QC Development
PO Box 916
Storrs, CT 06268
860-670-9068
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March 30, 2018

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

Notice of Exempt Modification – New Cingular Wireless PCS, LLC (AT&T) – CT2081
500 Highland Avenue, Cheshire, CT 06410
N 41-30-40.3
W 72-53-54.5

Dear Ms. Bachman:

AT&T currently maintains nine (9) antennas at the 130-foot level of the existing 160-foot Monopole at 500 Highland Avenue, Cheshire, CT. The tower is owned by SBA. The property is owned by the Town of Cheshire. AT&T now intends to remove (3) Kathrein antennas and replace them with (2) KMW EPBQ-654L8H8-L2 and (1) KMW EPBQ-654L8H6-L2 antennas. AT&T also intends to install (3) RRUS-32, (3) RRUS-32 B66 and (3) B14-4478 remote radio units (RRU). The new antennas and RRUs will also be installed at the 130-foot level of the tower.

As previously documented by SBA, a Building Permit was issued for this facility by the Town of Cheshire in 2004. The Town does not have any record of any original local zoning decision.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 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 Rob Oris, Jr., Chairman of the Cheshire Town Council, and the Cheshire Planning & Zoning Department, as well as the property owner and the tower owner.

The planned modifications to the 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 structure.

2. The proposed modifications will not require the extension of the site boundary.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The existing structure and its foundation can support the proposed loading.

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

Please feel free to call me at (860) 670-9068 with any questions regarding this matter. Thank you for your consideration.

Sincerely,

Mark Roberts
QC Development
Consultant for AT&T

Attachments

cc: Rob Oris, Jr.- as Elected Official and Property Owner
William Voelker, AICP – Town Planner
SBA – as Tower Owner (via e-mail)

Power Density

Existing Loading on Tower

Carrier	# of Channels	ERP/Ch (W)	Antenna Centerline Height (ft)	Power Density (mW/cm^2)	Freq. Band (MHz**)	Limit S (mW /cm^2)	%MPE
Other Carriers*							7.44%
AT&T GSM	2	565	128	0.0273	880	0.5867	0.47%
AT&T UMTS	1	647	128	0.0156	880	0.5867	0.27%
AT&T UMTS	4	934	128	0.0903	1900	1.0000	0.90%
AT&T LTE	1	1615	128	0.0390	734	0.4893	0.80%
AT&T LTE	2	1077	128	0.0520	1900	1.0000	0.52%
Site Total							10.39%

*Per CSC Records (available upon request, includes calculation formulas)

** If a range of frequencies are used, such as 880-894, enter the lowest value, i.e. 880

Proposed Loading on Tower

Carrier	# of Channels	ERP/Ch (W)	Antenna Centerline Height (ft)	Power Density (mW/cm^2)	Freq. Band (MHz**)	Limit S (mW /cm^2)	%MPE
Other Carriers*							7.44%
AT&T UMTS	2	264	130	0.0123	850	0.5667	0.22%
AT&T LTE	2	2951	130	0.1380	700	0.4667	2.96%
AT&T LTE	2	3664	130	0.1714	1900	1.0000	1.71%
AT&T LTE	1	5070	130	0.1186	2100	1.0000	1.19%
AT&T LTE	1	1285	130	0.0301	2300	1.0000	0.30%
Site Total							13.81%

*Per CSC Records (available upon request, includes calculation formulas)

** If a range of frequencies are used, such as 880-894, enter the lowest value, i.e. 880

PROJECT INFORMATION

SCOPE OF WORK:	TOWER – REPLACE (3) GSM ANTENNAS WITH (3) 12 PORT ANTENNAS (ONE 6' ON BETA & ONE 8' FOR ALPHA/GAMMA). ADD (3) FIRSTNET 700–4478 RRH, (3) WCS RRUS–32, (3) AWS RRUS–32 B66. ADD (1) SQUID, (1) FIBER & (2) DC CABLES. SHELTER – REPLACE BB WITH RBS5216. INSTALL 2ND XMU. REPLACE GSM CABINET WITH NEW POWER PLANT.
SITE ADDRESS:	500 HIGHLAND AVENUE CHESHIRE, CT 06410
LATITUDE:	41° 30' 40.31" N (NAD 83)*
LONGITUDE:	72° 53' 54.58" W (NAD 83)* *PER EXISTING AT&T PLANS
NAME OF APPLICANT:	AT&T MOBILITY 500 ENTERPRISE DRIVE SUITE 3A ROCKY HILL, CT 06067
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY
TOWER OWNER:	TOWN OF CHESHIRE, CT

SITE NAME: CHESHIRE CENTRAL LTE 3C/4C/5C
SITE NO.: CT2081
PACE NO.: MRCTB027359 (3C) / MRCTB027365 (4C) / MRCTB027362 (5C)

DRAWING INDEX

		REV
T01	TITLE SHEET	0
G01	GENERAL NOTES	0
C01	PROPOSED SITE PLAN & SHELTER PLAN	0
C02	PROPOSED ELEVATION & CONSTRUCTION DETAILS	0
C03	EQUIPMENT PLUMBING DIAGRAM	0
E01	GROUNDING DETAILS	0

THIS DOCUMENT WAS DEVELOPED TO REFLECT A SPECIFIC SITE & ITS SITE CONDITIONS & 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.

STRUCTURAL NOTE:

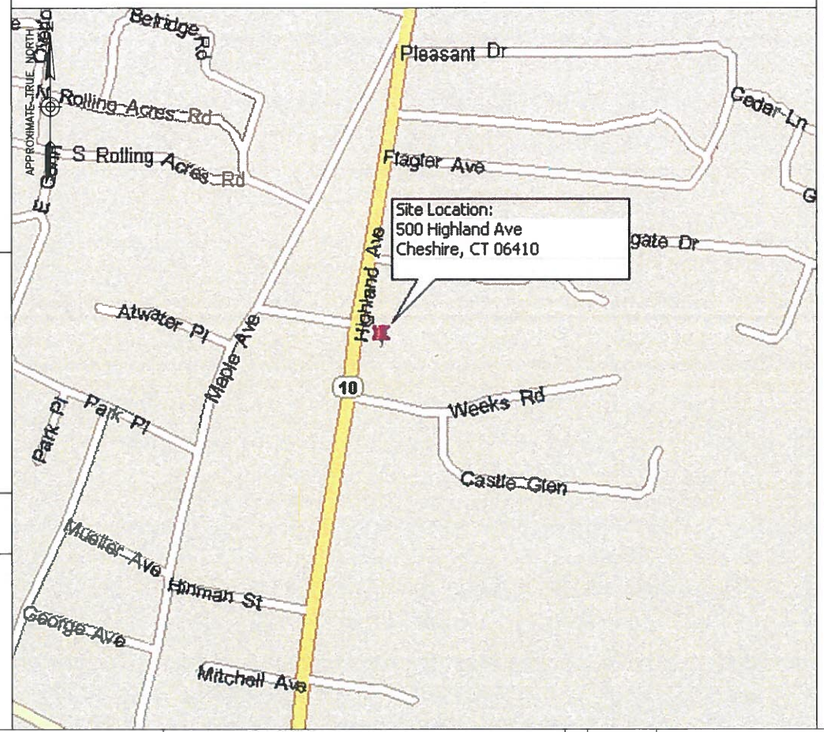
1. AS REQUIRED UNDER TIA/EIA 222H – STANDARD, SAI COMMUNICATIONS SHALL PROVIDE A STRUCTURAL ANALYSIS OF THE TOWER PREPARED BY A LICENSED CONNECTICUT STRUCTURAL ENGINEER CERTIFYING THAT, THE EXISTING TOWER & ANY REQUIRED IMPROVEMENTS & REINFORCEMENTS HAVE SUFFICIENT CAPACITY TO SUPPORT ALL EXISTING & PROPOSED ANTENNAS, SUPPORTS & APPURTENANCES & COMPLIES WITH THE CURRENT CONNECTICUT STATE BUILDING CODE & EIA/TIA CRITERIA. THE CONTRACTOR IS RESPONSIBLE TO CONFIRM THAT ANY IMPROVEMENTS & REINFORCEMENTS REQUIRED BY THE STRUCTURAL ANALYSIS CERTIFICATION ARE PROPERLY INSTALLED PRIOR TO THE ADDITION OF ANTENNAS, SUPPORTS & APPURTENANCES PROPOSED ON THESE DRAWINGS OR OTHERWISE NOTED IN THE STRUCTURAL ANALYSIS.

CONTACT INFORMATION

CONTACT	CONTACT	COMPANY	PHONE NO.
ENGINEERING:	DAMIAN SCHMALZ	DEWBERRY ENGINEERS INC.	(617) 531–0823
SAC:	TIM BURKS	SAI COMMUNICATIONS INC.	(860) 989–0001

VICINITY MAP

DIRECTIONS: TAKE I–95 S. TAKE EXIT 18 TO MERGE ONTO I–691 W TOWARD MERIDEN/WATERBURY. TAKE EXIT 3 FOR CT–10 TOWARD MILLDALE/CHESHIRE. TURN LEFT ONTO CT–10 S/HIGHLAND AVE. DESTINATION WILL BE ON THE LEFT.



APPLICABLE BUILDING CODES & STANDARDS

CONTRACTOR'S WORK SHALL COMPLY WITH PROJECT STANDARD NOTES, SYMBOLS & DETAILS (SEE DRAWING INDEX FOR STANDARD NOTES & DETAILS INCLUDED WITH TYPICAL DRAWING PACKAGE). CONTRACTOR WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, & LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES & STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

BUILDING CODE:
2016 CONNECTICUT STATE BUILDING CODE (2012 INTERNATIONAL BUILDING CODE)

ELECTRICAL CODE:
NATIONAL ELECTRICAL CODE (NEC)

CONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS.
AMERICAN CONCRETE INSTITUTE (ACI) 318, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC), MANUAL OF STEEL CONSTRUCTION, ASD, NINTH EDITION
TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222–H, STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWER & ANTENNA SUPPORTING STRUCTURES:
TIA 607, COMMERCIAL BUILDING GROUNDING & BONDING REQUIREMENTS FOR TELECOMMUNICATIONS

INSTITUTE FOR ELECTRICAL & ELECTRONICS ENGINEERS (IEEE) 81, GUIDE FOR MEASURING EARTH RESISTIVITY, GROUND IMPEDANCE, & EARTH SURFACE POTENTIALS OF A GROUND SYSTEM
IEEE 1100 (1999) RECOMMENDED PRACTICE FOR POWERING & GROUNDING OF ELECTRONIC EQUIPMENT

IEEE C62.41, RECOMMENDED PRACTICES ON SURGE VOLTAGES IN LOW VOLTAGE AC POWER CIRCUITS (FOR LOCATION CATEGORY "C3" & "HIGH SYSTEM EXPOSURE")

TELCORDIA GR–1503, COAXIAL CABLE CONNECTIONS

ANSI T1.311, FOR TELECOM – DC POWER SYSTEMS – TELECOM, ENVIRONMENTAL PROTECTION

FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES & STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT & A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

Dewberry®
Dewberry Engineers Inc.
280 SUMMER ST.
10TH FLOOR
BOSTON, MA 02210
PHONE: 617.695.3400
FAX: 617.695.3310

SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

CHESHIRE CENTRAL LTE 3C/4C/5C
SITE NO. CT2081
500 HIGHLAND AVENUE
CHESHIRE, CT 06410

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	03/15/18	ISSUED FOR CONSTRUCTION	MH	DAS	BBR
A	02/12/18	ISSUED FOR REVIEW	MH	DAS	BBR

SCALE: AS SHOWN | DESIGNED BY: DAS | DRAWN BY: MH

STATE OF CONNECTICUT
BENJAMIN B. REVETTE
28971
LICENSED PROFESSIONAL ENGINEER

AT&T MOBILITY
ROCKY HILL, CT 06067

TITLE SHEET

DEWBERRY NO.	DRAWING NUMBER	REV
50019239/50083727	T01	0

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
   PROJECT MANAGEMENT – SAI COMMUNICATIONS
   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 & 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 & INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, & ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES & COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, & LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK.
4. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL & UTILITY COMPANY SPECIFICATIONS & LOCAL JURISDICTIONAL CODES, ORDINANCES & APPLICABLE REGULATIONS.
5. DRAWINGS PROVIDED HERE ARE NOT TO SCALE UNLESS OTHERWISE NOTED & ARE INTENDED TO SHOW OUTLINE ONLY.
6. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, & LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
7. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT & 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 & T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING & 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 & PROPOSED IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING & STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
11. CONTRACTOR SHALL LEGALLY & PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES & 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 & DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, & PROCEDURES & 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 & WALL PENETRATIONS & POST DOWNS, FINISHING NEW WALLS OR FINAL ELECTRICAL CONNECTIONS FOR ENGINEER REVIEW.
15. CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS & 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 CONTRACTOR. 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.
18. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SAFETY INCLUDING COMPLIANCE WITH ALL APPLICABLE OSHA STANDARDS & RECOMMENDATIONS & SHALL PROVIDE ALL NECESSARY SAFETY DEVICES INCLUDING PPE & PPM & CONSTRUCTION DEVICES SUCH AS WELDING & FIRE PREVENTION, TEMPORARY SHORING, SCAFFOLDING, TRENCH BOXES/SLOPING, BARRIERS, ETC.

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, & OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, & 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 & PROJECT SPECIFICATIONS.
4. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES, TOP SOIL & OTHER REFUSE SHALL BE REMOVED FROM THE SITE & DISPOSED OF LEGALLY.
5. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC & 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 & 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 & 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 & NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, & STABILIZED TO PREVENT EROSION.
12. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL JURISDICTION'S GUIDELINES FOR EROSION & SEDIMENT CONTROL.

CONCRETE & REINFORCING STEEL NOTES:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 & THE DESIGN & 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" & 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 & LARGER .....2 IN.
   #5 & SMALLER & WWF .....1 1/2 IN.
   CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:
   SLAB & WALL .....3/4 IN.
   BEAMS & 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 & 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 & 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 & 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 & 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 & PLACE CRUSHED STONE AS REQUIRED.
2. COMPACTION CERTIFICATION: AN INSPECTION & WRITTEN CERTIFICATION BY A QUALIFIED GEOTECHNICAL TECHNICIAN OR ENGINEER IS ACCEPTABLE.
3. AS AN ALTERNATIVE TO INSPECTION & 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 & 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 & REPLACED WITH A WELL-GRADED GRANULAR FILL, & 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 & ANTENNAS TO BE REPLACED.
2. COORDINATION OF WORK:
   CONTRACTOR SHALL COORDINATE RF WORK & PROCEDURES WITH PROJECT MANAGEMENT.
3. CABLE LADDER RACK:
   CONTRACTOR SHALL FURNISH & INSTALL CABLE LADDER RACK, CABLE TRAY, & CONDUIT AS REQUIRED TO SUPPORT CABLES TO ANY NEW BTS LOCATION.

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC & ALL APPLICABLE LOCAL CODES.
2. CONTRACTOR SHALL MODIFY EXISTING CABLE TRAY SYSTEM AS REQUIRED TO SUPPORT RF & TRANSPORT CABLING TO 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 & SUPPORT METHODS & MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC & TELCORDIA.
5. ALL CIRCUITS SHALL BE SEGREGATED & MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC & TELCORDIA.
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, & T1 CONDUCTOR & 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, & 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, & BRANCH CIRCUIT ID NUMBERS (I.E., PANELBOARD & CIRCUIT ID'S).
9. PANELBOARDS (ID NUMBERS) & 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, & 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 & DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION & 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 & 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 & DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION & 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 & 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 & DRY) OPERATION; WITH OUTER JACKET; LISTED OR LABELED FOR THE LOCATION USED, UNLESS OTHERWISE SPECIFIED.
16. ALL POWER & POWER GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS & WIRENUTS BY THOMAS & BETTS (OR EQUAL). LUGS & WIRENUTS SHALL BE RATED FOR OPERATION AT NO LESS THAN 75°C (90°C IF AVAILABLE).
17. RACEWAY & CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE, & 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 & OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
24. CONDUIT & TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE & APPROVED FOR THE LOCATION USED. SETSCREW FITTINGS ARE NOT ACCEPTABLE.
25. CABINETS, BOXES, & WIREWAYS SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE, & NEC.
26. CABINETS, BOXES, & WIREWAYS TO MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.
27. WIREWAYS SHALL BE EPOXY-COATED (GRAY) & INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARD; SHALL BE PANDUIT TYPE E (OR EQUAL); & RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.
28. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES, & PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL, SHALL MEET OR EXCEED UL 50, & RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.
29. METAL RECEPTACLE, SWITCH, & DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED, OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A & NEMA OS 1; & RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
30. NONMETALLIC RECEPTACLE, SWITCH, & DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2; & RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
31. THE CONTRACTOR SHALL NOTIFY & 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 & DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES & STANDARDS TO SAFEGUARD AGAINST LIFE & PROPERTY.

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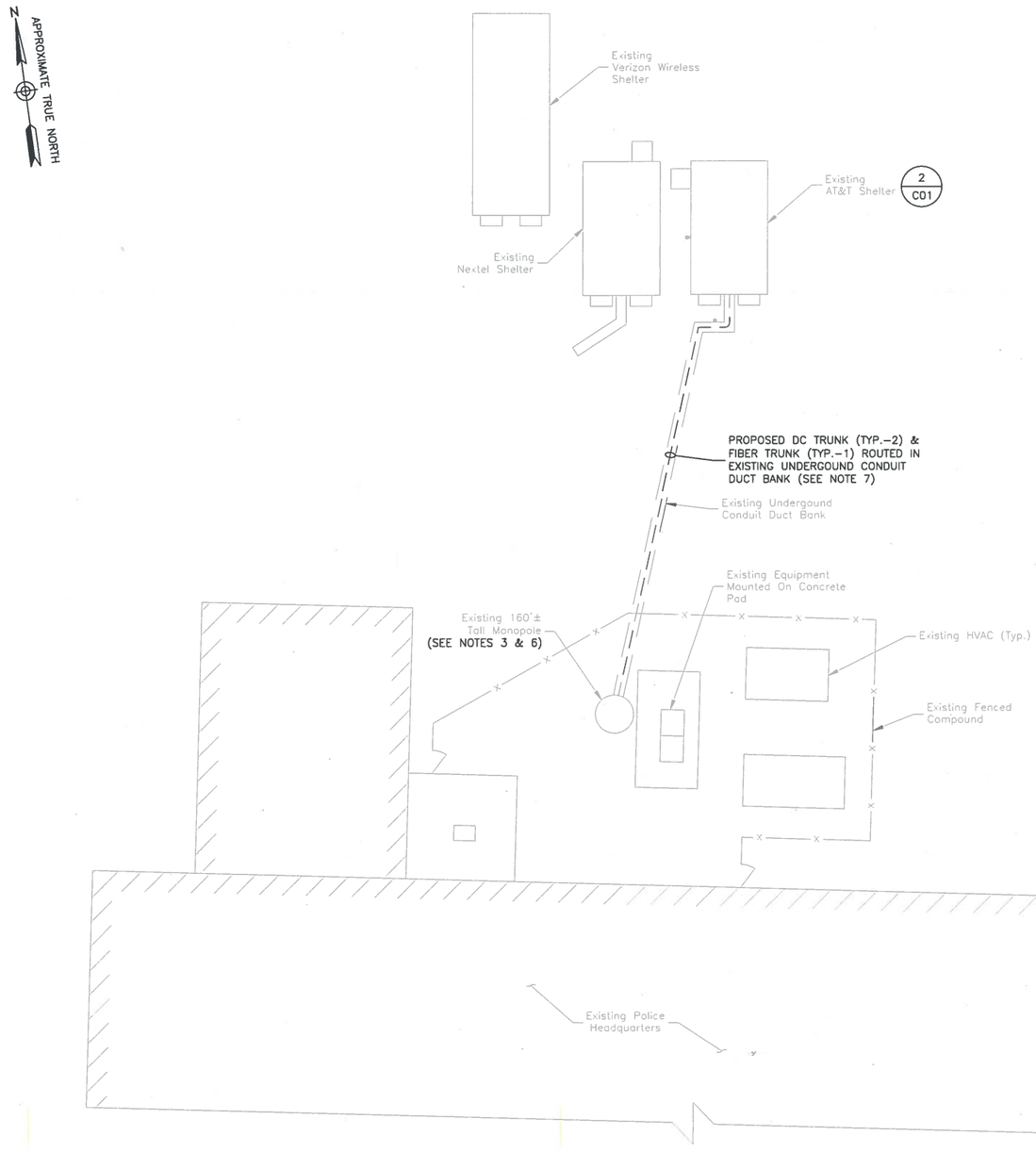
A	02/12/18	ISSUED FOR REVIEW	MH	DAS	BBR

SCALE: AS SHOWN | DESIGNED BY: DAS | DRAWN BY: MH

AT&T MOBILITY
ROCKY HILL, CT 06067

GENERAL NOTES

DEWBERRY NO.	DRAWING NUMBER	REV
50019239/50083727	G01	0

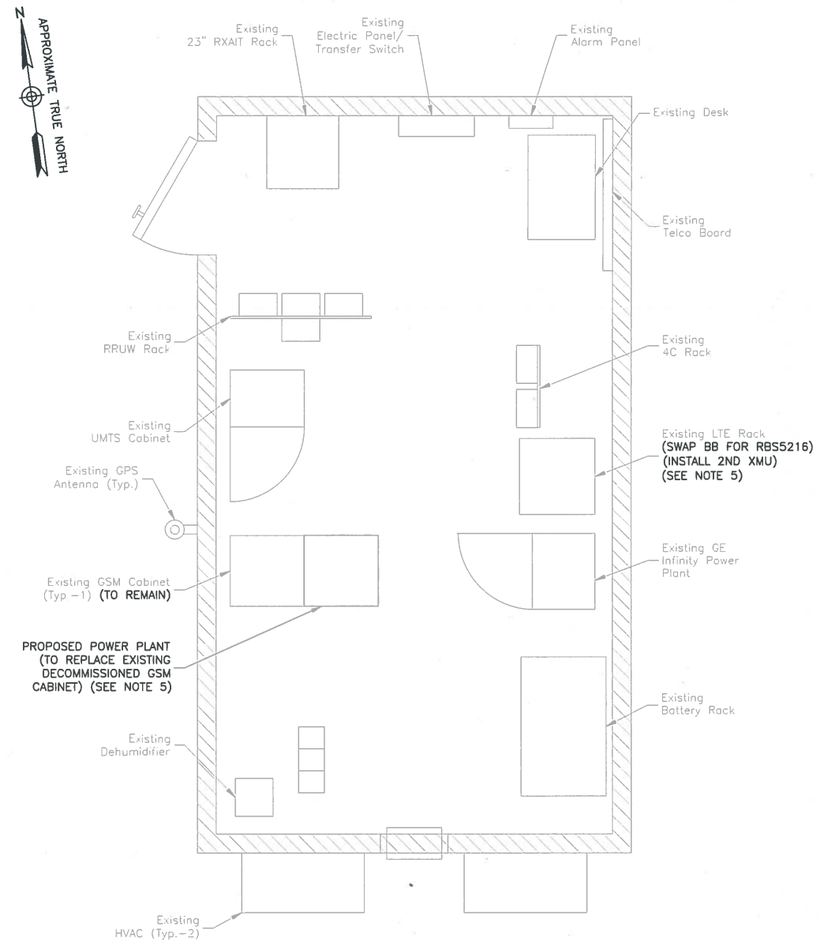


SITE PLAN

1

SCALE: 3/64"=1' FOR 11"x17"
3/32"=1' FOR 22"x34"

0' 8' 16' 24'



EQUIPMENT SHELTER PLAN

2

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

0' 1' 2' 4'

NOTES:

1. NORTH ARROW SHOWN AS APPROXIMATE.
2. ALL PROPOSED EQUIPMENT INCLUDING ANTENNAS, COAX, SURGE ARRESTORS, RRU'S, ETC. SHALL BE MOUNTED IN ACCORDANCE WITH THE TOWER STRUCTURAL ANALYSIS (BY OTHERS).
3. DEWBERRY WAS NOT PROVIDED WITH OR CONTRACTED TO PERFORM A STRUCTURAL ANALYSIS ON THIS TOWER. TOWER RELATED IMPROVEMENTS ARE NOT TO BE INSTALLED WITHOUT A PASSING STRUCTURAL ANALYSIS. SEE STRUCTURAL NOTE ON SHEET T01.
4. NOT ALL INFORMATION SHOWN FOR CLARITY.
5. EQUIPMENT MODIFICATION SCOPE:

   TOWER – REPLACE (3) GSM ANTENNAS WITH (3) 12 PORT ANTENNAS (ONE 6' ON BETA & ONE 8' FOR ALPHA/GAMMA). ADD (3) FIRSTNET 700-4478 RRH, (3) WCS RRUS-32, (3) AWS RRUS-32 B66. ADD (1) SQUID, (1) FIBER & (2) DC CABLES.

   SHELTER – REPLACE BB WITH RBS5216. INSTALL 2ND XMU. REPLACE GSM CABINET WITH NEW POWER PLANT.
6. INSTALL PROPOSED EQUIPMENT IN ACCORDANCE WITH THE MOUNT ANALYSIS REPORT BY B+T GROUP, DATED 02/19/18.
7. CONTRACTOR TO VERIFY SPACE IN EXISTING UNDERGROUND DUCT BANK FOR PROPOSED DC & FIBER TRUNKS PRIOR TO CONSTRUCTION.

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SCALE: AS SHOWN | DESIGNED BY: DAS | DRAWN BY: MH

STATE OF CONNECTICUT
BENJAMIN B. REVETTE
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PROFESSIONAL ENGINEER

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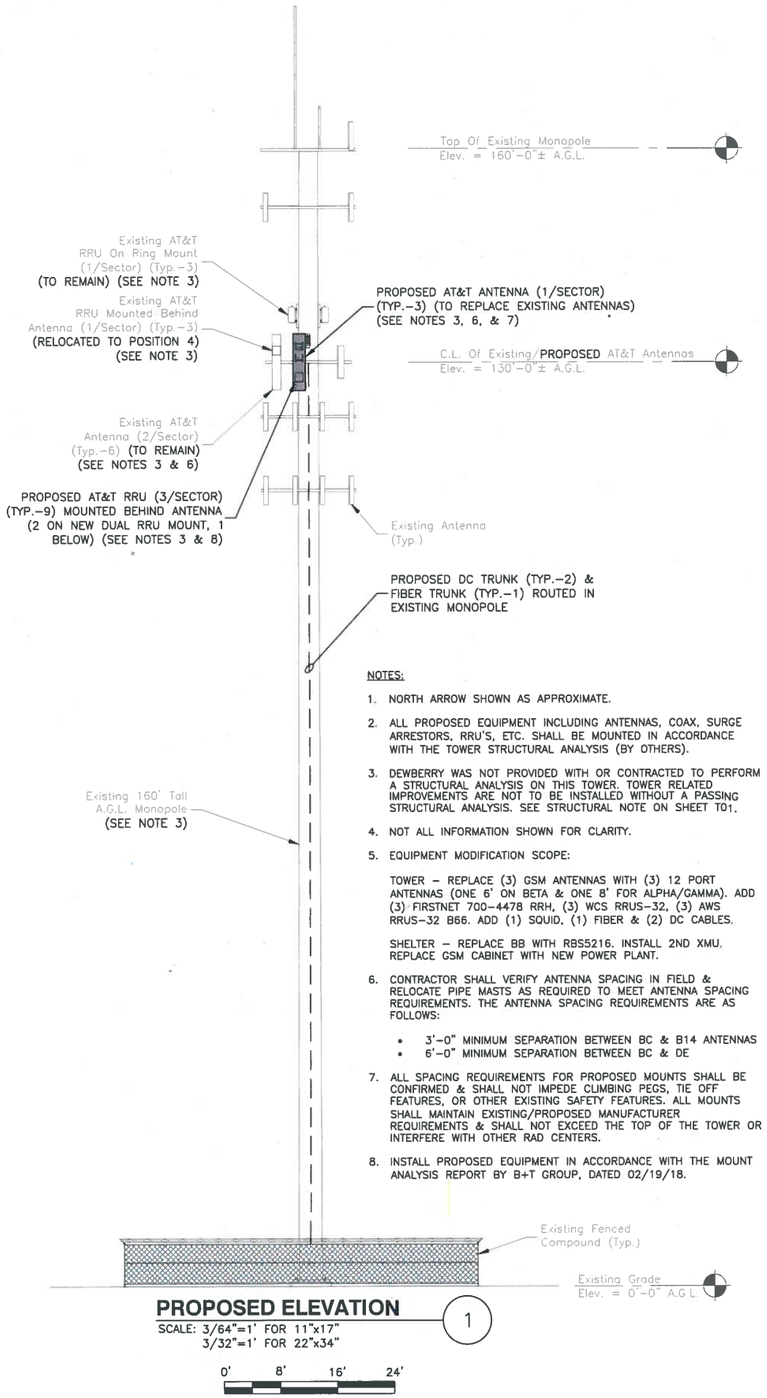
ROCKY HILL, CT 06067

PROPOSED SITE PLAN & SHELTER PLAN

DEWBERRY NO.	DRAWING NUMBER	REV
50019239/50083727	C01	0



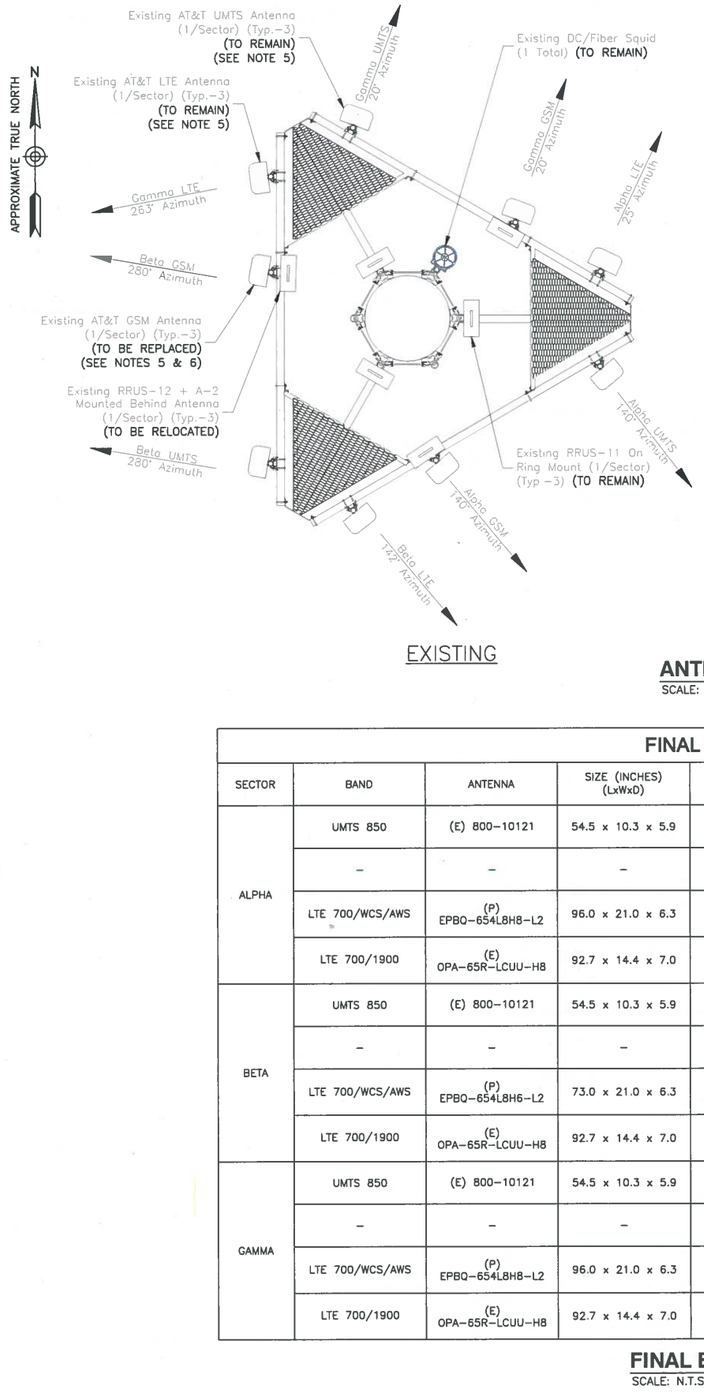
PROPOSED ELEVATION
SCALE: 3/64"=1' FOR 11"x17"
3/32"=1' FOR 22"x34"
1

NOTES:

1. NORTH ARROW SHOWN AS APPROXIMATE.
2. ALL PROPOSED EQUIPMENT INCLUDING ANTENNAS, COAX, SURGE ARRESTORS, RRU'S, ETC. SHALL BE MOUNTED IN ACCORDANCE WITH THE TOWER STRUCTURAL ANALYSIS (BY OTHERS).
3. DEWBERRY WAS NOT PROVIDED WITH OR CONTRACTED TO PERFORM A STRUCTURAL ANALYSIS ON THIS TOWER. TOWER RELATED IMPROVEMENTS ARE NOT TO BE INSTALLED WITHOUT A PASSING STRUCTURAL ANALYSIS. SEE STRUCTURAL NOTE ON SHEET T01.
4. NOT ALL INFORMATION SHOWN FOR CLARITY.
5. EQUIPMENT MODIFICATION SCOPE:

   TOWER – REPLACE (3) GSM ANTENNAS WITH (3) 12 PORT ANTENNAS (ONE 6' ON BETA & ONE 8' FOR ALPHA/GAMMA). ADD (3) FIRSTNET 700-4478 RRH, (3) WCS RRUS-32, (3) AWS RRUS-32 B66. ADD (1) SQUID, (1) FIBER & (2) DC CABLES.

   SHELTER – REPLACE BB WITH RBS5216. INSTALL 2ND XMU. REPLACE GSM CABINET WITH NEW POWER PLANT.
6. CONTRACTOR SHALL VERIFY ANTENNA SPACING IN FIELD & RELOCATE PIPE MASTS AS REQUIRED TO MEET ANTENNA SPACING REQUIREMENTS. THE ANTENNA SPACING REQUIREMENTS ARE AS FOLLOWS:
   - 3'-0" MINIMUM SEPARATION BETWEEN BC & B14 ANTENNAS
   - 6'-0" MINIMUM SEPARATION BETWEEN BC & DE
7. ALL SPACING REQUIREMENTS FOR PROPOSED MOUNTS SHALL BE CONFIRMED & SHALL NOT IMPEDE CLIMBING PEGS, TIE OFF FEATURES, OR OTHER EXISTING SAFETY FEATURES. ALL MOUNTS SHALL MAINTAIN EXISTING/PROPOSED MANUFACTURER REQUIREMENTS & SHALL NOT EXCEED THE TOP OF THE TOWER OR INTERFERE WITH OTHER RAD CENTERS.
8. INSTALL PROPOSED EQUIPMENT IN ACCORDANCE WITH THE MOUNT ANALYSIS REPORT BY B+T GROUP, DATED 02/19/18.



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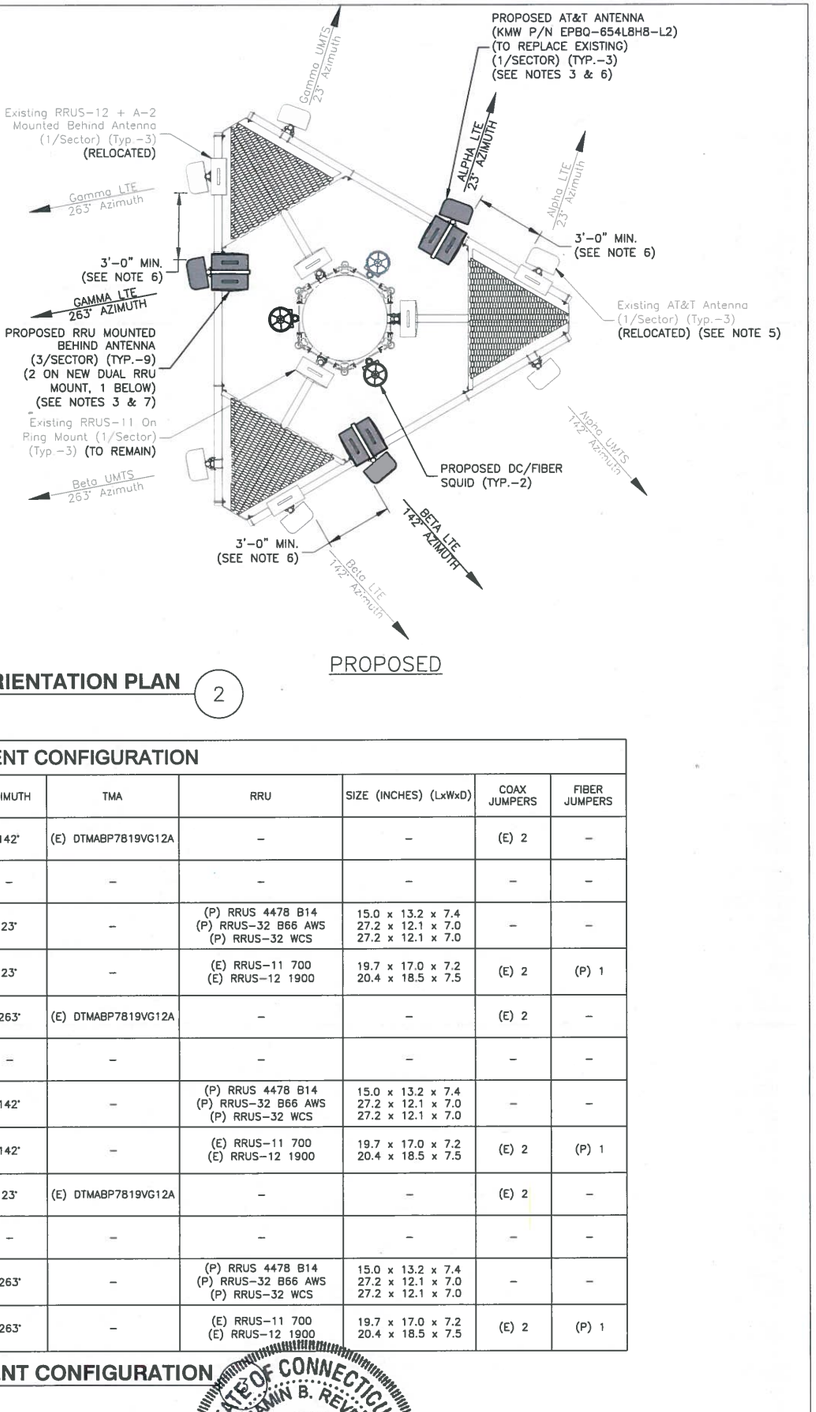

PROPOSED

ANTENNA ORIENTATION PLAN
SCALE: N.T.S.
2

FINAL EQUIPMENT CONFIGURATION

SECTOR	BAND	ANTENNA	SIZE (INCHES) (LxWxD)	RAD. CENTER	AZIMUTH	TMA	RRU	SIZE (INCHES) (LxWxD)	COAX JUMPERS	FIBER JUMPERS
ALPHA	UMTS 850	(E) 800-10121	54.5 x 10.3 x 5.9	130'±	142°	(E) DTMABP7819VG12A	–	–	(E) 2	–
	–	–	–	–	–	–	–	–	–	–
	LTE 700/WCS/AWS	(P) EPBQ-654L8H8-L2	96.0 x 21.0 x 6.3	130'±	23°	–	(P) RRUS 4478 B14 (P) RRUS-32 B66 AWS (P) RRUS-32 WCS	15.0 x 13.2 x 7.4 27.2 x 12.1 x 7.0 27.2 x 12.1 x 7.0	–	–
	LTE 700/1900	(E) OPA-65R-LCUU-H8	92.7 x 14.4 x 7.0	130'±	23°	–	(E) RRUS-11 700 (E) RRUS-12 1900	19.7 x 17.0 x 7.2 20.4 x 18.5 x 7.5	(E) 2	(P) 1
BETA	UMTS 850	(E) 800-10121	54.5 x 10.3 x 5.9	130'±	263°	(E) DTMABP7819VG12A	–	–	(E) 2	–
	–	–	–	–	–	–	–	–	–	–
	LTE 700/WCS/AWS	(P) EPBQ-654L8H6-L2	73.0 x 21.0 x 6.3	130'±	142°	–	(P) RRUS 4478 B14 (P) RRUS-32 B66 AWS (P) RRUS-32 WCS	15.0 x 13.2 x 7.4 27.2 x 12.1 x 7.0 27.2 x 12.1 x 7.0	–	–
	LTE 700/1900	(E) OPA-65R-LCUU-H8	92.7 x 14.4 x 7.0	130'±	142°	–	(E) RRUS-11 700 (E) RRUS-12 1900	19.7 x 17.0 x 7.2 20.4 x 18.5 x 7.5	(E) 2	(P) 1
GAMMA	UMTS 850	(E) 800-10121	54.5 x 10.3 x 5.9	130'±	23°	(E) DTMABP7819VG12A	–	–	(E) 2	–
	–	–	–	–	–	–	–	–	–	–
	LTE 700/WCS/AWS	(P) EPBQ-654L8H8-L2	96.0 x 21.0 x 6.3	130'±	263°	–	(P) RRUS 4478 B14 (P) RRUS-32 B66 AWS (P) RRUS-32 WCS	15.0 x 13.2 x 7.4 27.2 x 12.1 x 7.0 27.2 x 12.1 x 7.0	–	–
	LTE 700/1900	(E) OPA-65R-LCUU-H8	92.7 x 14.4 x 7.0	130'±	263°	–	(E) RRUS-11 700 (E) RRUS-12 1900	19.7 x 17.0 x 7.2 20.4 x 18.5 x 7.5	(E) 2	(P) 1

FINAL EQUIPMENT CONFIGURATION
SCALE: N.T.S.

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SCALE: AS SHOWN | DESIGNED BY: DAS | DRAWN BY: MH

STATE OF CONNECTICUT
BENJAMIN B. REVETTE
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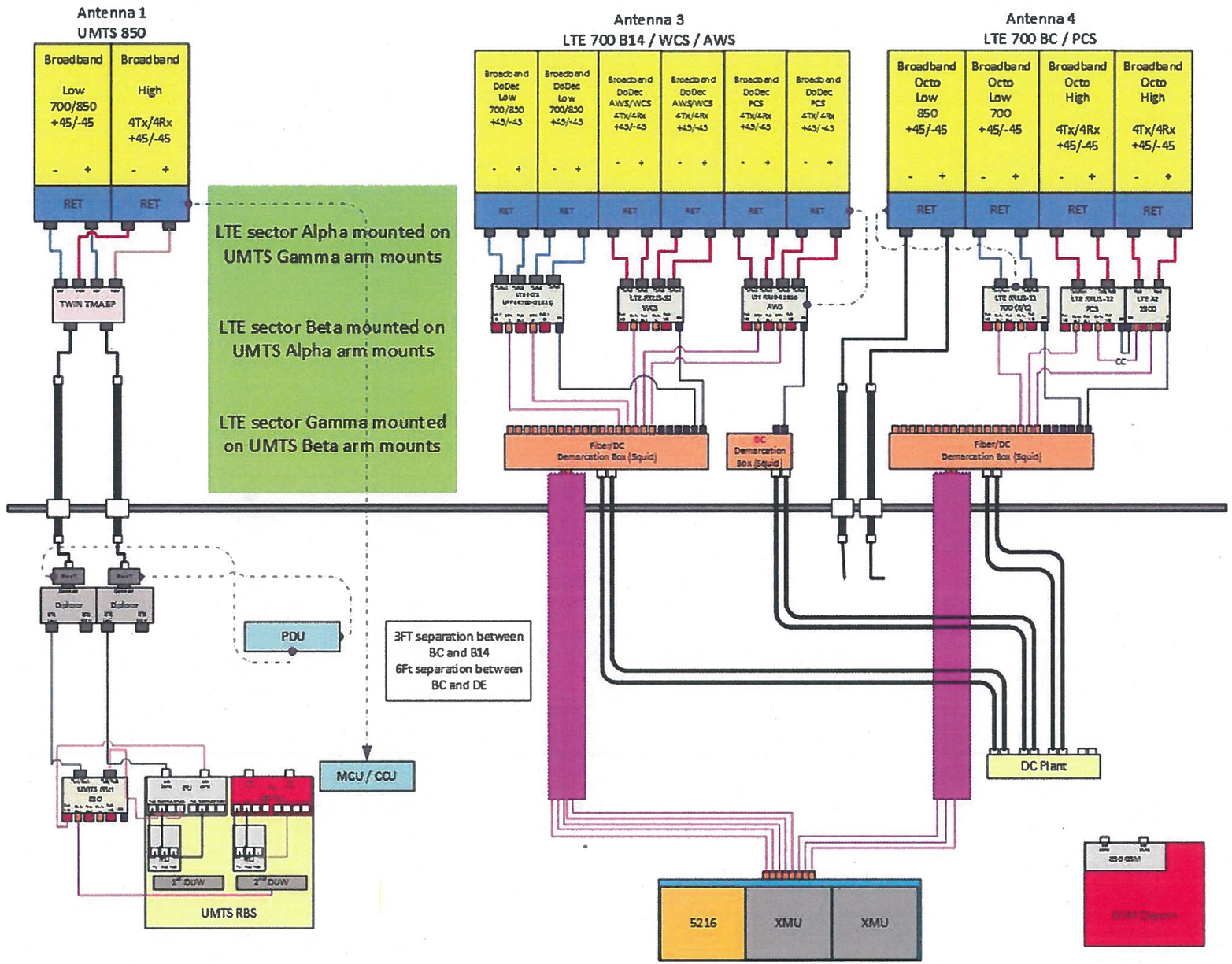
PROFESSIONAL ENGINEER

AT&T MOBILITY
ROCKY HILL, CT 06067

PROPOSED ELEVATION & CONSTRUCTION DETAILS

DEWBERRY NO.	DRAWING NUMBER	REV
50019239/50083727	C02	0



EQUIPMENT PLUMBING DIAGRAM (1)

SCALE: N.T.S.

NOTES:

1. EQUIPMENT PLUMBING DIAGRAM PER RFDS VERSION 3.00 DATED 02/14/2018.
2. CONTRACTOR TO VERIFY FINAL EQUIPMENT CONFIGURATION & SEPARATIONS WITH AT&T PRIOR TO CONSTRUCTION.

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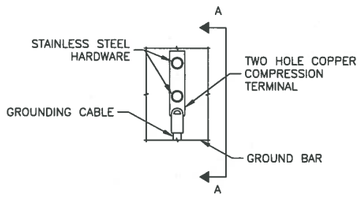
EQUIPMENT PLUMBING DIAGRAM

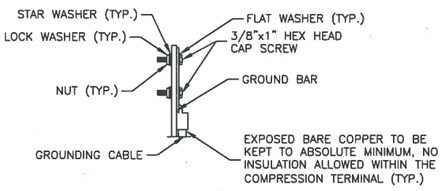
DEWBERRY NO.	DRAWING NUMBER	REV
50019239/50083727	C03	0

GROUNDING NOTES:

1. THE CONTRACTOR SHALL REVIEW & INSPECT THE EXISTING FACILITY GROUNDING SYSTEM & LIGHTNING PROTECTION SYSTEM (AS DESIGNED & INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ). THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, & GENERAL COMPLIANCE WITH TELCORDIA & TIA GROUNDING STANDARDS. THE CONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.
2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, & 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 & 81) FOR GROUND ELECTRODE SYSTEMS. USE OF OTHER METHODS MUST BE PRE-APPROVED BY CONTRACTOR IN WRITING.
4. THE CONTRACTOR SHALL FURNISH & INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS ON TOWER SITES & 10 OHMS OR LESS ON ROOFTOP SITES. WHEN ADDING ELECTRODES, CONTRACTOR SHALL MAINTAIN A MINIMUM DISTANCE BETWEEN THE ADDED ELECTRODE & 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 & UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT.
6. METAL CONDUIT & TRAY SHALL BE GROUNDED & MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWG COPPER WIRE & 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 & 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 & 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 SAI COMMUNICATIONS COMMUNICATIONS 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 & STRUCTURAL STEEL.
17. COAX BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE & THE TOWER GROUND BAR USING TWO-HOLE MECHANICAL TYPE BRASS CONNECTORS & STAINLESS STEEL HARDWARE.
18. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION & BOLTED GROUND CONNECTIONS.
19. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
20. MISCELLANEOUS ELECTRICAL & NON-ELECTRICAL METAL BOXES, FRAMES & 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 & 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.



ELEVATION

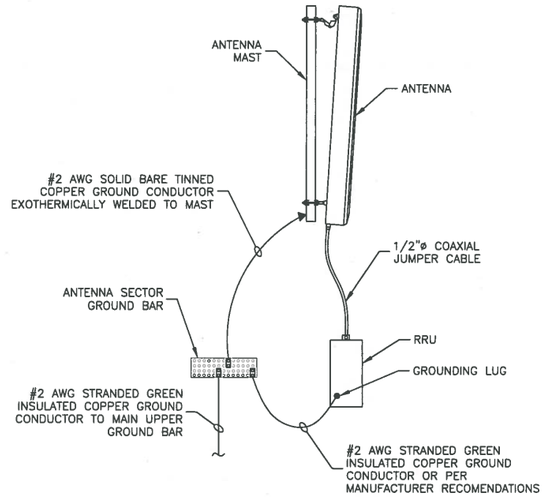


NOTES:

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 1

SCALE: N.T.S.



NOTES:

1. VERIFY EXISTING GROUNDING SYSTEM IS INSTALLED PER AT&T STANDARDS.
2. BOND NEW EQUIPMENT INTO EXISTING GROUND SYSTEM IN ACCORDANCE WITH AT&T STANDARDS & MANUFACTURER RECOMMENDATIONS.

TYPICAL ANTENNA/RRU GROUNDING DETAIL 2

SCALE: N.T.S

Dewberry®
Dewberry Engineers Inc.
280 SUMMER ST.
10TH FLOOR
BOSTON, MA 02210
PHONE: 617.695.3400
FAX: 617.695.3310

SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

CHESHIRE CENTRAL LTE 3C/4C/5C
SITE NO. CT2081
500 HIGHLAND AVENUE
CHESHIRE, CT 06410

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	03/15/18	ISSUED FOR CONSTRUCTION	MH	DAS	BBR
A	02/12/18	ISSUED FOR REVIEW	MH	DAS	BBR

SCALE: AS SHOWN | DESIGNED BY: DAS | DRAWN BY: MH

STATE OF CONNECTICUT
BENJAMIN B. REVETTE
28971
LICENSED
PROFESSIONAL ENGINEER

AT&T MOBILITY
ROCKY HILL, CT 06067

GROUNDING DETAILS & CONSTRUCTION NOTES

DEWBERRY NO.	DRAWING NUMBER	REV
50019239/50083727	E01	0

GPD Engineering and Architecture
Professional Corporation

STRUCTURAL ANALYSIS REPORT

160' Monopole Tower

500 Highland Avenue
Cheshire, CT 06410

SBA Site Name: Cheshire
SBA Site Number: CT33762-M

AT&T Site Name: Cheshire Police Department
AT&T Site Number: CT2081

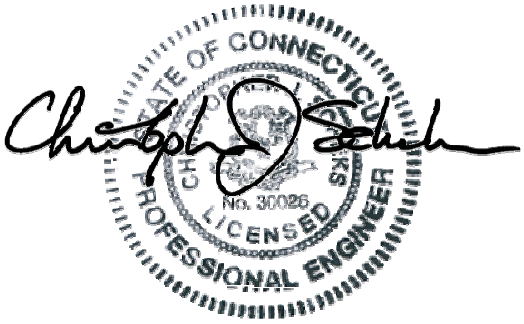
GPD Project Number: 2018778.33762.09

Analysis Results

Tower Components	87.0%	Sufficient
Foundation	67.4%	Sufficient
Net Change in Tower Stress Ratio	- 2.6%	As compared to the Previous Structural Analysis detailed on Page 2

February 23, 2018

Respectfully submitted by:



2/23/2018
Christopher J. Scheks, P.E.
Connecticut #: 30026

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APPENDICES

Executive Summary

The purpose of this analysis is to verify whether the existing monopole tower is structurally capable of carrying the proposed antenna and coax loads as specified by AT&T to SBA. This report was commissioned by Ms. Connie Rybarczyk of SBA Site Management.

The existing structure and its foundations have been analyzed using the following requirements:

Governing Codes	TIA-222-G, 2012 IBC & 2016 CTBC
Wind Speed*	105 MPH 3-Second Gust
Wind Speed w/ Ice	50 MPH 3-Second Gust
Radial Ice Thickness	3/4″
Risk Category	III
Exposure Class	B
Topographic Category	1

*This analysis has been performed in accordance with the 2016 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 135 MPH converted to a nominal 3-second wind speed of 105 MPH per Section 1609.3 and Appendix N as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1. Exposure Category B and Risk Category III were used in this analysis.

Conclusions & Recommendations

The designs of the tower and its foundation are sufficient for the proposed loading configuration considering the above analysis criteria and will not require modification.

Tower Description

The existing 160' monopole tower is located in Cheshire, Connecticut. The tower was originally designed by Sabre in September of 2003. All structural information was obtained from a previous structural analysis performed by URS. The original design load for the tower was not available at the time of analysis.

Documents Provided:

Document Type	Remarks	Source
Foundation Calculations	URS Corporation Job #: 36917370, dated: 10/10/2012	SBA
Previous Structural Analysis	Hudson Design Group dated: 05/06/2013	SBA
Previous Structural Analysis	GPD Project #: 2017778.33762.08, dated: 10/20/2017	SBA

Tower Materials:

Structural Components	Material Strength
Pole	ASTM A572 (65 KSI Yield Strength)
Base Plate	ASTM A572 (60 KSI Yield Strength)
Anchor Rods	ASTM A615 (75 KSI Yield Strength)

Tower Loading

The following data shows the major loading that the tower supports. All existing, leased, and proposed loading information was provided by SBA or taken from the previous structural analysis.

Existing/Leased Loading

Carrier	Mounting Level (ft)	Center Line Elevation (ft)	# of Antennas	Antenna Manufact.	Antenna/Mount Model	# of Coax	Coax Size (in)	Note
Town of Cheshire	160.0	170.0	1		20' Omni	4	1/2	
		168.0	2	Decibel	DB224			
		166.17	1		6' Omni			
		160.0	3		T-Arms			
Sprint	160.0	160.0	1		Low Profile Platform	6	1-1/4	
		158.0	3	RFS	APXVSPP18-C-A20			
			3	RFS	APXVTM14-C-I20			
			4	RFS	ACU-A20-N			
			3	Alcatel Lucent	1900 MHz RRH			
			3	Alcatel Lucent	800 MHz RRH			
			3	Alcatel Lucent	2500 MHz RRH			
			3	Alcatel Lucent	800 MHz Filter			
T-Mobile	152.0	152.0	1		Low Profile Platform	18 12	1-5/8 1/2	
		149.0	3	Ericsson	AIR21 B2A/B4P			
			3	Ericsson	AIR21 B4A/B2P			
			3	Commscope	LNX-6515DS-VTM			
			3	Ericsson	KRY 112 144			
			3	RFS	ATMAA1412D1A20			
			3	Ericsson	S11B12			
Pocket	141.08	141.08	3	RFS	APXV18-206517S-C	6	1-5/8	
			3		T-Arms			
AT&T	130.0	130.0	6	Kathrein	800 10121	12 1 6	1-5/8 1/2 3/4	
			2	CCI	OPA-65R-LCUU-H8			
			1	CCI	OPA-65R-LCUU-H6			
			3	Powerwave	TT19-08BP111-001			
			6	Powerwave	LGP 21401			
			6	Kathrein	860 10025			
			3	Ericsson	RRUS-11			
			3	Ericsson	RRUS 12			
			3	Ericsson	A2 Module			
			2	Raycap	DC6-48-60-18-8F			
			1	Commscope	MTC3607 Platform			
Verizon	122.5	122.5	6	Andrew	SBNHH 1D65B	11 2	1-5/8 1-5/8 Fiber	
			3	Andrew	LNX 6514DS-VTM			
			3	Andrew	HBXX 6517DS-A2M			
			3	ALU	RRH 4x45 AWS			
			3	ALU	RRH 2x60 PCS			
			3	ALU	RRH 2x60 700			
			6	RFS	FD9R6004/2C-3L			
			2		DB-T1-6Z-8AB-0Z			
			1		Low Profile Platform			

Existing/Leased Loading Contd.

Carrier	Mounting Level (ft)	Center Line Elevation (ft)	# of Antennas	Antenna Manufact.	Antenna/Mount Model	# of Coax	Coax Size (in)	Note
Town of Cheshire	89.08	89.08	1		Dipole Antenna	5	1/2	
			1		Collar Mount			
		81.25	1		Yagi Antenna			
		79.33	1		Yagi Antenna			
	83.17	83.17	1	PCTEL	GPS-TMG-HR-26N			
			1		Collar Mount			
		81.17	1		Yagi Antenna			

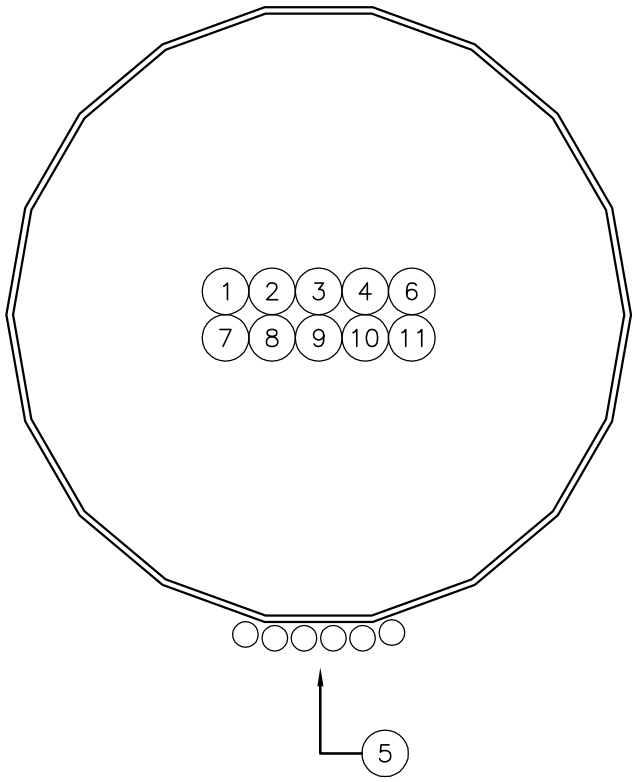
Final Proposed Loading Configuration

Carrier	Mounting Level (ft)	Center Line Elevation (ft)	# of Antennas	Antenna Manufact.	Antenna/Mount Model	# of Coax	Coax Size (in)	Note
AT&T	130.0	130.0	3	Kathrein	800 10121	12 1 2 6	1-5/8 1/2 7/16 3/4	1
			2	CCI	OPA-65R-LCUU-H8			
			1	CCI	OPA-65R-LCUU-H6			
			2	KMW	EPBQ-654L8H8-L2			
			1	KMW	EPBQ-654L8H6-L2			
			3	Powerwave	TT19-08BP111-001			
			6	Powerwave	LGP 21401			
			6	Kathrein	860 10025			
			6	Ericsson	RRUS-32			
			3	Ericsson	RRUS-11			
			3	Ericsson	RRUS 12			
			3	Ericsson	A2 Module			
			3	Ericsson	4478			
			1	Raycap	DC6-48-60-18-8C			
			2	Raycap	DC6-48-60-18-8F			
			1	Commscope	MTC3607 Platform			

Notes:

1)This loading represents AT&T's final configuration on the tower. See the next page for the proposed coax layout.

Proposed Coax Configuration



#	CARRIER	SIZE	QTY.	ELEVATION	NOTES
1	Town of Cheshire	1/2"	4	160.0'	
2	Sprint	1-1/4"	6	160.0'	Fiber Cables
3	T-Mobile	1-5/8"	18	152.0'	
4	T-Mobile	1/2"	12	152.0'	
5	Pocket	1-5/8"	6	141.08'	
6	AT&T	1-5/8"	12	130.0'	
7	AT&T	1/2"	1	130.0'	Fiber Cable
8	AT&T	7/16"	2	130.0'	Proposed Fiber Cables
9	AT&T	3/4"	6	130.0'	Power Cables
10	Verizon	1-5/8"	13	122.5'	(2) Fiber Cables
11	Town of Cheshire	1/2"	5	89.08'	

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) Tower and structures were built in accordance with the manufacturer's specifications.
2) The tower and structures have been maintained in accordance with the manufacturer's specification.
3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in the Existing/Reserved Loading and Proposed Loading Tables, and the specified documents.
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) Mount sizes, weights, and manufacturers are best estimates based on photos provided and determined without the benefit of a site visit by GPD.
6) All member connections and foundation steel reinforcing are assumed designed to meet or exceed the load carrying capacity of the connected member and surrounding soils respectively unless otherwise specified in this report.
7) The existing feedline layout has been based upon the previous structural analysis.

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

Tower Section Results

Capacity Summary of Structural Components

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass/ Fail
L1	160 - 146.5	Pole	TP20.91x16.75x0.1875	1	-4.69	865.69	20.1	Pass
L2	146.5 - 95.75	Pole	TP36.16x19.6876x0.25	2	-19.50	1841.20	86.7	Pass
L3	95.75 - 46.75	Pole	TP50.76x34.2745x0.3125	3	-32.59	3077.94	87.0	Pass
L4	46.75 - 0	Pole	TP64.53x48.1321x0.375	4	-52.47	4662.89	75.7	Pass
							Summary	
						Pole (L3)	87.0	Pass
						RATING =	**87.0**	**Pass**

Additional Capacities

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
	Anchor Rods	0	76.8	Pass
	Base Plate	0	48.1	Pass
	Tower Base Foundation	0	67.4	Pass

Disclaimer of Warranties

GPD has not performed a 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 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.

This analysis is limited to the designated maximum wind and seismic conditions per the governing tower standards and code. Wind forces resulting in tower vibrations near the structure's resonant frequencies were not considered in this analysis and are outside the scope of this analysis. Lateral loading from any dynamic response was not evaluated under a time-domain based fatigue analysis.

GPD 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 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 code specified amount, if any, that should be considered in the structural analysis.

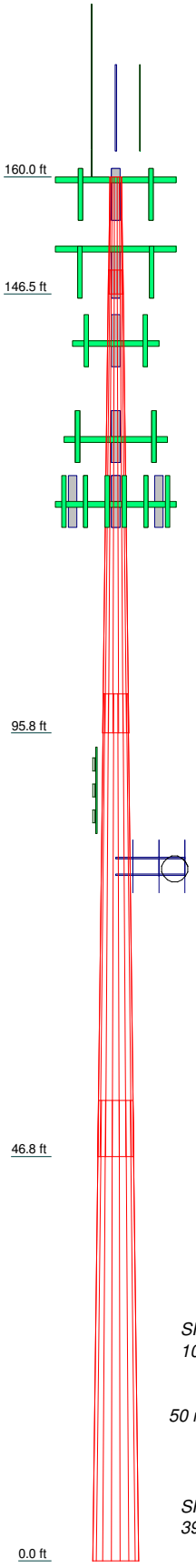
The attached sketches are a schematic representation of the analyzed tower. If any material is fabricated from these sketches, the contractor shall be responsible for field verifying the existing conditions, proper fit, and clearance in the field. Any mentions of structural modifications are reasonable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

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.

GPD 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 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 pursuant to this report will be limited to the total fee received for preparation of this report.

TNX TOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	13.50	18	0.1875	2.75	16.7500	20.9100		0.5
2	53.50	18	0.2500	4.50	19.6876	36.1600		4.0
3	53.50	18	0.3125	6.50	34.2745	50.7600		7.6
4	53.25	18	0.3750		48.1321	64.5300		12.1
							A572-65	24.2



ALL REACTIONS ARE FACTORED

AXIAL 105 K

SHEAR 10 K

MOM 1296

TORQUE 0 kip-ft

50 mph WIND - 0.7500 in ICE

AXIAL 52 K

SHEAR 39 K

MOM 4595

TORQUE 1 kip-ft

REACTIONS - 105 mph WIND

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
MTS 36" Standoff (3)	160	TT19-08BP111-001	130
20' Omni (3" Diam)	160	TT19-08BP111-001	130
DB224	160	TT19-08BP111-001	130
DB224	160	(2) LGP21401	130
6' Omni	160	(2) LGP21401	130
Sabre 12' LP Platform	160	(2) LGP21401	130
APXVSPP18-C-A20 w/ Mount Pipe	160	(2) 860 10025	130
APXVSPP18-C-A20 w/ Mount Pipe	160	(2) 860 10025	130
APXVSPP18-C-A20 w/ Mount Pipe	160	(2) 860 10025	130
APXVTM14-C-120 w/ Mount Pipe	160	(2) RRUS-32	130
APXVTM14-C-120 w/ Mount Pipe	160	(2) RRUS-32	130
APXVTM14-C-120 w/ Mount Pipe	160	(2) RRUS-32	130
(2) ACU-A20-N	160	RRUS-11	130
ACU-A20-N	160	RRUS-11	130
ACU-A20-N	160	RRUS-11	130
1900MHz RRH	160	RRUS-12	130
1900MHz RRH	160	RRUS-12	130
1900MHz RRH	160	RRUS-12	130
RRH 800 MHz	160	RRUS A2 MODULE	130
RRH 800 MHz	160	RRUS A2 MODULE	130
RRH 800 MHz	160	RRUS A2 MODULE	130
RRH 2500MHz	160	4478	130
RRH 2500MHz	160	4478	130
RRH 2500MHz	160	4478	130
800 MHz Filter	160	DC6-48-60-18-8C Surge Suppression Unit	130
800 MHz Filter	160		
800 MHz Filter	160	DC6-48-60-18-8F Surge Suppression Unit	130
Sabre 12' LP Platform	152		
AIR21 B2A/B4P w/ mount pipe	152	DC6-48-60-18-8F Surge Suppression Unit	130
AIR21 B2A/B4P w/ mount pipe	152		
AIR21 B2A/B4P w/ mount pipe	152	MTS 14.5' LP Platform	122.5
AIR21 B4A/B2P w/ mount pipe	152	(2) SBNHH-1D65B w/ Mount Pipe	122.5
AIR21 B4A/B2P w/ mount pipe	152	(2) SBNHH-1D65B w/ Mount Pipe	122.5
AIR21 B4A/B2P w/ mount pipe	152	(2) SBNHH-1D65B w/ Mount Pipe	122.5
LNX-6515DS-VTM w/ mount pipe	152	LNX-6514DS-VTM w/ Mount Pipe	122.5
LNX-6515DS-VTM w/ mount pipe	152	LNX-6514DS-VTM w/ Mount Pipe	122.5
LNX-6515DS-VTM w/ mount pipe	152	LNX-6514DS-VTM w/ Mount Pipe	122.5
KRY 112 144	152	HBXX-6517DS-A2M w/ Mount Pipe	122.5
KRY 112 144	152	HBXX-6517DS-A2M w/ Mount Pipe	122.5
KRY 112 144	152	HBXX-6517DS-A2M w/ Mount Pipe	122.5
ATMAA1412D-1A20	152	RRH4X45-AWS	122.5
ATMAA1412D-1A20	152	RRH4X45-AWS	122.5
ATMAA1412D-1A20	152	RRH4X45-AWS	122.5
S11B12	152	RRH2X60-PCS	122.5
S11B12	152	RRH2X60-PCS	122.5
S11B12	152	RRH2X60-PCS	122.5
MTS 36" Standoff (3)	141.08	RRH2x60-700	122.5
APXV18-206517S-C w/ Mount Pipe	141.08	RRH2x60-700	122.5
APXV18-206517S-C w/ Mount Pipe	141.08	RRH2x60-700	122.5
APXV18-206517S-C w/ Mount Pipe	141.08	(2) FD9R6004/2C-3L	122.5
Commscope MTC3607 Platform w/ Reinforcing Kit	130	(2) FD9R6004/2C-3L	122.5
		(2) FD9R6004/2C-3L	122.5
Andrew Collar Mount	130	DB-T1-6Z-8AB-0Z	122.5
800 10121 w/ Mount Pipe	130	DB-T1-6Z-8AB-0Z	122.5
800 10121 w/ Mount Pipe	130	Andrew Collar Mount	89.08
800 10121 w/ Mount Pipe	130	14' Dipole	89.08
OPA-65R-LCUU-H8 w/ Mount Pipe	130	3' Yagi	89.08
OPA-65R-LCUU-H6 w/ Mount Pipe	130	3' Yagi	89.08
OPA-65R-LCUU-H8 w/ Mount Pipe	130	Andrew Collar Mount	83.17
EPBQ-654L8H8-L2 w/ 8' Mount Pipe	130	GPS-TMG-HR-26N	83.17
EPBQ-654L8H6-L2 w/ 8' Mount Pipe	130	3' Yagi	83.17
EPBQ-654L8H8-L2 w/ 8' Mount Pipe	130		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 105 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class III.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 87%

GPD
520 South Main Street Suite 2531
Akron, Ohio 44311
Phone: (330) 572-3524
FAX: (330) 572-2103

Job: ***CT33762-M, Cheshire, CT***			
Project: ***2018778.33762.09***			
Client: SBA	Drawn by: pvoth	App'd:	
Code: TIA-222-G	Date: 02/23/18	Scale: NTS	
Path: T:\SBA\33762\09 SA VZN\tnxTower\CT33762-M, Cheshire.eri		Dwg No. E-1	

Tower Input Data

There is a pole section.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Tower is located in New Haven County, Connecticut.
ASCE 7-10 Wind Data is used (wind speeds converted to nominal values).
Basic wind speed of 105 mph.
Structure Class III.
Exposure Category B.
Topographic Category 1.
Crest Height 0.00 ft.
Nominal ice thickness of 0.7500 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
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	*Sector*	*Component Type*	*Placement* *ft*	*Total Number*	*Number Per Row*	*Start/End Position*	*Width or Diameter* *in*	*Perimeter* *in*	*Weight* *plf*
Step Pegs	B	Surface Ar (CaAa)	160.00 - 0.00	1	1	0.000 0.000	0.8000		2.72
***									
LDF7-50A (1-5/8 FOAM)	C	Surface Ar (CaAa)	141.08 - 8.00	6	6	0.000 0.000	1.9800		0.82

Feed Line/Linear Appurtenances - Entered As Area

Description	*Face or Leg*	*Allow Shield*	*Component Type*	*Placement* *ft*	*Total Number*		C_AA_A *ft²/ft*	*Weight* *plf*
Safety Line (3/8")	B	No	CaAa (Out Of Face)	160.00 - 0.00	1	No Ice 1/2" Ice 1" Ice	0.04 0.14 0.24	0.22 0.75 1.28
***								
LDF6-50A (1-1/4 FOAM)	A	No	Inside Pole	160.00 - 8.00	6	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.66 0.66 0.66
***								
LDF7-50A (1-5/8 FOAM)	A	No	Inside Pole	152.00 - 8.00	18	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.82 0.82 0.82
LDF4-50A (1/2 FOAM)	C	No	Inside Pole	152.00 - 8.00	12	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.15 0.15 0.15

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
***								
LDF7-50A (1-5/8 FOAM)	A	No	Inside Pole	130.00 - 8.00	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
1/2" Fiber Cable	A	No	Inside Pole	130.00 - 8.00	1	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
						1" Ice	0.00	0.15
7/16" Fiber Cable	A	No	Inside Pole	130.00 - 8.00	2	No Ice	0.00	0.17
						1/2" Ice	0.00	0.17
						1" Ice	0.00	0.17
3/4" DC Power Line	A	No	Inside Pole	130.00 - 8.00	6	No Ice	0.00	0.33
						1/2" Ice	0.00	0.33
						1" Ice	0.00	0.33
***								
LDF7-50A (1-5/8 FOAM)	A	No	Inside Pole	122.50 - 8.00	11	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
HB158-1-08U8-S8J18 (1-5/8")	A	No	Inside Pole	122.50 - 8.00	2	No Ice	0.00	1.30
						1/2" Ice	0.00	1.30
						1" Ice	0.00	1.30
***								
LDF4-50A (1/2 FOAM)	A	No	Inside Pole	160.00 - 89.08	4	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
						1" Ice	0.00	0.15
LDF4-50A (1/2 FOAM)	A	No	Inside Pole	89.08 - 83.17	5	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
						1" Ice	0.00	0.15
LDF4-50A (1/2 FOAM)	A	No	Inside Pole	83.17 - 81.25	6	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
						1" Ice	0.00	0.15
LDF4-50A (1/2 FOAM)	A	No	Inside Pole	81.25 - 81.17	7	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
						1" Ice	0.00	0.15
LDF4-50A (1/2 FOAM)	A	No	Inside Pole	81.17 - 79.33	8	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
						1" Ice	0.00	0.15
LDF4-50A (1/2 FOAM)	A	No	Inside Pole	79.33 - 8.00	9	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
						1" Ice	0.00	0.15

Discrete Tower Loads

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 K
MTS 36" Standoff (3)	A	None			0.0000	160.00	No Ice	2.64	2.64	0.09
							1/2" Ice	4.10	4.10	0.13
							1" Ice	5.56	5.56	0.17
20' Omni (3" Diam)	C	From Leg	2.50	0.00	0.0000	160.00	No Ice	6.00	6.00	0.05
							1/2" Ice	8.03	8.03	0.09
				10.00			1" Ice	10.08	10.08	0.14
DB224	A	From Leg	2.50	0.00	0.0000	160.00	No Ice	3.15	3.15	0.03
							1/2" Ice	5.67	5.67	0.04
				8.00			1" Ice	8.19	8.19	0.05
DB224	B	From Leg	2.50		0.0000	160.00	No Ice	3.15	3.15	0.03

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 K
			0.00			1/2" Ice	5.67	5.67	0.04
			8.00			1" Ice	8.19	8.19	0.05
6' Omni	C	From Leg	2.50	0.0000	160.00	No Ice	1.77	1.77	0.03
			0.00			1/2" Ice	2.13	2.13	0.04
			6.17			1" Ice	2.50	2.50	0.06
***									
Sabre 12' LP Platform	A	None		0.0000	160.00	No Ice	28.47	28.47	1.12
						1/2" Ice	33.59	33.59	1.51
						1" Ice	38.71	38.71	1.91
APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	4.00	0.0000	160.00	No Ice	8.02	6.71	0.08
			0.00			1/2" Ice	8.48	7.66	0.14
			-2.00			1" Ice	8.94	8.49	0.22
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	4.00	0.0000	160.00	No Ice	8.02	6.71	0.08
			0.00			1/2" Ice	8.48	7.66	0.14
			-2.00			1" Ice	8.94	8.49	0.22
APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	4.00	0.0000	160.00	No Ice	8.02	6.71	0.08
			0.00			1/2" Ice	8.48	7.66	0.14
			-2.00			1" Ice	8.94	8.49	0.22
APXVTM14-C-120 w/ Mount Pipe	A	From Leg	4.00	0.0000	160.00	No Ice	6.58	4.96	0.08
			0.00			1/2" Ice	7.03	5.75	0.13
			-2.00			1" Ice	7.47	6.47	0.19
APXVTM14-C-120 w/ Mount Pipe	B	From Leg	4.00	0.0000	160.00	No Ice	6.58	4.96	0.08
			0.00			1/2" Ice	7.03	5.75	0.13
			-2.00			1" Ice	7.47	6.47	0.19
APXVTM14-C-120 w/ Mount Pipe	C	From Leg	4.00	0.0000	160.00	No Ice	6.58	4.96	0.08
			0.00			1/2" Ice	7.03	5.75	0.13
			-2.00			1" Ice	7.47	6.47	0.19
(2) ACU-A20-N	A	From Leg	4.00	0.0000	160.00	No Ice	0.07	0.12	0.00
			0.00			1/2" Ice	0.10	0.16	0.00
			-2.00			1" Ice	0.15	0.21	0.00
ACU-A20-N	B	From Leg	4.00	0.0000	160.00	No Ice	0.07	0.12	0.00
			0.00			1/2" Ice	0.10	0.16	0.00
			-2.00			1" Ice	0.15	0.21	0.00
ACU-A20-N	C	From Leg	4.00	0.0000	160.00	No Ice	0.07	0.12	0.00
			0.00			1/2" Ice	0.10	0.16	0.00
			-2.00			1" Ice	0.15	0.21	0.00
1900MHz RRH	A	From Leg	4.00	0.0000	160.00	No Ice	2.94	1.19	0.06
			0.00			1/2" Ice	3.17	1.35	0.08
			-2.00			1" Ice	3.41	1.52	0.11
1900MHz RRH	B	From Leg	4.00	0.0000	160.00	No Ice	2.94	1.19	0.06
			0.00			1/2" Ice	3.17	1.35	0.08
			-2.00			1" Ice	3.41	1.52	0.11
1900MHz RRH	C	From Leg	4.00	0.0000	160.00	No Ice	2.94	1.19	0.06
			0.00			1/2" Ice	3.17	1.35	0.08
			-2.00			1" Ice	3.41	1.52	0.11
RRH 800 MHz	A	From Leg	4.00	0.0000	160.00	No Ice	2.01	1.67	0.05
			0.00			1/2" Ice	2.21	1.86	0.06
			-2.00			1" Ice	2.42	2.06	0.08
RRH 800 MHz	B	From Leg	4.00	0.0000	160.00	No Ice	2.01	1.67	0.05
			0.00			1/2" Ice	2.21	1.86	0.06
			-2.00			1" Ice	2.42	2.06	0.08
RRH 800 MHz	C	From Leg	4.00	0.0000	160.00	No Ice	2.01	1.67	0.05
			0.00			1/2" Ice	2.21	1.86	0.06
			-2.00			1" Ice	2.42	2.06	0.08
RRH 2500MHz	A	From Leg	4.00	0.0000	160.00	No Ice	3.76	2.23	0.06
			0.00			1/2" Ice	4.03	2.46	0.08
			-2.00			1" Ice	4.30	2.69	0.11

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 K
RRH 2500MHz	B	From Leg	4.00 0.00 -2.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice	3.76 4.03 4.30	2.23 2.46 2.69	0.06 0.08 0.11
RRH 2500MHz	C	From Leg	4.00 0.00 -2.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice	3.76 4.03 4.30	2.23 2.46 2.69	0.06 0.08 0.11
800 MHz Filter	A	From Leg	4.00 0.00 -2.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice	0.49 0.60 0.71	0.48 0.59 0.70	0.01 0.01 0.02
800 MHz Filter	B	From Leg	4.00 0.00 -2.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice	0.49 0.60 0.71	0.48 0.59 0.70	0.01 0.01 0.02
800 MHz Filter	C	From Leg	4.00 0.00 -2.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice	0.49 0.60 0.71	0.48 0.59 0.70	0.01 0.01 0.02
***									
Sabre 12' LP Platform	A	None		0.0000	152.00	No Ice 1/2" Ice 1" Ice	28.47 33.59 38.71	28.47 33.59 38.71	1.12 1.51 1.91
AIR21 B2A/B4P w/ mount pipe	A	From Leg	4.00 0.00 -3.00	0.0000	152.00	No Ice 1/2" Ice 1" Ice	6.13 6.52 6.92	5.50 6.16 6.82	0.10 0.15 0.21
AIR21 B2A/B4P w/ mount pipe	B	From Leg	4.00 0.00 -3.00	0.0000	152.00	No Ice 1/2" Ice 1" Ice	6.13 6.52 6.92	5.50 6.16 6.82	0.10 0.15 0.21
AIR21 B2A/B4P w/ mount pipe	C	From Leg	4.00 0.00 -3.00	0.0000	152.00	No Ice 1/2" Ice 1" Ice	6.13 6.52 6.92	5.50 6.16 6.82	0.10 0.15 0.21
AIR21 B4A/B2P w/ mount pipe	A	From Leg	4.00 0.00 -3.00	0.0000	152.00	No Ice 1/2" Ice 1" Ice	6.13 6.52 6.92	5.54 6.20 6.87	0.10 0.16 0.22
AIR21 B4A/B2P w/ mount pipe	B	From Leg	4.00 0.00 -3.00	0.0000	152.00	No Ice 1/2" Ice 1" Ice	6.13 6.52 6.92	5.54 6.20 6.87	0.10 0.16 0.22
AIR21 B4A/B2P w/ mount pipe	C	From Leg	4.00 0.00 -3.00	0.0000	152.00	No Ice 1/2" Ice 1" Ice	6.13 6.52 6.92	5.54 6.20 6.87	0.10 0.16 0.22
LNX-6515DS-VTM w/ mount pipe	A	From Leg	4.00 0.00 -3.00	0.0000	152.00	No Ice 1/2" Ice 1" Ice	11.43 12.05 12.67	9.35 10.67 11.70	0.08 0.16 0.25
LNX-6515DS-VTM w/ mount pipe	B	From Leg	4.00 0.00 -3.00	0.0000	152.00	No Ice 1/2" Ice 1" Ice	11.43 12.05 12.67	9.35 10.67 11.70	0.08 0.16 0.25
LNX-6515DS-VTM w/ mount pipe	C	From Leg	4.00 0.00 -3.00	0.0000	152.00	No Ice 1/2" Ice 1" Ice	11.43 12.05 12.67	9.35 10.67 11.70	0.08 0.16 0.25
KRY 112 144	A	From Leg	4.00 0.00 -3.00	0.0000	152.00	No Ice 1/2" Ice 1" Ice	0.35 0.43 0.51	0.17 0.23 0.30	0.01 0.01 0.02
KRY 112 144	B	From Leg	4.00 0.00 -3.00	0.0000	152.00	No Ice 1/2" Ice 1" Ice	0.35 0.43 0.51	0.17 0.23 0.30	0.01 0.01 0.02
KRY 112 144	C	From Leg	4.00 0.00 -3.00	0.0000	152.00	No Ice 1/2" Ice 1" Ice	0.35 0.43 0.51	0.17 0.23 0.30	0.01 0.01 0.02
ATMAA1412D-1A20	A	From Leg	4.00 0.00	0.0000	152.00	No Ice 1/2" Ice	1.00 1.13	0.41 0.50	0.01 0.02

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 K
			-3.00			1" Ice	1.26	0.59	0.03
ATMAA1412D-1A20	B	From Leg	4.00	0.0000	152.00	No Ice	1.00	0.41	0.01
			0.00			1/2" Ice	1.13	0.50	0.02
			-3.00			1" Ice	1.26	0.59	0.03
ATMAA1412D-1A20	C	From Leg	4.00	0.0000	152.00	No Ice	1.00	0.41	0.01
			0.00			1/2" Ice	1.13	0.50	0.02
			-3.00			1" Ice	1.26	0.59	0.03
S11B12	A	From Leg	4.00	0.0000	152.00	No Ice	3.31	1.36	0.05
			0.00			1/2" Ice	3.55	1.54	0.07
			-3.00			1" Ice	3.80	1.73	0.10
S11B12	B	From Leg	4.00	0.0000	152.00	No Ice	3.31	1.36	0.05
			0.00			1/2" Ice	3.55	1.54	0.07
			-3.00			1" Ice	3.80	1.73	0.10
S11B12	C	From Leg	4.00	0.0000	152.00	No Ice	3.31	1.36	0.05
			0.00			1/2" Ice	3.55	1.54	0.07
			-3.00			1" Ice	3.80	1.73	0.10
***									
MTS 36" Standoff (3)	A	None		0.0000	141.08	No Ice	2.64	2.64	0.09
						1/2" Ice	4.10	4.10	0.13
						1" Ice	5.56	5.56	0.17
APXV18-206517S-C w/ Mount Pipe	A	From Leg	3.00	0.0000	141.08	No Ice	5.17	4.46	0.05
			0.00			1/2" Ice	5.62	5.39	0.09
			0.00			1" Ice	6.08	6.20	0.14
APXV18-206517S-C w/ Mount Pipe	B	From Leg	3.00	0.0000	141.08	No Ice	5.17	4.46	0.05
			0.00			1/2" Ice	5.62	5.39	0.09
			0.00			1" Ice	6.08	6.20	0.14
APXV18-206517S-C w/ Mount Pipe	C	From Leg	3.00	0.0000	141.08	No Ice	5.17	4.46	0.05
			0.00			1/2" Ice	5.62	5.39	0.09
			0.00			1" Ice	6.08	6.20	0.14
***									
Commscope MTC3607 Platform w/ Reinforcing Kit	A	None		0.0000	130.00	No Ice	51.70	51.70	2.26
						1/2" Ice	62.70	62.70	2.94
						1" Ice	73.70	73.70	3.61
Andrew Collar Mount	A	None		0.0000	130.00	No Ice	2.14	2.14	0.19
						1/2" Ice	2.35	2.35	0.25
						1" Ice	2.57	2.57	0.30
800 10121 w/ Mount Pipe	A	From Leg	4.00	0.0000	130.00	No Ice	5.26	4.47	0.06
			0.00			1/2" Ice	5.64	5.13	0.11
			0.00			1" Ice	6.03	5.79	0.16
800 10121 w/ Mount Pipe	B	From Leg	4.00	0.0000	130.00	No Ice	5.26	4.47	0.06
			0.00			1/2" Ice	5.64	5.13	0.11
			0.00			1" Ice	6.03	5.79	0.16
800 10121 w/ Mount Pipe	C	From Leg	4.00	0.0000	130.00	No Ice	5.26	4.47	0.06
			0.00			1/2" Ice	5.64	5.13	0.11
			0.00			1" Ice	6.03	5.79	0.16
OPA-65R-LCUU-H8 w/ Mount Pipe	A	From Leg	4.00	0.0000	130.00	No Ice	12.98	9.32	0.12
			0.00			1/2" Ice	13.67	10.79	0.21
			0.00			1" Ice	14.36	12.24	0.32
OPA-65R-LCUU-H6 w/ Mount Pipe	B	From Leg	4.00	0.0000	130.00	No Ice	9.66	7.24	0.11
			0.00			1/2" Ice	10.13	8.06	0.18
			0.00			1" Ice	10.61	8.89	0.27
OPA-65R-LCUU-H8 w/ Mount Pipe	C	From Leg	4.00	0.0000	130.00	No Ice	12.98	9.32	0.12
			0.00			1/2" Ice	13.67	10.79	0.21
			0.00			1" Ice	14.36	12.24	0.32
EPBQ-654L8H8-L2 w/ 8' Mount Pipe	A	From Leg	4.00	0.0000	130.00	No Ice	18.09	8.93	0.13
			0.00			1/2" Ice	18.72	10.35	0.24
			0.00			1" Ice	19.36	11.61	0.37

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 K
EPBQ-654L8H6-L2 w/ 8' Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	13.69 14.40 15.07	6.86 8.14 9.28	0.11 0.21 0.31
EPBQ-654L8H8-L2 w/ 8' Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	18.09 18.72 19.36	8.93 10.35 11.61	0.13 0.24 0.37
TT19-08BP111-001	A	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	0.55 0.65 0.75	0.45 0.53 0.63	0.02 0.02 0.03
TT19-08BP111-001	B	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	0.55 0.65 0.75	0.45 0.53 0.63	0.02 0.02 0.03
TT19-08BP111-001	C	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	0.55 0.65 0.75	0.45 0.53 0.63	0.02 0.02 0.03
(2) LGP21401	A	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	1.10 1.24 1.38	0.21 0.27 0.35	0.01 0.02 0.03
(2) LGP21401	B	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	1.10 1.24 1.38	0.21 0.27 0.35	0.01 0.02 0.03
(2) LGP21401	C	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	1.10 1.24 1.38	0.21 0.27 0.35	0.01 0.02 0.03
(2) 860 10025	A	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	0.14 0.19 0.25	0.12 0.17 0.23	0.00 0.00 0.01
(2) 860 10025	B	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	0.14 0.19 0.25	0.12 0.17 0.23	0.00 0.00 0.01
(2) 860 10025	C	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	0.14 0.19 0.25	0.12 0.17 0.23	0.00 0.00 0.01
(2) RRUS-32	A	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	3.31 3.56 3.81	2.42 2.64 2.86	0.08 0.10 0.14
(2) RRUS-32	B	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	3.31 3.56 3.81	2.42 2.64 2.86	0.08 0.10 0.14
(2) RRUS-32	C	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	3.31 3.56 3.81	2.42 2.64 2.86	0.08 0.10 0.14
RRUS-11	A	From Leg	1.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	2.78 2.99 3.21	1.19 1.33 1.49	0.05 0.07 0.09
RRUS-11	B	From Leg	1.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	2.78 2.99 3.21	1.19 1.33 1.49	0.05 0.07 0.09
RRUS-11	C	From Leg	1.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	2.78 2.99 3.21	1.19 1.33 1.49	0.05 0.07 0.09
RRUS-12	A	From Leg	1.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	3.15 3.36 3.59	1.29 1.44 1.60	0.06 0.08 0.11
RRUS-12	B	From Leg	1.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	3.15 3.36 3.59	1.29 1.44 1.60	0.06 0.08 0.11

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 K
RRUS-12	C	From Leg	1.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	3.15 3.36 3.59	1.29 1.44 1.60	0.06 0.08 0.11
RRUS A2 MODULE	A	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.38 0.47 0.57	0.02 0.03 0.04
RRUS A2 MODULE	B	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.38 0.47 0.57	0.02 0.03 0.04
RRUS A2 MODULE	C	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.38 0.47 0.57	0.02 0.03 0.04
4478	A	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	0.42 0.51 0.61	0.41 0.50 0.60	0.01 0.01 0.02
4478	B	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	0.42 0.51 0.61	0.41 0.50 0.60	0.01 0.01 0.02
4478	C	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	0.42 0.51 0.61	0.41 0.50 0.60	0.01 0.01 0.02
DC6-48-60-18-8C Surge Suppression Unit	C	From Leg	1.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	0.92 1.46 1.64	0.92 1.46 1.64	0.02 0.04 0.06
DC6-48-60-18-8F Surge Suppression Unit	A	From Leg	1.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	0.92 1.46 1.64	0.92 1.46 1.64	0.02 0.04 0.06
DC6-48-60-18-8F Surge Suppression Unit	B	From Leg	1.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	0.92 1.46 1.64	0.92 1.46 1.64	0.02 0.04 0.06
***									
MTS 14.5' LP Platform	A	None		0.0000	122.50	No Ice 1/2" Ice 1" Ice	17.46 22.44 27.42	17.46 22.44 27.42	1.35 1.62 1.90
(2) SBNHH-1D65B w/ Mount Pipe	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	122.50	No Ice 1/2" Ice 1" Ice	8.16 8.62 9.09	6.16 6.82 7.51	0.06 0.12 0.19
(2) SBNHH-1D65B w/ Mount Pipe	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	122.50	No Ice 1/2" Ice 1" Ice	8.16 8.62 9.09	6.16 6.82 7.51	0.06 0.12 0.19
(2) SBNHH-1D65B w/ Mount Pipe	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	122.50	No Ice 1/2" Ice 1" Ice	8.16 8.62 9.09	6.16 6.82 7.51	0.06 0.12 0.19
LNX-6514DS-VTM w/ Mount Pipe	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	122.50	No Ice 1/2" Ice 1" Ice	8.17 8.63 9.10	6.83 7.79 8.62	0.06 0.13 0.20
LNX-6514DS-VTM w/ Mount Pipe	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	122.50	No Ice 1/2" Ice 1" Ice	8.17 8.63 9.10	6.83 7.79 8.62	0.06 0.13 0.20
LNX-6514DS-VTM w/ Mount Pipe	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	122.50	No Ice 1/2" Ice 1" Ice	8.17 8.63 9.10	6.83 7.79 8.62	0.06 0.13 0.20
HBXX-6517DS-A2M w/ Mount Pipe	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	122.50	No Ice 1/2" Ice 1" Ice	8.95 9.60 10.23	7.14 8.44 9.58	0.07 0.14 0.22
HBXX-6517DS-A2M w/ Mount Pipe	B	From Centroid-Le	4.00 0.00	0.0000	122.50	No Ice 1/2" Ice	8.95 9.60	7.14 8.44	0.07 0.14

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 K
		g	0.00			1" Ice	10.23	9.58	0.22
HBXX-6517DS-A2M w/ Mount Pipe	C	From Centroid-Le g	4.00 0.00 0.00	0.0000	122.50	No Ice 1/2" Ice 1" Ice	8.95 9.60 10.23	7.14 8.44 9.58	0.07 0.14 0.22
RRH4X45-AWS	C	From Centroid-Le g	4.00 0.00 0.00	0.0000	122.50	No Ice 1/2" Ice 1" Ice	3.10 3.36 3.62	1.76 1.98 2.21	0.06 0.08 0.11
RRH4X45-AWS	A	From Centroid-Le g	4.00 0.00 0.00	0.0000	122.50	No Ice 1/2" Ice 1" Ice	3.10 3.36 3.62	1.76 1.98 2.21	0.06 0.08 0.11
RRH4X45-AWS	B	From Centroid-Le g	4.00 0.00 0.00	0.0000	122.50	No Ice 1/2" Ice 1" Ice	3.10 3.36 3.62	1.76 1.98 2.21	0.06 0.08 0.11
RRH2X60-PCS	A	From Centroid-Le g	4.00 0.00 0.00	0.0000	122.50	No Ice 1/2" Ice 1" Ice	2.20 2.39 2.59	1.36 1.52 1.68	0.06 0.07 0.09
RRH2X60-PCS	B	From Centroid-Le g	4.00 0.00 0.00	0.0000	122.50	No Ice 1/2" Ice 1" Ice	2.20 2.39 2.59	1.36 1.52 1.68	0.06 0.07 0.09
RRH2X60-PCS	C	From Centroid-Le g	4.00 0.00 0.00	0.0000	122.50	No Ice 1/2" Ice 1" Ice	2.20 2.39 2.59	1.36 1.52 1.68	0.06 0.07 0.09
RRH2x60-700	A	From Centroid-Le g	4.00 0.00 0.00	0.0000	122.50	No Ice 1/2" Ice 1" Ice	3.50 3.76 4.03	1.82 2.05 2.29	0.06 0.08 0.11
RRH2x60-700	B	From Centroid-Le g	4.00 0.00 0.00	0.0000	122.50	No Ice 1/2" Ice 1" Ice	3.50 3.76 4.03	1.82 2.05 2.29	0.06 0.08 0.11
RRH2x60-700	C	From Centroid-Le g	4.00 0.00 0.00	0.0000	122.50	No Ice 1/2" Ice 1" Ice	3.50 3.76 4.03	1.82 2.05 2.29	0.06 0.08 0.11
(2) FD9R6004/2C-3L	A	From Centroid-Le g	4.00 0.00 0.00	0.0000	122.50	No Ice 1/2" Ice 1" Ice	0.31 0.39 0.47	0.08 0.12 0.17	0.00 0.01 0.01
(2) FD9R6004/2C-3L	B	From Centroid-Le g	4.00 0.00 0.00	0.0000	122.50	No Ice 1/2" Ice 1" Ice	0.31 0.39 0.47	0.08 0.12 0.17	0.00 0.01 0.01
(2) FD9R6004/2C-3L	C	From Centroid-Le g	4.00 0.00 0.00	0.0000	122.50	No Ice 1/2" Ice 1" Ice	0.31 0.39 0.47	0.08 0.12 0.17	0.00 0.01 0.01
DB-T1-6Z-8AB-0Z	B	From Centroid-Le g	4.00 0.00 0.00	0.0000	122.50	No Ice 1/2" Ice 1" Ice	4.80 5.07 5.35	2.00 2.19 2.39	0.05 0.09 0.13
DB-T1-6Z-8AB-0Z	C	From Centroid-Le g	4.00 0.00 0.00	0.0000	122.50	No Ice 1/2" Ice 1" Ice	4.80 5.07 5.35	2.00 2.19 2.39	0.05 0.09 0.13
***									
Andrew Collar Mount	A	None		0.0000	89.08	No Ice 1/2" Ice 1" Ice	2.14 2.35 2.57	2.14 2.35 2.57	0.19 0.25 0.30
14' Dipole	C	From Leg	1.00 0.00 0.00	0.0000	89.08	No Ice 1/2" Ice 1" Ice	2.80 4.22 5.67	2.80 4.22 5.67	0.03 0.05 0.08
3' Yagi	A	From Leg	1.50 0.00 -7.83	0.0000	89.08	No Ice 1/2" Ice 1" Ice	0.52 0.71 0.90	0.52 0.71 0.90	0.02 0.02 0.03
3' Yagi	A	From Leg	1.50	0.0000	89.08	No Ice	0.52	0.52	0.02

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 K
			0.00			1/2" Ice	0.71	0.71	0.02
			-9.75			1" Ice	0.90	0.90	0.03
***									
Andrew Collar Mount	A	None		0.0000	83.17	No Ice	2.14	2.14	0.19
						1/2" Ice	2.35	2.35	0.25
						1" Ice	2.57	2.57	0.30
GPS-TMG-HR-26N	B	From Leg	1.00	0.0000	83.17	No Ice	0.13	0.13	0.00
			0.00			1/2" Ice	0.18	0.18	0.00
			0.00			1" Ice	0.24	0.24	0.01
3' Yagi	A	From Leg	1.50	0.0000	83.17	No Ice	0.52	0.52	0.02
			0.00			1/2" Ice	0.71	0.71	0.02
			-1.92			1" Ice	0.90	0.90	0.03

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
160.00	MTS 36" Standoff (3)	46	22.631	1.3973	0.0039	17490
152.00	Sabre 12' LP Platform	46	20.304	1.3727	0.0030	11017
141.08	MTS 36" Standoff (3)	46	17.244	1.3086	0.0020	7158
130.00	Commscope MTC3607 Platform w/ Reinforcing Kit	46	14.343	1.2045	0.0014	6155
122.50	MTS 14.5' LP Platform	46	12.514	1.1187	0.0012	5622
89.08	Andrew Collar Mount	46	5.958	0.7029	0.0007	4759
83.17	Andrew Collar Mount	46	5.095	0.6369	0.0006	4927

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	160 - 146.5 (1)	TP20.91x16.75x0.1875	13.50	0.00	0.0	11.8282	-4.69	865.69	0.005
L2	146.5 - 95.75 (2)	TP36.16x19.6876x0.25	53.50	0.00	0.0	27.3952	-19.50	1841.20	0.011
L3	95.75 - 46.75 (3)	TP50.76x34.2745x0.3125	53.50	0.00	0.0	48.0510	-32.59	3077.94	0.011
L4	46.75 - 0 (4)	TP64.53x48.1321x0.375	53.25	0.00	0.0	76.3605	-52.47	4662.89	0.011

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	160 - 146.5 (1)	TP20.91x16.75x0.1875	69.00	353.25	0.195	0.00	353.25	0.000
L2	146.5 - 95.75 (2)	TP36.16x19.6876x0.25	1119.26	1307.93	0.856	0.00	1307.93	0.000
L3	95.75 - 46.75 (3)	TP50.76x34.2745x0.3125	2636.16	3070.47	0.859	0.00	3070.47	0.000
L4	46.75 - 0 (4)	TP64.53x48.1321x0.375	4594.73	6163.78	0.745	0.00	6163.78	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	160 - 146.5 (1)	TP20.91x16.75x0.1875	11.24	432.84	0.026	0.01	707.37	0.000
L2	146.5 - 95.75 (2)	TP36.16x19.6876x0.25	29.94	920.60	0.033	0.38	2619.07	0.000
L3	95.75 - 46.75 (3)	TP50.76x34.2745x0.3125	34.45	1538.97	0.022	0.41	6148.46	0.000
L4	46.75 - 0 (4)	TP64.53x48.1321x0.375	39.08	2331.45	0.017	0.28	12342.67	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	160 - 146.5 (1)	0.005	0.195	0.000	0.026	0.000	0.201 ✔	1.000	4.8.2 ✔
L2	146.5 - 95.75 (2)	0.011	0.856	0.000	0.033	0.000	0.867 ✔	1.000	4.8.2 ✔
L3	95.75 - 46.75 (3)	0.011	0.859	0.000	0.022	0.000	0.870 ✔	1.000	4.8.2 ✔
L4	46.75 - 0 (4)	0.011	0.745	0.000	0.017	0.000	0.757 ✔	1.000	4.8.2 ✔

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	160 - 146.5	Pole	TP20.91x16.75x0.1875	1	-4.69	865.69	20.1	Pass
L2	146.5 - 95.75	Pole	TP36.16x19.6876x0.25	2	-19.50	1841.20	86.7	Pass
L3	95.75 - 46.75	Pole	TP50.76x34.2745x0.3125	3	-32.59	3077.94	87.0	Pass
L4	46.75 - 0	Pole	TP64.53x48.1321x0.375	4	-52.47	4662.89	75.7	Pass
							Summary	
						Pole (L3)	87.0	Pass
						RATING =	**87.0**	**Pass**

ADDITIONAL CALCULATIONS

Anchor Rod and Base Plate Stresses, TIA-222-G-1
CT33762-M, Cheshire
2018778.33762.09

Overturning Moment =	4595.00	k*ft
Axial Force =	52.00	k
Shear Force =	39.00	k

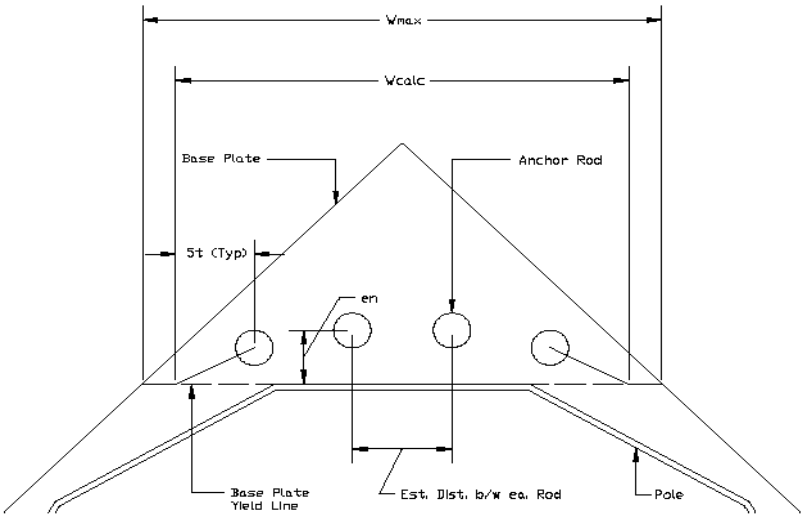
Acceptable Stress Ratio =	105.0%

Anchor Rods		
Pole Diameter =	64.53	in
Number of Rods =	16	
ϕ =	0.8	
Rod Ultimate Strength (F_u) =	100	ksi
Base Plate Detail Type* =	d	
Rod Circle =	71.651	in
Rod Diameter =	2.25	in
Net Tensile Area =	3.25	in^2
Max Tension on Rod =	188.37	kips
Max Compression on Rod =	194.87	kips
P_u =	194.87	kips
V_u =	2.44	kips
η =	0.50	
$P_u + V_u / \eta$ =	199.75	kips
φR_{nt} =	260.00	kips
Anchor Rod Capacity =	**76.8%**	**OK**

(Section 4.9.9, TIA-222-G-1)

Base Plate		
Plate Strength (Fy) =	60	ksi
ϕ =	0.9	
Plate Thickness =	3	in
Plate Width =	73	in
Est. Dist. b/w ea. Rod =	6	in
w_{calc} =	47.83	in
w_{max} =	38.71	in
w =	38.71	in
Z =	87.09	in^3
M_u =	2260.84	k-in
φM_n =	4702.97	k-in
Base Plate Capacity =	**48.1%**	**OK**

***This analysis assumes the clear distance from the top of the concrete to the bottom of the leveling nut is less than the diameter of the anchor rod. Notify GPD Group immediately if existing field conditions do not meet this assumption.**



Mat Foundation Analysis
CT33762-M, Cheshire
2018778.33762.09

General Info	
Foundation Criteria	GPD
TIA Code	TIA-222-G
Soil Code	AASHTO 2012
Concrete Code	ACI 318-11
Seismic Design Category	B
Tower Height	160 ft
Bearing On	Soil
Foundation Type	Monopole Pad
Pier Type	Round
Reinforcing Known	Yes
Max Bearing Capacity	105%
Max Overturning Capacity	105%

Tower Reactions	
Moment, M	4595 k-ft
Axial, P	52 k
Shear, V	39 k

Pad & Pier Geometry	
Pier Diameter, ø	8 ft
Pad Length, L [y]	27 ft
Pad Width, W [x]	27 ft
Pad Thickness, t	5 ft
Depth, D	13.25 ft
Height Above Grade, HG	0 ft
Tower Centroid, X	13.5 ft
Tower Centroid, Y	13.5 ft
Tower Eccentricity	0.0000 ft

Pad & Pier Reinforcing	
Rebar Fy	60 ksi
Concrete F'c	4 ksi
Pier Reinforcing Clear Cover	3 in
Shear Rebar Type	Tie
Shear Rebar Size	# 4
Pad Reinforcing Clear Cover	3 in
Reinforced Top & Bottom?	Yes
Pad Reinforcing Size	# 8
Pad Quantity Per Layer	42
Pier Rebar Size	# 9
Pier Quantity of Rebar	38

Soil Properties	
Soil Type	Granular
Soil Unit Weight	100 pcf
Angle of Friction, ø	35
Base Friction Coeff. Provided in Geo?	Yes
Base Friction Coefficient, µ	0.35
Bearing Type	Gross
Ultimate Bearing	8 ksf
Water Table Depth	0 ft
Frost Depth	3.333 ft

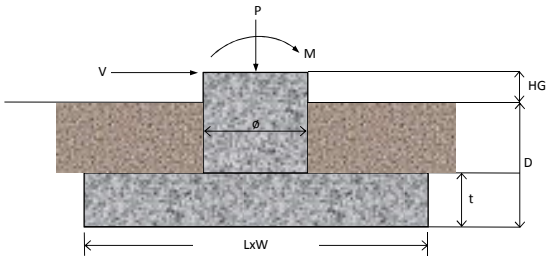
GPD Mat Foundation Analysis - V3.2

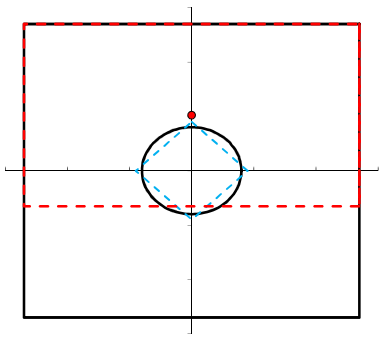
Bearing Summary					
Case	*Demand/Limits*	*Capacity/Availability*	*Check*	*Eccentricity*	*Load Case*
Qxmax	2.24 ksf	6.00 ksf	OK, <= 105%	L/5.3	1.2D+1.6W
Qymax	2.24 ksf	6.00 ksf	OK, <= 105%	W/5.3	1.2D+1.6W
Qmax @ 45°	1.67 ksf	6.00 ksf	OK, <= 105%	W/8.9	1.2D+1.6W
Controlling Capacity		**37.4%**	**Pass**		

Overturning Summary					
Case	*Demand/Limits*	*Capacity/Availability*	*Check*		*Load Case*
Ovtx	3660.9 k-ft	7405.5 k-ft	49.4%	OK	0.9D+1.6W
Ovty	3660.9 k-ft	7405.5 k-ft	49.4%	OK	0.9D+1.6W
Ovtxy	2185.8 k-ft	7405.5 k-ft	29.5%	OK	0.9D+1.6W
Controlling Capacity		**49.4%**	**Pass**		

Sliding Summary					
Case	*Demand/Limits*	*Capacity/Availability*	*Check*		*Load Case*
Slidingx	39.0 k	318.7 k	12.2%	OK	0.9D+1.6W
Slidingy	39.0 k	318.7 k	12.2%	OK	0.9D+1.6W
Controlling Capacity		**12.2%**	**Pass**		

Reinforcement Summary					
Component	*Demand/Limits*	*Capacity/Availability*	*Check*		*Load Case*
Pad Flexural Bending	48.0 k-ft	301.9 k-ft	15.9%	OK	0.9D+1.6W
One-Way Shear in Pad	150.3 k	1705.9 k	8.8%	OK	0.9D+1.6W
Two-Way Shear in Pad	563.9 k	5921.4 k	9.5%	OK	0.9D+1.6W
Compression on Pier	95.6 k	31993.0 k	0.3%	OK	1.2D+1.6W
Moment on Pier	4866.7 k-ft	7219.3 k-ft	67.4%	OK	1.2D+1.6W
As Min Pad Met?	2.46 sq. in.	0.16 sq. in.	Yes		
As Min Pier Met?	38.00 sq. in.	36.19 sq. in.	Yes		
Controlling Capacity		**67.4%**	**Pass**		





The Assessor's office is responsible for the maintenance of records on the ownership of properties. Assessments are computed at 70% of the estimated market value of real property at the time of the last revaluation which was 2013.

Town of Cheshire

The bedding plant capital of Connecticut

Information on the Property Records for the Municipality of Cheshire was last updated on 3/22/2018.

Parcel Information

Location:	490 HIGHLAND AVE	Property Use:	School	Primary Use:	Elementary School
Unique ID:	00478600	Map Block Lot:	51 2	Acres:	24.80
Zone:	C-1	Volume / Page:	0000/0000	Developers Map / Lot:	884315
Census:	3431				

Value Information

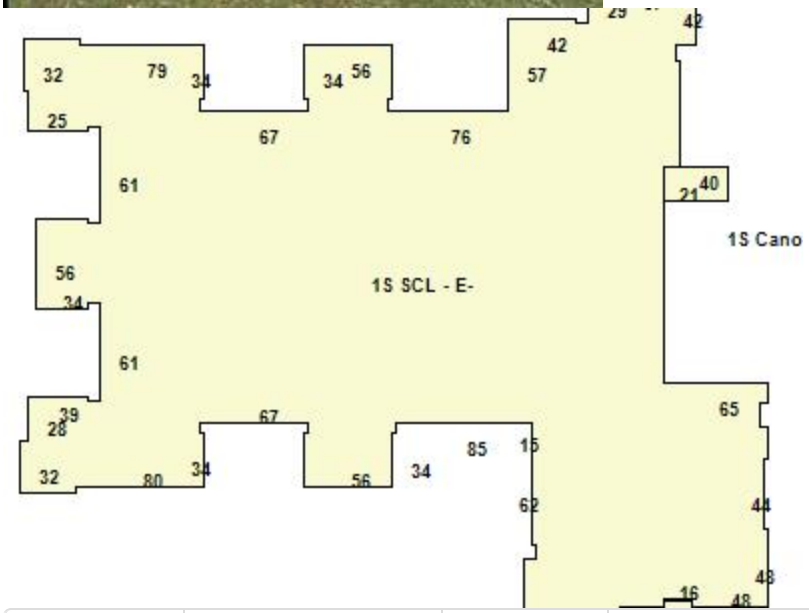
	Appraised Value	Assessed Value
Land	2,463,578	1,724,510
Buildings	17,288,518	12,101,960

	Appraised Value	Assessed Value
Detached Outbuildings	60,912	42,640
Total	19,813,008	13,869,110

Owner's Information

Owner's Data
CHESHIRE TOWN OF HIGHLAND SCHOOL POLICE STATION CHESHIRE CT 06410

Building 1



Category:	School	Use:	Elementary School	Stories:	1.00
Above Grade:	114,271	Below Grade:	0	Below Grade Finish:	0
Construction:	Good	Year Built:	1971	Heating:	FHA
Fuel:	Gas	Cooling Percent:	100%	Siding:	Stucco
Roof Material:	Composite Built Up	Beds/Units:	0		

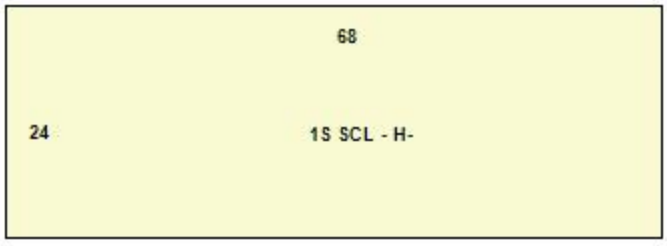
Special Features

Wet Sprinklers	114271

Attached Components

Type:	Year Built:	Area:
Metal Canopy	1971	840
Open Porch	1971	208

Building 2



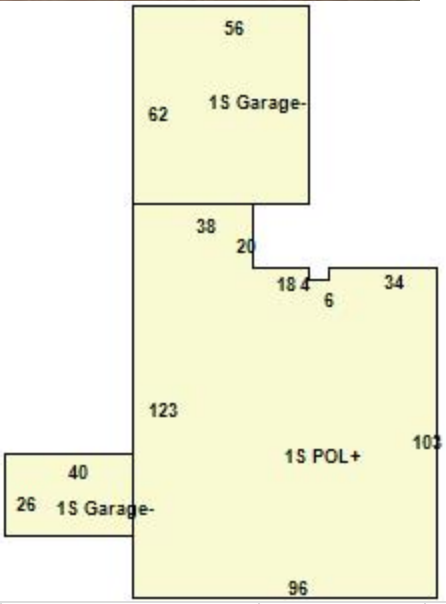
Category:	School	Use:	High School	Stories:	1.00
Above Grade:	1,632	Below Grade:	0	Below Grade Finish:	0

Construction:	Average	Year Built:	1988	Heating:	Electric Baseboard
Fuel:	Electric	Cooling Percent:	0%	Siding:	Vertical Wood
Roof Material:	Asphalt	Beds/Units:	0		

Special Features

Attached Components

Building 3



Category:	Public Use	Use:	Jail - Police Station	Stories:	1.00
Above Grade:	10,638	Below Grade:	10,638	Below Grade Finish:	7,416
Construction:	Average	Year Built:	1971	Heating:	FHA
Fuel:	Gas	Cooling Percent:	100%	Siding:	B. V. Solid
Roof Material:	Asphalt	Beds/Units:	0		

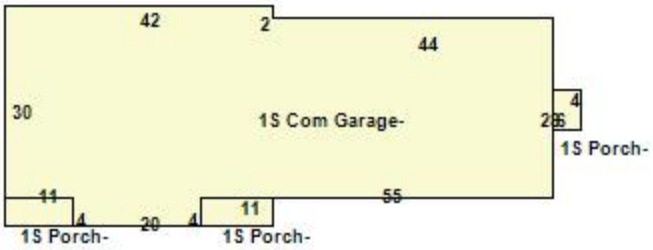
Special Features

Wet Sprinklers	10638

Attached Components

Type:	Year Built:	Area:
Cblk/Fr Garage	1992	1,040
Cblk/Fr Garage	1971	3,472

Building 4



Category:	Automotive	Use:	Commercial Garage	Stories:	1.00
Above Grade:	2,571	Below Grade:	0	Below Grade Finish:	0

Construction:	Average	Year Built:	1987	Heating:	
Fuel:		Cooling Percent:	0%	Siding:	Concrete Block
Roof Material:		Beds/Units:	0		

Special Features

Attached Components

Type:	Year Built:	Area:
Open Porch	1987	24
Open Porch	1987	44
Open Porch	1987	44

Detached Outbuildings

Type:	Year Built:	Length:	Width:	Area:
Fencing	1971			2,404
Paving	1988			80,000
Building Utility	2004	12	20	240

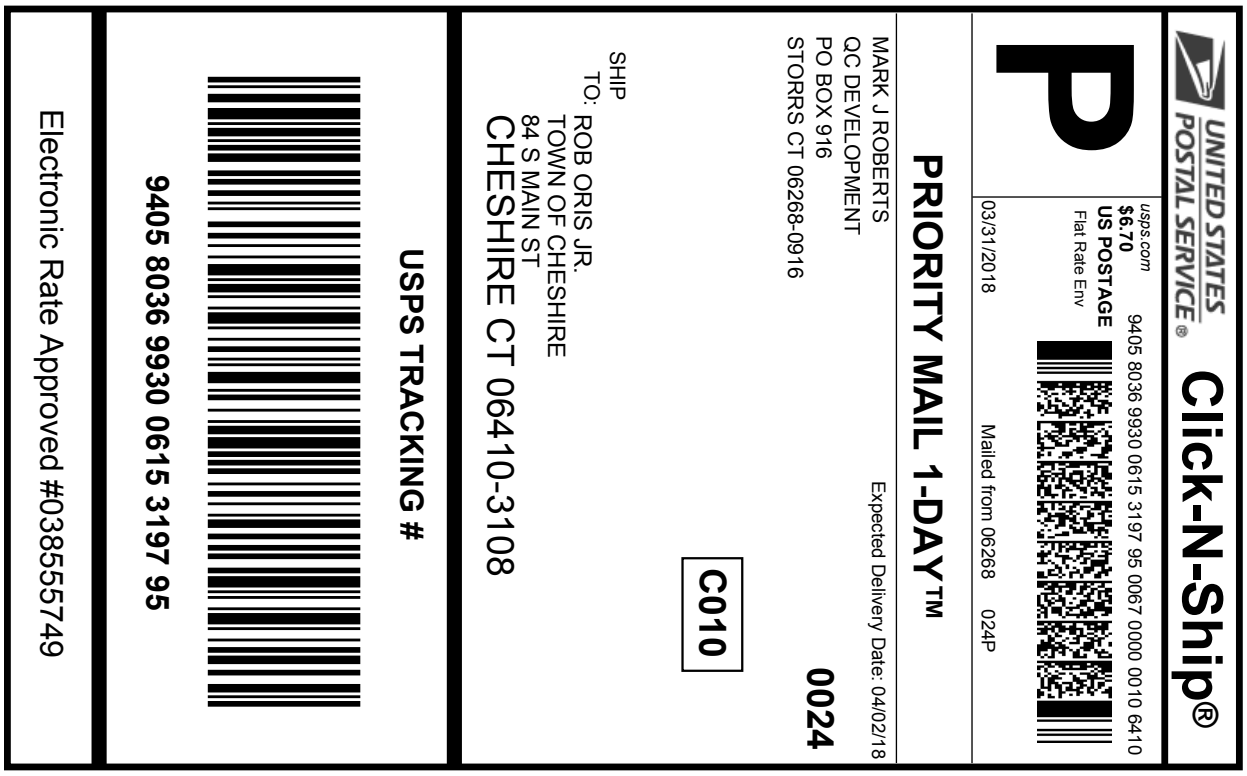
Information Published With Permission From The Assessor

Google Maps

Cheshire Police Department

490 / 500 HIGHLAND AVE

Map data ©2018 Google 200 ft



Cut on dotted line.

Instructions

1. **Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.**
2. **Place your label so it does not wrap around the edge of the package.**
3. **Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.**
4. **To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.**
5. **Mail your package on the "Ship Date" you selected when creating this label.**

Click-N-Ship® Label Record

USPS TRACKING # / Insurance Number:
9405 8036 9930 0615 3197 95

Trans. #:	431300899
Print Date:	03/30/2018
Ship Date:	03/31/2018
Expected Delivery Date:	04/02/2018
Insured Value:	$50.00

Priority Mail® Postage:	**$6.70**
Insurance Fee	**$0.00**
Total	**$6.70**

From: MARK J ROBERTS
QC DEVELOPMENT
PO BOX 916
STORRS CT 06268-0916

To: ROB ORIS JR.
TOWN OF CHESHIRE
84 S MAIN ST
CHESHIRE CT 06410-3108

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