CT11765A
П	DRAWN BY:	MB
П	CHECKED BY:	SM

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SITE NUMBER
CT11765A
SITE NAME

CT765/MARLIN GUYED TOWER

SITE ADDRESS 3114 ALBANY AVE

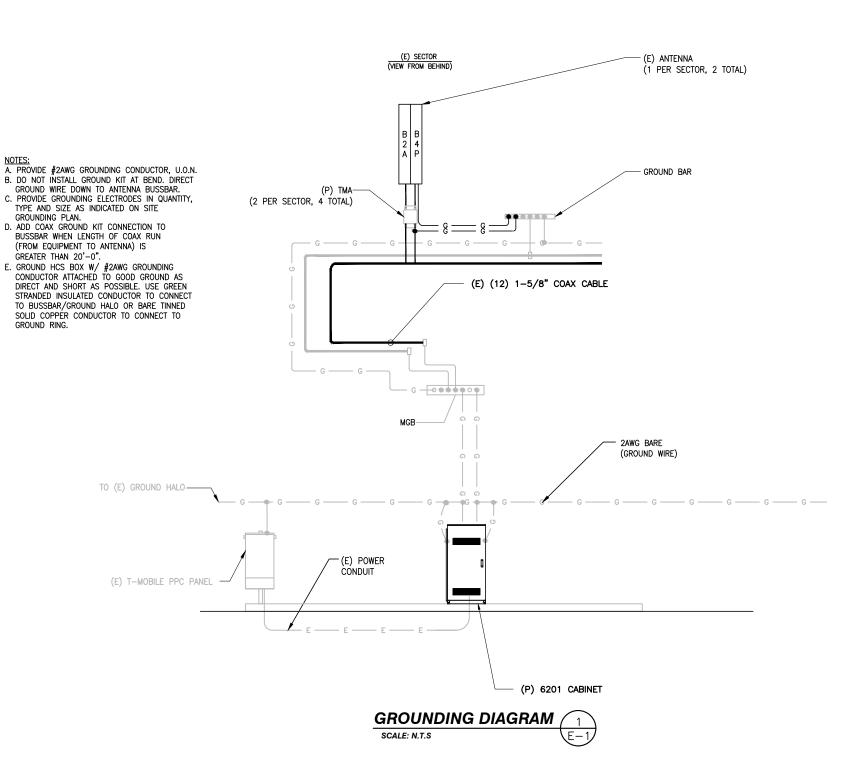
WEST HARTFORD, CT, 06117

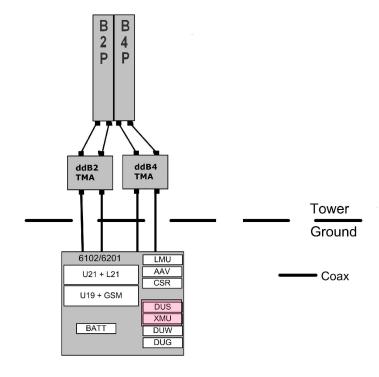
SHEET TITLE

ELEVATION

SHEET NUMBER

A-2





TRUNK FIBER NOTES:

- 1. IN GENERAL THIS CABLE WILL HANDLE SIMILARLY TO 1/8" COAXIAL CABLE, AND SIMILAR INSTALLATION TECHNIQUES APPLY. ALL CABLES ARE INDIVIDUALLY SERIALIZED, BE SURE TO WRITE DOWN THE CABLE SERIAL NUMBER FOR FUTURE REFERENCE.
- 2. THE TERMINATED FIBER ENDS (THE BROKEN OUT FIBERS PLUS CONNECTORS) HOWEVER ARE FRAGILE, AND THESE MUST BE PROTECTED DURING THE INSTALLATION PROCESS.
- 3. LEAVE THE PROTECTIVE TUBE AND SOCK AROUND THE FIBER TAILS AND CONNECTORS IN PLACE DURING HOISTING AND SECURING THE CABLE. REMOVE THIS ONLY JUST PRIOR TO MAKING THE FINAL CONNECTIONS TO THE OVP BOX.
- 4. DO NOT BEND THE FIBER ENDS (IN THE ORANGE FURCATION TUBES) TIGHTER THAN ¾" (19MM) BEND RADIUS, ELSE THERE IS A RISK OF BREAKING THE GLASS FIBERS.
- 5. BE SURE THAT THE LACE UP ENDS AND FIBER CONNECTORS ARE NOT DAMAGED BY ATTACHMENT OF A HOISTING GRIP OR DURING THE HOISTING PROCESS. ATTACH A HOISTING GRIP ON THE JACKETED CABLE NO LESS THAN 6 INCHES BELOW THE FIBER BREAKOUT POINT. IF A HOISTING GRIP IS NOT EASILY ATTACHED AS A SIMPLE LINE ATTACHED BELOW THE FIBER BREAK-OUT POINT (I.E. AT THE CABLE OUTER JACKET). PREVENT THE FIBER TAILS (IN PROTECTIVE TUBE) AT THE CABLE END FROM UNDUE MOVEMENT DURING HOISTING BY SECURING THE PROTECTIVE TUBE (WITH OUTER SOCK) TO THE HOISTING LINE.
- 6. DURING HOISTING ENSURE THAT THERE IS A FREE PATH AND THAT THE CABLE, AND ESPECIALLY THE FIBER ENDS, WILL NOT BE SNAGGED ON TOWER MEMBERS OR OTHER OBSTACLES.
- 7. INSTALLATION TEMPERATURE RANGE IS -22F TO 158F (-30C TO +70C).
- 8. MINIMUM CABLE BEND RADII ARE 22.2" (565MM) LOADED (WITH TENSION ON THE CABLE) AND 11.1" (280MM) UNLOADED.
- 9. MAXIMUM CABLE TENSILE LOAD IS 3560 N (800 LB) SHORT TERM (DURING INSTALLATION) AND 1070 N (240 LB) LONG TERM.
- 10. COMMSCOPE NON LACE UP GRIP RECOMMENDED FOR MONOPOLE INSTALLATIONS.
- 11. MAXIMUM HANGER SPACING 3FT (0.9 M).

HYBRID FIBER/POWER JUMPER NOTES:

- 1. IN GENERAL THIS CABLE WILL HANDLE SIMILARLY TO A %" COAXIAL CABLE.
- 2. THE TERMINATED FIBER ENDS HOWEVER ARE FRAGILE AND MUST BE PROTECTED DURING INSTALLATION. LEAVE THE PACKAGING AROUND THE FIBER ENDS IN PLACE UNTIL READY TO CONNECT THE JUMPER BETWEEN OVP AND RRU OR BRU.
- 3. DO NOT BEND THE FIBER BREAKOUT CABLE (BETWEEN THE MAIN CABLE AND THE FIBER CONNECTOR) TIGHTER THAN ¾" (19MM) RADIUS, ELSE THERE IS A RISK OF BREAKING THE GLASS.
- 4. ATTACH THE MAIN CABLE SECURELY TO THE STRUCTURE OR EQUIPMENT USING HANGERS AND/OR CABLE TIES TO PREVENT STRAIN ON CONNECTIONS FROM MOVEMENT IN WIND OR SNOW/ICE CONDITIONS.
- 5. ENSURE THE LC FIBER CONNECTORS ARE SEATED FIRMLY IN PANEL IN OVP OR IN EQUIPMENT.
- 6. INSTALLATION TEMPERATURE RANGE IS -22F TO 158F (-30C TO 70C).
- MINIMUM CABLE BEND RADII ARE 10.3 INCH (265MM) LOADED (WITH TENSION ON THE CABLE) AND 5.2 INCH (130MM) UNLOADED.
- 8. MAXIMUM CABLE TENSILE LOAD IS 350 LB (1560N) SHORT TERM (DURING INSTALLATION) AND 105 LB (470N) LONG TERM.
- 9. STANDARD LENGTHS AVAILABLE ARE 6 FEET, 15 FEET AND 20 FEET

4E-GU19 CONFIGURATION COAX/FIBER PLUMBING DIAGRAM

SCALE: N.T.S



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03/21/15	REVISED PER COMMENTS	3				

DEPT.	DATE	APP'D	REVISIONS
RFE			
RF MAN.			
ZONING			
OPS			
CONSTR.			
SITE AC.			

PROJECT NO:	CT11765A
DRAWN BY:	MB
CHECKED BY:	SM

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SITE NUMBER CT11765A

SITE NAME
CT765/MARLIN GUYED TOWER

SITE ADDRESS 3114 ALBANY AVE

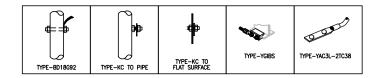
WEST HARTFORD, CT, 0611

WEST HARTFORD, CT, 061

SHEET TITLE
GROUNDING DIAGRAM
AND
POWER ONE
LINE DIAGRAM

SHEET NUMBER

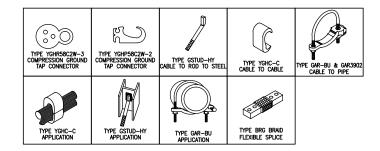
E-1



BURNDY GROUNDING DETAILS

SCALE: N.T.S.

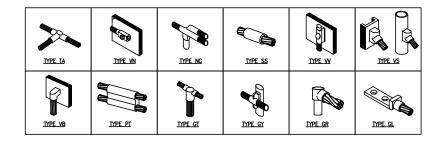




BURNDY GROUNDING PRODUCTS

SCALE: N.T.S.





CADWELD GROUNDING CONNECTION PRODUCTS

SCALE: N.T.S.



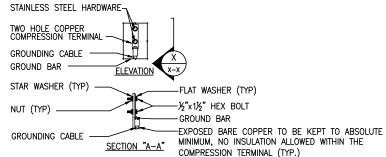
TERMINATION TIFES.	/	/	/	/ ^ /	/8 /
A. MECHANICAL COMPRESSION	LUG SION	₽ /	3 /3		ب <i>الآي \</i>
B. DOUBLE BARRELL COMPRESS	SION / 🧟	• / 、	¥ / §.	. \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	
CONNECTOR	/ ~		LE LES		<u> </u>
C. EXOTHERMIC TERMINATION	/ **\@-	. / 👌	1,00	5/2/22	
D. BEAM CLAMP	/ 38	/ &	1028	1 1 2 1 2 2	/&_9\ <i>\$</i> /
		/ 🐝	THE MEST OF THE PROPERTY OF TH	Waster Samo	
SOLID #2 TINNED COPPER	B OR C	B OR C		C A, C, OR D	
#6 GROUND LEAD	B OR C			A A, C, OR D	
#2/O STRANDED GRNDG				A A O OD D	- 1
ELECTRODE CONDUCTOR				A A, C, OR D	^ <i>/</i>
MASTER GROUND BAR	C	Α	Α		7777
STRUCTURAL OR TOWER STEEL	A, C, OR D	A, C, OR D	A, C, OR D		
GROUND RING	С	/////	O	///////	// c

GROUNDING TERMINATION MARTIX

SCALE: N.T.S.

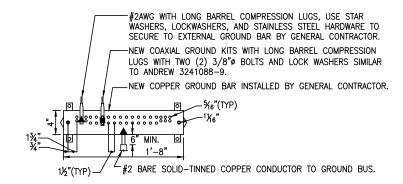
TERMINATION TYPES:





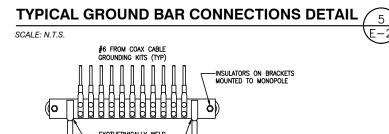
NOTES:

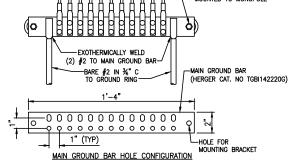
1. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.



NOTES

- 1. ALL HARDWARE STAINLESS STEEL COAT ALL SURFACES WITH KOPR-SHIELD BEFORE MATING.
- FOR GROUND BOND TO STEEL ONLY: INSERT A TOOTH WASHER BETWEEN LUG AND STEEL, COAT ALL SURFACES WITH KOPR-SHIELD.
- 3. ALL HOLES ARE COUNTERSUNK 1/6".

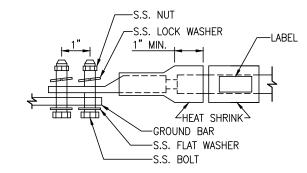




GROUND BAR DETAIL

SCALE: N.T.S.



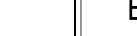


LUG NOTES:

- 1. ALL HARDWARE IS 18-8 STAINLESS STEEL, INCLUDING LOCK WASHERS.
- 2. ALL HARDWARE SHALL BE S.S. ¾"ø OR LARGER.
- 3. FOR GROUND BOND TO STEEL ONLY:
 INSERT A DRAGON TOOTH WASHER
 BETWEEN LUG AND STEEL. COAT ALL
 SURFACES WITH ANTI-OXIDIZATION
 COMPOUND PRIOR TO MATING.

GROUND BAR DETAIL

SCALE: N.T.S.



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DEPT.	DATE	APP'D	REVISIONS
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RF MAN.			
ZONING			
OPS			
CONSTR.			
SITE AC.			

765A
100/1
MB
SM

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SITE NUMBER
CT11765A
SITE NAME

CT765/MARLIN GUYED TOWER

SITE ADDRESS

3114 ALBANY AVE

WEST HARTFORD, CT, 0611

SHEET TITLE

GROUNDING DETAILS

SHEET NUMBER

E-2

Exhibit B



FDH Velocitel, 6521 Meridien Drive Raleigh, NC 27616, Ph. 919.755.1012

Structural Analysis for SBA Network Services, Inc.

346.3' Guyed Tower

SBA Site Name: West Hartford SBA Site ID: CT15879-A-07 T-Mobile Site ID: CT11765A

Site Address: 3114 Albany Avenue, West Hartford, CT 06117

FDH Velocitel Project Number 15BORH2400

Analysis Results

	- ,	
Tower Components	51.9%	Sufficient
Foundation	38.0%	Sufficient

Prepared By:

Robert Spin

Robert Spivey, El Project Engineer Dennis D. Abel
Director – Structural Engineering
CT PE License No. 23247

Reviewed By:

Velocitel, Inc., d.b.a. FDH Velocitel 6521 Meridien Drive Raleigh, NC 27616 (919) 755-1012

info@fdhvelocitel.com

05-04-2015

May 4, 2015

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

Document No. ENG-RPT-503S Revision Date: 07/05/11

TABLE OF CONTENTS

EXECUTIVE SUMMARY	3
Conclusions	3
Recommendations	
APPURTENANCE LISTING	4
RESULTS	
GENERAL COMMENTS	9
LIMITATIONS	9
APPENDIX	10

EXECUTIVE SUMMARY

At the request of SBA Network Services, Inc., FDH Velocitel performed a structural analysis of the existing guyed tower located in West Hartford, 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, TIA/EIA-222-F* and the *2005 CT State Building Code*. Information pertaining to the existing/proposed antenna loading, current tower geometry, the member sizes, and foundation dimensions was obtained from:

Tower Engineering Professionals (Project No. 112343) Steel and Appurtenance Mapping dated July 12, 2011
Tower Engineering Professionals (Project No. 112343) Structural Analysis Report dated October 23, 2012
FDH Engineering, Inc. (Project No. 1462OE1500) Dispersive Wave Propagation Testing of an Existing Tower
Foundation dated May 8, 2014
Dr. Clarence Welti, PE Geotechnical Engineering geotechnical report dated May 22, 2000
FDH Engineering, Inc. (Project No. 1308391800) TIA Inspection Report dated December 4, 2013
SBA Network Services, Inc.

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

Conclusions

With the existing and proposed antennas from T-Mobile in place at 160 ft., the tower meets the requirements of the *TIA/EIA-222-F* standards provided the **Recommendations** listed below are satisfied. Furthermore, provided the foundations dimensions (FDH Engineering, Inc. Project No. 1462OE1500) and utilizing existing soil parameters (see Dr. Clarence Welti, PE Geotechnical Engineering geotechnical report dated May 22, 2000), the foundations should have the necessary capacity to support the existing and proposed loading. For a 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 Velocitel 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 CT State Building Code* are met with the existing and proposed loading in place, we have the following recommendations:

- 1. Feed lines must be installed as shown in the **Appendix**.
- RRH/RRU Stipulation: The proposed equipment may be installed in any configuration as determined by the client.

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 Velocitel should be contacted to perform a revised analysis.

Table 1 - Appurtenance Loading

Existing Loading:

Antenna Elevation (ft)	Description	Feedlines	Carrier	Mount Elevation (ft)	Mount Type
332	(1) ERI 3 Bay FM	(1) 3"	WCCC	332	Direct
308.3	(1) Scala SCA 4DR-8S	(1) 3"	ZGS Hartford	308.3	(1) Pipe Mount
261	(1) Decibel DB420-B	(1) 7/8"	Master Combiner	251	(1) Standoff
251.8	(1) Antenna Concepts ACB16A	(1) 1-5/8" (1) 3/8"	WRDM	251.8	(1) Pipe Mount
243	(1) Antel WPA-800120 (1) 18" x 6" x 6" TMA	(2) 7/8"	Town of West Hartford	243	Direct
235	(1) Scala 6-ft x 3-ft Grid Dish	(1) 7/8"	WCCC	235	Direct
232	(1) Radiowaves SP2-4.7NS (1) 12" x 2" x 2" TMA	(2) 1/4" (1) 3/8"	Town of West Hartford	232	Direct
220	(1) Antel WPA-800120	(1) 1-5/8"	Town of West Hartford	220	Direct
220	Unknown Panel 34" x 7" x 24"	(2) 3/8"	SNEW ISP	220	(1) Pipe Mount
213	(1) Decibel DB420-B	(1) 1/2"	Master Combiner	203	(1) Standoff
196	(1) T.S. 3" x 3" x 6.5' (1) Cablewave PA6-112	(1) EW71	WRDM	196	(1) Standoff
180	(6) Kathrein 601417	(1) 1-5/8"	WRNT	180	(1) Pipe Mount
165	(1) Antel BCD-80010	(1) 1-5/8"	Town of West Hartford	165	(1) Standoff
164.5	(1) 6810 1 Bay FM	(1) 1/2"	91.9 FM	164.5	(1) Pipe Mount
160	(4) RFS APX16DWV_16DWVS (4) RFS ATMAA1412D-1A20	(12) 1-5/8"	T-Mobile	160	(3) T-Frames
146.5	(1) 12" x 4.5" x 6.25" TMA (1) 2-ft MW Dish	(1) 3/8"	SNEW ISP	146.5	(1) Pipe Mount
145	(1) 12-ft x 1" Omni	(1) 1-5/8"	Ham Radio	145	(1) Standoff
		(1) 1-5/8"		142.5	
		(1) 1-5/8"		140.5	
136.5	(1) 5' x 10" Detuner	(1) 1/4"	Ham Radio	136.5	Direct
130	(2) Andrew HBX-6517DS (2) Andrew LNX-6514DS (2) Swedcom SLCP 2x6015 (2) Swedcom SACP 2x5516 (4) RFS FD9R6004/2C (2) Alcatel Lucent RRH2x40-AWS (1) RFS DB-T1-6Z-8AB-0Z	(8) 1-5/8" (1) 1-5/8" Fiber	Verizon	129.5	(3) T-Frames
120.5	(3) RFS APXV18-206517S	(6) 1-5/8"	Metro PCS	120.5	(1) Pipe Mount
112	(2) KMW AM-X-CD-16-65-00T-RET (4) Andrew SBNH-1D6565C (3) Kathrein 800 10121 (6) CCI DTMABP7819VG12A (6) Ericsson RRUS 11	(12) 1-5/8"	AT&T	111.5	(3) T-Frames
48	(1) GPS	(1) 3/8"	Metro PCS	48	Direct
21	(1) 14-Element 4.5 ft Yagi	(1) 1/2"	Ham Radio	21	(1) Standoff

Proposed Carrier Final Loading:

Antenna Elevation (ft)	Description	Feedlines	Carrier	Mount Elevation (ft)	Mount Type
160	(4) RFS APX16DWV_16DWVS (4) Ericsson KRY 112 71	(12) 1-5/8"	T-Mobile	160	(3) T-Frames

RESULTS

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

Table 2 - Material Strength

Member Type	Yield Strength
Legs	50 ksi
Bracing	36 ksi and 50 ksi

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 105% are considered acceptable.* **Table 4** displays the maximum foundation reactions. **Table 5** displays maximum rotations at service wind speeds (dishes only).

If the assumptions outlined in this report differ from actual field conditions, FDH Velocitel 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

Section No.	Elevation ft	Component Type	Size	% Capacity	Pass Fail
T1	310.04 - 309.04	Leg	2 3/4	10.5	Pass
T2	309.04 - 299.416	Leg	2 3/4	38.1	Pass
T3	299.416 - 297.873	Leg	2 3/4	18.2	Pass
T4	297.873 - 279.123	Leg	2 3/4	5.8	Pass
T5	279.123 - 277.873	Leg	2 3/4	9.1	Pass
T6	277.873 - 259.123	Leg	2 3/4	9.6	Pass
T7	259.123 - 257.873	Leg	2 3/4	10.4	Pass
T8	257.873 - 239.123	Leg	2 3/4	16.8	Pass
Т9	239.123 - 237.873	Leg	2 3/4	19.4 21.6 (b)	Pass
T10	237.873 - 219.123	Leg	2 3/4	21.9	Pass
T11	219.123 - 217.873	Leg	2 3/4	25.1	Pass
T12	217.873 - 199.123	Leg	2 3/4	25.7	Pass
T13	199.123 - 197.873	Leg	2 3/4	27.5 30.2 (b)	Pass
T14	197.873 - 179.123	Leg	2 3/4	29.9	Pass
T15	179.123 - 177.873	Leg	2 3/4	34.1 36.2 (b)	Pass
T16	177.873 - 159.123	Leg	2 3/4	35.0	Pass
T17	159.123 - 157.873	Leg	2 3/4	35.8 37.9 (b)	Pass
T18	157.873 - 139.123	Leg	3	36.5	Pass
T19	139.123 - 137.873	Leg	3	36.5 38.7 (b)	Pass
T20	137.873 - 119.123	Leg	3	36.2	Pass

Document No. ENG-RPT-503S Revision Date: 06/17/11

Section	Elevation	Component			Pass
No.	Elevation ft	Component Type	Size	% Capacity	Fail
T21	119.123 - 117.873	Leg	3	36.7 38.9 (b)	Pass
T22	117.873 - 99.123	Leg	3	35.8 38.0 (b)	Pass
T23	99.123 - 97.873	Leg	3	41.2	Pass
T24	97.873 - 79.123	Leg	3	21.0	Pass
T25	79.123 - 77.873	Leg	3	20.5	Pass
T26	77.873 - 59.123	Leg	3	16.7	Pass
T27	59.123 - 57.873	Leg	3	30.1	Pass
T28	57.873 - 39.123	Leg	3	39.7	Pass
T29	39.123 - 37.873	Leg	3	37.8	Pass
T30	37.873 - 19.123	Leg	3	25.8	Pass
T31	19.123 - 17.873	Leg	3	39.1	Pass
T32	17.873 - 15.4147	Leg	3	32.7	Pass
T33	15.4147 - 13.1022	Leg	3	45.2	Pass
T34	13.1022 - 10.5189	Leg	3	47.8	Pass
T35	10.5189 - 5.85417	Leg	3	49.5	Pass
T36	5.85417 - 0	Leg	3	34.1	Pass
T2	309.04 - 299.416	Diagonal	7/8	22.3	Pass
T3	299.416 - 297.873	Diagonal	7/8	25.3	Pass
T4	297.873 - 279.123	Diagonal	7/8	18.0	Pass
T5	279.123 - 277.873	Diagonal	7/8	18.5	Pass
T6	277.873 - 259.123	Diagonal	7/8	7.4	Pass
T7	259.123 - 257.873	Diagonal	7/8	9.6	Pass
T8	257.873 - 239.123	Diagonal	7/8	44.8	Pass
Т9	239.123 - 237.873	Diagonal	7/8	1.4	Pass
T10	237.873 - 219.123	Diagonal	7/8	11.7	Pass
T11	219.123 - 217.873	Diagonal	7/8	14.0	Pass
T12	217.873 - 199.123	Diagonal	7/8	7.2	Pass
T13	199.123 - 197.873	Diagonal	7/8	2.4	Pass
T14	197.873 - 179.123	Diagonal	7/8	2.2	Pass
T15	179.123 - 177.873	Diagonal	7/8	2.2	Pass
T16	177.873 - 159.123	Diagonal	7/8	1.1	Pass
T17	159.123 - 157.873	Diagonal	7/8	6.3	Pass
T18	157.873 - 139.123	Diagonal	1	9.7	Pass
T19	139.123 - 137.873	Diagonal	1	5.1	Pass
T20	137.873 - 119.123	Diagonal	1	5.4	Pass
T21	119.123 - 117.873	Diagonal	1	5.7	Pass
T22	117.873 - 99.123	Diagonal	1	9.8	Pass
T23	99.123 - 97.873	Diagonal	1	0.7	Pass
T24	97.873 - 79.123	Diagonal	1	9.2	Pass
T25	79.123 - 77.873	Diagonal	1	4.4	Pass
T26	77.873 - 59.123	Diagonal	1	1.1	Pass
T27	59.123 - 57.873	Diagonal	1	1.2	Pass
T28	57.873 - 39.123	Diagonal	1	1.5	Pass
T29	39.123 - 37.873	Diagonal	1	5.2	Pass
T30	37.873 - 19.123	Diagonal	1	9.1	Pass
T31	19.123 - 17.873	Diagonal	1	1.9	Pass
T32	17.873 - 15.4147	Diagonal	1	1.0	Pass

Document No. ENG-RPT-503S Revision Date: 06/17/11

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Section No.	Elevation ft	Component Type	Size	% Capacity	Pass Fail
T33	15.4147 - 13.1022	Diagonal	1	7.7	Pass
T34	13.1022 - 10.5189	Diagonal	1	9.3	Pass
T35	10.5189 - 5.85417	Diagonal	1	5.0	Pass
T36	5.85417 - 0	Diagonal	1	1.0	Pass
T2	309.04 - 299.416	Horizontal	7/8	8.3	Pass
T3	299.416 - 297.873	Horizontal	1 1/4	4.8	Pass
T4	297.873 - 279.123	Horizontal	7/8	1.3	Pass
T5	279.123 - 277.873	Horizontal	1	8.4	Pass
T6	277.873 - 259.123	Horizontal	7/8	5.8	Pass
T7	259.123 - 257.873	Horizontal	1	1.8	Pass
T8	257.873 - 239.123	Horizontal	7/8	1.2	Pass
Т9	239.123 - 237.873	Horizontal	1	1.5	Pass
T10	237.873 - 219.123	Horizontal	7/8	6.3	Pass
T11	219.123 - 217.873	Horizontal	1	0.5	Pass
T12	217.873 - 199.123	Horizontal	7/8	0.4	Pass
T13	199.123 - 197.873	Horizontal	1	0.5	Pass
T14	197.873 - 179.123	Horizontal	7/8	17.2	Pass
T15	179.123 - 177.873	Horizontal	1	0.9	Pass
T16	177.873 - 159.123	Horizontal	7/8	1.0	Pass
T17	159.123 - 157.873	Horizontal	1	1.0	Pass
T18	157.873 - 139.123	Horizontal	7/8	14.5	Pass
T19	139.123 - 137.873	Horizontal	1 1/4	2.2	Pass
T20	137.873 - 119.123	Horizontal	7/8	1.6	Pass
T21	119.123 - 117.873	Horizontal	1	20.6	Pass
T22	117.873 - 99.123	Horizontal	7/8	1.9	Pass
T23	99.123 - 97.873	Horizontal	1	1.9	Pass
T24	97.873 - 79.123	Horizontal	7/8	2.0	Pass
T25	79.123 - 77.873	Horizontal	1	4.8	Pass
T26	77.873 - 59.123	Horizontal	7/8	8.8	Pass
T27	59.123 - 57.873	Horizontal	1	9.7	Pass
T28	57.873 - 39.123	Horizontal	7/8	11.9	Pass
T29	39.123 - 37.873	Horizontal	1	37.9	Pass
T30	37.873 - 19.123	Horizontal	7/8	41.3	Pass
T31	19.123 - 17.873	Horizontal	1	47.2	Pass
T33	15.4147 - 13.1022	Horizontal	7/8	44.7	Pass
T34	13.1022 - 10.5189	Horizontal	7/8	46.9	Pass
T35	10.5189 - 5.85417	Horizontal	6 x 3/4	46.9	Pass
T36	5.85417 - 0	Horizontal	6 x 3/4	45.8	Pass
T1	310.04 - 309.04	Top Girt	6 x 1	41.2	Pass
T2	309.04 - 299.416	Top Girt	1 1/4	44.3	Pass
T4	297.873 - 279.123	Top Girt	1	44.5	Pass
T6	277.873 - 259.123	Top Girt	1	43.6	Pass
T8	257.873 - 239.123	Top Girt	1	39.2	Pass
T10	237.873 - 219.123	Top Girt	1	10.5	Pass
T12	217.873 - 199.123	Top Girt	1	38.1	Pass
T14	197.873 - 179.123	Top Girt	1	18.2	Pass
T16	177.873 - 159.123	Top Girt	1	5.8	Pass
T18	157.873 - 139.123	Top Girt	1 1/4	9.1	Pass
T20	137.873 - 119.123	Top Girt	1	9.6	Pass

Document No. ENG-RPT-503S Revision Date: 06/17/11

Section No.	Elevation ft	Component Type	Size	% Capacity	Pass Fail
T22	117.873 - 99.123	Top Girt	1	10.4	Pass
T24	97.873 - 79.123	Top Girt	1	16.8	Pass
T26	77.873 - 59.123	Top Girt	1	19.4 21.6 (b)	Pass
T28	57.873 - 39.123	Top Girt	1	21.9	Pass
T30	37.873 - 19.123	Top Girt	1	25.1	Pass
T32	17.873 - 15.4147	Top Girt	1 1/4	25.7	Pass
T35	10.5189 - 5.85417	Bottom Girt	6 x 3/4	27.5 30.2 (b)	Pass
T4	297.873 - 279.123	Guy A@297.873	3/4	29.9	Pass
T10	237.873 - 219.123	Guy A@228.498	13/16	34.1 36.2 (b)	Pass
T18	157.873 - 139.123	Guy A@148.498	7/8	35.0	Pass
T24	97.873 - 79.123	Guy A@88.498	13/16	35.8 37.9 (b)	Pass
T4	297.873 - 279.123	Guy B@297.873	3/4	36.5	Pass
T10	237.873 - 219.123	Guy B@228.498	13/16	36.5 38.7 (b)	Pass
T18	157.873 - 139.123	Guy B@148.498	7/8	36.2	Pass
T24	97.873 - 79.123	Guy B@88.498	13/16	36.7 38.9 (b)	Pass
T4	297.873 - 279.123	Guy C@297.873	3/4	35.8 38.0 (b)	Pass
T10	237.873 - 219.123	Guy C@228.498	13/16	41.2	Pass
T18	157.873 - 139.123	Guy C@148.498	7/8	21.0	Pass
T24	97.873 - 79.123	Guy C@88.498	13/16	20.5	Pass

^{*}Capacities include a 1/3 allowable stress increase for wind per TIA/EIA-222-F standards.

Table 4 - Maximum Base Reactions

	Current Analysis* (TIA/EIA-222-F)		
Reaction	Horizontal	Vertical	
Tower Base	3 k	201 k	
Anchor	55 k	43 k	

^{*}Foundations determined adequate per independent analysis.

Table 5 – Maximum Antenna Rotations at Service Wind Speed

Centerline Elevation (ft)	Dish	Tilt (deg)*	Twist (deg)*
235	(1) Scala 6-ft x 3-ft Grid Dish	0.0507	0.5971
232	(1) Radiowaves SP2-4.7NS	0.0508	0.5923
196	(1) Cablewave PA6-112	0.0505	0.5387
146.5	(1) 2-ft MW Dish	0.0459	0.4326

^{*}Tilt & Twist values to be determined acceptable by carrier.

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 Velocitel 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, copied, or distributed for any other purpose without the written consent of FDH Velocitel.

APPENDIX

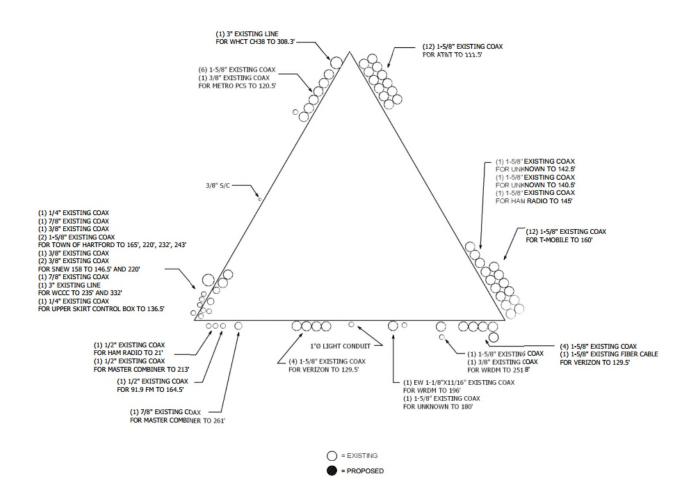


Figure 1 – Feed Line Layout

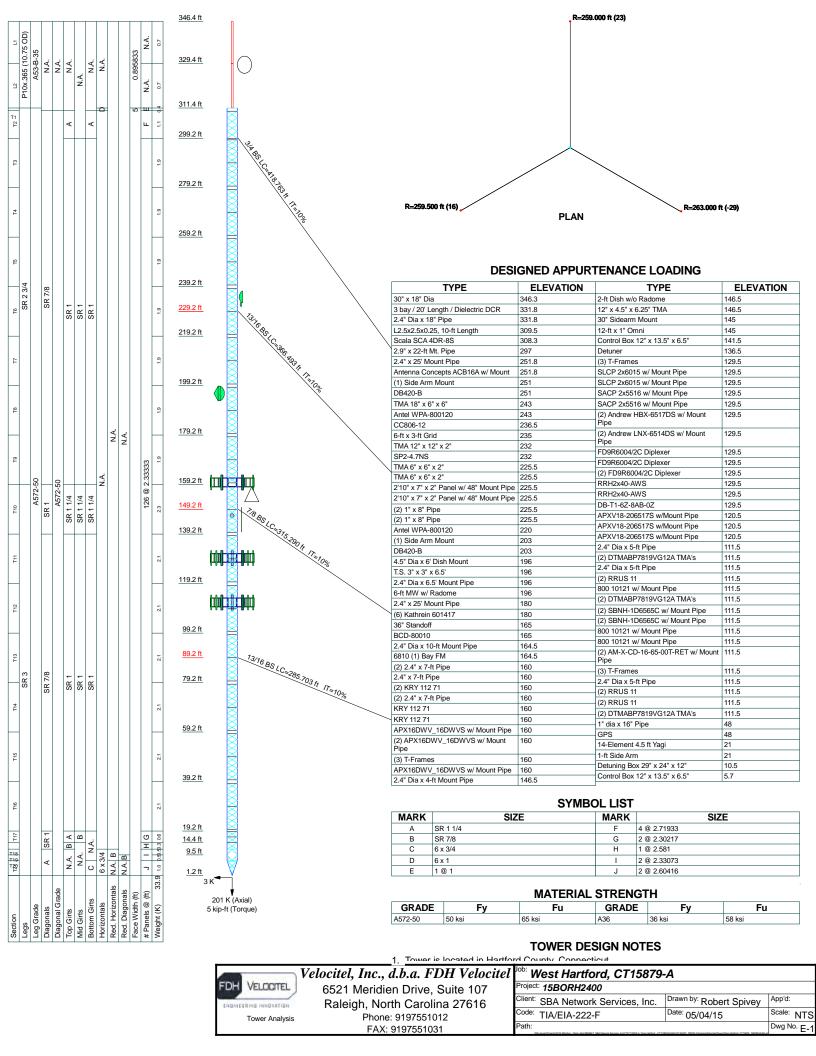


Exhibit C



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

T-Mobile Existing Facility

Site ID: CT11765A

CT765/ Marlin Guyed Tower 3114 Albany Avenue West Hartford, CT 06117

May 12, 2015

Site Compliance Summary		
Compliance Status:	COMPLIANT	
Site total MPE% of FCC general public allowable limit:	16.35 %	



May 12, 2015

T-Mobile USA Attn: Jason Overbey, RF Manager 35 Griffin Road South Bloomfield, CT 06002

Emissions Analysis for Site: CT11765A – CT765/ Marlin Guyed Tower

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **3114 Albany Avenue**, **West Hartford**, **CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

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



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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at **3114 Albany Avenue, West Hartford, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6 foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

- 1) 2 GSM channels (PCS Band 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel
- 2) 2 UMTS channels (AWS Band 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 3) 2 LTE channels (AWS Band 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 4) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.



- 5) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 6) The antennas used in this modeling are the **RFS APX16DWV-16DWVS-E-A20** for 1900 MHz (PCS) and 2100 MHz (AWS) channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The **RFS APX16DWV-16DWVS-E-A20** has a maximum gain of **16.3 dBd** at its main lobe. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 7) The antenna mounting height centerline of the proposed antennas is **160 feet** above ground level (AGL).
- 8) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

All calculations were done with respect to uncontrolled / general public threshold limits.



T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	В	Sector:	С
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	RFS APX16DWV-	Make / Model:	RFS APX16DWV-	Make / Model:	RFS APX16DWV-
Make / Model:	16DWVS-E-A20	Make / Model:	16DWVS-E-A20	Make / Model:	16DWVS-E-A20
Gain:	16.3 dBd	Gain:	16.3 dBd	Gain:	16.3 dBd
Height (AGL):	160	Height (AGL):	160	Height (AGL):	160
F D 4-	1900 MHz(PCS) /	E D	1900 MHz(PCS) /	F D 1 .	1900 MHz(PCS) /
Frequency Bands	2100 MHz (AWS)	Frequency Bands	2100 MHz (AWS)	Frequency Bands	2100 MHz (AWS)
Channel Count	6	Channel Count	6	# PCS Channels:	6
Total TX Power:	240	Total TX Power:	240	# AWS Channels:	240
ERP (W):	10,237.91	ERP (W):	10,237.91	ERP (W):	10,237.91
Antenna A1 MPE%	1.55	Antenna B1 MPE%	1.55	Antenna C1 MPE%	1.55

Site Composite MPE%		
Carrier	MPE%	
T-Mobile	4.66	
On Site Measurements Per CSC Database	11.69 %	
Site Total MPE %:	16.35 %	

-	
T-Mobile Sector 1 Total:	1.55 %
T-Mobile Sector 2 Total:	1.55 %
T-Mobile Sector 3 Total:	1.55 %
Site Total:	16.35 %

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



Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general public exposure to RF Emissions.

The anticipated maximum composite contributions from the T-Mobile facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general public exposure to RF Emissions are shown here:

T-Mobile Sector	Power Density Value (%)
Sector 1:	1.55 %
Sector 2:	1.55 %
Sector 3:	1.55 %
T-Mobile Total:	4.66 %
Site Total:	16.35 %
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **16.35%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.

Scott Heffernan

RF Engineering Director

EBI Consulting

21 B Street

Burlington, MA 01803`