May 15, 2014

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

Re:	**Notice of Exempt Modification – Antenna Swap**
Property Address:	**244 Gates Road, Lebanon, CT**
	(the "Property")
Applicant:	**New Cingular Wireless PCS, LLC ("AT&T")**

Dear Ms. Bachman:

AT&T currently maintains a wireless telecommunications facility on an existing 121 -foot tower location on the Property, consisting of nine (9) wireless telecommunication antennas at an antenna center line height of 123-feet. The tower is owned by Southern New England Telephone ("AT&T"). The Council approved AT&T's use of the tower in the following prior decisions; EM-CING-071-081124 and EM-CING-071-130124. AT&T now intends to replace three (3) CSS DUO1417-8686-4-0 panel antennas and three (3) Andrew SBNH 1D6565C panel antennas with nine (9) CCI HPA – 65R-BUU H-8 panel antennas, while retaining three (3) Powerwave 7770 panel antennas (for a total of twelve (12) panel antennas) at the 123-foot level. Please refer to Tab 1 for further specifications of the replacement antennas.

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 Joyce Okonuk, First Selectman of the Town of Lebanon, 570 Exeter Road, Lebanon,CT 06249. A copy of this letter is also being sent to Southern New England Telephone ("AT&T Towers"), the owner of the property where the tower is located.

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

1. The proposed modifications will not result in an increase in the height of the existing tower. AT&T's replacement antennas will be installed at the 123-foot level of the 121-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 cumulative worst-case RF emissions calculation for AT&T's modified facility is provided in the RF Emissions Compliance Report, included in Tab 2.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The tower and its foundation can support AT&T's proposed modifications. (See Structural Analysis Report included in Tab 3).

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

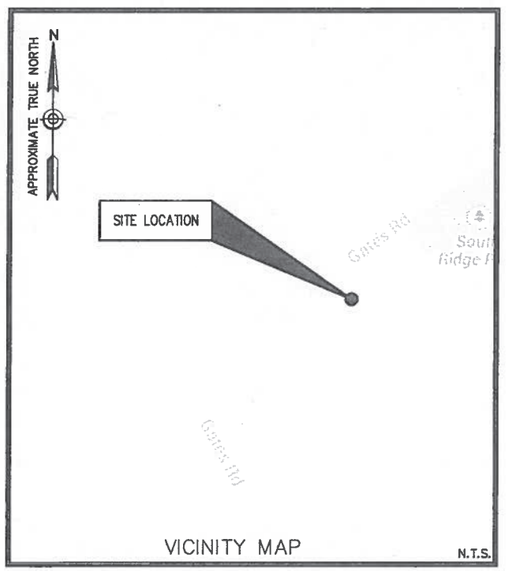
Sincerely,

Kristen Smith

Enclosures
CC: Joyce Okonuk, First Selectman Town of Lebanon
Southern New England Telephone ("AT&T")

at&t Mobility

SITE NAME: LEBANON
SITE NUMBER: CT1065
244 GATES ROAD
LEBANON, CT 06249



VICINITY MAP N.T.S.

DIRECTIONS FROM 500 ENTERPRISE DRIVE, ROCKY HILL, CT:

HEAD NORTHEAST ON ENTERPRISE DR TOWARD CAPITAL BLVD. TURN LEFT ONTO CAPITAL BLVD. TURN LEFT ONTO WEST ST. TURN LEFT TO MERGE ONTO I-91 N. TAKE EXIT 25-26 FOR CT-3 N TOWARD GLASTONBURY/OLD WETHERSFIELD. TAKE EXIT 25 ON THE LEFT TO MERGE ONTO CT-3 N TOWARD GLASTONBURY. KEEP RIGHT AT THE FORK, FOLLOW THE SIGNS FOR CT-2 E/NORWICH AND MERGE ONTO CT-2 E. TAKE EXIT 13 FOR CT-66 E. TURN LEFT ONTO CT-66 E/E HAMPTON RD/HEBRON RD, CONTINUE TO FOLLOW CT-66 E. TURN RIGHT ONTO CT-87 S/JONATHAN TRUMBULL HWY, CONTINUE TO FOLLOW CT-87 S. TURN LEFT ONTO BURNHAM RD. TURN RIGHT ONTO CT-289 S/BEAUMONT HWY. TAKE 2ND LEFT ONTO BENDER RD. TAKE THE 1ST LEFT ONTO GATES ROAD, DESTINATION WILL BE ON THE RIGHT.

SITE COORDINATES:
LATITUDE: N 41° 40' 58.94"
LONGITUDE: W 72° 12' 57.60"
*TO BE VERIFIED WITH 1A SURVEY

ELEVATION DATA
666'± A.M.S.L. *AS PER GOOGLE EARTH
GRADE ELEVATION AT TOWER = 847'± A.M.S.L
*BASED ON GOOGLE EARTH

ANTENNA ELEVATION (TO TOP OF ANTENNA)
ALPHA SECTOR: 126'-0"± A.G.L.
BETA SECTOR: 126'-0"± A.G.L.
GAMMA SECTOR: 126'-0"± A.G.L.

SITE INFORMATION

- REMOVE (2) ANTENNAS PER SECTOR AND REPLACE WITH (3) NEW ANTENNAS PER SECTOR FOR A TOTAL OF (12) ANTENNAS.
- ADD (5) NEW RRU'S PER SECTOR FOR A TOTAL OF (15) RRU'S.
- ADD (2) NEW SURGE ARRESTORS.
- REMOVE AND REPLACE EXISTING TMA'S WITH (1) TMA'S PER SECTOR FOR A TOTAL OF (3) NEW TMA'S.
- ADD (1) NEW 23" EQUIPMENT RACK IN EXISTING SHELTER.

PROJECT DESCRIPTION

SITE NAME:
LEBANON

SITE NUMBER:
CT1065

LOCATION:
244 GATES ROAD, LEBANON
NEW LONDON COUNTY, CT 06249

APPLICANT/LESSEE:
AT&T MOBILITY
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CONNECTICUT 06067

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.

A.D.A. COMPLIANCE:
FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION.

SHEET NUMBER	DESCRIPTION
T-1	TITLE SHEET
G-1	GENERAL NOTES
C-1	SITE PLAN & EQUIPMENT PLANS
C-2	ELEVATIONS
C-3	ANTENNA LAYOUTS & ANTENNA SCHEDULE
C-4	CONSTRUCTION DETAILS
E-1	GROUNDING NOTES & DETAILS

SHEET INDEX

at&t
500 ENTERPRISE DRIVE SUITE 3A
ROCKY HILL, CT 06067

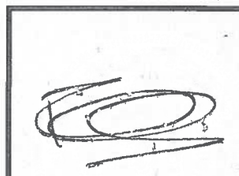
smartlink
1997 ANNAPOLIS EXCHANGE PARKWAY
SUITE 200
ANNAPOLIS, MD 21401

CT1065
LEBANON

CONSTRUCTION DRAWINGS

1	04/28/14	ISSUED AS FINAL
0	04/22/14	ISSUED AS FINAL
A	03/07/14	PRELIMINARY SUBMISSION

Dewberry®
Dewberry Engineers Inc.
600 PARSIPPANY ROAD
SUITE 301
PARSIPPANY, NJ 07054
PHONE: 973.739.9400
FAX: 973.739.9710



ROBERT J. FOLEY, P.E.
CT LICENSE No. PEN.0029056

DRAWN BY:	IA
REVIEWED BY:	PD
CHECKED BY:	GHN
PROJECT NUMBER:	50063024
JOB NUMBER:	50063031
SITE ADDRESS:	

244 GATES RD,
LEBANON, CT 06249
NEW LONDON COUNTY

SHEET TITLE

TITLE SHEET

SHEET NUMBER

T-1

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
2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF PROJECT MANAGEMENT.
3. 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 OF THE WORK.
4. 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.
6. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
7. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY PROJECT MANAGEMENT.
9. 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 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. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

SITE WORK GENERAL NOTES:

1. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
2. 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
   B) CONFINED SPACE
   C) ELECTRICAL SAFETY
   D) TRENCHING & EXCAVATION.
3. ALL SITE WORK SHALL BE AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.
4. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES, TOP SOIL AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
5. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, 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.
9. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
10. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION, SEE SOIL COMPACTION NOTES.
11. 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.
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:

1. 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.
2. 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 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.
4. 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:
   #6 AND LARGER .....2 IN.
   #5 AND SMALLER & WWF.....1 1/2 IN.
   CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:
   SLAB AND WALL .....3/4 IN.
   BEAMS AND COLUMNS.....1 1/2 IN.
5. A CHAMFER 3/4" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNO, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.
6. 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.
7. 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.
8. 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.
9. 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:

1. ALL STEEL WORK SHALL BE PAINTED OR GALVANIZED IN ACCORDANCE WITH THE DRAWINGS UNLESS NOTED OTHERWISE. STRUCTURAL STEEL SHALL BE ASTM-A-36 UNLESS OTHERWISE NOTED ON THE SITE SPECIFIC DRAWINGS. STEEL DESIGN, INSTALLATION AND BOLTING SHALL BE PERFORMED IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "MANUAL OF STEEL CONSTRUCTION".
2. 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.
3. BOLTED CONNECTIONS SHALL BE ASTM A325 BEARING TYPE (3/4"Ø) CONNECTIONS AND SHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE.
4. NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE 5/8" DIA. ASTM A 307 BOLTS UNLESS NOTED OTHERWISE.
5. 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.
6. 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:

1. EXCAVATE AS REQUIRED TO REMOVE VEGETATION & TOPSOIL EXPOSE UNDISTURBED NATURAL SUBGRADE AND PLACE CRUSHED STONE AS REQUIRED.
2. COMPACTION CERTIFICATION: AN INSPECTION AND WRITTEN CERTIFICATION BY A QUALIFIED GEOTECHNICAL TECHNICIAN OR ENGINEER IS ACCEPTABLE.
3. 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.
4. 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" SIEVE.
5. 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.
2. COORDINATION OF WORK:
   CONTRACTOR SHALL COORDINATE RF WORK AND PROCEDURES WITH PROJECT MANAGEMENT.
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:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE LOCAL CODES.
2. 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.
3. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.
4. 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.
6. CABLES SHALL NOT BE ROUTED THROUGH LADDER-STYLE CABLE TRAY RUNGS.
7. EACH END OF EVERY POWER, POWER PHASE CONDUCTOR (I.E., HOTS), GROUNDING, AND T1 CONDUCTOR AND CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2 INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC & OSHA, AND MATCH EXISTING INSTALLATION REQUIREMENTS.
8. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS. ALL EQUIPMENT SHALL BE LABELED WITH THEIR VOLTAGE RATING, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING, AND BRANCH CIRCUIT ID NUMBERS (I.E., PANELBOARD AND CIRCUIT ID'S).
9. 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.
11. 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 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 EQUAL.) 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 90°C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.
14. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED OUTDOORS, OR BELOW GRADE, SHALL BE SINGLE CONDUCTOR #2 AWG SOLID TINNED COPPER CABLE, UNLESS OTHERWISE SPECIFIED.
15. 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.
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 NEMA, UL, ANSI/IEEE, AND NEC.
18. NEW RACEWAY OR CABLE TRAY WILL MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.
19. 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.
21. GALVANIZED STEEL INTERMEDIATE METALLIC CONDUIT (IMC) SHALL BE USED FOR OUTDOOR LOCATIONS ABOVE GRADE.
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 NEMA, UL, ANSI/IEEE, AND NEC.
26. CABINETS, BOXES, AND WIREWAYS TO MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.
27. 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.
28. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES, AND PULL BOXES SHALL BE GALVANIZED 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.
30. 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.
31. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM PROJECT MANAGEMENT BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
32. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD AGAINST LIFE AND PROPERTY.

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CT LICENSE No. PEN.0029056

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DRAWN BY:	IA
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CHECKED BY:	GHN
PROJECT NUMBER:	50063024
JOB NUMBER:	50063031
SITE ADDRESS:	

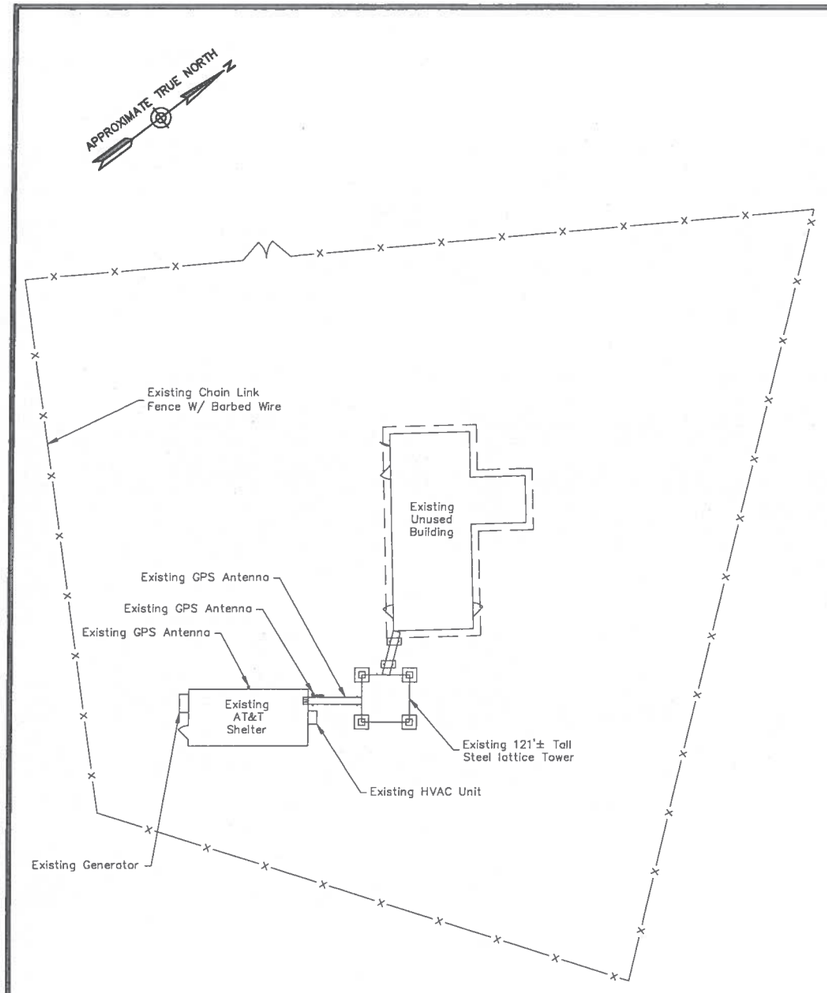
244 GATES RD,
LEBANON, CT 06249
NEW LONDON COUNTY

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

G-1

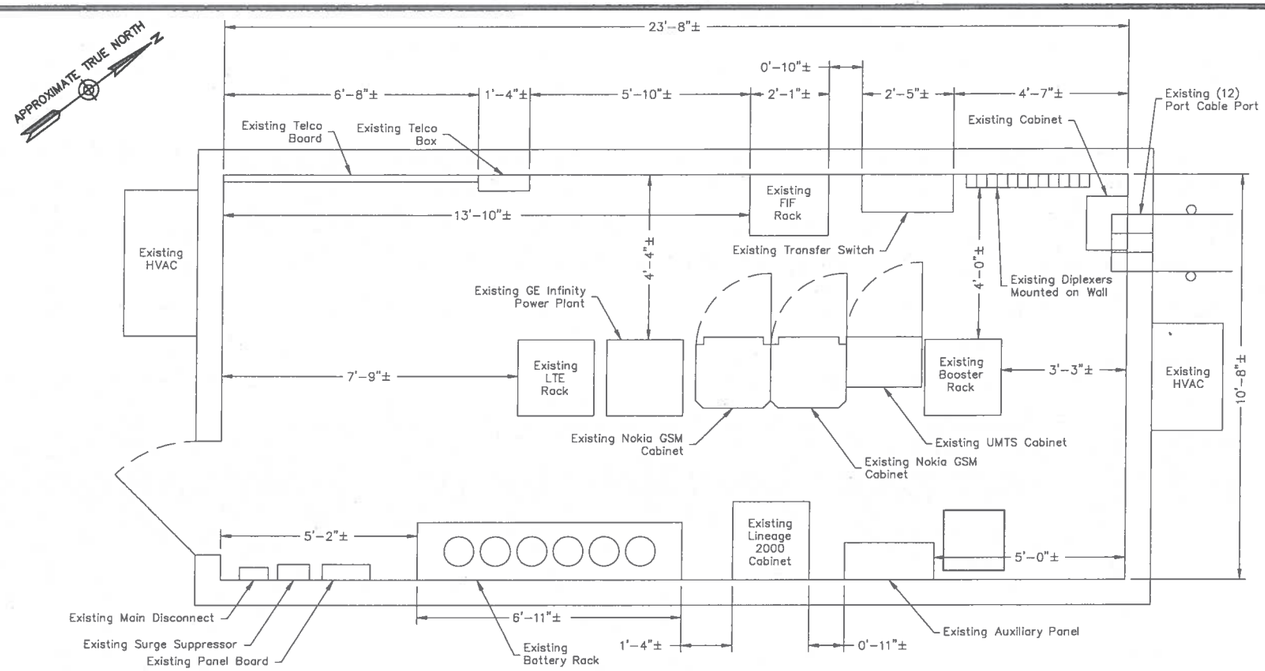


SITE PLAN

SCALE: 1/32"=1' FOR 11"x17"
1/16"=1' FOR 22"x34"

0' 8' 16' 32'

1

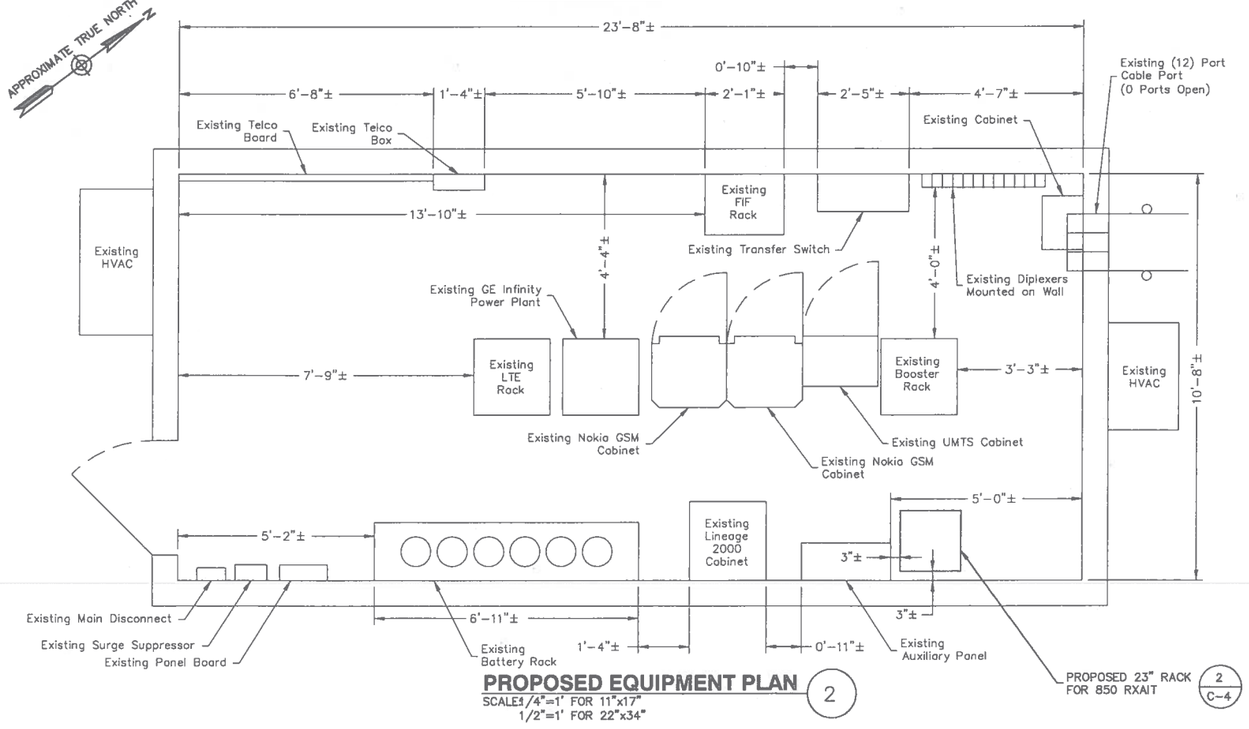


EXISTING EQUIPMENT PLAN

SCALE: 1/4"=1' FOR 11"x17"
1/2"=1' FOR 22"x34"

0' 1' 2' 4'

1



PROPOSED EQUIPMENT PLAN

SCALE: 1/4"=1' FOR 11"x17"
1/2"=1' FOR 22"x34"

0' 1' 2' 4'

2

NOTES:

1. NORTH SHOWN AS APPROXIMATE.
2. MOUNT ALL ANTENNAS, COAX, SURGE ARRESTORS, RRU'S, ETC. IN ACCORDANCE WITH STRUCTURAL ANALYSIS
3. NOT INFORMATION IS SHOWN FOR CLARITY.

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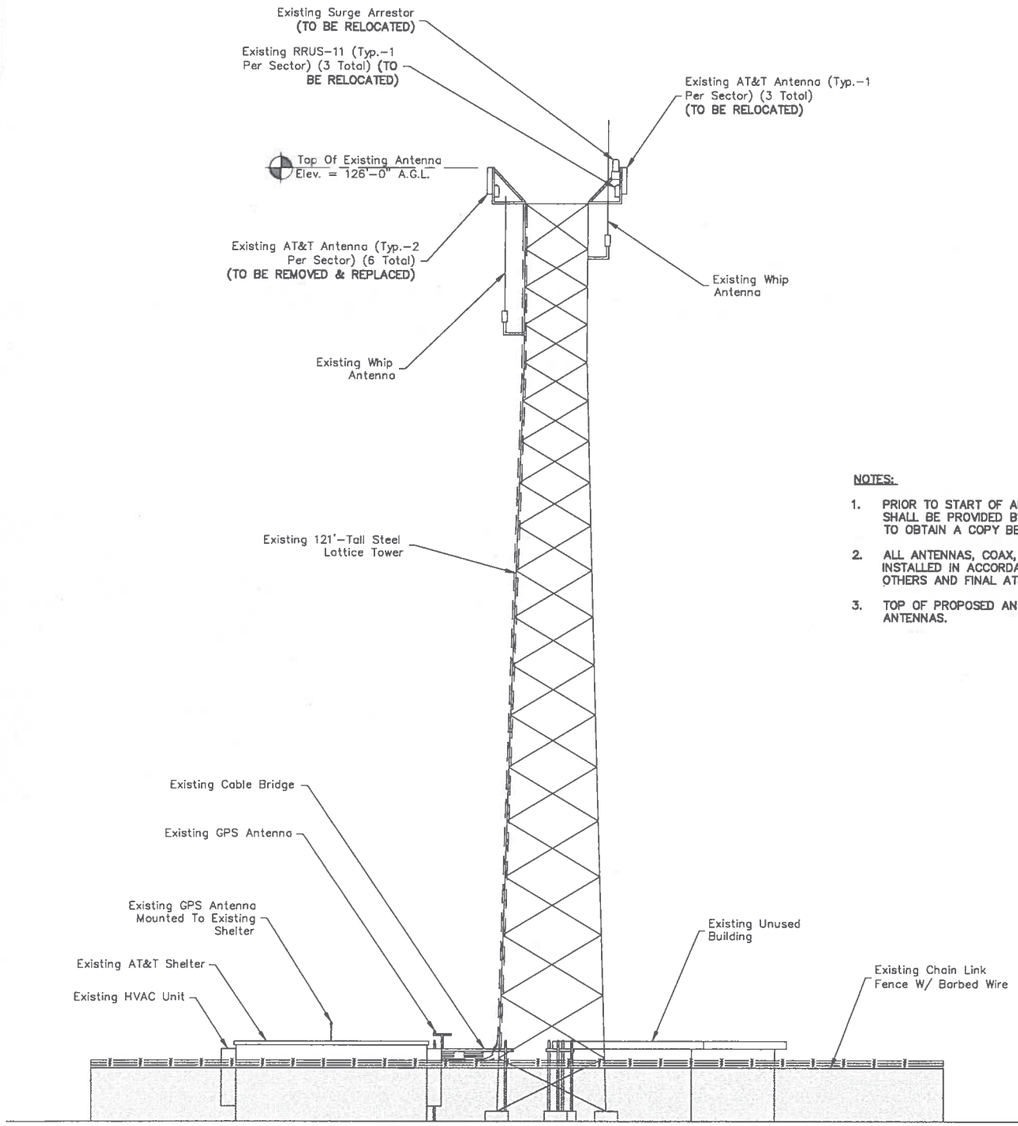
SHEET TITLE

SITE PLAN &
EQUIPMENT PLANS

SHEET NUMBER

C-1



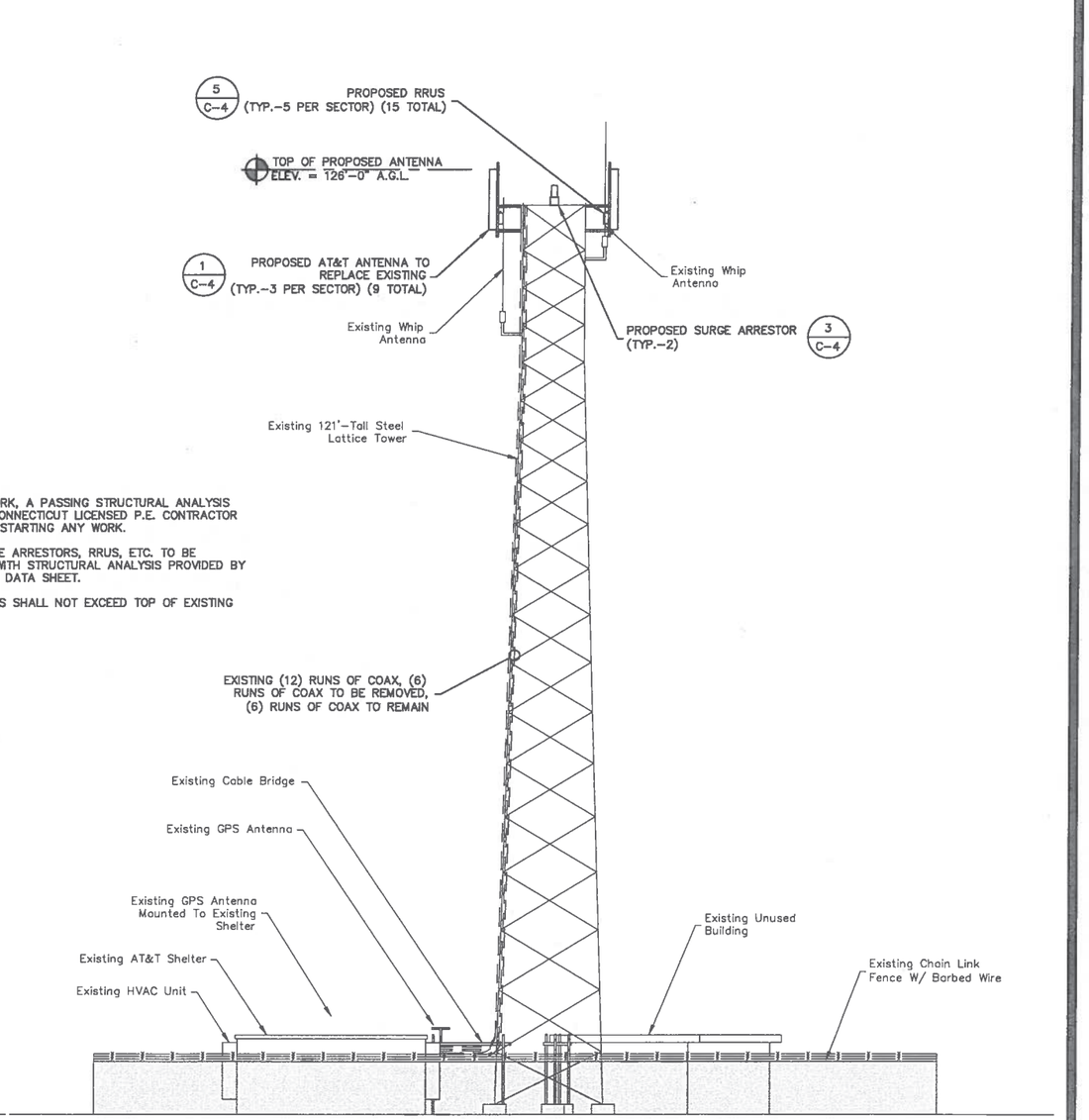
EXISTING ELEVATION (1)

SCALE: 1"=20' FOR 11"x17"
1"=10' FOR 22"x34"

0' 10' 20'

NOTES:

1. PRIOR TO START OF ANY WORK, A PASSING STRUCTURAL ANALYSIS SHALL BE PROVIDED BY A CONNECTICUT LICENSED P.E. CONTRACTOR TO OBTAIN A COPY BEFORE STARTING ANY WORK.
2. ALL ANTENNAS, COAX, SURGE ARRESTORS, RRUS, ETC. TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY OTHERS AND FINAL AT&T RF DATA SHEET.
3. TOP OF PROPOSED ANTENNAS SHALL NOT EXCEED TOP OF EXISTING ANTENNAS.



PROPOSED ELEVATION (2)

SCALE: 1"=20' FOR 11"x17"
1"=10' FOR 22"x34"

0' 10' 20'

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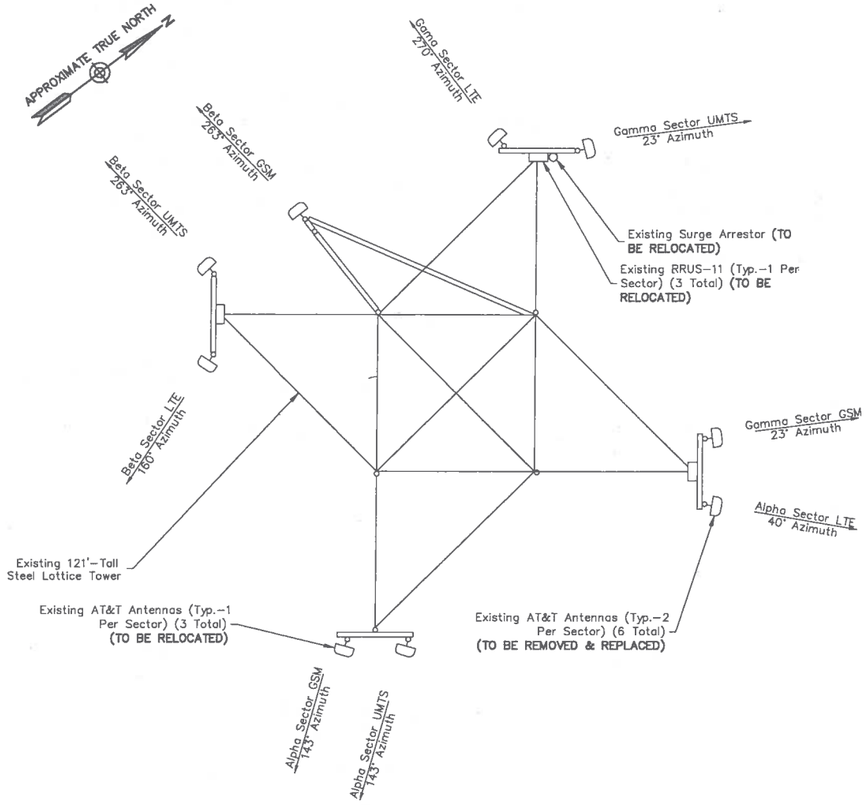
SHEET TITLE

ELEVATIONS

SHEET NUMBER

C-2

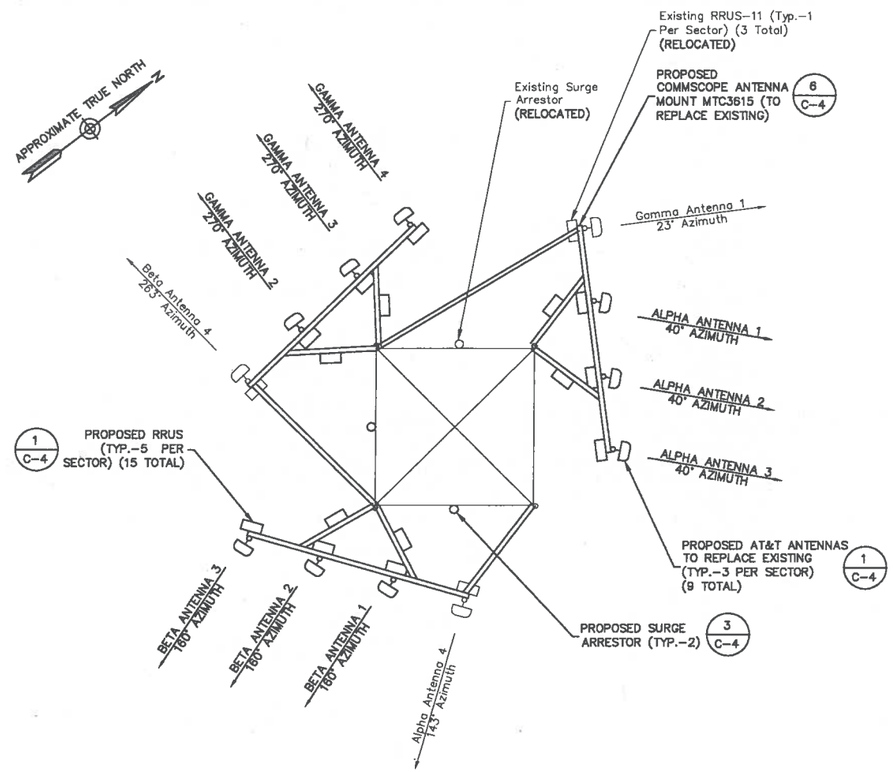


EXISTING ANTENNA LAYOUT (1)

SCALE: N.T.S.

NOTES:

1. EXISTING TMA'S NOT SHOWN FOR CLARITY.
2. ALL EXISTING TMA'S ARE TO BE REMOVED AND REPLACED



PROPOSED ANTENNA LAYOUT (2)

SCALE: N.T.S.

NOTES:

1. PROPOSED TMA'S NOT SHOWN FOR CLARITY.
2. PROPOSED TMA'S TO REPLACE EXISTING (4 C-4) (TYP.-1 PER SECTOR) (3 TOTAL)

EXISTING ANTENNA SCHEDULE

SECTOR	MAKE	MODEL#	SIZE (INCHES)
ALPHA:	POWERWAVE	7770	55x11x5
	ANDREWS	SBNH-1D6565C	96.4x11.9x7.1
	CSS	DUO1417-8686-4-0	-
BETA:	POWERWAVE	7770	55x11x5
	POWERWAVE	P65-17-XLH-RR	96x12x6
	CSS	DUO1417-8686-4-0	96x11.8x6
GAMMA:	POWERWAVE	7770	55x11x5
	POWERWAVE	P65-17-XLH-RR	96x12x6
	CSS	DUO1417-8686-4-0	96x11.8x6

PROPOSED ANTENNA SCHEDULE

SECTOR	MAKE	MODEL#	SIZE (INCHES)
ALPHA:	CCI	HPA-65R-BUU-H8	92.4x14.8x7.4
	CCI	HPA-65R-BUU-H8	92.4x14.8x7.4
	CCI	HPA-65R-BUU-H8	92.4x14.8x7.4
	POWERWAVE	7770	55x11x5
BETA:	CCI	HPA-65R-BUU-H8	92.4x14.8x7.4
	CCI	HPA-65R-BUU-H8	92.4x14.8x7.4
	CCI	HPA-65R-BUU-H8	92.4x14.8x7.4
	POWERWAVE	7770	55x11x5
GAMMA:	POWERWAVE	7770	55x11x5
	CCI	HPA-65R-BUU-H8	92.4x14.8x7.4
	CCI	HPA-65R-BUU-H8	92.4x14.8x7.4
	CCI	HPA-65R-BUU-H8	92.4x14.8x7.4

PROPOSED RRUS SCHEDULE

SECTOR	MAKE	MODEL#	SIZE (INCHES)
ALPHA:	ERICSSON	RRUS-11	19.7x17.0x7.2
	ERICSSON	RRUS-11	19.7x17.0x7.2
	ERICSSON	RRUS-12	20.4x18.5x7.5
	ERICSSON	RRUS-12	20.4x18.5x7.5
	ERICSSON	RRUS-A2	16.4x15.1x3.4
	ERICSSON	RRUS-A2	16.4x15.1x3.4
	ERICSSON	RRUS-E2	20.4x18.8x7.5
	ERICCSON	RRUS-32	29.9x13.3x9.5
BETA:	ERICSSON	RRUS-11	19.7x17.0x7.2
	ERICSSON	RRUS-11	19.7x17.0x7.2
	ERICSSON	RRUS-12	20.4x18.5x7.5
	ERICSSON	RRUS-12	20.4x18.5x7.5
	ERICSSON	RRUS-A2	16.4x15.1x3.4
	ERICSSON	RRUS-A2	16.4x15.1x3.4
	ERICSSON	RRUS-E2	20.4x18.8x7.5
	ERICCSON	RRUS-32	29.9x13.3x9.5
GAMMA:	ERICSSON	RRUS-11	19.7x17.0x7.2
	ERICSSON	RRUS-11	19.7x17.0x7.2
	ERICSSON	RRUS-12	20.4x18.5x7.5
	ERICSSON	RRUS-12	20.4x18.5x7.5
	ERICSSON	RRUS-A2	16.4x15.1x3.4
	ERICSSON	RRUS-A2	16.4x15.1x3.4
	ERICSSON	RRUS-E2	20.4x18.8x7.5
	ERICCSON	RRUS-32	29.9x13.3x9.5

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CT LICENSE No. PEN.0029056

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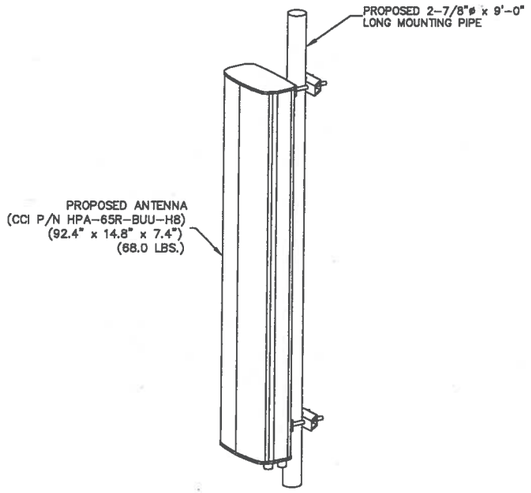
SHEET TITLE

ANTENNA LAYOUTS &
ANTENNA SCHEDULE

SHEET NUMBER

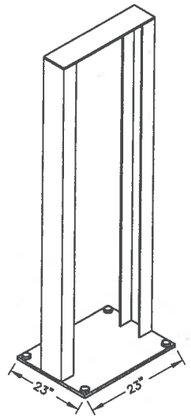
C-3



NOTE:

1. PLEASE SEE RFDS FOR SPECIFIC ANTENNA MODEL.

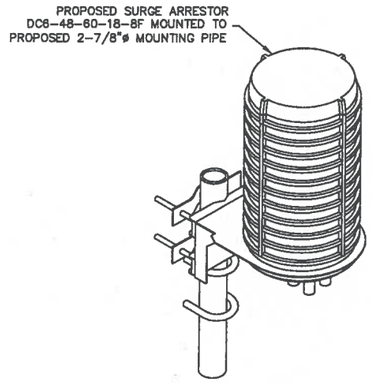
ISOMETRIC ANTENNA DETAIL (1)
SCALE: N.T.S.



NOTE: **ISOMETRIC**

1. CONTRACTOR SHALL SECURE RACK AS PER MANUFACTURER RECOMMENDATIONS.

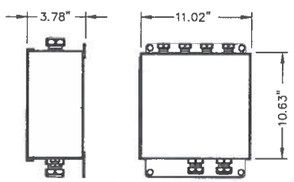
23" x 23" INDOOR RACK (2)
SCALE: N.T.S.



NOTE:

1. ALL ANTENNAS, COAX AND ANTENNA SUPPORT EQUIPMENT TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS AND FINAL RF DATA SHEET.

SURGE ARRESTOR MOUNTING DETAIL (3)
SCALE: N.T.S.

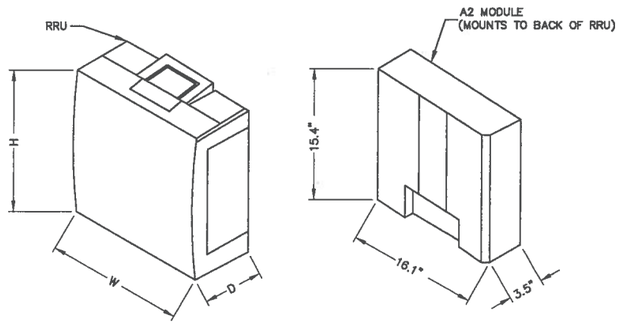


CCI DTMABP7819VG12A

NOTE:

1. ATTACH TMA TO ANTENNA PIPE MAST IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.

TMA DETAIL (4)
SCALE: N.T.S.

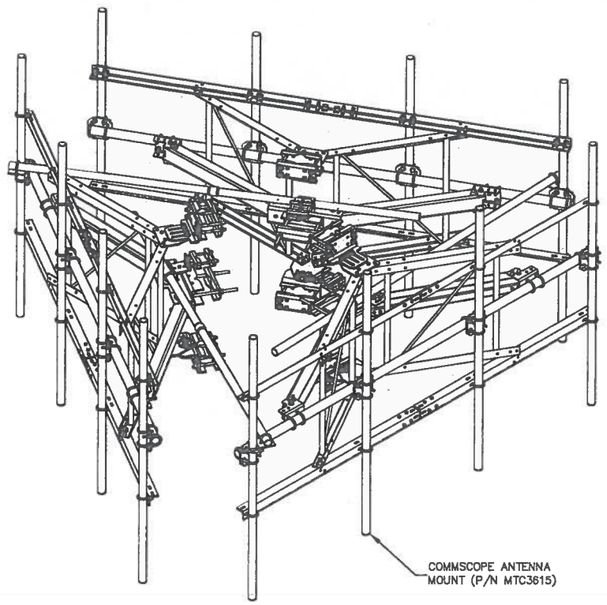


RRU MODEL & DIMENSIONS	
ERICSSON MODEL #	DIMENSIONS (HxWxD)
RRUS-11	19.7"x17.0"x7.2"
RRUS-12	20.4"x18.8"x7.5"
RRUS-E2	20.4"x18.8"x7.5"
RRUS-32	29.9"x13.3"x6.7"

RRU NOTES:

1. GROUND EQUIPMENT AND MOUNTS PER MANUFACTURER'S RECOMMENDATIONS AND AT&T STANDARDS.
2. MOUNT EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS.
3. CONFIRM REQUIRED EQUIPMENT WITH LATEST RFDS.

RRU & A2 MODULE (5)
SCALE: N.T.S.



ANTENNA MOUNT DETAIL (6)
SCALE: N.T.S.

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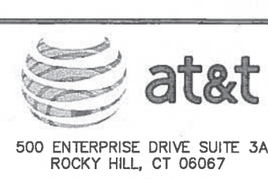

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CT LICENSE No. PEN.0029056

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NEW LONDON COUNTY

SHEET TITLE

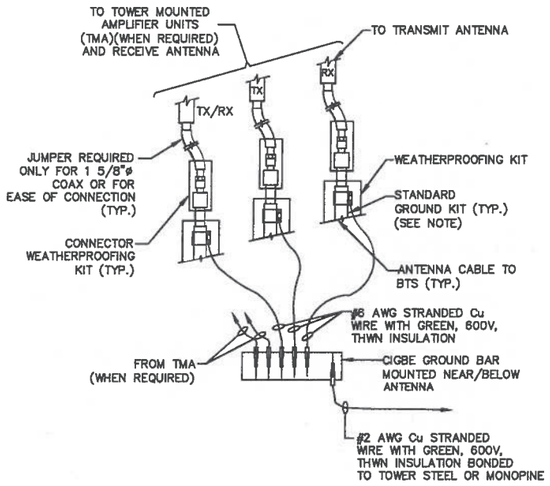
CONSTRUCTION DETAILS

SHEET NUMBER

C-4

GROUNDING NOTES:

1. 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 AHJ). THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE CONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE ENGINEER FOR RESOLUTION.
2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS. ALL AVAILABLE GROUNDING ELECTRODES SHALL BE CONNECTED TOGETHER IN ACCORDANCE WITH THE NEC.
3. 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.
4. 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.
5. 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.
6. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWG COPPER WIRE AND UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
7. 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.
8. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED. BACK-TO-BACK CONNECTIONS ON OPPOSITE SIDES OF THE GROUND BUS ARE PERMITTED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. 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 8 INCHES.
11. 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 STAINLESS STEEL HARDWARE, INCLUDING SET SCREWS. HIGH PRESSURE CRIMP CONNECTORS MAY ONLY BE USED WITH WRITTEN PERMISSION FROM SMARTLINK MARKET REPRESENTATIVE.
14. EXOTHERMIC WELDS SHALL BE PERMITTED ON TOWERS ONLY WITH THE EXPRESS APPROVAL OF THE TOWER MANUFACTURER OR THE CONTRACTORS STRUCTURAL ENGINEER.
15. 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 STEEL HARDWARE, INCLUDING SET SCREWS SHALL BE USED FOR CONNECTION TO ALL ROOFTOP TRANSMISSION EQUIPMENT AND STRUCTURAL STEEL.
17. 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 HARDWARE.
18. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
19. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
20. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
21. BOND ALL METALLIC OBJECTS WITHIN 6 FT OF THE BURIED GROUND RING WITH 2 AWG SOLID TIN-PLATED COPPER GROUND CONDUCTOR. DURING EXCAVATION FOR NEW GROUND CONDUCTORS, IF EXISTING GROUND CONDUCTORS ARE ENCOUNTERED, BOND EXISTING GROUND CONDUCTORS 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 OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G., NON-METALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT WITH LISTED BONDING FITTINGS.

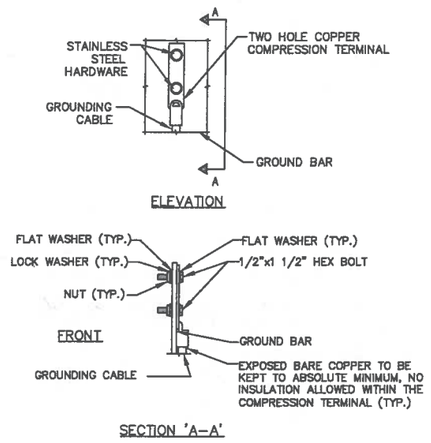


NOTE:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE.

CONNECTION OF GROUND WIRES TO GROUNDING BAR (CIGBE) 1

SCALE: N.T.S.

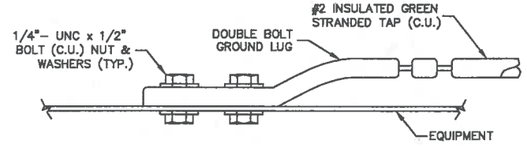


NOTES:

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

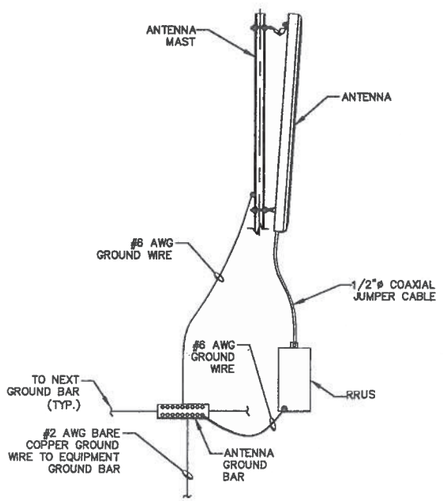
TYPICAL GROUND BAR MECHANICAL CONNECTION DETAIL 2

SCALE: N.T.S.



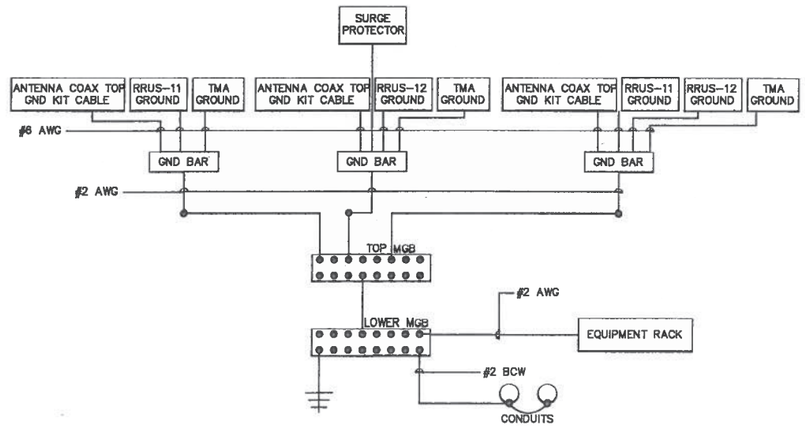
CONNECTION TO EQUIPMENT DETAIL 3

SCALE: N.T.S.



TYPICAL ANTENNA GROUNDING DETAIL 4

SCALE: N.T.S



NOTES:

1. BOND ANTENNA GROUNDING KIT CABLE TO TOP CIGBE
2. BOND ANTENNA GROUNDING KIT CABLE TO BOTTOM CIGBE.
3. SCHEMATIC GROUNDING DIAGRAM IS TYPICAL FOR EACH SECTOR.
4. GROUND ALL EQUIPMENT PER MANUFACTURER RECOMMENDATIONS.

SCHEMATIC GROUNDING DIAGRAM 5

SCALE: N.T.S.

at&t

500 ENTERPRISE DRIVE SUITE 3A
ROCKY HILL, CT 06067

smartlink
1997 ANNAPOLIS EXCHANGE PARKWAY
SUITE 200
ANNAPOLIS, MD 21401

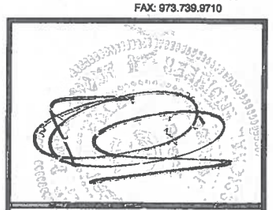
CT1065
LEBANON

CONSTRUCTION DRAWINGS

1	04/28/14	ISSUED AS FINAL
0	04/22/14	ISSUED AS FINAL
A	03/07/14	PRELIMINARY SUBMISSION

Dewberry

Dewberry Engineers Inc.
600 PARSIPPANY ROAD
SUITE 301
PARSIPPANY, NJ 07054
PHONE: 973.739.9400
FAX: 973.739.9710



ROBERT J. FOLEY, P.E.
CT LICENSE No. PEN.0029056

DRAWN BY:	IA
REVIEWED BY:	PD
CHECKED BY:	GHN
PROJECT NUMBER:	50063024
JOB NUMBER:	50063031
SITE ADDRESS:	

244 GATES RD,
LEBANON, CT 06249
NEW LONDON COUNTY

SHEET TITLE

GROUNDING NOTES & DETAILS

SHEET NUMBER

E-1

200 North Glebe Road, Suite 1000
Arlington, VA 22203-3728

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

Reference: Smartlink LLC Site, Lebanon: 244 Gates Road Lebanon CT 06249

Date: 05 May 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 1.392% (based on the General Public MPE) based on this modeling, with AT&T antennas emitting a maximum of 1.213% 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 23.72% of the General Public MPE, with the AT&T antennas emitting 22.35% 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

Site FA: 10035007
Site ID: CT1065
Site Name: Lebanon
Address: 244 Gates Road
Lebanon, CT 06249
5/5/2014

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
Lebanon, CT 06249

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 Smartlink (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 "Lebanon" ("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 radio-frequency 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 1.213% 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 1.392% 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 conducted FCC research on this site, and was updated in this report with the appropriate FCC call signs and Maximum ERP values. Sitesafe has also referenced the AT&T Mobility, LLC construction diagram for this site.

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: 10035007.AE201.140307 (CT1065) Dewberry.RevA KES2 MD2 DC Comments 4-8-14.pdf

AT&T Mobility LLC
Lebanon
Site Summary

Carrier	Area Maximum Percentage MPE
AT&T Mobility LLC	0.477 %
AT&T Mobility LLC	0.32 %
AT&T Mobility LLC	0.416 %
T-Mobile (VoiceStream)	0.179 %
Composite Site MPE:	1.392 %

Attachment 2

Control Number	Site	Carrier	#Channels	ERP/Ch	Ant Ht	Power Den	MHz	S	%MPE	Site Total
EM-CING-071-130124	Lebanon - 244 Gates Road	AT&T UMTS	2	565	124	0.026425	880	0.5867	4.50%	
EM-CING-071-130124	Lebanon - 244 Gates Road	AT&T UMTS	2	875	124	0.040924	1900	1.0000	4.09%	
EM-CING-071-130124	Lebanon - 244 Gates Road	AT&T GSM	1	283	124	0.006618	880	0.5867	1.13%	
EM-CING-071-130124	Lebanon - 244 Gates Road	AT&T GSM	4	525	124	0.049108	1900	1.0000	4.91%	
EM-CING-071-130124	Lebanon - 244 Gates Road	AT&T LTE	1	1615	124	0.037767	734	0.4893	7.72%	
Omnipt Ex Mod 12/10/9	Lebanon - 244 Gates Road	VoiceStream	2	197	102	0.013617	1930	1.0000	1.36%	23.72%

Smartlink, LLC
1997 Annapolis Exchange Parkway
Annapolis, MD 21401
(774) 369-3617

Kevin Clements
520 S. Main Street, Suite 2531
Akron, OH 44311
(330) 572-3546
kclements@gpdgroup.com

GPD# 2014723.21.65054.01
February 26, 2014

STRUCTURAL ANALYSIS REPORT

AT&T DESIGNATION:	**Site USID:**	**65054**
	Site FA:	**10035007**
	Client #:	**CT1065**
	Site Name:	**LEBANON**
	AT&T Project:	**MOD LTE 01.11.14**
ANALYSIS CRITERIA:	**Codes:**	**TIA/EIA-222-F, 2003 IBC, ASCE7-05 & 2005 CBC** **100-mph (fastest-mile) with 0" ice** **120-mph (3-second gust) with 0" ice** **38-mph (fastest-mile) with 0.75" ice**
SITE DATA:		**244 Gates Road, Lebanon, CT 06249, New London County** **Latitude 41° 40' 58.57" N, Longitude 72° 12' 58.295" W** **Market: NEW ENGLAND** **121' Self Support Tower**

Mr. Jerry Bruno,

GPD is pleased to submit this Structural Analysis Report to determine the structural integrity of the aforementioned tower. The purpose of the analysis is to determine the suitability of the tower with the existing and proposed loading configuration detailed in the analysis report.

Analysis Results

Tower Stress Level with Proposed Equipment:	95.9%	Pass
Foundation Ratio with Proposed Equipment:	95.6%	Pass

We at GPD appreciate the opportunity of providing our continuing professional services to you and Smartlink, LLC. If you have any questions or need further assistance on this or any other projects please do not hesitate to call.

Respectfully submitted,

John Kabak, P.E.
Connecticut #: PEN.0028336

SUMMARY & RESULTS

The purpose of this analysis was to verify whether the existing structure is capable of carrying the proposed loading configuration as specified by AT&T Mobility to Smartlink, LLC. This report was commissioned by Mr. Jerry Bruno of Smartlink, LLC.

TOWER SUMMARY AND RESULTS

Member	Capacity	Results
Leg	58.0%	Pass
Diagonal	90.7%	Pass
Secondary Horizontal	37.2%	Pass
Top Girt	95.9%	Pass
Bolt Checks	68.3%	Pass
Anchor Rods	91.0%	Pass
Foundation	95.6%	Pass

ANALYSIS METHOD

tnxTower (Version 6.1.4.1), a commercially available software program, was used to create a three-dimensional model of the tower and calculate primary member stresses for various dead, live, wind, and ice load cases. Selected output from the analysis is included in Appendix B. The following table details the information provided to complete this structural analysis. This analysis is solely based on this information and is being completed without the benefit of a recent site visit.

DOCUMENTS PROVIDED

Document	Remarks	Source
Equipment Modification Form	Equipment Modification Form, dated 1/14/2014	Siterra
RF Data Sheet	Not Provided	N/A
Tower Design	Not Provided	N/A
Geotechnical Report	GPD Job #: 2012832.03, dated 12/10/2012	Siterra
Tower Mapping	GPD Job #: 2012832.03, dated 12/19/2012	Siterra
Foundation Mapping	GPD Job #: 2012832.03, dated 12/10/2012	Siterra

ASSUMPTIONS

This structural analysis is based on the theoretical capacity of the members and is not a condition assessment of the tower. This analysis is from information supplied, and therefore, its results are based on and are as accurate as that supplied data. GPD has made no independent determination, nor is it required to, of its accuracy. The following assumptions were made for this structural analysis.

1. The tower member sizes and shapes are considered accurate as supplied. The material grade is as per data supplied and/or as assumed and as stated in the materials section.
2. The antenna configuration is as supplied and/or as modeled in the analysis. It is assumed to be complete and accurate. All antennas, mounts, coax and waveguides are assumed to be properly installed and supported as per manufacturer requirements.
3. Some assumptions are made regarding antennas and mount sizes and their projected areas based on best interpretation of data supplied and of best knowledge of antenna type and industry practice.
4. All mounts, if applicable, are considered adequate to support the loading. No actual analysis of the mount(s) is performed. This analysis is limited to analyzing the tower only.
5. The soil parameters are as per data supplied or as assumed and stated in the calculations.
6. Foundations are properly designed and constructed to resist the original design loads indicated in the documents provided.
7. The tower and structures have been properly maintained in accordance with TIA Standards and/or with manufacturer's specifications.
8. All welds and connections are assumed to develop at least the member capacity unless determined otherwise and explicitly stated in this report.
9. All prior structural modifications are assumed to be as per data supplied/available and to have been properly installed.
10. Loading interpreted from photos is accurate to $\pm 5'$ AGL, antenna size accurate to ± 3.3 sf, and coax equal to the number of existing antennas without reserve.
11. All existing loading was obtained from the Provided Equipment Modification Form, the Tower Mapping by GPD (Job #: 2012832.03, dated 12/19/2012) and site photos and is assumed to be accurate.
12. Tower Leg A is assumed to face 0 degrees from true north based on satellite imagery.
13. Foundation steel was not able to be determined through testing. Therefore it was assumed that the foundation steel in place is equal to or in excess of the soil failure criteria in the foundation analysis.
14. The existing AT&T loading has been modeled based on the most recent site photos.

If any of these assumptions are not valid or have been made in error, this analysis may be affected, and GPD Group should be allowed to review any new information to determine its effect on the structural integrity of the tower.

DISCLAIMER OF WARRANTIES

GPD GROUP has not performed a recent site visit to the tower to verify the member sizes or antenna/coax loading. If the existing conditions are not as represented on the tower elevation contained in this report, we should be contacted immediately to evaluate the significance of the discrepancy. This is not a condition assessment of the tower or foundation. This report does not replace a full tower inspection. The tower and foundations are assumed to have been properly fabricated, erected, maintained, in good condition, twist free, and plumb.

The engineering services rendered by GPD GROUP in connection with this Structural Analysis are limited to a computer analysis of the tower structure and theoretical capacity of its main structural members. All tower components have been assumed to only resist dead loads when no other loads are applied. No allowance was made for any damaged, bent, missing, loose, or rusted members (above and below ground). No allowance was made for loose bolts or cracked welds.

GPD GROUP does not analyze the fabrication of the structure (including welding). It is not possible to have all the very detailed information needed to perform a thorough analysis of every structural sub-component and connection of an existing tower. GPD GROUP provides a limited scope of service in that we cannot verify the adequacy of every weld, plate connection detail, etc. The purpose of this report is to assess the feasibility of adding appurtenances usually accompanied by transmission lines to the structure.

It is the owner's responsibility to determine the amount of ice accumulation in excess of the specified code recommended amount, if any, that should be considered in the structural analysis.

The attached sketches are a schematic representation of the analyzed tower. If any material is fabricated from these sketches, the contractor shall be responsible for field verifying the existing conditions, proper fit, and clearance in the field. Any mentions of structural modifications are reasonable estimates and should not be used as a precise construction document. Precise modification drawings are obtainable from GPD GROUP, but are beyond the scope of this report.

Towers are designed to carry gravity, wind, and ice loads. All members, legs, diagonals, struts, and redundant members provide structural stability to the tower with little redundancy. Absence or removal of a member can trigger catastrophic failure unless a substitute is provided before any removal. Legs carry axial loads and derive their strength from shorter unbraced lengths by the presence of redundant members and their connection to the diagonals with bolts or welds. If the bolts or welds are removed without providing any substitute to the frame, the leg is subjected to a higher unbraced length that immediately reduces its load carrying capacity. If a diagonal is also removed in addition to the connection, the unbraced length of the leg is greatly increased, jeopardizing its load carrying capacity. Failure of one leg can result in a tower collapse because there is no redundancy. Redundant members and diagonals are critical to the stability of the tower.

Miscellaneous items such as antenna mounts, etc., have not been designed or detailed as a part of our work. We recommend that material of adequate size and strength be purchased from a reputable tower manufacturer.

GPD GROUP makes no warranties, expressed and/or implied, in connection with this report and disclaims any liability arising from material, fabrication, and erection of this tower. GPD GROUP will not be responsible whatsoever for, or on account of, consequential or incidental damages sustained by any person, firm, or organization as a result of any data or conclusions contained in this report. The maximum liability of GPD GROUP pursuant to this report will be limited to the total fee received for preparation of this report.

APPENDIX A

Tower Analysis Summary Form

Tower Analysis Summary Form

General Info

Site Name	LEBANON
Site Number	65054
FA Number	10035007
Date of Analysis	February 26, 2014
Company Performing Analysis	GPD

The information contained in this summary report is not to be used independently from the PE stamped tower analysis.

Tower Info	Description	Date
Tower Type (G, SST, MP)	SST	
Tower Height (top of steel AGL)	121'	
Tower Manufacturer	N/A	
Tower Model	N/A	
Tower Design	N/A	
Foundation Design	N/A	
Geotech Report	GPD Job #: 2012832.03	12/10/2012
Tower Mapping	GPD Job #: 2012832.03	12/19/2012
Previous Structural Analysis	N/A	
Foundation Mapping	GPD Job #: 2012832.03	12/10/2012

Design Parameters

Design Code Used	TIA/EIA-222-F 2003 IBC, ASCE7-05 & 2005 CBC
Location of Tower (County, State)	New London, CT
Basic Wind Speed (mph)	100 (fastest-mile)
Ice Thickness (in)	0.75
Structure Classification (I, II, III)	
Exposure Category (B, C, D)	
Topographic Category (1 to 5)	

Analysis Results (% Maximum Usage)

Existing/Reserved + Future + Proposed Condition	
Tower (%)	95.9%
Anchor Rods (%)	91.0%
Foundation (%)	95.6%
Foundation Adequate?	Yes

Steel Yield Strength (ksi)

Legs	50
Diagonals	36
Bolts	A325N
Anchor Rods	36

Existing / Reserved Loading

Antenna								Mount			Transmission Line			
Antenna Owner	Mount Height (ft)	Antenna CL (ft)	Quantity	Type	Manufacturer	Model	Azimuth	Quantity	Manufacturer	Type	Quantity	Model	Size	Attachment Face/Leg
AT&T Mobility	121	129	1	Dipole	Unknown	16' Dipole		4	Unknown	Star Mount	1	Unknown	1/2"	Face "B"
AT&T Mobility	121	124	6	Panel	Powerwave	RA21.7770.00	30/150/270			on the same mounts	9	Unknown	1-5/8"	Face "A"
AT&T Mobility	121	124	6	TMA	Powerwave	LGP21401				on the same mounts	3	Unknown	1-5/8"	Face "B"
AT&T Mobility	121	124	6	TMA	Powerwave	LGP21901				on the same mounts	1	Unknown	1/2"	Face "A"
AT&T Mobility	121	124	2	Panel	Powerwave	P65-17-XLH-RR	30/270			on the same mounts	2	DC Power	3/4"	Face "B"
AT&T Mobility	121	124	1	Panel	Andrew	SBNH-1D6565C	150			on the same mounts	1	Fiber	1/2"	Face "B"
AT&T Mobility	121	124	6	RRU	Ericsson	RRUS-11				on the same mounts				
AT&T Mobility	121	121	1	Squid	Raycap	DC6-48-60-18-8F				on the same mounts				

Note: All existing atnennas and TMAs shall be removed prior to the installation of the proposed equipment and have not been considered for this analysis. All other equipment shall be removed.

Proposed Loading

Antenna								Mount			Transmission Line			
Antenna Owner	Mount Height (ft)	Antenna CL (ft)	Quantity	Type	Manufacturer	Model	Azimuth	Quantity	Manufacturer	Type	Quantity	Model	Size	Attachment Face/Leg
AT&T Mobility	121	124	9	Panel	CCI	HPA-65R-BUU-H8-K	30/150/270			on the existing mounts				
AT&T Mobility	121	124	6	TMA	CCI	Twin TMACCI-BP				on the existing mounts				
AT&T Mobility	121	124	2	RRU	Ericsson	RRUS 12				on the existing mounts				
AT&T Mobility	121	124	2	RRU	Ericsson	RRUS-11				on the existing mounts				
AT&T Mobility	121	124	2	RRU	Ericsson	RRUS A2 MODULE				on the existing mounts				
AT&T Mobility	121	124	1	RRU	Ericsson	RRUS-32				on the existing mounts				
AT&T Mobility	121	124	1	RRU	Ericsson	RRUS E2				on the existing mounts				

Note: The proposed equipment shall be installed in addition to the remaining equipment at the same elevation.

Future Loading

Antenna								Mount			Transmission Line			
Antenna Owner	Mount Height (ft)	Antenna CL (ft)	Quantity	Type	Manufacturer	Model	Azimuth	Quantity	Manufacturer	Type	Quantity	Model	Size	Attachment Face/Leg

APPENDIX B

tnxTower Output File

GPD Group
520 South Main Street, Suite 2531
Akron, Ohio 44311
Phone: 330.572.2100
FAX: 330.572.2101

Tower Input Data

The main tower is a 4x free standing tower with an overall height of 121.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 6.25 ft at the top and 11.25 ft at the base.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

Tower is located in New London County, Connecticut.
Basic wind speed of 100 mph.
Nominal ice thickness of 0.7500 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 38 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 50 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.333.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	*Face or Leg*	*Allow Shield*	*Component Type*	*Placement* *ft*	*Face Offset* *in*	*Lateral Offset (Frac FW)*	*#*	*# Per Row*	*Clear Spacing* *in*	*Width or Diameter* *in*	*Perimeter* *in*	*Weight* *plf*
Climbing Ladder (Af)	A	Yes	Af (CfAe)	121.00 - 8.00	1.0000	0	1	1	3.8400	3.8400	15.3600	4.81
LDF4-50A (1/2 FOAM)	A	Yes	Ar (CfAe)	121.00 - 8.00	0.5000	0.05	1	1	0.6300	0.6300		0.15
LDF7-50A (1-5/8 FOAM)	A	Yes	Ar (CfAe)	121.00 - 8.00	0.5000	0.08	3	2	0.7500	1.9800		0.82
LDF7-50A (1-5/8 FOAM)	A	Yes	Ar (CfAe)	121.00 - 8.00	0.5000	0.45	6	3	0.7500	1.9800		0.82
LDF7-50A (1-5/8 FOAM)	B	Yes	Ar (CfAe)	121.00 - 8.00	0.5000	0	3	2	0.7500	1.9800		0.82
LDF4-50A (1/2 FOAM)	B	Yes	Ar (CfAe)	121.00 - 8.00	0.5000	0.05	1	1	0.6300	0.6300		0.15
1/2" Fiber Cable	B	Yes	Ar (CfAe)	121.00 - 8.00	0.5000	0.03	1	1	0.6300	0.6300		0.15
3/4" DC Power Line	B	Yes	Ar (CfAe)	121.00 - 8.00	0.5000	0.05	2	2	0.7500	0.7500		0.33
Safety Line 3/8	A	Yes	Af (CfAe)	121.00 - 8.00	1.0000	0	1	1	0.3750	0.3750	1.1800	0.22

Discrete Tower Loads

Description	*Face or Leg*	*Offset Type*	*Offsets: Horz Lateral* *ft* *Vert* *ft* *ft*	*Azimuth Adjustment* *°*	*Placement* *ft*		*C_AA_A Front* *ft^2*	*C_AA_A Side* *ft^2*	*Weight* *lb*
(2) Sabre 6' Sidearm C10-151-006	A	From Face	1.73 1.00 0.00	30.0000	121.00	No Ice	2.72	12.93	145.70
						1/2" Ice	4.11	17.82	223.26
						1" Ice	5.50	22.71	300.82
						2" Ice	8.28	32.49	455.94
						4" Ice	13.84	52.05	766.18
(2) Sabre 6' Sidearm	B	From Face	1.73	30.0000	121.00	No Ice	2.72	12.93	145.70

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
C10-151-006			1.00			1/2" Ice	4.11	17.82	223.26
			0.00			1" Ice	5.50	22.71	300.82
						2" Ice	8.28	32.49	455.94
						4" Ice	13.84	52.05	766.18
(2) Sabre 6' Sidearm	C	From Face	1.73	30.0000	121.00	No Ice	2.72	12.93	145.70
C10-151-006			1.00			1/2" Ice	4.11	17.82	223.26
			0.00			1" Ice	5.50	22.71	300.82
						2" Ice	8.28	32.49	455.94
						4" Ice	13.84	52.05	766.18
(2) Sabre 6' Sidearm	D	From Face	1.73	30.0000	121.00	No Ice	2.72	12.93	145.70
C10-151-006			1.00			1/2" Ice	4.11	17.82	223.26
			0.00			1" Ice	5.50	22.71	300.82
						2" Ice	8.28	32.49	455.94
						4" Ice	13.84	52.05	766.18
RRUS-11	B	From Face	3.46	-15.0000	121.00	No Ice	3.25	1.37	47.62
			2.00			1/2" Ice	3.49	1.55	68.42
			3.00			1" Ice	3.74	1.74	92.25
						2" Ice	4.27	2.14	149.81
						4" Ice	5.43	3.04	309.89
RRUS-11	C	From Leg	3.46	-30.0000	121.00	No Ice	3.25	1.37	47.62
			2.00			1/2" Ice	3.49	1.55	68.42
			3.00			1" Ice	3.74	1.74	92.25
						2" Ice	4.27	2.14	149.81
						4" Ice	5.43	3.04	309.89
RRUS-11	D	From Face	3.46	45.0000	121.00	No Ice	3.25	1.37	47.62
			2.00			1/2" Ice	3.49	1.55	68.42
			3.00			1" Ice	3.74	1.74	92.25
						2" Ice	4.27	2.14	149.81
						4" Ice	5.43	3.04	309.89
DC6-48-60-18-8F Surge Suppression Unit	C	None		0.0000	121.00	No Ice	1.47	1.47	18.90
						1/2" Ice	1.67	1.67	36.62
						1" Ice	1.88	1.88	56.82
						2" Ice	2.33	2.33	105.34
						4" Ice	3.38	3.38	239.02
Andrew Double Pipe Mount MC-DA14-B	A	From Leg	3.46	0.0000	121.00	No Ice	3.75	1.28	84.00
			2.00			1/2" Ice	4.45	1.39	111.00
			3.00			1" Ice	5.15	1.50	138.00
						2" Ice	6.55	1.72	192.00
						4" Ice	9.35	2.16	300.00
Andrew Double Pipe Mount MC-DA14-B	B	From Leg	3.46	0.0000	121.00	No Ice	3.75	1.28	84.00
			2.00			1/2" Ice	4.45	1.39	111.00
			3.00			1" Ice	5.15	1.50	138.00
						2" Ice	6.55	1.72	192.00
						4" Ice	9.35	2.16	300.00
MTS 60" Standoff	C	From Leg	3.46	0.0000	121.00	No Ice	0.98	2.60	48.00
			2.00			1/2" Ice	1.70	4.50	70.36
			3.00			1" Ice	2.42	6.40	92.72
						2" Ice	3.86	10.20	137.44
						4" Ice	6.74	17.80	226.88
HPA-65R-BUU-H8-K w/ Mount Pipe	A	From Face	3.46	75.0000	121.00	No Ice	13.30	7.52	70.00
			2.00			1/2" Ice	13.99	8.09	143.77
			3.00			1" Ice	14.70	8.67	225.17
						2" Ice	16.14	9.85	411.60
						4" Ice	19.13	12.29	884.49
HPA-65R-BUU-H8-K w/ Mount Pipe	A	From Face	3.46	-45.0000	121.00	No Ice	13.30	7.52	70.00
			2.00			1/2" Ice	13.99	8.09	143.77
			3.00			1" Ice	14.70	8.67	225.17

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
						2" Ice	16.14	9.85	411.60
						4" Ice	19.13	12.29	884.49
HPA-65R-BUU-H8-K w/ Mount Pipe	B	From Face	3.46 2.00 3.00	-15.0000	121.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	13.30 13.99 14.70 16.14 19.13	7.52 8.09 8.67 9.85 12.29	70.00 143.77 225.17 411.60 884.49
HPA-65R-BUU-H8-K w/ Mount Pipe	B	From Face	3.46 2.00 3.00	90.0000	121.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	13.30 13.99 14.70 16.14 19.13	7.52 8.09 8.67 9.85 12.29	70.00 143.77 225.17 411.60 884.49
HPA-65R-BUU-H8-K w/ Mount Pipe	C	From Face	3.46 2.00 3.00	15.0000	121.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	13.30 13.99 14.70 16.14 19.13	7.52 8.09 8.67 9.85 12.29	70.00 143.77 225.17 411.60 884.49
HPA-65R-BUU-H8-K w/ Mount Pipe	D	From Face	3.46 2.00 3.00	45.0000	121.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	13.30 13.99 14.70 16.14 19.13	7.52 8.09 8.67 9.85 12.29	70.00 143.77 225.17 411.60 884.49
HPA-65R-BUU-H8-K w/ Mount Pipe	B	From Face	3.46 2.00 3.00	-15.0000	121.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	13.30 13.99 14.70 16.14 19.13	7.52 8.09 8.67 9.85 12.29	70.00 143.77 225.17 411.60 884.49
HPA-65R-BUU-H8-K w/ Mount Pipe	C	From Leg	3.46 2.00 3.00	-30.0000	121.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	13.30 13.99 14.70 16.14 19.13	7.52 8.09 8.67 9.85 12.29	70.00 143.77 225.17 411.60 884.49
HPA-65R-BUU-H8-K w/ Mount Pipe	D	From Face	3.46 2.00 3.00	45.0000	121.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	13.30 13.99 14.70 16.14 19.13	7.52 8.09 8.67 9.85 12.29	70.00 143.77 225.17 411.60 884.49
Twin TMACCI-BP	A	From Face	3.46 2.00 3.00	75.0000	121.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.64 0.76 0.89 1.16 1.83	0.35 0.45 0.56 0.81 1.40	14.00 18.54 24.60 42.06 103.83
Twin TMACCI-BP	A	From Face	3.46 2.00 3.00	-45.0000	121.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.64 0.76 0.89 1.16 1.83	0.35 0.45 0.56 0.81 1.40	14.00 18.54 24.60 42.06 103.83
Twin TMACCI-BP	B	From Face	3.46 2.00 3.00	-15.0000	121.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.64 0.76 0.89 1.16 1.83	0.35 0.45 0.56 0.81 1.40	14.00 18.54 24.60 42.06 103.83
Twin TMACCI-BP	B	From Face	3.46 2.00 3.00	90.0000	121.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.64 0.76 0.89 1.16 1.83	0.35 0.45 0.56 0.81 1.40	14.00 18.54 24.60 42.06 103.83

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Twin TMACCI-BP	C	From Face	3.46	15.0000	121.00	No Ice	0.64	0.35	14.00
			2.00			1/2" Ice	0.76	0.45	18.54
			3.00			1" Ice	0.89	0.56	24.60
						2" Ice	1.16	0.81	42.06
						4" Ice	1.83	1.40	103.83
Twin TMACCI-BP	D	From Face	3.46	45.0000	121.00	No Ice	0.64	0.35	14.00
			2.00			1/2" Ice	0.76	0.45	18.54
			3.00			1" Ice	0.89	0.56	24.60
						2" Ice	1.16	0.81	42.06
						4" Ice	1.83	1.40	103.83
RRUS 12	A	From Face	3.46	75.0000	121.00	No Ice	2.89	1.00	58.00
			2.00			1/2" Ice	3.11	1.15	75.97
			3.00			1" Ice	3.35	1.31	96.77
						2" Ice	3.85	1.66	147.66
						4" Ice	4.95	2.46	292.03
RRUS 12	A	From Face	3.46	-45.0000	121.00	No Ice	2.89	1.00	58.00
			2.00			1/2" Ice	3.11	1.15	75.97
			3.00			1" Ice	3.35	1.31	96.77
						2" Ice	3.85	1.66	147.66
						4" Ice	4.95	2.46	292.03
RRUS-11	A	From Face	3.46	75.0000	121.00	No Ice	3.25	1.37	47.62
			2.00			1/2" Ice	3.49	1.55	68.42
			3.00			1" Ice	3.74	1.74	92.25
						2" Ice	4.27	2.14	149.81
						4" Ice	5.43	3.04	309.89
RRUS-11	A	From Face	3.46	-45.0000	121.00	No Ice	3.25	1.37	47.62
			2.00			1/2" Ice	3.49	1.55	68.42
			3.00			1" Ice	3.74	1.74	92.25
						2" Ice	4.27	2.14	149.81
						4" Ice	5.43	3.04	309.89
RRUS A2 MODULE	A	From Face	3.46	75.0000	121.00	No Ice	1.87	0.42	21.16
			2.00			1/2" Ice	2.05	0.53	31.49
			3.00			1" Ice	2.24	0.65	44.03
						2" Ice	2.66	0.91	76.55
						4" Ice	3.58	1.54	176.75
RRUS A2 MODULE	A	From Face	3.46	-45.0000	121.00	No Ice	1.87	0.42	21.16
			2.00			1/2" Ice	2.05	0.53	31.49
			3.00			1" Ice	2.24	0.65	44.03
						2" Ice	2.66	0.91	76.55
						4" Ice	3.58	1.54	176.75
RRUS-32	D	From Face	3.46	-75.0000	121.00	No Ice	3.87	2.76	77.00
			2.00			1/2" Ice	4.15	3.02	104.93
			3.00			1" Ice	4.44	3.29	136.47
						2" Ice	5.06	3.85	211.15
						4" Ice	6.38	5.08	412.40
RRUS E2	D	From Face	3.46	-75.0000	121.00	No Ice	1.87	0.42	21.16
			2.00			1/2" Ice	2.05	0.53	31.49
			3.00			1" Ice	2.24	0.65	44.03
						2" Ice	2.66	0.91	76.55
						4" Ice	3.58	1.54	176.75

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
121.00	(2) Sabre 6' Sidearm C10-151-006	24	1.731	0.1085	0.0121	218638

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load lb	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	121	Leg	A325N	0.6250	8	1992.72	12885.40	0.155 ✔	1.333	Bolt DS
		Diagonal	A325N	0.6250	2	2444.82	4791.80	0.510 ✔	1.333	Member Block Shear
		Secondary Horizontal	A325N	0.6250	1	119.56	5103.52	0.023 ✔	1.333	Member Block Shear
		Top Girt	A325N	0.6250	1	308.98	9107.81	0.034 ✔	1.333	Member Block Shear
T2	110	Leg	A325N	0.6250	8	4891.32	12885.40	0.380 ✔	1.333	Bolt DS
		Diagonal	A325N	0.6250	2	2776.00	5482.81	0.506 ✔	1.333	Member Block Shear
		Secondary Horizontal	A325N	0.6250	1	293.48	5103.52	0.058 ✔	1.333	Member Block Shear
		Top Girt	A325N	0.6250	1	1264.87	9107.81	0.139 ✔	1.333	Member Block Shear
T3	100.417	Leg	A325N	0.6250	16	4183.84	12885.40	0.325 ✔	1.333	Bolt DS
		Diagonal	A325N	0.6250	2	3698.57	5131.64	0.721 ✔	1.333	Member Block Shear
		Secondary Horizontal	A325N	0.6250	1	502.06	5103.52	0.098 ✔	1.333	Member Block Shear
		Top Girt	A325N	0.6250	1	2574.95	9107.81	0.283 ✔	1.333	Member Block Shear
T4	90.4167	Leg	A325N	0.6250	16	5839.97	12885.40	0.453 ✔	1.333	Bolt DS
		Diagonal	A325N	0.6250	2	4404.85	6442.72	0.684 ✔	1.333	Bolt Shear
		Secondary Horizontal	A325N	0.6250	1	701.07	5103.52	0.137 ✔	1.333	Member Block Shear
		Top Girt	A325N	0.6250	1	3634.25	9107.81	0.399 ✔	1.333	Member Block Shear
T5	80.4167	Leg	A325N	0.6250	24	5038.30	12885.40	0.391 ✔	1.333	Bolt DS
		Diagonal	A325N	0.6250	2	4633.92	8224.22	0.563 ✔	1.333	Member Block Shear
		Secondary Horizontal	A325N	0.6250	1	907.24	5103.52	0.178 ✔	1.333	Member Block Shear
		Top Girt	A325N	0.6250	2	3103.91	8224.22	0.377 ✔	1.333	Member Block Shear
T6	70.4167	Leg	A325N	0.7500	24	6535.37	18555.00	0.352 ✔	1.333	Bolt DS
		Diagonal	A325N	0.6250	2	4105.17	6442.72	0.637 ✔	1.333	Bolt Shear
		Secondary Horizontal	A325N	0.6250	1	1176.83	5103.52	0.231 ✔	1.333	Member Block Shear
		Top Girt	A325N	0.6250	2	2772.37	8224.22	0.337 ✔	1.333	Member Block Shear
T7	60.4167	Leg	A325N	0.7500	24	7755.93	18555.00	0.418 ✔	1.333	Bolt DS
		Diagonal	A325N	0.6250	2	4464.75	6442.72	0.693 ✔	1.333	Bolt Shear
		Secondary Horizontal	A325N	0.6250	1	1396.59	5103.52	0.274 ✔	1.333	Member Block Shear
		Top Girt	A325N	0.6250	2	2424.20	9583.59	0.253 ✔	1.333	Member Block

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load lb	Ratio Load / Allowable	Allowable Ratio	Criteria
T8	50.4167	Leg	A325N	0.7500	28	7750.45	18555.00	0.418 ✔	1.333	Shear Bolt DS
		Diagonal	A325N	0.6250	2	4582.07	6442.72	0.711 ✔	1.333	Bolt Shear
		Secondary Horizontal	A325N	0.6250	1	1628.23	5103.52	0.319 ✔	1.333	Member Block Shear
		Top Girt	A325N	0.6250	2	2667.78	6442.72	0.414 ✔	1.333	Bolt Shear
T9	40.4167	Leg	A325N	0.7500	32	7742.16	18555.00	0.417 ✔	1.333	Bolt DS
		Diagonal	A325N	0.6250	2	4771.97	6442.72	0.741 ✔	1.333	Bolt Shear
		Secondary Horizontal	A325N	0.6250	1	1858.82	5103.52	0.364 ✔	1.333	Member Block Shear
		Top Girt	A325N	0.6250	2	2879.26	6442.72	0.447 ✔	1.333	Bolt Shear
T10	30.4167	Leg	A325N	0.7500	36	7742.99	18555.00	0.417 ✔	1.333	Bolt DS
		Diagonal	A325N	0.6250	2	4884.09	6442.72	0.758 ✔	1.333	Bolt Shear
		Secondary Horizontal	A325N	0.6250	1	2091.43	5103.52	0.410 ✔	1.333	Member Block Shear
		Top Girt	A325N	0.6250	2	3023.27	6442.72	0.469 ✔	1.333	Bolt Shear
T11	20.4167	Leg	A325N	0.7500	40	7754.80	18555.00	0.418 ✔	1.333	Bolt DS
		Diagonal	A325N	0.6250	2	5045.55	6442.72	0.783 ✔	1.333	Bolt Shear
		Secondary Horizontal	A325N	0.6250	1	2327.28	5103.52	0.456 ✔	1.333	Member Block Shear
		Top Girt	A325N	0.6250	2	3218.53	8224.22	0.391 ✔	1.333	Member Block Shear
T12	10.2083	Leg	A325N	0.7500	40	8458.52	18555.00	0.456 ✔	1.333	Bolt DS
		Diagonal	A325N	0.6250	2	5869.67	6442.72	0.911 ✔	1.333	Bolt Shear
		Secondary Horizontal	A325N	0.6250	1	2538.51	6442.72	0.394 ✔	1.333	Bolt Shear
		Top Girt	A325N	0.6250	2	3877.73	8224.22	0.472 ✔	1.333	Member Block Shear
T12	0.0000	Anchor Rods	A36	1.5000	4	41007.10	33823.20	1.212 ✔	1.333	Bolt Tension

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
T1	121 - 110	Leg	L5x5x1/2	1	-7970.86	135887.35	5.9	Pass
T2	110 - 100.417	Leg	L5x5x1/2	21	-19565.30	145458.29	13.5	Pass
T3	100.417 - 90.4167	Leg	L5x5x1/2	41	-33470.70	142714.97	23.5	Pass
T4	90.4167 - 80.4167	Leg	L5x5x1/2	61	-46719.80	139774.38	33.4	Pass
T5	80.4167 - 70.4167	Leg	L5x5x1/2	81	-60459.60	140052.97	43.2	Pass
T6	70.4167 - 60.4167	Leg	L6x6x3/4	101	-78424.40	268254.24	29.2	Pass
T7	60.4167 - 50.4167	Leg	L6x6x3/4	121	-93071.20	268543.50	34.7	Pass
T8	50.4167 - 40.4167	Leg	L6x6x3/4	141	-108506.00	268684.80	40.4	Pass
T9	40.4167 - 30.4167	Leg	L6x6x3/4	161	-123875.00	268914.08	46.1	Pass
T10	30.4167 -	Leg	L6x6x3/4	181	-139374.00	269018.05	51.8	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
	20.4167							
T11	20.4167 - 10.2083	Leg	L6x6x3/4	201	-155096.00	267223.83	58.0	Pass
T12	10.2083 - 0	Leg	L6x6x3/4	221	-169170.00	297119.02	56.9	Pass
T1	121 - 110	Diagonal	L2 1/2x2 1/2x3/16	16	-5092.75	8764.61	58.1	Pass
T2	110 - 100.417	Diagonal	L2x3x1/4	36	-5862.19	10918.98	53.7	Pass
T3	100.417 - 90.4167	Diagonal	L3x3x3/16	56	-7778.68	16590.12	46.9	Pass
T4	90.4167 - 80.4167	Diagonal	L3x3x1/4	76	-8809.69	20133.76	43.8	Pass
T5	80.4167 - 70.4167	Diagonal	2L2x2x3/16	96	-9777.98	20457.82	47.8	Pass
T6	70.4167 - 60.4167	Diagonal	L3x3x1/4	116	-8210.35	18648.67	44.0	Pass
T7	60.4167 - 50.4167	Diagonal	L3x3x1/4	133	-8929.51	17640.52	50.6	Pass
T8	50.4167 - 40.4167	Diagonal	L3x3x1/4	153	-9164.14	16622.11	55.1	Pass
T9	40.4167 - 30.4167	Diagonal	L3x3x1/4	173	-9543.95	15699.14	60.8	Pass
T10	30.4167 - 20.4167	Diagonal	L3x3x1/4	193	-9768.18	14796.03	66.0	Pass
T11	20.4167 - 10.2083	Diagonal	L3x3x1/4	213	-10091.10	13701.11	73.7	Pass
T12	10.2083 - 0	Diagonal	L3x3x1/4	233	-11739.30	12936.03	90.7	Pass
T1	121 - 110	Secondary Horizontal	L2x2x3/16	17	-119.56	16381.77	0.7	Pass
T2	110 - 100.417	Secondary Horizontal	L2x2x3/16	37	-293.48	16381.77	1.8	Pass
T3	100.417 - 90.4167	Secondary Horizontal	L2x2x3/16	57	-502.06	16381.77	3.1	Pass
T4	90.4167 - 80.4167	Secondary Horizontal	L2x2x3/16	77	-701.07	15539.58	4.5	Pass
T5	80.4167 - 70.4167	Secondary Horizontal	L2x2x3/16	97	-907.24	13708.97	6.6	Pass
T6	70.4167 - 60.4167	Secondary Horizontal	L2x2x3/16	117	-1176.83	12073.41	9.7	Pass
T7	60.4167 - 50.4167	Secondary Horizontal	L2x2x3/16	137	-1396.59	10389.68	13.4	Pass
T8	50.4167 - 40.4167	Secondary Horizontal	L2x2x3/16	157	-1628.23	9036.77	18.0	Pass
T9	40.4167 - 30.4167	Secondary Horizontal	L2x2x3/16	177	-1858.82	7930.87	23.4	Pass
T10	30.4167 - 20.4167	Secondary Horizontal	L2x2x3/16	197	-2091.43	7017.19	29.8	Pass
T11	20.4167 - 10.2083	Secondary Horizontal	L2x2x3/16	217	-2327.28	6252.13	37.2	Pass
T12	10.2083 - 0	Secondary Horizontal	L2x2x1/4	237	-2538.51	7243.27	35.0	Pass
T1	121 - 110	Top Girt	2L2x2x3/16	6	-238.04	21353.06	1.1	Pass
T2	110 - 100.417	Top Girt	2L2x2x3/16	26	-1042.81	21353.06	4.9	Pass
T3	100.417 - 90.4167	Top Girt	2L2x2x3/16	45	-2258.27	21353.06	10.6	Pass
T4	90.4167 - 80.4167	Top Girt	2L2x2x3/16	65	-3294.71	21353.06	15.4	Pass
T5	80.4167 - 70.4167	Top Girt	2L2x2x3/16	85	-5650.34	18397.27	30.7	Pass
T6	70.4167 - 60.4167	Top Girt	2L2x2x3/16	105	-5048.09	15609.56	32.3	Pass
T7	60.4167 - 50.4167	Top Girt	2L2 1/2x2 1/2x3/16	125	-4402.77	26548.43	16.6	Pass
T8	50.4167 - 40.4167	Top Girt	L3x3x1/4	145	-4829.58	10982.68	44.0	Pass
T9	40.4167 -	Top Girt	L3x3x1/4	165	-5200.69	9587.98	54.2	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
	30.4167							
T10	30.4167 - 20.4167	Top Girt	L3x3x1/4	185	-5449.30	8461.60	64.4	Pass
T11	20.4167 - 10.2083	Top Girt	2L2x2x3/16	205	-5793.08	8097.88	71.5	Pass
T12	10.2083 - 0	Top Girt	2L2x2x3/16	225	-6950.76	7247.31	95.9	Pass

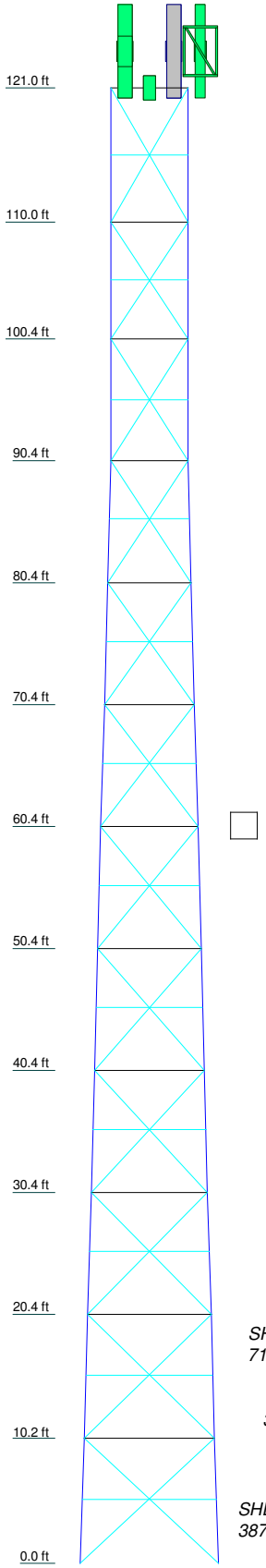
Summary	ELC:	Existing + Proposed
Leg (T11)	58.0	Pass
Diagonal (T12)	90.7	Pass
Secondary Horizontal (T11)	37.2	Pass
Top Girt (T12)	95.9	Pass
Bolt Checks	91.0	Pass
Rating =	95.9	Pass

APPENDIX C

Tower Elevation Drawing

Section	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12
Legs	L5x5x1/2								L6x6x3/4			
Leg Grade	A572-50											
Diagonals	L2 1/2x2 1/2x3/16	L2x3x1/4	L3x3x3/16	L3x3x1/4	2L2x2x3/16				L3x3x1/4			
Diagonal Grade	A36											
Top Girts	2L2x2x3/16						2L2 1/2x2 1/2x3/16		L3x3x1/4			
Sec. Horizontals	L2x2x3/16											L2x2x1/4
Face Width (ft)	6.25				6.81	7.36	7.92	8.47	9.03	9.58	10.14	10.69
# Panels @ (ft)	1 @ 11	1 @ 9.58333				8 @ 10						2 @ 10.2083
Weight (lb)	1204.3	1172.7	1178.9	1300.4	1325.6	1860.6	1930.3	1921.8	1952.7	1983.9	2044.0	2109.1

19984.4



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
(2) Sabre 6' Sidearm C10-151-006	121	HPA-65R-BUU-H8-K w/ Mount Pipe	121
(2) Sabre 6' Sidearm C10-151-006	121	HPA-65R-BUU-H8-K w/ Mount Pipe	121
(2) Sabre 6' Sidearm C10-151-006	121	HPA-65R-BUU-H8-K w/ Mount Pipe	121
(2) Sabre 6' Sidearm C10-151-006	121	HPA-65R-BUU-H8-K w/ Mount Pipe	121
RRUS-11	121	Twin TMACCI-BP	121
RRUS-11	121	Twin TMACCI-BP	121
RRUS-11	121	Twin TMACCI-BP	121
DC6-48-60-18-8F Surge Suppression Unit	121	Twin TMACCI-BP	121
		Twin TMACCI-BP	121
Andrew Double Pipe Mount MC-DA14-B	121	Twin TMACCI-BP	121
Andrew Double Pipe Mount MC-DA14-B	121	RRUS 12	121
MTS 60" Standoff	121	RRUS 12	121
HPA-65R-BUU-H8-K w/ Mount Pipe	121	RRUS-11	121
HPA-65R-BUU-H8-K w/ Mount Pipe	121	RRUS-11	121
HPA-65R-BUU-H8-K w/ Mount Pipe	121	RRUS A2 MODULE	121
HPA-65R-BUU-H8-K w/ Mount Pipe	121	RRUS A2 MODULE	121
HPA-65R-BUU-H8-K w/ Mount Pipe	121	RRUS-32	121
		RRUS E2	121

MATERIAL STRENGTH

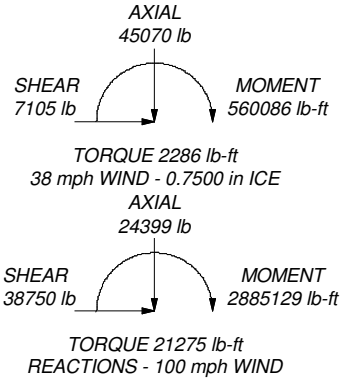
GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

1. Tower is located in New London County, Connecticut.
2. Tower designed for a 100 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 95.9%

MAX. CORNER REACTIONS AT BASE:
DOWN: 184130 lb
SHEAR: 18290 lb

UPLIFT: -178553 lb
SHEAR: 18183 lb



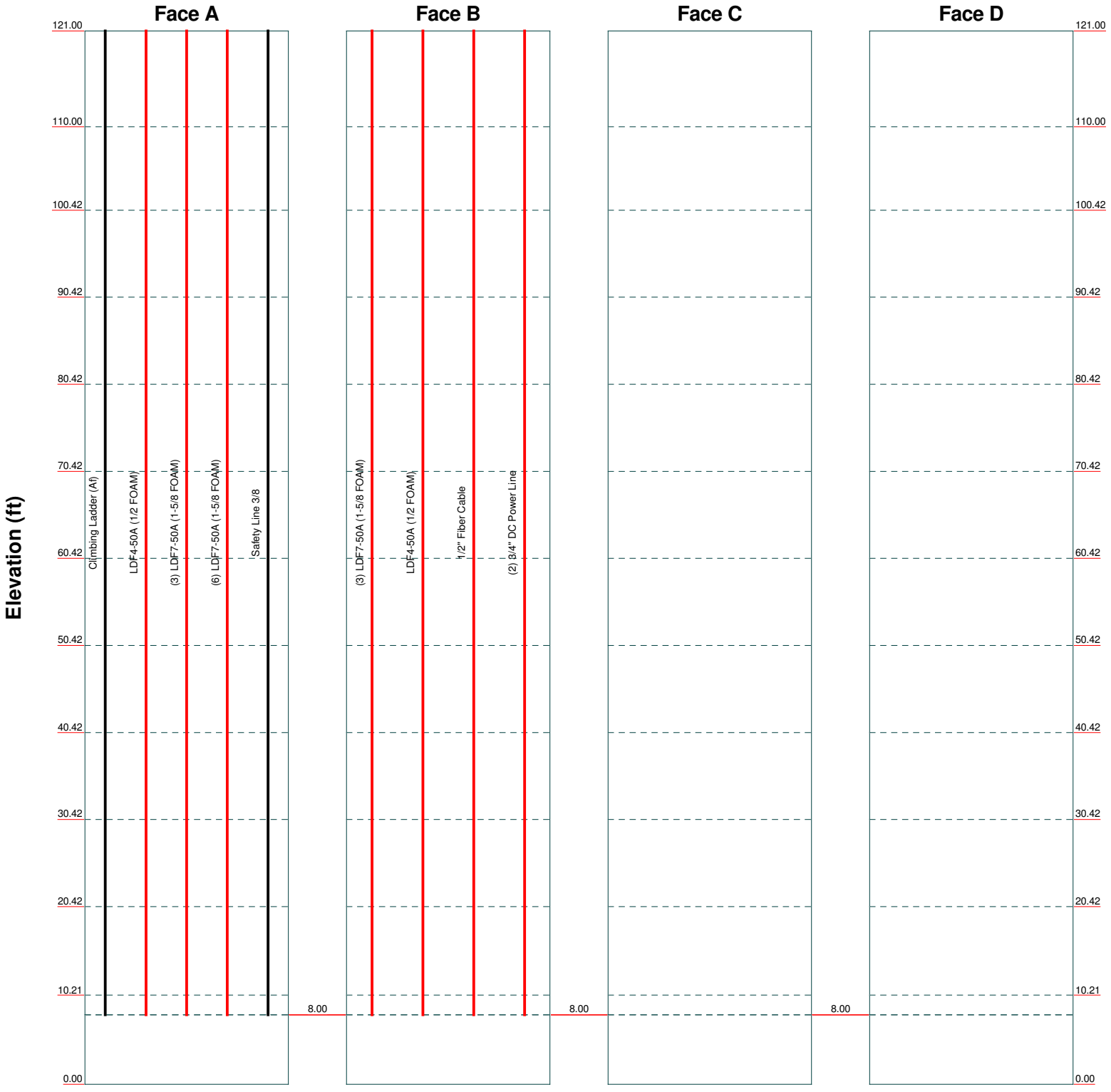
GPD GROUP
Consulting Engineers

GPD Group
520 South Main Street, Suite 2531
Akron, Ohio 44311
Phone: 330.572.2100
FAX: 330.572.2101

Job: ***65054 - LEBANON***			
Project: ***2014723.21.65054.01***			
Client: Smartlink, LLC	Drawn by: jboegel	App'd:	
Code: TIA/EIA-222-F	Date: 02/26/14	Scale: NTS	
Path: C:\Users\jboegel\Desktop\Updated Since on Desktop\65054.01\TNX\Anchor Rods.er		Dwg No. E-1	

Feed Line Distribution Chart
0' - 121'

Round | Flat | App In Face | App Out Face | Truss Leg



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Code: TIA/EIA-222-F	Date: 02/26/14	Scale: NTS	
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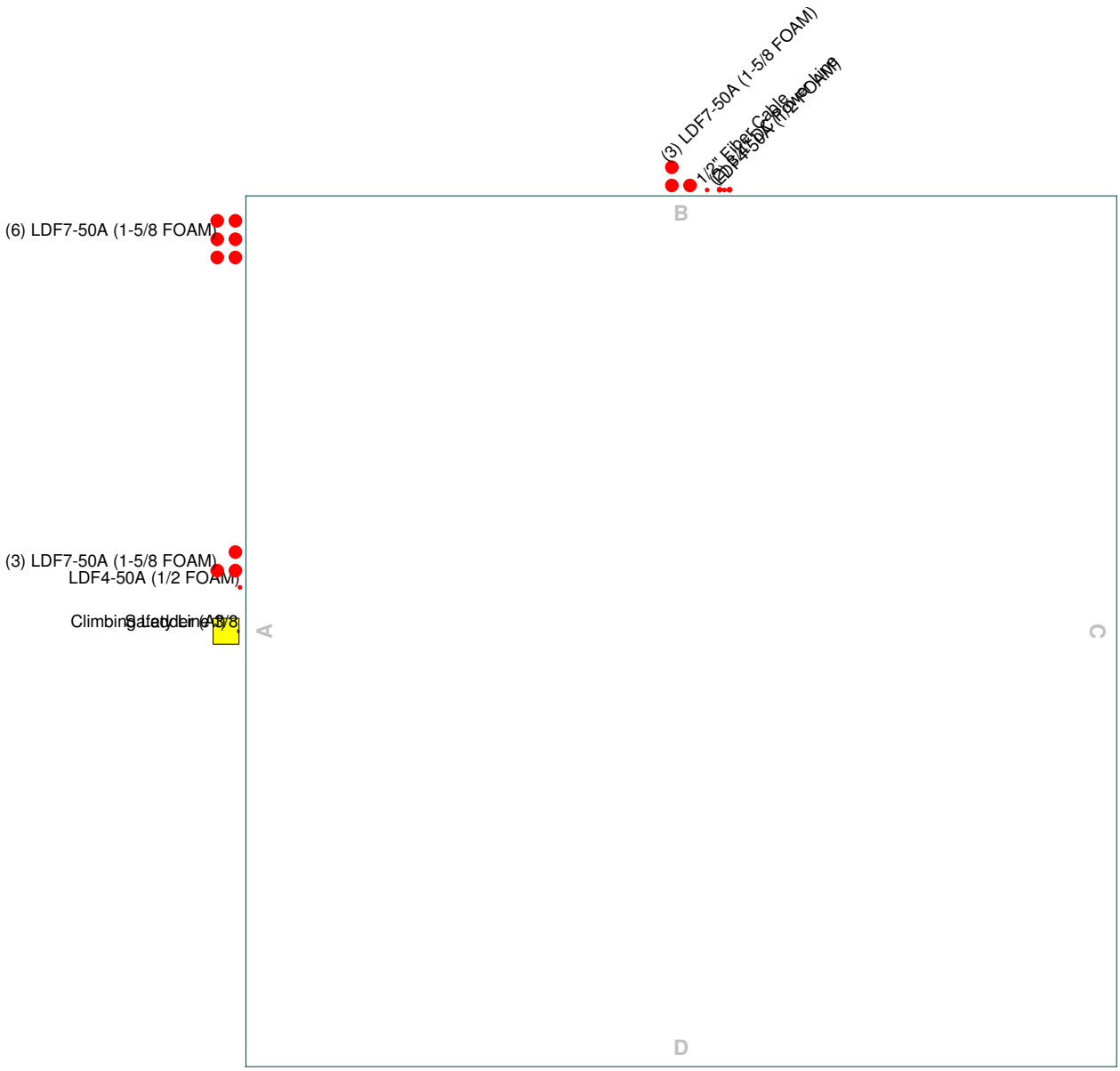
Feed Line Plan

Round Flat App In Face App Out Face



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Code: TIA/EIA-222-F	Date: 02/26/14	Scale: NTS	
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APPENDIX D

Foundation Analysis

Mat Foundation Analysis
65054 - LEBANON
2014723.21.65054.01

General Info	
Code	TIA/EIA-222-F (ASD)
Bearing On	Rock
Foundation Type	SS Pad
Pier Type	Square
Reinforcing Known	No
Max Capacity	1.05

Tower Reactions		
Moment, M	2885.129	k-ft
Axial, P	24.399	k
Shear, V	38.375	k

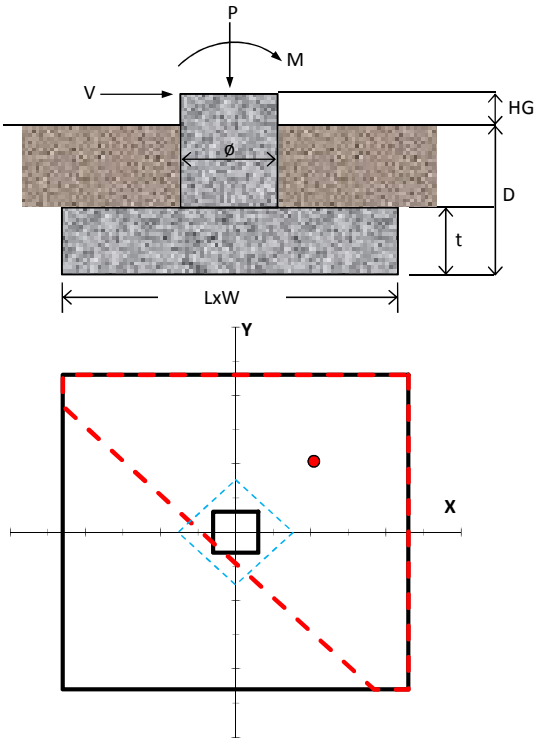
Pad & Pier Geometry		
Pier Width, ø	3	ft
Pad Length, L	23	ft
Pad Width, W	23	ft
Pad Thickness, t	3	ft
Depth, D	5.5	ft
Height Above Grade, HG	1	ft

Pad & Pier Reinforcing		
Rebar Fy	60	ksi
Concrete Fc'	3	ksi
Clear Cover	3	in
Reinforced Top & Bottom?	Yes	
Pad Reinforcing Size	# 8	
Pad Quantity Per Layer	33	
Pier Rebar Size	# 8	
Pier Quantity of Rebar	16	

Soil Properties		
Soil Type	Cohesive	
Soil Unit Weight	120	pcf
Cohesion, Cu	15	ksf
Bearing Type	Net	
Ultimate Bearing	50	ksf
Water Table Depth	99	ft
Frost Depth	5	ft

Bearing Summary			Load Case
Qxmax	2.97	ksf	1D+1W
Qymax	2.97	ksf	1D+1W
Qmax @ 45°	4.01	ksf	1D+1W
$Q_{(all)\ Gross}$	25.33	ksf	
Controlling Capacity	**15.8%**	**Pass**	

Overturning Summary (Required FS=1.5)			Load Case
FS(ot)x	1.57	<1.5	1D+1W
FS(ot)y	1.57	≥1.5	1D+1W
Controlling Capacity	**95.6%**	**Pass**	



AT&T LETTER OF EXPLANATION

MUST PROVIDE WITH EACH STRUCTURAL ANALYSIS

LEBANON
65054
John N. Kabak, P.E., dated 2/26/2014

ALL STRUCTURES	Statement in COL A is Correct	VARIANCE from Col A	N/A	Alternate Value / Concept Used	Explanation	Comments / Reference
Structure Analyzed to F Code	X					
Note: ALL G analyses MUST be justified. A simple notation of jurisdiction requirement will suffice. F BUILT TOWERS in G Code jurisdictions MUST Have the new "5% Grace" Test Applied.G to be applied ONLY where this is exceeded. This 5% test applies to "like for like" only			X			
Guy Tensions Adjusted Within Code to Find Optimum tension / Minimum Reinforcement (Applies to Guyed Tower Failures Only). Note : AT&T requires a pulse chart for altered Tensions			X			
Antenna Azimuths Inputted Per AT&T Information Note Default Azimuths in PL	X					
All Yield Stresses > = 50 ksi (legs)	X					
All Yield Stresses > = 36 ksi (Diagonals and Horizontals))	X					
Structures Designated Class II (G Only) - if site meets criteria for Class III, AT&T must approve justification *in advance of completing the analysis.*			X			
Exposure B Rating Used (Topography) - Exposure C or higher requires written memo with LOE with details per EBP Document. Same applies for Topography rating higher than 2 also requires memo from PE with details per EBP document. IF PE is CHANGING TOPO cat from last SA of record - MEMO with LOE also required!			X			
K value for Slenderness ratio < 1.0 (provide memo if K value 1.0 or greater).		X		tnxTower autocalc used		
Shielding of All Appurtenances Used when Appropriate PER 2.6.9.4 (G Code Only)			X			
0.75 Reduction "Shape" Factor (Figure 2.6) for platform mounts, 0.8 for T-Boom Mounts Used (G Only)			X			
Pipes and round Members have 1.0 Drag Factors. Note if Pipe is attached to flat antenna, these must be considered separately if differing Drag factors are Used	X					
Are Tower Diagonals Designed as "Tension Only"		X		tenstion and compression		
MODIFICATION SECTION	**Statement in COL A is Correct**	**Deviation from Col A**	**N/A**	**Alternate Value / Concept Used**	**Explanation**	**Comments / Reference**
Guyed						
Guyed Only: Reinforcement Recommendation accompanies Optimum Guy Tensioning Scenario.						
Compression Failing Legs / Diagonals / Horizontals: Effective Length Reduced by U-Bolted Member						
NOTE: Welded Solution Must be Explained and will only be considered in cases where other reinforcing methods will not work.						
Self Supporting						

Compression Failing Legs / Diagonals / Horizontals: Effective Length Reduced by U-Bolted Member						
NOTE: Welded Solution Must be Explained and will only be considered in cases where other reinforcing methods will not work.						
Monopole						
Compression Collars						
NOTE: Welded Solution Must be Explained and will only be considered in cases where other reinforcing methods will not work.						
Foundation						
Guyed Anchor Failure: Berm Solution						
SS Foundation Pad and Pier Failure Berm						
SS Foundation Caisson / Concrete Cap						
Monopole: Cap						

NOTE: EOR OF RECORD MUST PROVIDE MEMO w/ LOE WHEN CURRENT ANALYSIS DEVIATES FROM PRIOR ANALYSIS OF RECORD FOR THIS SITE !!!

(TO EXPLAIN CHANGES IN ENGINEERING IN CURRENT REPORT -- EXAMPLES: TOPO/EXPOSURE/K-VALUE/CLASSIFICATION)