



**QC Development**

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February 24, 2021

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) – CT2347**  
**1323 King Street, Greenwich, CT 06831**  
**N 41.07416667**  
**W 73.69750000**

Dear Ms. Bachman:

AT&T currently maintains nine (9) antennas at the 88-foot level of the existing 100-foot Self Support Tower at 1323 King Street, Greenwich, CT. The tower and property are owned by the Town of Greenwich. This modification replaces EM-CING\_057-190917 due to a change in the proposed tower loading. AT&T now intends to remove (9) Powerwave antennas and install (3) CCI HPA-65R-BUU-H6 antennas and (3) Quintel QS66512-2 antennas. AT&T also intends to remove (3) Ericsson RRUS-11 Remote Radio Units (RRU) and install (3) Ericsson RRUS-32 B30, (3) 8843 B2/B66 and (3) 4449 B5/B12. The new antennas and RRUs will also be installed at the 88-foot level of the tower. This modification/proposal includes B2, B5, and B12 hardware that is both 4G (LTE) and 5G NR capable through remote software configuration and either or both services may be turned on or off at various times.

AT&T's use of the facility was approved by the Planning and Zoning Commission of the Town of Greenwich on May 3rd, 2006. This approval included no condition(s) that could feasibly be violated by this modification, including total facility height or mounting restrictions. This modification therefore complies with the aforementioned approval.

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 Fred Camillo, First Selectman of the Town of Greenwich, as local elected official, property owner and tower owner, as well as to the Greenwich Planning & Zoning Department.

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: Fred Camillo - Elected Official, Tower and Property Owner  
Katie DeLuca – Director of Planning and Zoning

## Power Density

### Existing Loading on Tower

Carrier	# of Channels	ERP/Ch (W)	Antenna Centerline Height (ft)	Power Density (mW/cm <sup>2</sup> )	Freq. Band (MHz <sup>**</sup> )	Limit S (mW/cm <sup>2</sup> )	%MPE
Other Carriers*							4.67%
AT&T GSM	4	296	88	0.0633	880	0.5867	1.08%
AT&T UMTS	1	500	88	0.0267	880	0.5867	0.46%
AT&T UMTS	4	427	88	0.0913	1900	1.0000	0.91%
AT&T LTE	1	500	88	0.0267	740	0.4933	0.54%
AT&T LTE	1	500	88	0.0267	1900	1.0000	0.27%
Site Total							7.93%

\*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 <sup>2</sup> )	Freq. Band (MHz <sup>**</sup> )	Limit S (mW/cm <sup>2</sup> )	%MPE
Other Carriers*							4.67%
AT&T UMTS	1	500	88	0.0267	850	0.5667	0.47%
AT&T LTE	1	1476	88	0.0789	700	0.4667	1.69%
AT&T LTE	2	4842	88	0.5179	1900	1.0000	5.18%
AT&T LTE	1	5070	88	0.2712	2100	1.0000	2.71%
AT&T LTE	1	1285	88	0.0687	2300	1.0000	0.69%
Site Total							15.42%

\*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: TOP - REMOVE (3) EXISTING UMTS 7770 ANTENNAS FROM POSITION 1. REPLACE (3) EXISTING LTE P65-XLH ANTENNAS AT POSITION 2 WITH (3) 6' HEX-PORT ANTENNAS IN POSITION 1. REPLACE (3) EXISTING GSM ANTENNAS AT POSITION 3 WITH (3) 6' QUINTEL ANTENNAS. REMOVE (6) EXISTING TMAS. REPLACE (3) EXISTING RRUS-11 WITH (3) RRUS 4449 B5/B12, ADD (3) RRUS-32 B30 & (3) RRUS 8843 B2/B66A. ADD (1) SQUID, (1) FIBER CABLE, (2) DC CABLES, SWAP DIPLEXERS WITH LOW BAND COMBINERS (3) ON TOP. REMOVE (6) LINES OF COAX. BOTTOM - SWAP BB FOR RES 5216, ADD XMU.

POWER - SWAP GSM CABINET FOR NEW PLANT.

SITE ADDRESS: 1323 KING STREET  
GREENWICH, CT 06831

LATITUDE: 41° 04' 27.89" N (NAD 83)\*  
LONGITUDE: 73° 41' 49.85" W (NAD 83)\*  
\*PER RFDS

JURISDICTION: TOWN OF BLOOMFIELD

CURRENT USE: TELECOMMUNICATIONS FACILITY  
PROPOSED USE: TELECOMMUNICATIONS FACILITY

NAME OF APPLICANT: AT&T MOBILITY  
500 ENTERPRISE DRIVE  
SUITE 3A  
ROCKY HILL, CT 06067

TOWER OWNER: TOWN OF GREENWICH, CT



**at&t**  
**Mobility**

**SITE NAME: GREENWICH - KING STREET**

**SITE NUMBER: CT2347 2C / 3C / 4C**

**FA NUMBER: 10050949**

**PACE NUMBER: MRCT027630 (2C) / MRCTB027636 (3C) / MRCTB027652 (4C)**

**DRAWING INDEX**

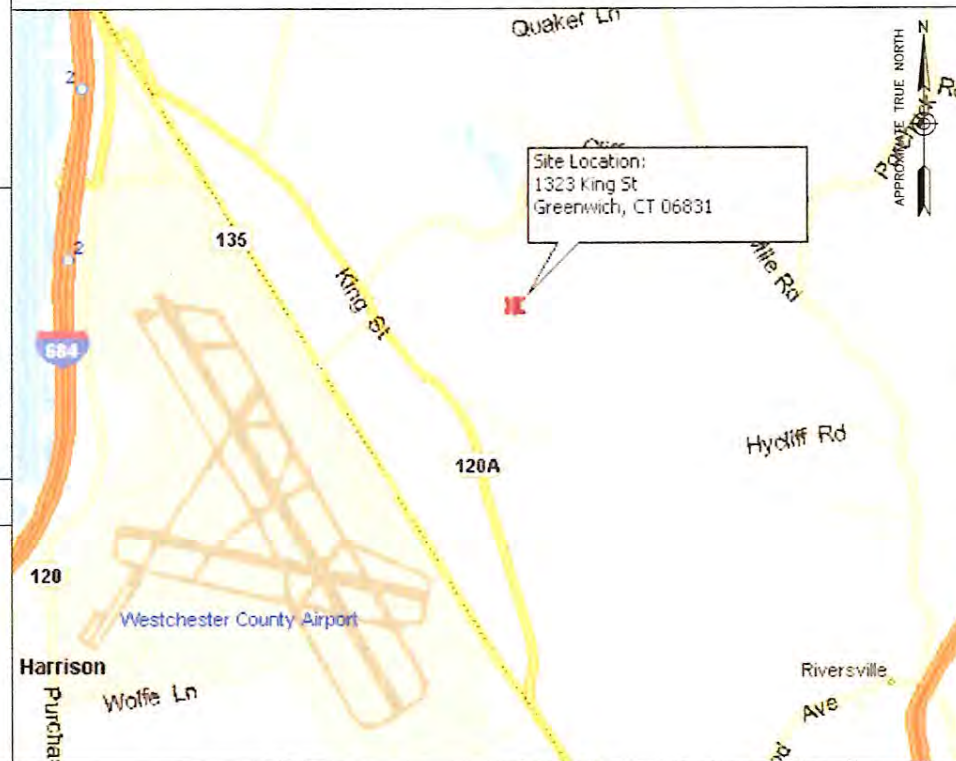
**REV**

**VICINITY MAP**

**APPLICABLE BUILDING CODES AND STANDARDS**

T01	TITLE SHEET	2
G01	GENERAL NOTES	2
C01	COMPOUND & EQUIPMENT LAYOUT	2
C02	ELEVATION & ANTENNA LAYOUT	2
C03	EQUIPMENT PLUMBING DIAGRAM & CONSTRUCTION DETAILS	2
E01	GROUNDING NOTES & DETAILS	2

**DIRECTIONS:** TAKE MERRITT PARKWAY NORTH TO EXIT 27 FOR KING STREET. MAKE A RIGHT ON KING STREET AT THE END OF THE RAMP. TAKE TO (\*\*\*\*\*CLIFFDALE ROAD AND MAKE RIGHT ONTO CLIFFDALE ROAD, DRIVE AND GO DOWN THE FIRST HILL AND MAKE A RIGHT ON TO THE GOLF CART & VEHICLE ROAD, AT THE FORK. BEAR RIGHT AND DRIVE TO THE BACK, YOU WILL SEE THE MAINTENANCE BUILDING A ROAD GO DOWN TO SITE\*\*\*\*\*)  
GATE COMBO: 4667



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

BUILDING CODE:  
2018 CONNECTICUT STATE BUILDING CODE (2015 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 AND ANTENNA SUPPORTING STRUCTURES: TIA 607, COMMERCIAL BUILDING GROUNDING AND BONDING REQUIREMENTS FOR TELECOMMUNICATIONS

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

IEEE C62.41, RECOMMENDED PRACTICES ON SURGE VOLTAGES IN LOW VOLTAGE AC POWER CIRCUITS (FOR LOCATION CATEGORY "C3" AND "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 AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

THIS DOCUMENT WAS DEVELOPED TO REFLECT A SPECIFIC SITE AND ITS SITE CONDITIONS AND IS NOT TO BE USED FOR ANOTHER SITE OR WHEN OTHER CONDITIONS PERTAIN. REUSE OF THIS DOCUMENT IS AT THE SOLE RISK OF THE USER.

STRUCTURAL NOTE:

- 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 AND ANY REQUIRED IMPROVEMENTS AND REINFORCEMENTS HAVE SUFFICIENT CAPACITY TO SUPPORT ALL EXISTING AND PROPOSED ANTENNAS, SUPPORTS AND APPURTENANCES AND COMPLIES WITH THE CURRENT CONNECTICUT STATE BUILDING CODE AND EIA/TIA CRITERIA. THE CONTRACTOR IS RESPONSIBLE TO CONFIRM THAT ANY IMPROVEMENTS AND REINFORCEMENTS REQUIRED BY THE STRUCTURAL ANALYSIS CERTIFICATION ARE PROPERLY INSTALLED PRIOR TO THE ADDITION OF ANTENNAS, SUPPORTS AND 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

**Dewberry**<sup>®</sup>  
Dewberry Engineers Inc.  
99 SUMMER ST.  
SUITE 700  
BOSTON, MA 02110  
PHONE: 617.695.3400  
FAX: 617.695.3310

**SAI**  
12 INDUSTRIAL WAY  
SALEM, NH 03079

**GREENWICH - KING STREET  
SITE NO. CT2347 2C/3C/4C**

1323 KING STREET  
GREENWICH, CT 06831

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
2	02/03/21	FOR CONSTRUCTION	JCM	DAS	BBR
1	09/09/19	FOR CONSTRUCTION	CDH	DAS	BBR
0	04/13/18	FOR CONSTRUCTION	JCM	DAS	BBR
A	02/09/18	FOR REVIEW	JCM	DAS	BBR

SCALE: AS SHOWN    DESIGNED BY: JCM    DRAWN BY: JCM



AT&T MOBILITY  
FRAMINGHAM, MA 01701

TITLE SHEET

DEWBERRY NO.	DRAWING NUMBER	REV
50122947/50122961	T01	2



**GENERAL NOTES:**

- FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:  
PROJECT MANAGEMENT - SAI  
CONTRACTOR - GENERAL CONTRACTOR (CONSTRUCTION)  
OWNER - AT&T MOBILITY  
OEM - ORIGINAL EQUIPMENT MANUFACTURER
- PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF PROJECT MANAGEMENT.
- ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK.
- ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
- DRAWINGS PROVIDED HERE ARE NOT TO SCALE UNLESS OTHERWISE NOTED AND ARE INTENDED TO SHOW OUTLINE ONLY.
- UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY PROJECT MANAGEMENT.
- CONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. CONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. CONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH PROJECT MANAGEMENT.
- THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
- CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
- CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
- THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
- CONTRACTOR SHALL NOTIFY DEWBERRY 48 HOURS IN ADVANCE OF POURING CONCRETE, OR BACKFILLING TRENCHES, SEALING ROOF AND WALL PENETRATIONS & POST DOWNS, FINISHING NEW WALLS OR FINAL ELECTRICAL CONNECTIONS FOR ENGINEER REVIEW.
- CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. CONTRACTOR SHALL NOTIFY PROJECT MANAGEMENT OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
- 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.
- 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.
- CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SAFETY INCLUDING COMPLIANCE WITH ALL APPLICABLE OSHA STANDARDS AND RECOMMENDATIONS AND SHALL PROVIDE ALL NECESSARY SAFETY DEVICES INCLUDING PPE AND PPM AND CONSTRUCTION DEVICES USED FOR WELDING AND FIRE PREVENTION, TEMPORARY SHORINGS, SCAFFOLDING, TRENCH BOXES/SLOPING, BARRIERS, ETC.

**SITE WORK GENERAL NOTES:**

- THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
- ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO:  
A) FALL PROTECTION  
B) CONFINED SPACE  
C) ELECTRICAL SAFETY  
D) TRENCHING & EXCAVATION.
- ALL SITE WORK SHALL BE AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.
- IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES, TOP SOIL AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
- ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION 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.
- CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION.
- THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE AT&T SPECIFICATION FOR SITE SIGNAGE.
- THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE TRANSMISSION EQUIPMENT AND TOWER AREAS.
- 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.
- THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION, SEE SOIL COMPACTION NOTES.
- THE AREAS OF THE OWNER'S PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION.
- EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL JURISDICTION'S GUIDELINES FOR EROSION AND SEDIMENT CONTROL.

**CONCRETE AND REINFORCING STEEL NOTES:**

- ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.
- ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE. A HIGHER STRENGTH (4000 PSI) MAY BE USED. ALL CONCRETING WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.
- REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE (UNO). SPLICES SHALL BE CLASS "B" AND ALL HOOKS SHALL BE STANDARD, UNO.
- THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:  
CONCRETE CAST AGAINST EARTH.....3 IN.  
CONCRETE EXPOSED TO EARTH OR WEATHER:  
#6 AND LARGER .....2 IN.  
#5 AND SMALLER & WWF.....1 1/2 IN.  
CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:  
SLAB AND WALL .....3/4 IN.  
BEAMS AND COLUMNS.....1 1/2 IN.
- A CHAMFER 3/4" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNO, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.
- INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR, SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR CONTRACTOR APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN 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.
- CONCRETE CYLINDER TEST IS NOT REQUIRED FOR SLAB ON GRADE WHEN CONCRETE IS LESS THAN 50 CUBIC YARDS (ISC 1905.6.2.3) IN THAT EVENT THE FOLLOWING RECORDS SHALL BE PROVIDED BY THE CONCRETE SUPPLIER;  
(A) RESULTS OF CONCRETE CYLINDER TESTS PERFORMED AT THE SUPPLIER'S PLANT.  
(B) CERTIFICATION OF MINIMUM COMPRESSIVE STRENGTH FOR THE CONCRETE GRADE SUPPLIED.  
FOR GREATER THAN 50 CUBIC YARDS THE GC SHALL PERFORM THE CONCRETE CYLINDER TEST.
- AS AN ALTERNATIVE TO ITEM 7, TEST CYLINDERS SHALL BE TAKEN INITIALLY AND THEREAFTER FOR EVERY 50 YARDS OF CONCRETE FROM EACH DIFFERENT BATCH PLANT.
- EQUIPMENT SHALL NOT BE PLACED ON NEW PADS FOR SEVEN DAYS AFTER PAD IS POURED, UNLESS IT IS VERIFIED BY CYLINDER TESTS THAT COMPRESSIVE STRENGTH HAS BEEN ATTAINED.

**STRUCTURAL STEEL NOTES:**

- ALL STEEL WORK SHALL BE PAINTED OR GALVANIZED IN ACCORDANCE WITH THE DRAWINGS UNLESS NOTED OTHERWISE. STRUCTURAL STEEL SHALL BE ASTM-A-36 UNLESS OTHERWISE NOTED ON THE SITE SPECIFIC DRAWINGS. STEEL DESIGN, INSTALLATION AND BOLTING SHALL BE PERFORMED IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "MANUAL OF STEEL CONSTRUCTION".
- ALL WELDING SHALL BE PERFORMED USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION". PAINTED SURFACES SHALL BE TOUCHED UP.
- BOLTED CONNECTIONS SHALL BE ASTM A325 BEARING TYPE (3/4") CONNECTIONS AND SHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE.
- NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE 5/8" DIA. ASTM A 307 BOLTS UNLESS NOTED OTHERWISE.
- INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR, SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR CONTRACTOR APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS. ALL EXPANSION/WEDGE ANCHORS SHALL BE STAINLESS STEEL OR HOT DIPPED GALVANIZED. EXPANSION BOLTS SHALL BE PROVIDED BY RAMSET/REDHEAD OR APPROVED EQUAL.
- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ENGINEER REVIEW & APPROVAL ON PROJECTS REQUIRING STRUCTURAL STEEL.
- ALL STRUCTURAL STEEL WORK SHALL BE DONE IN ACCORDANCE WITH AISC SPECIFICATIONS.

**SOIL COMPACTION NOTES FOR SLAB ON GRADE:**

- EXCAVATE AS REQUIRED TO REMOVE TOPSOIL TO EXPOSE UNDISTURBED NATURAL SUBGRADE AND PLACE CRUSHED STONE AS REQUIRED.
- COMPACTION CERTIFICATION: AN INSPECTION AND WRITTEN CERTIFICATION BY A QUALIFIED GEOTECHNICAL TECHNICIAN OR ENGINEER IS ACCEPTABLE. CONTACT DEWBERRY DURING CONSTRUCTION.
- AS AN ALTERNATIVE TO INSPECTION AND WRITTEN CERTIFICATION, THE "UNDISTURBED SOIL" BASE SHALL BE COMPACTED WITH "COMPACTION EQUIPMENT", LISTED BELOW, TO AT LEAST 90% MODIFIED PROCTOR MAXIMUM DENSITY PER ASTM D 1557 METHOD C.
- 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.
- AS AN ALTERNATIVE TO ITEMS 2 AND 3 PROOFROLL THE SUBGRADE SOILS WITH 5 PASSES OF A MEDIUM SIZED VIBRATORY PLATE COMPACTOR (SUCH AS BOMAG BPR 30/38) OR HAND-OPERATED SINGLE DRUM VIBRATORY ROLLER (SUCH AS BOMAG BW 55E). ANY SOFT AREAS THAT ARE ENCOUNTERED SHOULD BE REMOVED AND REPLACED WITH A WELL-GRADED GRANULAR FILL, AND COMPACTED AS STATED ABOVE.

**COMPACTION EQUIPMENT:**

- HAND OPERATED DOUBLE DRUM, VIBRATORY ROLLER, VIBRATORY PLATE COMPACTOR OR JUMPING JACK COMPACTOR.

**CONSTRUCTION NOTES:**

- FIELD VERIFICATION: CONTRACTOR SHALL FIELD VERIFY SCOPE OF WORK, AT&T ANTENNA PLATFORM LOCATION AND ANTENNAS TO BE REPLACED.
- COORDINATION OF WORK: CONTRACTOR SHALL COORDINATE RF WORK AND PROCEDURES WITH PROJECT MANAGEMENT.
- CABLE LADDER RACK: CONTRACTOR SHALL FURNISH AND INSTALL CABLE LADDER RACK, CABLE TRAY, AND CONDUIT AS REQUIRED TO SUPPORT CABLES TO THE NEW BITS LOCATION.

**ELECTRICAL INSTALLATION NOTES:**

- ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE LOCAL CODES.
- CONTRACTOR SHALL MODIFY EXISTING CABLE TRAY SYSTEM AS REQUIRED TO SUPPORT RF AND TRANSPORT CABLEING TO THE NEW BITS EQUIPMENT. CONTRACTOR SHALL SUBMIT MODIFICATIONS TO PROJECT MANAGEMENT FOR APPROVAL.
- CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.
- WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC AND TELCORDIA.
- ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC AND TELCORDIA.
- CABLES SHALL NOT BE ROUTED THROUGH LADDER-STYLE CABLE TRAY RUNGS.
- EACH END OF EVERY POWER, POWER PHASE CONDUCTOR (I.E., HOTS), GROUNDING, AND T1 CONDUCTOR AND CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2 INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC & OSHA, AND MATCH EXISTING INSTALLATION REQUIREMENTS.
- ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS. ALL EQUIPMENT SHALL BE LABELED WITH THEIR VOLTAGE RATING, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING, AND BRANCH CIRCUIT ID NUMBERS (I.E., PANELBOARD AND CIRCUIT ID'S).
- PANELBOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS.
- ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
- POWER, CONTROL, AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE CONDUCTOR (SIZE 14 AWG OR LARGER), 600V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.
- POWER PHASE CONDUCTORS (I.E., HOTS) SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2 INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL.) PHASE CONDUCTOR COLOR CODES SHALL CONFORM WITH THE NEC & OSHA AND MATCH EXISTING INSTALLATION REQUIREMENTS.
- SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE CONDUCTOR (SIZE 6 AWG OR LARGER), 600V, OIL RESISTANT THHN OR THWN-2 GREEN INSULATION, CLASS B STRANDED COPPER CABLE RATED FOR 90°C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.
- SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED OUTDOORS, OR BELOW GRADE, SHALL BE SINGLE CONDUCTOR #2 AWG SOLID TINNED COPPER CABLE, UNLESS OTHERWISE SPECIFIED.
- POWER AND CONTROL WIRING, NOT IN TUBING OR CONDUIT, SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (SIZE 14 AWG OR LARGER), 600V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90°C (WET AND DRY) OPERATION; WITH OUTER JACKET; LISTED OR LABELED FOR THE LOCATION USED, UNLESS OTHERWISE SPECIFIED.
- ALL POWER AND POWER GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRENUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRENUTS SHALL BE RATED FOR OPERATION AT NO LESS THAN 75°C (90°C IF AVAILABLE).
- RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANS/IEEE, AND NEC.
- NEW RACEWAY OR CABLE TRAY WILL MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.
- ELECTRICAL METALLIC TUBING (EMT) OR RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40, OR RIGID PVC SCHEDULE 80 FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
- ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NONMETALLIC TUBING (ENT), OR RIGID NONMETALLIC CONDUIT (RIGID PVC, SCHEDULE 40) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
- GALVANIZED STEEL INTERMEDIATE METALLIC CONDUIT (IMC) SHALL BE USED FOR OUTDOOR LOCATIONS ABOVE GRADE.
- 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.
- LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
- CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SETSCREW FITTINGS ARE NOT ACCEPTABLE.
- CABINETS, BOXES, AND WIREWAYS SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANS/IEEE, AND NEC.
- CABINETS, BOXES, AND WIREWAYS TO MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.
- WIREWAYS SHALL BE EPOXY-COATED (GRAY) AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARD; SHALL BE PANDUIT TYPE E (OR EQUAL); AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.
- EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES, AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL, SHALL MEET OR EXCEED UL 50, AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.
- METAL RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED, OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
- NONMETALLIC RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
- THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM PROJECT MANAGEMENT BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
- THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD AGAINST LIFE AND PROPERTY.

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**GREENWICH - KING STREET**  
**SITE NO. CT2347 2C/3C/4C**

1323 KING STREET  
GREENWICH, CT 06831

**at&t**  
Mobility  
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SUITE 3A  
ROCKY HILL, CT 06067

2	02/03/21	FOR CONSTRUCTION	JG	DAS	BBR
1	09/09/19	FOR CONSTRUCTION	CDH	DAS	BBR
0	04/13/18	FOR CONSTRUCTION	JCM	DAS	BBR
A	02/09/18	FOR REVIEW	JCM	DAS	BBR
NO.	DATE	REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN		DESIGNED BY: JCM	DRAWN BY: JCM		

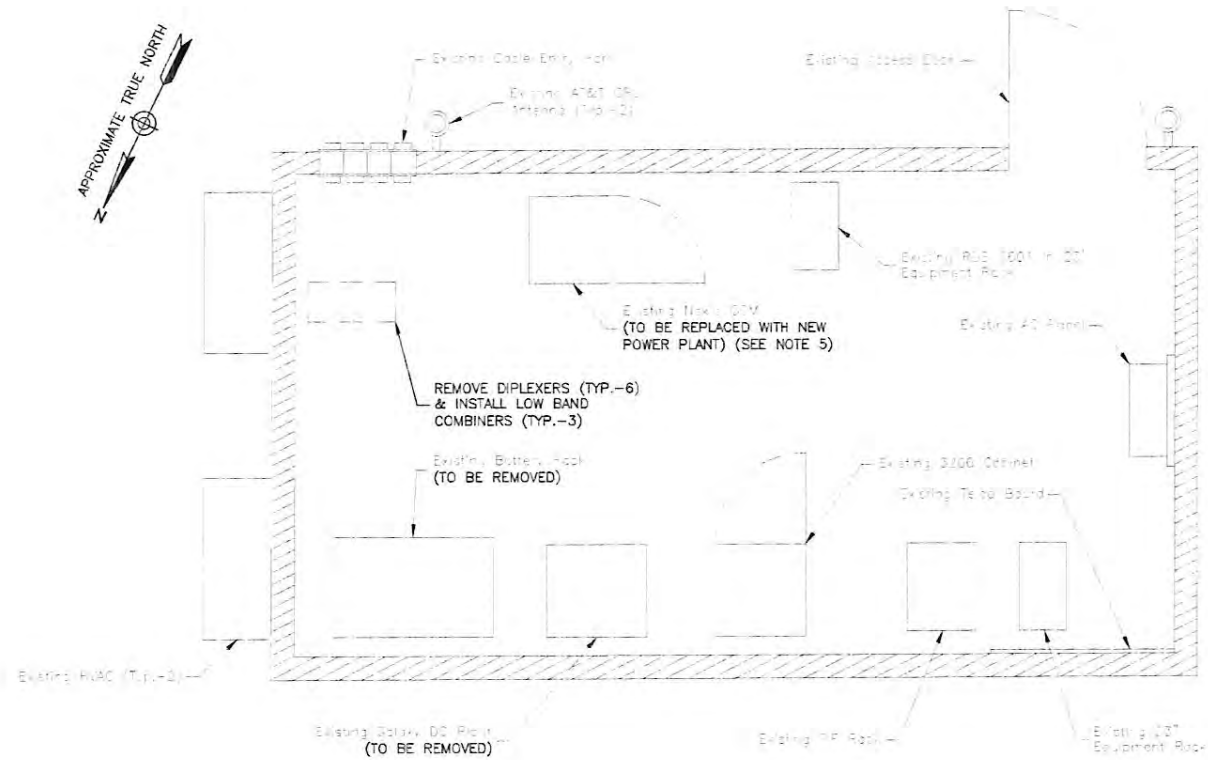
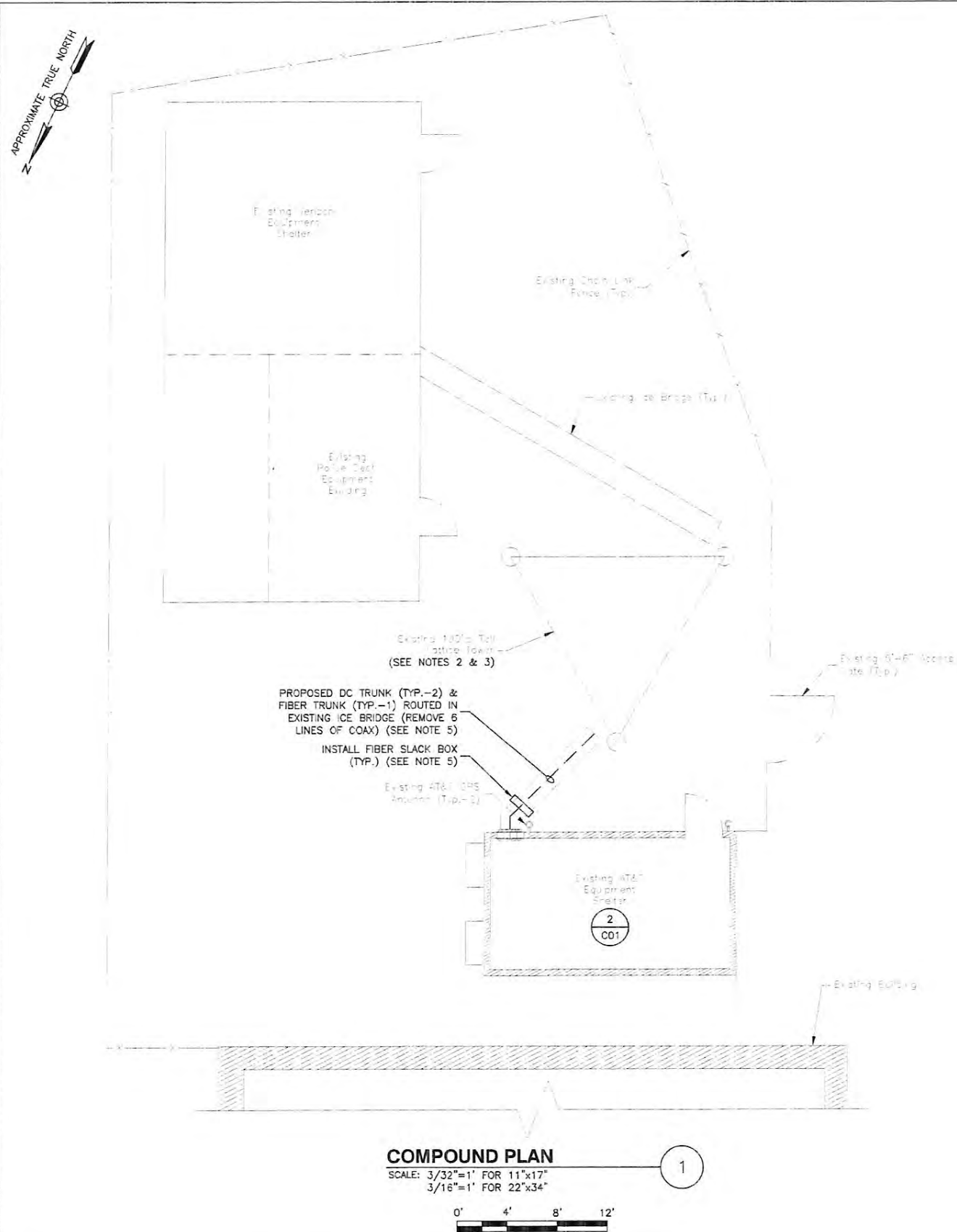


AT&T MOBILITY  
FRAMINGHAM, MA 01701

**GENERAL NOTES**

DEWBERRY NO.	DRAWING NUMBER	REV
50122947/50122961	G01	2





**EQUIPMENT SHELTER PLAN** 2  
 SCALE: 1/4"=1' FOR 11"x17"  
 1/2"=1' FOR 22"x34"



- NOTES:**
- NORTH ARROW SHOWN AS APPROXIMATE.
  - ALL PROPOSED EQUIPMENT SHALL BE MOUNTED IN ACCORDANCE WITH THE MOUNT ANALYSIS BY HUDSON DESIGN GROUP LLC DATED 12-08-20.
  - ALL EQUIPMENT TO BE INSTALLED IN ACCORDANCE WITH THE TOWER STRUCTURAL ANALYSIS REPORT BY CENTEK ENGINEERING DATED 11-12-20.
  - NOT ALL INFORMATION SHOWN FOR CLARITY.
  - EQUIPMENT MODIFICATION SCOPE  
 TOP - REMOVE (3) EXISTING UMTS 7770 ANTENNAS FROM POSITION 1. REPLACE (3) EXISTING LTE P65-XLH ANTENNAS AT POSITION 2 WITH (3) 6' HEX-FORT ANTENNAS IN POSITION 1. REPLACE (3) EXISTING GSM ANTENNAS AT POSITION 3 WITH (3) 6' QUINTEL ANTENNAS. REMOVE (6) EXISTING TMAS. REPLACE (3) EXISTING RRU-11 WITH (3) RRU 4449 B5/B12. ADD (3) RRU-32 B30 & (3) RRU 8843 B2/B56A. ADD (1) SQUID, (1) FIBER CABLE, (2) DC CABLES, SWAP DIPLEXERS WITH LOW BAND COMBINERS (3) ON TOP. REMOVING (6) LINES OF COAX ALSO.  
 BOTTOM - SWAP BS FOR RBS 5216, ADD XMU.  
 POWER - SWAP GSM CABINET FOR NEW PLANT.

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**GREENWICH - KING STREET**  
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**at&t**  
 Mobility  
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NO.	DATE	REVISIONS	BY	CHK	APP'D
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A	02/09/18	FOR REVIEW	JCM	DAS	BBR

SCALE: AS SHOWN    DESIGNED BY: JCM    DRAWN BY: JCM



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 FRAMINGHAM, MA 01701

COMPOUND & EQUIPMENT LAYOUT

DEWBERRY NO.	DRAWING NUMBER	REV
50122947/50122961	C01	2



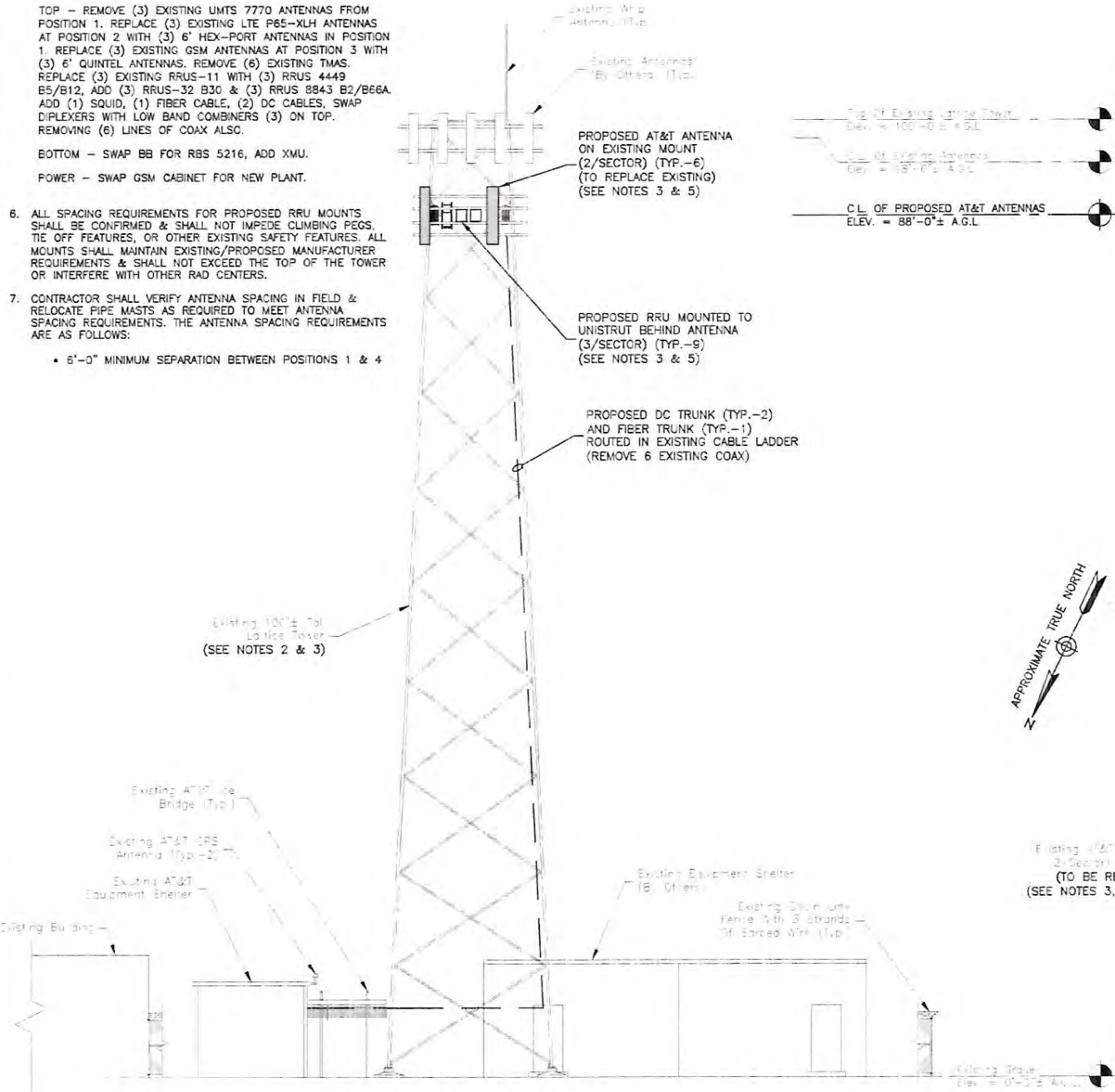
**NOTES:**

1. NORTH ARROW SHOWN AS APPROXIMATE.
2. ALL PROPOSED EQUIPMENT INCLUDING SHALL BE MOUNTED IN ACCORDANCE WITH THE MOUNT ANALYSIS BY HUDSON DESIGN GROUP LLC DATED 12-08-20.
3. ALL EQUIPMENT TO BE INSTALLED IN ACCORDANCE WITH THE TOWER STRUCTURAL ANALYSIS REPORT BY CENTEK ENGINEERING DATED 11-12-20.
4. NOT ALL INFORMATION SHOWN FOR CLARITY.
5. EQUIPMENT MODIFICATION SCOPE

TOP - REMOVE (3) EXISTING UMS 7770 ANTENNAS FROM POSITION 1. REPLACE (3) EXISTING LTE P65-XLH ANTENNAS AT POSITION 2 WITH (3) 6' HEX-PORT ANTENNAS IN POSITION 1. REPLACE (3) EXISTING GSM ANTENNAS AT POSITION 3 WITH (3) 6' QUINTEL ANTENNAS. REMOVE (6) EXISTING TMAS. REPLACE (3) EXISTING RRU-11 WITH (3) RRU 4449 B5/B12. ADD (3) RRU-32 B30 & (3) RRU 8843 B2/B66A. ADD (1) SQUID, (1) FIBER CABLE, (2) DC CABLES, SWAP DIPLEXERS WITH LOW BAND COMBINERS (3) ON TOP. REMOVING (6) LINES OF COAX ALSO.

BOTTOM - SWAP BB FOR RBS 5216, ADD XMU.  
POWER - SWAP GSM CABINET FOR NEW PLANT.

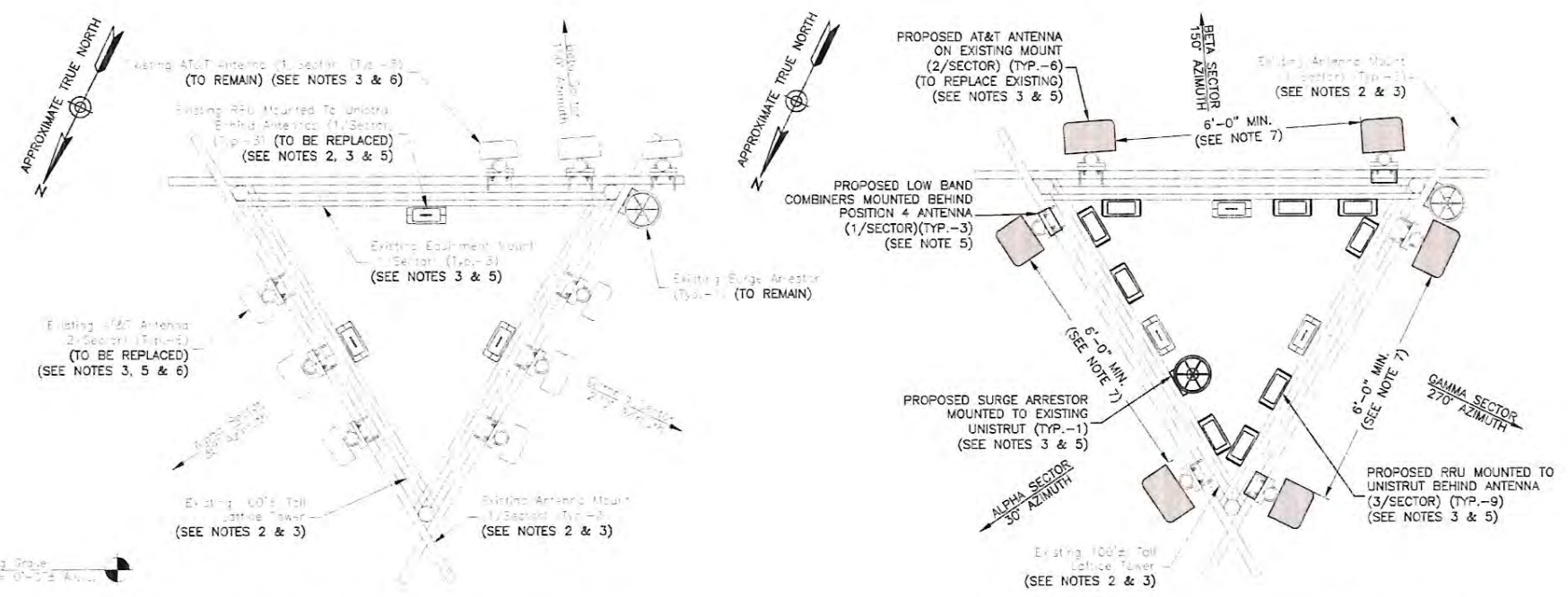
6. ALL SPACING REQUIREMENTS FOR PROPOSED RRU MOUNTS SHALL BE CONFIRMED & SHALL NOT IMPEDE CLIMBING PEGS, TIE OFF FEATURES, OR OTHER EXISTING SAFETY FEATURES. ALL MOUNTS SHALL MAINTAIN EXISTING/PROPOSED MANUFACTURER REQUIREMENTS & SHALL NOT EXCEED THE TOP OF THE TOWER OR INTERFERE WITH OTHER RAD CENTERS.
7. CONTRACTOR SHALL VERIFY ANTENNA SPACING IN FIELD & RELOCATE PIPE MASTS AS REQUIRED TO MEET ANTENNA SPACING REQUIREMENTS. THE ANTENNA SPACING REQUIREMENTS ARE AS FOLLOWS:
  - 6'-0" MINIMUM SEPARATION BETWEEN POSITIONS 1 & 4



**ELEVATION**  
SCALE: 1/32"=1' FOR 11"x17"  
1/16"=1' FOR 22"x34"  
0' 8' 16' 32'  
1

FINAL EQUIPMENT CONFIGURATION										
SECTOR	BAND	ANTENNA	SIZE (INCHES) (LxWxD)	RAD. CENTER	AZIMUTH	TMA	RRU	SIZE (INCHES) (LxWxD)	DC CABLE	FIBER
ALPHA	LTE 700/AWS	(P) CCI HPA-55R-BJU-H6	72.0x14.8x9.0	88±	30°	-	(P) RRU 4449 B5/B12	17.9 x 13.2 x 9.4	-	-
	-	-	-	-	-	-	-	-	-	-
BETA	LTE 1900/WCS	(P) QUINTEL 0566512-2	72.0x12.0x9.6	88±	30°	-	(P) RRU 8843 B2/B66A (P) RRU-32 B30	14.9 x 13.2 x 10.9 27.2 x 12.1 x 7.0	P (2)	P (1)
	-	-	-	-	-	-	-	-	-	-
GAMMA	LTE 700/AWS	(P) CCI HPA-55R-BJU-H6	72.0x14.8x9.0	88±	150°	-	(P) RRU 4449 B5/B12	17.9 x 13.2 x 9.4	-	-
	-	-	-	-	-	-	-	-	-	-
GAMMA	LTE 1900/WCS	(P) QUINTEL 0566512-2	72.0x12.0x9.6	88±	150°	-	(P) RRU 8843 B2/B66A (P) RRU-32 B30	15.0 x 13.2 x 5.4 27.2 x 12.1 x 7.0	P (2)	P (1)
	-	-	-	-	-	-	-	-	-	-
GAMMA	LTE 700/AWS	(P) CCI HPA-55R-BJU-H6	72.0x14.8x9.0	88±	270°	-	(P) RRU 4449 B5/B12	17.9 x 13.2 x 9.4	-	-
	-	-	-	-	-	-	-	-	-	-
GAMMA	LTE 1900/WCS	(P) QUINTEL 0566512-2	72.0x12.0x9.6	88±	270°	-	(P) RRU 8843 B2/B66A (P) RRU-32 B30	15.0 x 13.2 x 5.4 27.2 x 12.1 x 7.0	P (2)	P (1)
	-	-	-	-	-	-	-	-	-	-

**FINAL EQUIPMENT CONFIGURATION**  
SCALE: N.T.S.  
2

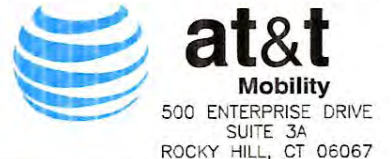


**EXISTING ANTENNA LAYOUT**  
SCALE: N.T.S.  
3

**PROPOSED ANTENNA LAYOUT**  
SCALE: N.T.S.  
4



**GREENWICH - KING STREET**  
SITE NO. CT2347 2C/3C/4C  
1323 KING STREET  
GREENWICH, CT 06831



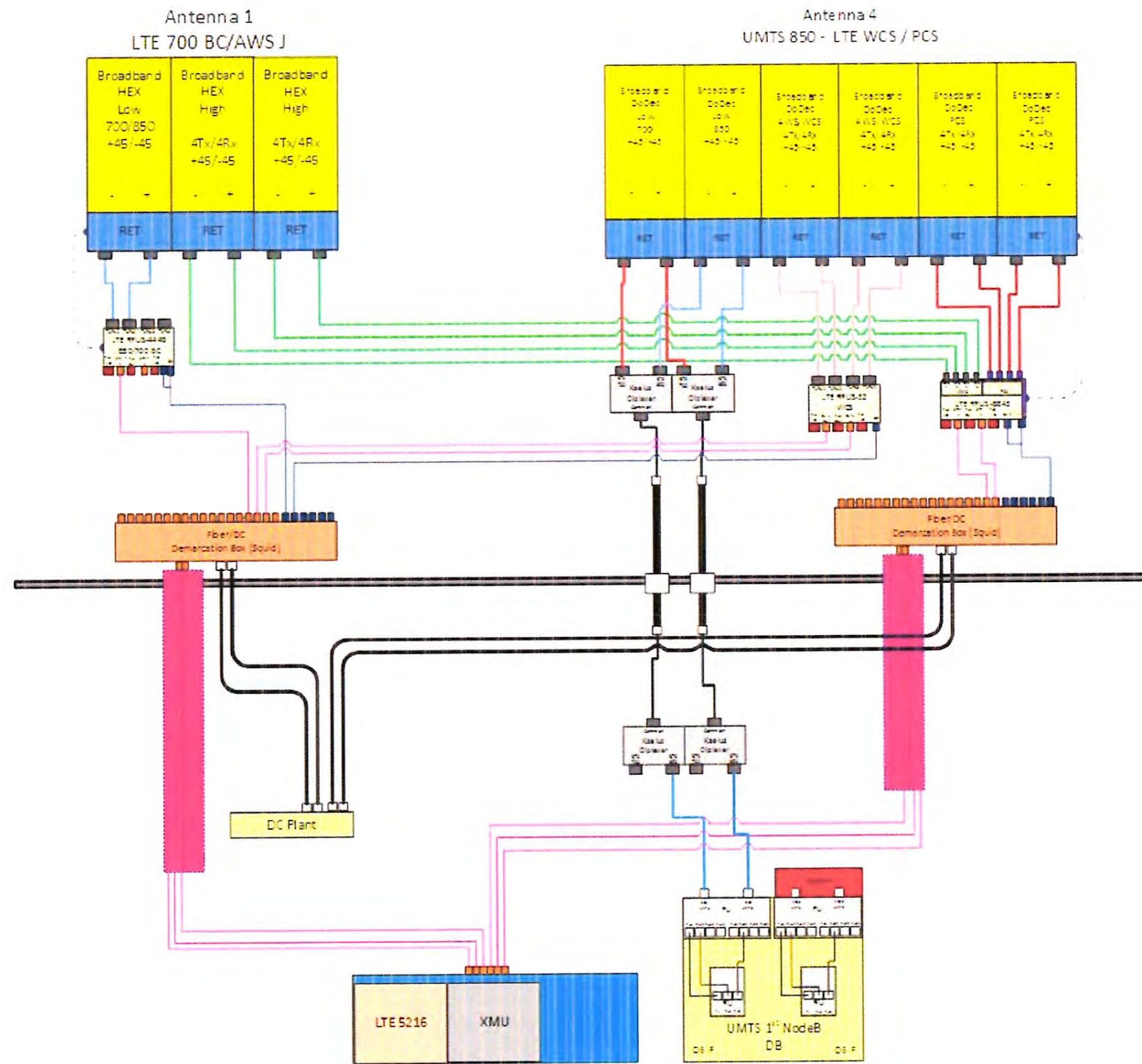
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A	02/09/18	FOR REVIEW	JCM	DAS	BBR

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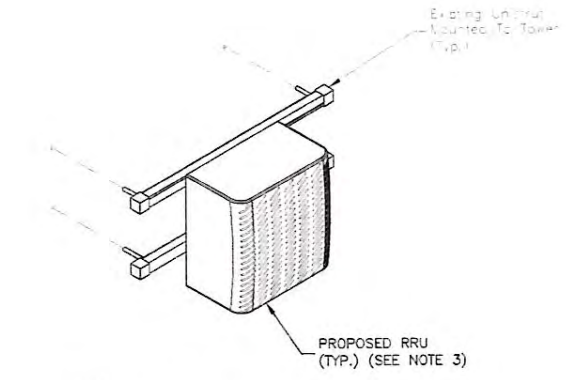


AT&T MOBILITY  
FRAMINGHAM, MA 01701  
ELEVATION & ANTENNA LAYOUT  
DEWBERRY NO. 50122947/50122961  
DRAWING NUMBER C02  
REV 2



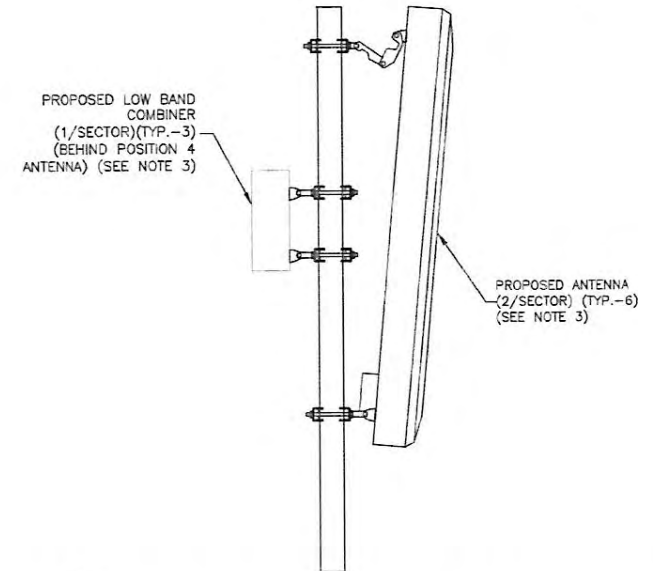


**EQUIPMENT PLUMBING DIAGRAM**  
SCALE: N.T.S.



- NOTES:**
1. INSTALL ALL EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS. USE APPROPRIATE MOUNTING HARDWARE FOR CONSTRUCTION TYPE.
  2. DETAIL IS SCHEMATIC. MOUNT SQUID IN SIMILAR FASHION.
  3. ALL PROPOSED EQUIPMENT INCLUDING SHALL BE MOUNTED IN ACCORDANCE WITH THE MOUNT ANALYSIS BY HUDSON DESIGN GROUP LLC DATED 12-08-20.

**REMOTE ATTACHMENT DETAIL**  
SCALE: N.T.S.



- NOTE:**
1. FIELD VERIFY CONDITION OF EXISTING MOUNTING HARDWARE. REPAIR OR REPLACE AS REQUIRED.
  2. REFER TO LATEST RF DATA SHEET FOR SPECIFIC ANTENNA SETTINGS & MODEL.
  3. ALL PROPOSED EQUIPMENT INCLUDING SHALL BE MOUNTED IN ACCORDANCE WITH THE MOUNT ANALYSIS BY HUDSON DESIGN GROUP LLC DATED 12-08-20.

**ANTENNA MOUNT DETAIL**  
SCALE: N.T.S.

- NOTES:**
1. EQUIPMENT PLUMBING DIAGRAM PER RFDS VERSION 2.00 DATED 12/03/20.
  2. CONTRACTOR TO VERIFY FINAL EQUIPMENT CONFIGURATION AND OPERATIONS WITH AT&T PRIOR TO CONSTRUCTION.

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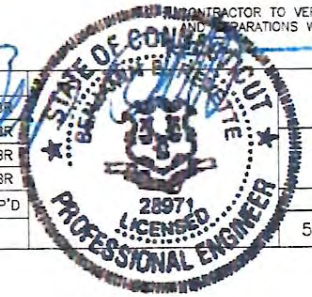
**SAI**  
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**GREENWICH - KING STREET**  
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SCALE: AS SHOWN    DESIGNED BY: JCM    DRAWN BY: JCM



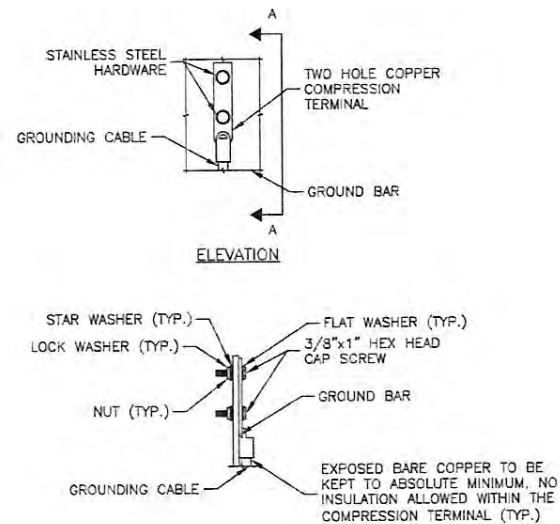
AT&T MOBILITY  
FRAMINGHAM, MA 01701  
EQUIPMENT PLUMBING DIAGRAM  
& CONSTRUCTION DETAILS

DEWBERRY NO.	DRAWING NUMBER	REV
50122947/50122961	C03	2



**GROUNDING NOTES:**

- THE CONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ). THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE CONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.
- ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS. ALL AVAILABLE GROUNDING ELECTRODES SHALL BE CONNECTED TOGETHER IN ACCORDANCE WITH THE NEC.
- THE CONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS. USE OF OTHER METHODS MUST BE PRE-APPROVED BY CONTRACTOR IN WRITING.
- THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS ON TOWER SITES AND 10 OHMS OR LESS ON ROOFTOP SITES. WHEN ADDING ELECTRODES, CONTRACTOR SHALL MAINTAIN A MINIMUM DISTANCE BETWEEN THE ADDED ELECTRODE AND ANY OTHER EXISTING ELECTRODE EQUAL TO THE BURIED LENGTH OF THE ROD. IDEALLY, CONTRACTOR SHALL STRIVE TO KEEP THE SEPARATION DISTANCE EQUAL TO TWICE THE BURIED LENGTH OF THE RODS.
- THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT.
- METAL CONDUIT AND TRAY SHALL BE GROUNDING AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWG COPPER WIRE AND UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
- METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO TRANSMISSION EQUIPMENT.
- CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED. BACK-TO-BACK CONNECTIONS ON OPPOSITE SIDES OF THE GROUND BUS ARE PERMITTED.
- ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
- USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED. IN ALL CASES, BENDS SHALL BE MADE WITH A MINIMUM BEND RADIUS OF 8 INCHES.
- EACH INTERIOR TRANSMISSION CABINET FRAME/PUNTH 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/PUNTH SHALL BE DIRECTLY CONNECTED TO THE BURIED GROUND RING WITH 2 AWG SOLID TIN-PLATED COPPER WIRE UNLESS NOTED OTHERWISE IN THE DETAILS.
- ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING, SHALL BE 2 AWG SOLID TIN-PLATED COPPER UNLESS OTHERWISE INDICATED.
- 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 SA COMMUNICATIONS MARKET REPRESENTATIVE.
- EXOTHERMIC WELDS SHALL BE PERMITTED ON TOWERS ONLY WITH THE EXPRESS APPROVAL OF THE TOWER MANUFACTURER OR THE CONTRACTOR'S STRUCTURAL ENGINEER.
- ALL WIRE TO WIRE GROUND CONNECTIONS TO THE INTERIOR GROUND RING SHALL BE FORMED USING HIGH PRESS CRIMPS OR SPLIT BOLT CONNECTORS WHERE INDICATED IN THE DETAILS.
- ON ROOFTOP SITES WHERE EXOTHERMIC WELDS ARE A FIRE HAZARD COPPER COMPRESSION CAP CONNECTORS MAY BE USED FOR WIRE TO WIRE CONNECTIONS. 2 HOLE MECHANICAL TYPE BRASS CONNECTORS WITH STAINLESS STEEL HARDWARE, INCLUDING SET SCREWS SHALL BE USED FOR CONNECTION TO ALL ROOFTOP TRANSMISSION EQUIPMENT AND STRUCTURAL STEEL.
- COAX BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR USING TWO-HOLE MECHANICAL TYPE BRASS CONNECTORS AND STAINLESS STEEL HARDWARE.
- APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
- ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
- MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
- 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.
- GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G., NON-METALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT WITH LISTED BONDING FITTINGS.



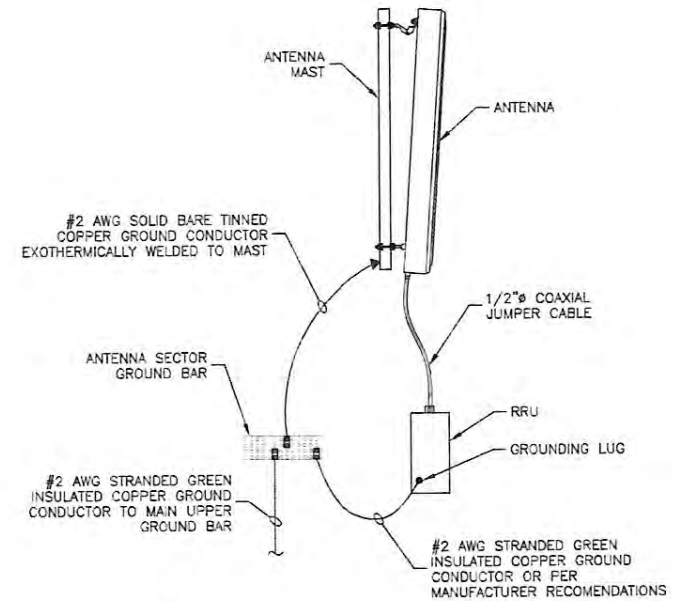
**NOTES:**

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

**TYPICAL GROUND BAR MECHANICAL CONNECTION DETAIL**

SCALE: N.T.S.

1



**NOTES:**

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

**TYPICAL ANTENNA/RRU GROUNDING DETAIL**

SCALE: N.T.S.

2



**GREENWICH - KING STREET  
SITE NO. CT2347 2C/3C/4C**

1323 KING STREET  
GREENWICH, CT 06831



**at&t  
Mobility**

500 ENTERPRISE DRIVE  
SUITE 3A  
ROCKY HILL, CT 06067

2	02/03/21	FOR CONSTRUCTION	JG	DAS	BBR
1	09/09/19	FOR CONSTRUCTION	CDH	DAS	BBR
0	04/13/18	FOR CONSTRUCTION	JCM	DAS	BBR
A	02/09/18	FOR REVIEW	JCM	DAS	BBR
NO.	DATE	REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN		DESIGNED BY: JCM	DRAWN BY: JCM		



AT&T MOBILITY  
FRAMINGHAM, MA 01701

GROUNDING NOTES & DETAILS

DEWBERRY NO.	DRAWING NUMBER	REV
50122947/50122961	E01	2



**Report Date:** November 12, 2020

**Client:** Wireless Edge  
6369 Mill Street, Suite 202  
Rhinebeck, NY 12572  
Attn: Malcolm Worthington  
(914) 712-0000  
Worthington@wirelessege.com

**Structure:** Existing 100-ft Self Support Tower

**Site Name:** Greenwich

**Site Reference #:** WEC-CT-Greenwich

**Site Address:** 1323 King St

**City, County, State:** Greenwich, Fairfield County, CT

**Latitude, Longitude:** 41.07425°, -73.697222°

**PJF Project:** A00020-0092.002.8700

Paul J. Ford and Company is pleased to submit this "Structural Analysis Report" to determine the tower stress level.

**Analysis Criteria:**

This analysis utilizes an ultimate 3-second gust wind speed of 120 mph (converted to an equivalent 93 mph nominal 3-second gust wind speed per Section 1609.3.1 for use with TIA-222 G) as required by the 2018 Connecticut State Building Code and Appendix N. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

**Proposed Appurtenance Loads:**

The structure was analyzed with the proposed loading configuration shown in Table 1 combined with the other considered equipment shown in Table 2 of this report.

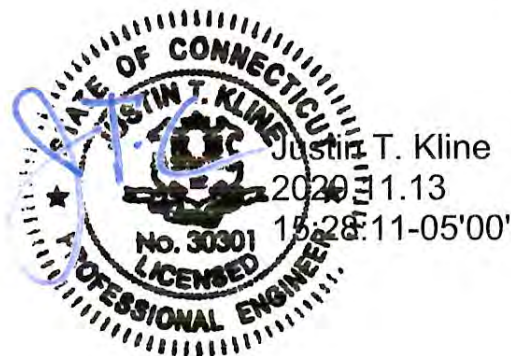
**Summary of Analysis Results:**

Existing Structure: Pass – 62.8%  
Existing Foundation: Pass – 31.9%

We at Paul J. Ford and Company appreciate the opportunity of providing our continuing professional services to you and Wireless Edge. If you have any questions or need further assistance on this or any other projects, please give us a call.

Respectfully Submitted by:  
Paul J. Ford and Company

  
Christina Hedges, PE  
Project Manager  
chedges@pauljford.com  
SFM





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**1) INTRODUCTION**

This tower is a 100 ft Self Support tower designed by Rohn in April 1993.

**2) ANALYSIS CRITERIA**

TIA-222 Revision: TIA-222-G  
 Risk Category: II  
 Wind Speed: 93 mph  
 Exposure Category: C  
 Topographic Factor: 1  
 Ice Thickness: 0.75 in  
 Wind Speed with Ice: 50 mph  
 Service Wind Speed: 60 mph

**Table 1 - Proposed Equipment Configuration**

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Carrier
90.0	90.0	3	cci antennas	HPA-65R-BUU-H6 w/ Mount Pipe	6 2 4	1 5/8 fiber power	AT&T
		3	quintel technology	QS66512-2 w/ Mount Pipe			
		3	ericsson	RRUS 4449 B5/B12			
		3	ericsson	RRUS 8843 B2/B66A			
		3	ericsson	RRUS-32 B30			
		3	kaelus	DBC0061F1V51-1			
		2	raycap	DC6-48-60-18-8C			
		3	tower mounts	12' T-Frame Mount			

**Table 1 - Other Considered Equipment**

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Carrier
100.0	104.0	1	miscl	8' x 3.5" Whip	1	7/8	Municipal
98.0	98.0	2	alcatel lucent	RRH2X40-AWS	12 1	7/8 1 5/8 Hybrid	Verizon
		2	alcatel lucent	RRH2X60-PCS			
		4	andrew	CBC78-DF			
		4	andrew	DB844H90E-XY w/ Mount Pipe			
		4	andrew	HBXX-6516DS-A2M w/ Mount Pipe			
		2	kathrein	800 10734 w/ Mount Pipe			
		1	rfs celwave	DB-T1-6Z-8AB-0Z			
84.0	84.0	3	tower mounts	12' T-Frame Mount	1	EW90	Unknown
		1	microwave dishes	4 ft standard			



Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Carrier
78.0	78.0	1	ceragon	FIBEAIR IP-20C_HP	3 1 1	1 1/4 Hybrid 1/2" Cat5e 1/3" Power	Sprint
		3	commscope	NNVV-65B-R4_TIA w/ Mount Pipe			
		3	commscope	TTTT65AP-1XR_TIA w/ Mount Pipe			
		3	nokia	AHCC			
		3	nokia	AHFIB			
		3	nokia	AZHL			
		1	ifs celwave	SB2-W100BD			
3	tower mounts	12' T-Frame Mount					
70.0	70.0	1	microwave dishes	4 ft standard	1	EW90	Unknown

### 3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference
Tower and Foundation Drawings	Rohn, 4/23/93	29307JC/B931633R1
Geotechnical Report	Clarence Welti, 4/2/93	-

#### 3.1) Analysis Method

tnxTower (version 8.0.7.5), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

#### 3.2) Assumptions

- 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 Tables 1 and 2 and the referenced drawings.
- 4) Coax in quantities of (12) assumed to be placed in rows of two. See App B for layout.

This analysis may be affected if any assumptions are not valid or have been made in error. Paul J. Ford and Company should be notified to determine the effect on the structural integrity of the tower.

### 4) ANALYSIS RESULTS

Table 3 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T1	100 - 80	Leg	Pipe 2.875" x 0.203" (2.5 STD)	1	-8.93	46.52	19.2	Pass
T2	80 - 60	Leg	Pipe 3.5" x 0.216" (3 STD)	40	-33.74	71.91	46.9	Pass
T3	60 - 40	Leg	Pipe 4" x 0.226" (3.5 STD)	79	-58.37	93.72	62.3	Pass
T4	40 - 20	Leg	Pipe 4.5" x 0.337" (4 XS)	118	-76.65	122.11	62.8	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail	
T5	20 - 0	Leg	Pipe 5.5" x 0.375" (5 EH)	145	-96.18	197.17	48.8	Pass	
T1	100 - 80	Diagonal	Pipe 2.375" x 0.154" (2 STD)	9	-4.74	18.17	26.1	Pass	
T2	80 - 60	Diagonal	Pipe 2.375" x 0.154" (2 STD)	45	-6.43	15.63	41.2	Pass	
T3	60 - 40	Diagonal	Pipe 2.375" x 0.154" (2 STD)	84	-5.96	13.36	44.6	Pass	
T4	40 - 20	Diagonal	Pipe 2.875" x 0.203" (2.5 STD)	123	-6.89	16.18	42.6	Pass	
T5	20 - 0	Diagonal	Pipe 2.875" x 0.203" (2.5 STD)	150	-6.40	14.35	44.6	Pass	
T1	100 - 80	Horizontal	Pipe 1.9" x 0.145" (1.5 STD)	7	-2.55	22.56	11.3	Pass	
T2	80 - 60	Horizontal	Pipe 1.9" x 0.145" (1.5 STD)	43	-4.00	19.18	20.8	Pass	
T3	60 - 40	Horizontal	Pipe 2.375" x 0.154" (2 STD)	82	-4.06	27.23	14.9 16.6 (b)	Pass	
T4	40 - 20	Horizontal	Pipe 2.375" x 0.154" (2 STD)	121	-4.02	22.51	17.9	Pass	
T5	20 - 0	Horizontal	Pipe 2.375" x 0.154" (2 STD)	148	-4.07	16.84	24.2	Pass	
T1	100 - 80	Top Girt	Pipe 1.9" x 0.145" (1.5 STD)	4	-0.73	22.63	3.2	Pass	
T1	100 - 80	Inner Bracing	L 2 x 2 x 1/8	17	-0.00	6.53	0.5	Pass	
T2	80 - 60	Inner Bracing	L 2 x 2 x 1/8	53	-0.00	4.88	0.6	Pass	
T3	60 - 40	Inner Bracing	L 2 x 2 x 1/8	91	-0.01	3.36	0.6	Pass	
T4	40 - 20	Inner Bracing	L 2 x 2 x 1/8	130	-0.01	2.53	0.7	Pass	
T5	20 - 0	Inner Bracing	L 2.5 x 2.5 x 3/16	159	-0.01	5.28	0.5	Pass	
							Summary		
							Leg (T4)	62.8	Pass
							Diagonal (T3)	44.6	Pass
							Horizontal (T5)	24.2	Pass
							Top Girt (T1)	3.2	Pass
							Inner Bracing (T4)	0.7	Pass
							Bolt Checks	37.5	Pass
							Rating =	62.8	Pass

**Table 5 - Tower Component Stresses vs. Capacity**

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
	Anchor Rods		37.5	Pass
	Base Foundation		17.8	Pass
	Base Foundation Soil Interaction		31.9	Pass

<b>Structure Rating (max from all components) =</b>	<b>62.8%</b>
---	--------------

Notes:

- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.



**APPENDIX A**  
**TNXTOWER OUTPUT**





## Tower Input Data

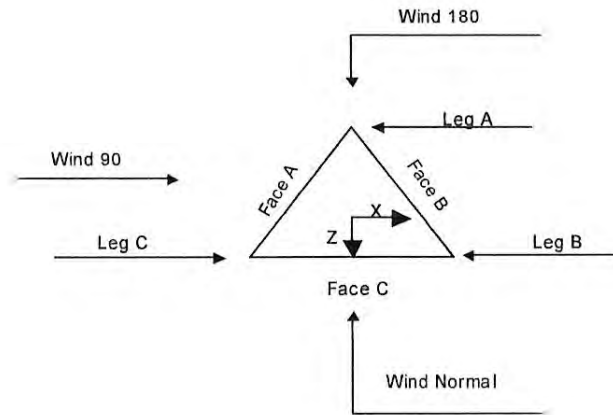
The main tower is a 3x free standing tower with an overall height of 100.00 ft above the ground line.  
 The base of the tower is set at an elevation of 0.00 ft above the ground line.  
 The face width of the tower is 8.50 ft at the top and 17.46 ft at the base.  
 This tower is designed using the TIA-222-G standard.

The following design criteria apply:

- 5) Tower is located in Fairfield County, Connecticut.
- 6) ASCE 7-10 Wind Data is used (wind speeds converted to nominal values).
- 7) Basic wind speed of 93.0 mph.
- 8) Structure Class II.
- 9) Exposure Category C.
- 10) Topographic Category 1.
- 11) Crest Height 0.00 ft.
- 12) Nominal ice thickness of 0.75 in.
- 13) Ice thickness is considered to increase with height.
- 14) Ice density of 56 pcf.
- 15) A wind speed of 50.0 mph is used in combination with ice.
- 16) Deflections calculated using a wind speed of 60.0 mph.
- 17) Pressures are calculated at each section.
- 18) Stress ratio used in tower member design is 1.
- 19) Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

## Options

- |  |   |  |
|--|---|--|
| <ul style="list-style-type: none"> <li>Consider Moments - Legs</li> <li>Consider Moments - Horizontals</li> <li>Consider Moments - Diagonals</li> <li>Use Moment Magnification</li> <li>√ Use Code Stress Ratios</li> <li>√ Use Code Safety Factors - Guys</li> <li>Escalate Ice</li> <li>Always Use Max Kz</li> <li>Use Special Wind Profile</li> <li>√ Include Bolts In Member Capacity</li> <li>Leg Bolts Are At Top Of Section</li> <li>√ Secondary Horizontal Braces Leg</li> <li>Use Diamond Inner Bracing (4 Sided)</li> <li>SR Members Have Cut Ends</li> <li>SR Members Are Concentric</li> </ul> | <ul style="list-style-type: none"> <li>Distribute Leg Loads As Uniform</li> <li>Assume Legs Pinned</li> <li>Assume Rigid Index Plate</li> <li>Use Clear Spans For Wind Area</li> <li>√ Use Clear Spans For KL/r</li> <li>Retension Guys To Initial Tension</li> <li>√ Bypass Mast Stability Checks</li> <li>Use Azimuth Dish Coefficients</li> <li>√ Project Wind Area of Appurt.</li> <li>Autocalc Torque Arm Areas</li> <li>Add IBC .6D+W Combination</li> <li>√ Sort Capacity Reports By Component</li> <li>Triangulate Diamond Inner Bracing</li> <li>Treat Feed Line Bundles As Cylinder</li> <li>Ignore KL/ry For 60 Deg. Angle Legs</li> </ul> | <ul style="list-style-type: none"> <li>Use ASCE 10 X-Brace Ly Rules</li> <li>√ Calculate Redundant Bracing Forces</li> <li>Ignore Redundant Members in FEA</li> <li>SR Leg Bolts Resist Compression</li> <li>√ All Leg Panels Have Same Allowable</li> <li>Offset Girt At Foundation</li> <li>√ Consider Feed Line Torque</li> <li>√ Include Angle Block Shear Check</li> <li>Use TIA-222-G Bracing Resist.</li> <li>Exemption</li> <li>Use TIA-222-G Tension Splice</li> <li>Exemption</li> <li style="text-align: center;">Poles</li> <li>Include Shear-Torsion Interaction</li> <li>Always Use Sub-Critical Flow</li> <li>Use Top Mounted Sockets</li> <li>Pole Without Linear Attachments</li> <li>Pole With Shroud Or No</li> <li>Appurtenances</li> <li>Outside and Inside Comer Radii Are</li> <li>Known</li> </ul> |
|--|---|--|



**Triangular Tower**

**Tower Section Geometry**

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	100.00-80.00	rohn mmw	B054	8.50	1	20.00
T2	80.00-60.00	rohn mmw	C051	8.54	1	20.00
T3	60.00-40.00	rohn mmw	D060	10.58	1	20.00
T4	40.00-20.00	rohn mmw	E076	12.63	1	20.00
T5	20.00-0.00		F024	14.96	1	20.00

**Tower Section Geometry (cont'd)**

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T1	100.00-80.00	6.53	K Brace Down	No	Yes	5.00	0.00
T2	80.00-60.00	6.53	K Brace Down	No	Yes	5.00	0.00
T3	60.00-40.00	6.53	K Brace Down	No	Yes	5.00	0.00
T4	40.00-20.00	10.00	K Brace Down	No	Yes	0.00	0.00
T5	20.00-0.00	10.00	K Brace Down	No	Yes	0.00	0.00

**Tower Section Geometry (cont'd)**

Tower Elevation	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
ft						
T1 100.00-80.00	Pipe	Pipe 2.875" x 0.203" (2.5 STD)	A618-50 (50 ksi)	Pipe	Pipe 2.375" x 0.154" (2 STD)	A618-50 (50 ksi)
T2 80.00-60.00	Pipe	Pipe 3.5" x 0.216" (3 STD)	A618-50 (50 ksi)	Pipe	Pipe 2.375" x 0.154" (2 STD)	A618-50 (50 ksi)



Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T3 60.00-40.00	Pipe	Pipe 4" x 0.226" (3.5 STD)	A618-50 (50 ksi)	Pipe	Pipe 2.375" x 0.154" (2 STD)	A618-50 (50 ksi)
T4 40.00-20.00	Pipe	Pipe 4.5" x 0.337" (4 XS)	A618-50 (50 ksi)	Pipe	Pipe 2.875" x 0.203" (2.5 STD)	A618-50 (50 ksi)
T5 20.00-0.00	Pipe	Pipe 5.5" x 0.375" (5 EH)	A513-50 (50 ksi)	Pipe	Pipe 2.875" x 0.203" (2.5 STD)	A618-50 (50 ksi)

### Tower Section Geometry (cont'd)

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 100.00-80.00	None	Pipe		A618-50 (50 ksi)	Pipe	Pipe 1.9" x 0.145" (1.5 STD)	A618-50 (50 ksi)
T2 80.00-60.00	None	Pipe		A618-50 (50 ksi)	Pipe	Pipe 1.9" x 0.145" (1.5 STD)	A618-50 (50 ksi)
T3 60.00-40.00	None	Pipe		A618-50 (50 ksi)	Pipe	Pipe 2.375" x 0.154" (2 STD)	A618-50 (50 ksi)
T4 40.00-20.00	None	Pipe		A618-50 (50 ksi)	Pipe	Pipe 2.375" x 0.154" (2 STD)	A618-50 (50 ksi)
T5 20.00-0.00	None	Pipe		A618-50 (50 ksi)	Pipe	Pipe 2.375" x 0.154" (2 STD)	A618-50 (50 ksi)

### Tower Section Geometry (cont'd)

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T1 100.00-80.00	Pipe		A618-50 (50 ksi)	Single Angle	L 2 x 2 x 1/8	A36 (36 ksi)
T2 80.00-60.00	Pipe		A618-50 (50 ksi)	Single Angle	L 2 x 2 x 1/8	A36 (36 ksi)
T3 60.00-40.00	Pipe		A618-50 (50 ksi)	Single Angle	L 2 x 2 x 1/8	A36 (36 ksi)
T4 40.00-20.00	Pipe		A618-50 (50 ksi)	Single Angle	L 2 x 2 x 1/8	A36 (36 ksi)
T5 20.00-0.00	Pipe		A618-50 (50 ksi)	Single Angle	L 2.5 x 2.5 x 3/16	A36 (36 ksi)

### Tower Section Geometry (cont'd)

Tower Elevation ft	Gusset Area (per face) ft <sup>2</sup>	Gusset Thickness in	Gusset Grade	Adjust. Factor A <sub>r</sub>	Adjust. Factor A <sub>r</sub>	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 100.00-80.00	0.00	0.38	A36 (36 ksi)	1	1	1.05	6.00	6.00	36.00
T2 80.00-60.00	0.00	0.38	A36 (36 ksi)	1	1	1.05	6.00	6.00	36.00
T3 60.00-40.00	0.00	0.38	A36 (36 ksi)	1	1	1.1	6.00	6.00	36.00
T4 40.00-	0.00	0.38	A36	1	1	1.1	36.00	36.00	36.00



Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor $A_r$	Adjust. Factor $A_r$	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals	Double Angle Stitch Bolt Spacing Redundants
ft	ft <sup>2</sup>	in					in	in	in
20.00			(36 ksi)						
T5 20.00-0.00	0.00	0.38	A36 (36 ksi)	1	1	1.1	36.00	36.00	36.00

### Tower Section Geometry (cont'd)

Tower Elevation	Calc K Single Angles	Calc K Solid Rounds	Legs	K Factors <sup>1</sup>						
				X Brace Diags	K Brace Diags	Single Diags	Girts	Horiz.	Sec. Horiz.	Inner Brace
ft				X Y	X Y	X Y	X Y	X Y	X Y	X Y
T1 100.00-80.00	No	No	1	1	1	1	1	1	1	1
T2 80.00-60.00	No	No	1	1	1	1	1	1	1	1
T3 60.00-40.00	No	No	1	1	1	1	1	1	1	1
T4 40.00-20.00	No	No	1	1	1	1	1	1	1	1
T5 20.00-0.00	No	No	1	1	1	1	1	1	1	1

<sup>1</sup>Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.

### Tower Section Geometry (cont'd)

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 100.00-80.00	0.00	1	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	1	0.00	0.75
T2 80.00-60.00	0.00	1	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	1	0.00	0.75
T3 60.00-40.00	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
T4 40.00-20.00	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
T5 20.00-0.00	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1

### Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 100.00-80.00	Flange	0.75	4	0.63	3	0.00	0	0.00	0	0.00	0	0.63	2	0.00	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T2 80.00-60.00	Flange	0.88	4	0.63	3	0.00	0	0.00	0	0.00	0	0.63	2	0.00	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	



Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T3 60.00-40.00	Flange	0.88 A325N	4	0.63 A325N	3	0.00 A325N	0	0.00 A325N	0	0.00 A325N	0	0.63 A325N	2	0.00 A325N	0
T4 40.00-20.00	Flange	1.00 A325N	4	0.63 A325N	3	0.00 A325N	0	0.00 A325N	0	0.00 A325N	0	0.63 A325N	2	0.00 A325N	0
T5 20.00-0.00	Flange	1.00 A354-BC	4	0.63 A325N	3	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	2	0.63 A325N	0

**Feed Line/Linear Appurtenances - Entered As Round Or Flat**

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
1.5" flat Cable Ladder Rail	A	No	No	Af (CaAa)	98.00 - 0.00	0.00	0.25	2	2	24.00 1.50	1.50		1.80
LDF5-50A(7/8)	A	No	No	Ar (CaAa)	98.00 - 0.00	0.00	0.25	12	6	1.00 0.50	1.03		0.33
HB158-1-08U8-S8F18(1-5/8)	A	No	No	Ar (CaAa)	98.00 - 0.00	0.00	0.25	1	1	1.98	1.98		1.70
1.5" flat Cable Ladder Rail	B	No	No	Af (CaAa)	90.00 - 0.00	0.00	0.25	2	2	24.00 1.50	1.50		1.80
LDF7-50A(1-5/8") (6 TBR)	B	No	No	Ar (CaAa)	90.00 - 0.00	0.00	0.25	6	6	0.27 0.52	1.98		0.82
FB-L98B-034-XXX(3/8)	B	No	No	Ar (CaAa)	90.00 - 0.00	0.00	0.28	2	2	0.39	0.39		0.06
WR-VG86T(3/4)	B	No	No	Ar (CaAa)	90.00 - 0.00	0.00	0.29	4	2	0.76	0.76		0.53
1.5" flat Cable Ladder Rail	C	No	No	Af (CaAa)	78.00 - 0.00	0.00	0.25	2	2	24.00 1.50	1.50		1.80
ASU9323TY P01( 1-1/4) CAT5	C	No	No	Ar (CaAa)	78.00 - 0.00	0.00	0.25	3	3	1.00	1.24		1.05
	C	No	No	Ar (CaAa)	78.00 - 0.00	0.00	0.27	1	1	0.25	0.19		0.02
ASU9326TY P01(3/8)	C	No	No	Ar (CaAa)	78.00 - 0.00	0.00	0.28	1	1	0.38	0.38		0.06
1.5" flat Cable Ladder Rail	C	No	No	Af (CaAa)	100.00 - 0.00	0.00	0	2	2	24.00 1.50	1.50		1.80
LDF5-50A(7/8)	C	No	No	Ar (CaAa)	100.00 - 0.00	0.00	0	1	1	1.00 0.50	1.03		0.33
EW90(ELLIP TICAL)	C	No	No	Ar (CaAa)	70.00 - 0.00	0.00	0.01	2	2	1.00 0.50	1.28		0.32
EW90(ELLIP TICAL)	C	No	No	Ar (CaAa)	84.00 - 70.00	0.00	0.01	1	1	1.00 0.50	1.28		0.32

**Discrete Tower Loads**

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft	C <sub>A</sub> A <sub>A</sub> Front ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> Side ft <sup>2</sup>	Weight K	
8' x 3.5" Whip	C	From Leg	0.50 0 4	0.000	100.00	No Ice	2.80	2.80	0.03
						1/2" Ice	3.41	3.41	0.05
						Ice	3.89	3.89	0.08
						1" Ice			
**									
12' T-Frame Mount	A	From Leg	2.00 0 0	0.000	98.00	No Ice	14.40	10.50	0.47
						1/2" Ice	20.10	13.80	0.60
						Ice	25.80	17.10	0.73
						1" Ice			
12' T-Frame Mount	B	From Leg	2.00 0 0	0.000	98.00	No Ice	14.40	10.50	0.47
						1/2" Ice	20.10	13.80	0.60
						Ice	25.80	17.10	0.73
						1" Ice			
12' T-Frame Mount	C	From Leg	2.00 0 0	0.000	98.00	No Ice	14.40	10.50	0.47
						1/2" Ice	20.10	13.80	0.60
						Ice	25.80	17.10	0.73
						1" Ice			
(2) DB844H90E-XY_TIA w/ Mount Pipe	A	From Leg	4.00 0 0	0.000	98.00	No Ice	3.30	4.80	0.04
						1/2" Ice	3.67	5.42	0.08
						Ice	4.03	6.04	0.13
						1" Ice			
(2) DB844H90E-XY_TIA w/ Mount Pipe	B	From Leg	4.00 0 0	0.000	98.00	No Ice	3.30	4.80	0.04
						1/2" Ice	3.67	5.42	0.08
						Ice	4.03	6.04	0.13
						1" Ice			
(2) HBXX-6516DS-A2M_TIA w/ Mount Pipe	A	From Leg	4.00 0 0	0.000	98.00	No Ice	5.66	4.53	0.05
						1/2" Ice	6.06	5.20	0.10
						Ice	6.47	5.86	0.15
						1" Ice			
(2) HBXX-6516DS-A2M_TIA w/ Mount Pipe	B	From Leg	4.00 0 0	0.000	98.00	No Ice	5.66	4.53	0.05
						1/2" Ice	6.06	5.20	0.10
						Ice	6.47	5.86	0.15
						1" Ice			
(2) 800 10734 w/ Mount Pipe	C	From Leg	4.00 0 0	0.000	98.00	No Ice	5.79	3.17	0.06
						1/2" Ice	6.37	3.70	0.10
						Ice	6.97	4.25	0.15
						1" Ice			
(2) RRH2X40-AWS	C	From Leg	4.00 0 0	0.000	98.00	No Ice	2.16	1.42	0.04
						1/2" Ice	2.36	1.59	0.06
						Ice	2.57	1.77	0.08
						1" Ice			
(2) RRH2X60-PCS	C	From Leg	4.00 0 0	0.000	98.00	No Ice	2.20	1.72	0.06
						1/2" Ice	2.39	1.90	0.08
						Ice	2.59	2.09	0.10
						1" Ice			
(2) CBC78-DF	A	From Leg	4.00 0 0	0.000	98.00	No Ice	0.39	0.17	0.01
						1/2" Ice	0.47	0.23	0.01
						Ice	0.56	0.30	0.01
						1" Ice			
(2) CBC78-DF	B	From Leg	4.00 0 0	0.000	98.00	No Ice	0.39	0.17	0.01
						1/2" Ice	0.47	0.23	0.01
						Ice	0.56	0.30	0.01
						1" Ice			
DB-T1-6Z-8AB-0Z	B	From Leg	4.00 0 0	0.000	98.00	No Ice	4.80	2.00	0.04
						1/2" Ice	5.07	2.19	0.08
						Ice	5.35	2.39	0.12
						1" Ice			
***									
12' T-Frame Mount	A	From Leg	2.00 0 0	0.000	90.00	No Ice	14.40	10.50	0.47
						1/2" Ice	20.10	13.80	0.60
						Ice	25.80	17.10	0.73
						1" Ice			
12' T-Frame Mount	B	From Leg	2.00 0 0	0.000	90.00	No Ice	14.40	10.50	0.47
						1/2" Ice	20.10	13.80	0.60
						Ice	25.80	17.10	0.73
						1" Ice			



Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>A</sub> A <sub>1</sub> Front	C <sub>A</sub> A <sub>1</sub> Side	Weight	
			Horz	Lateral						Vert
12' T-Frame Mount	C	From Leg	2.00	0	0.000	90.00	1" Ice			
							No Ice	14.40	10.50	0.47
							1/2" Ice	20.10	13.80	0.60
HPA-65R-BUU-H6_TIA w/ Mount Pipe	A	From Leg	4.00	0	0.000	90.00	1" Ice			
							No Ice	9.72	7.15	0.07
							1/2" Ice	10.30	8.34	0.15
HPA-65R-BUU-H6_TIA w/ Mount Pipe	B	From Leg	4.00	0	0.000	90.00	1" Ice			
							No Ice	9.72	7.15	0.07
							1/2" Ice	10.30	8.34	0.15
HPA-65R-BUU-H6_TIA w/ Mount Pipe	C	From Leg	4.00	0	0.000	90.00	1" Ice			
							No Ice	9.72	7.15	0.07
							1/2" Ice	10.30	8.34	0.15
QS66512-2_TIA w/ Mount Pipe	A	From Leg	4.00	0	0.000	90.00	1" Ice			
							No Ice	8.37	8.46	0.14
							1/2" Ice	8.93	9.66	0.21
QS66512-2_TIA w/ Mount Pipe	B	From Leg	4.00	0	0.000	90.00	1" Ice			
							No Ice	8.37	8.46	0.14
							1/2" Ice	8.93	9.66	0.21
QS66512-2_TIA w/ Mount Pipe	C	From Leg	4.00	0	0.000	90.00	1" Ice			
							No Ice	8.37	8.46	0.14
							1/2" Ice	8.93	9.66	0.21
RRUS-32 B30	A	From Leg	4.00	0	0.000	90.00	1" Ice			
							No Ice	3.31	2.42	0.08
							1/2" Ice	3.56	2.64	0.10
RRUS-32 B30	B	From Leg	4.00	0	0.000	90.00	1" Ice			
							No Ice	3.31	2.42	0.08
							1/2" Ice	3.56	2.64	0.10
RRUS-32 B30	C	From Leg	4.00	0	0.000	90.00	1" Ice			
							No Ice	3.31	2.42	0.08
							1/2" Ice	3.56	2.64	0.10
RRUS 4449 B5/B12	A	From Leg	4.00	0	0.000	90.00	1" Ice			
							No Ice	1.97	1.41	0.07
							1/2" Ice	2.14	1.56	0.09
RRUS 4449 B5/B12	B	From Leg	4.00	0	0.000	90.00	1" Ice			
							No Ice	1.97	1.41	0.07
							1/2" Ice	2.14	1.56	0.09
RRUS 4449 B5/B12	C	From Leg	4.00	0	0.000	90.00	1" Ice			
							No Ice	1.97	1.41	0.07
							1/2" Ice	2.14	1.56	0.09
RRUS 8843 B2/B66A	A	From Leg	4.00	0	0.000	90.00	1" Ice			
							No Ice	1.64	1.35	0.07
							1/2" Ice	1.80	1.50	0.09
RRUS 8843 B2/B66A	B	From Leg	4.00	0	0.000	90.00	1" Ice			
							No Ice	1.64	1.35	0.07
							1/2" Ice	1.80	1.50	0.09
RRUS 8843 B2/B66A	C	From Leg	4.00	0	0.000	90.00	1" Ice			
							No Ice	1.64	1.35	0.07
							1/2" Ice	1.80	1.50	0.09

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>A</sub> A <sub>A</sub> Front	C <sub>A</sub> A <sub>A</sub> Side	Weight	
			Horz	Lateral						ft
DBC0061F1V51-1	A	From Leg	4.00	0	0.000	90.00	No Ice	0.41	0.21	0.01
							1/2"	0.50	0.28	0.02
							Ice	0.59	0.35	0.02
							1" Ice			
DBC0061F1V51-1	B	From Leg	4.00	0	0.000	90.00	No Ice	0.41	0.21	0.01
							1/2"	0.50	0.28	0.02
							Ice	0.59	0.35	0.02
							1" Ice			
DBC0061F1V51-1	C	From Leg	4.00	0	0.000	90.00	No Ice	0.41	0.21	0.01
							1/2"	0.50	0.28	0.02
							Ice	0.59	0.35	0.02
							1" Ice			
DC6-48-60-18-8C	A	From Leg	4.00	0	0.000	90.00	No Ice	2.74	2.74	0.03
							1/2"	2.96	2.96	0.05
							Ice	3.20	3.20	0.08
							1" Ice			
DC6-48-60-18-8C	B	From Leg	4.00	0	0.000	90.00	No Ice	2.74	2.74	0.03
							1/2"	2.96	2.96	0.05
							Ice	3.20	3.20	0.08
							1" Ice			
**										
12' T-Frame Mount	A	From Leg	2.00	0	0.000	78.00	No Ice	14.40	10.50	0.47
							1/2"	20.10	13.80	0.60
							Ice	25.80	17.10	0.73
							1" Ice			
12' T-Frame Mount	B	From Leg	2.00	0	0.000	78.00	No Ice	14.40	10.50	0.47
							1/2"	20.10	13.80	0.60
							Ice	25.80	17.10	0.73
							1" Ice			
12' T-Frame Mount	C	From Leg	2.00	0	0.000	78.00	No Ice	14.40	10.50	0.47
							1/2"	20.10	13.80	0.60
							Ice	25.80	17.10	0.73
							1" Ice			
NNVV-65B-R4_TIA w/ Mount Pipe	A	From Leg	4.00	0	0.000	78.00	No Ice	12.51	7.41	0.10
							1/2"	13.11	8.60	0.19
							Ice	13.67	9.50	0.29
							1" Ice			
NNVV-65B-R4_TIA w/ Mount Pipe	B	From Leg	4.00	0	0.000	78.00	No Ice	12.51	7.41	0.10
							1/2"	13.11	8.60	0.19
							Ice	13.67	9.50	0.29
							1" Ice			
NNVV-65B-R4_TIA w/ Mount Pipe	C	From Leg	4.00	0	0.000	78.00	No Ice	12.51	7.41	0.10
							1/2"	13.11	8.60	0.19
							Ice	13.67	9.50	0.29
							1" Ice			
TTTT65AP-1XR_TIA w/ Mount Pipe	A	From Leg	4.00	0	0.000	78.00	No Ice	7.28	4.79	0.06
							1/2"	7.78	5.74	0.11
							Ice	8.26	6.52	0.17
							1" Ice			
TTTT65AP-1XR_TIA w/ Mount Pipe	B	From Leg	4.00	0	0.000	78.00	No Ice	7.28	4.79	0.06
							1/2"	7.78	5.74	0.11
							Ice	8.26	6.52	0.17
							1" Ice			
TTTT65AP-1XR_TIA w/ Mount Pipe	C	From Leg	4.00	0	0.000	78.00	No Ice	7.28	4.79	0.06
							1/2"	7.78	5.74	0.11
							Ice	8.26	6.52	0.17
							1" Ice			
AHFIB	A	From Leg	4.00	0	0.000	78.00	No Ice	3.68	2.31	0.09
							1/2"	3.92	2.52	0.12
							Ice	4.18	2.73	0.15
							1" Ice			
AHFIB	B	From Leg	4.00	0	0.000	78.00	No Ice	3.68	2.31	0.09
							1/2"	3.92	2.52	0.12
							Ice	4.18	2.73	0.15
							1" Ice			



Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment t °	Placement ft	C <sub>A</sub> A <sub>1</sub> Front ft <sup>2</sup>	C <sub>A</sub> A <sub>2</sub> Side ft <sup>2</sup>	Weight K
			Horz Lateral ft	Vert ft					
AHFIB	C	From Leg	4.00	0.000	78.00	No Ice	3.68	2.31	0.09
			0			1/2"	3.92	2.52	0.12
			0			Ice	4.18	2.73	0.15
AHCC	A	From Leg	4.00	0.000	78.00	1" Ice	1.63	1.14	0.05
			0			1/2"	1.79	1.28	0.06
			0			Ice	1.96	1.43	0.08
AHCC	B	From Leg	4.00	0.000	78.00	1" Ice	1.63	1.14	0.05
			0			1/2"	1.79	1.28	0.06
			0			Ice	1.96	1.43	0.08
AHCC	C	From Leg	4.00	0.000	78.00	1" Ice	1.63	1.14	0.05
			0			1/2"	1.79	1.28	0.06
			0			Ice	1.96	1.43	0.08
AZHL	A	From Leg	4.00	0.000	78.00	1" Ice	1.79	0.86	0.05
			0			1/2"	1.95	0.98	0.07
			0			Ice	2.13	1.11	0.08
AZHL	B	From Leg	4.00	0.000	78.00	1" Ice	1.79	0.86	0.05
			0			1/2"	1.95	0.98	0.07
			0			Ice	2.13	1.11	0.08
AZHL	C	From Leg	4.00	0.000	78.00	1" Ice	1.79	0.86	0.05
			0			1/2"	1.95	0.98	0.07
			0			Ice	2.13	1.11	0.08
FIBEAIR IP-20C_HP	C	From Leg	4.00	0.000	78.00	1" Ice	1.30	0.50	0.02
			0			1/2"	1.44	0.60	0.02
			0			Ice	1.59	0.71	0.04
**									

### Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets:		Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft	Aperture Area ft <sup>2</sup>	Weight K
				Horz Lateral ft	Vert ft						
4 ft standard	C	Paraboloid w/o Radome	From Leg	1.00	Worst	84.00	4.00	No Ice	12.57	0.10	
				0				1/2"	13.10	0.18	
				0				1" Ice	13.62	0.25	
SB2-W100BD	C	Paraboloid w/o Radome	From Leg	4.00	Worst	78.00	2.20	No Ice	3.14	0.02	
				0				1/2"	3.41	0.04	
				0				1" Ice	3.68	0.06	
4 ft standard	C	Paraboloid w/o Radome	From Leg	1.00	Worst	70.00	4.00	No Ice	12.57	0.10	
				0				1/2"	13.10	0.18	
				0				1" Ice	13.62	0.25	

### Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice

Comb. No.	Description
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

### Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	18	104.71	12.11	-6.76
	Max. H <sub>x</sub>	18	104.71	12.11	-6.76
	Max. H <sub>z</sub>	7	-90.52	-11.07	6.17
	Min. Vert	7	-90.52	-11.07	6.17
	Min. H <sub>x</sub>	7	-90.52	-11.07	6.17
	Min. H <sub>z</sub>	18	104.71	12.11	-6.76
Leg B	Max. Vert	10	104.62	-12.09	-6.84
	Max. H <sub>x</sub>	23	-90.55	11.05	6.25
	Max. H <sub>z</sub>	23	-90.55	11.05	6.25
	Min. Vert	23	-90.55	11.05	6.25
	Min. H <sub>x</sub>	10	104.62	-12.09	-6.84
	Min. H <sub>z</sub>	10	104.62	-12.09	-6.84
Leg A	Max. Vert	2	100.98	-0.11	13.35
	Max. H <sub>x</sub>	21	5.41	2.30	0.46
	Max. H <sub>z</sub>	2	100.98	-0.11	13.35



Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Min. Vert	15	-87.26	0.11	-12.16
	Min. H <sub>x</sub>	8	8.30	-2.30	0.72
	Min. H <sub>z</sub>	15	-87.26	0.11	-12.16

### Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	100 - 80	1.02	47	0.081	0.014
T2	80 - 60	0.68	47	0.077	0.015
T3	60 - 40	0.36	47	0.060	0.009
T4	40 - 20	0.15	47	0.034	0.004
T5	20 - 0	0.04	43	0.015	0.002

### Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
100.00	8' x 3.5" Whip	47	1.02	0.081	0.014	Inf
98.00	12' T-Frame Mount	47	0.98	0.081	0.014	Inf
90.00	12' T-Frame Mount	47	0.85	0.080	0.015	620253
84.00	4 ft standard	47	0.74	0.078	0.015	386810
78.00	SB2-W100BD	47	0.64	0.076	0.014	185426
70.00	4 ft standard	47	0.51	0.070	0.012	75161

### Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	100 - 80	3.88	18	0.305	0.054
T2	80 - 60	2.59	18	0.292	0.056
T3	60 - 40	1.39	18	0.229	0.035
T4	40 - 20	0.56	18	0.132	0.017
T5	20 - 0	0.15	10	0.058	0.007

### Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
100.00	8' x 3.5" Whip	18	3.88	0.305	0.054	388256
98.00	12' T-Frame Mount	18	3.75	0.305	0.055	388256
90.00	12' T-Frame Mount	18	3.23	0.302	0.057	194129
84.00	4 ft standard	18	2.84	0.298	0.057	120997
78.00	SB2-W100BD	18	2.46	0.288	0.055	53334
70.00	4 ft standard	18	1.96	0.267	0.047	20190

### Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load Allowable	Allowable Ratio	Criteria
T1	100	Leg	A325N	0.75	4	1.10	29.82	0.037 ✓	1	Bolt Tension
		Diagonal	A325N	0.63	3	1.58	12.43	0.127 ✓	1	Bolt Shear
		Horizontal	A325N	0.63	2	1.29	12.43	0.104 ✓	1	Bolt Shear
T2	80	Leg	A325N	0.88	4	6.48	40.59	0.160 ✓	1	Bolt Tension
		Diagonal	A325N	0.63	3	2.14	12.43	0.173 ✓	1	Bolt Shear
		Horizontal	A325N	0.63	2	2.02	12.43	0.162 ✓	1	Bolt Shear
T3	60	Leg	A325N	0.88	4	12.26	40.59	0.302 ✓	1	Bolt Tension
		Diagonal	A325N	0.63	3	2.11	12.43	0.170 ✓	1	Bolt Shear
		Horizontal	A325N	0.63	2	2.06	12.43	0.166 ✓	1	Bolt Shear
T4	40	Leg	A325N	1.00	4	16.41	53.01	0.310 ✓	1	Bolt Tension
		Diagonal	A325N	0.63	3	2.35	12.43	0.190 ✓	1	Bolt Shear
		Horizontal	A325N	0.63	2	2.04	12.43	0.164 ✓	1	Bolt Shear
T5	20	Leg	A354-BC	1.00	4	20.72	55.22	0.375 ✓	1	Bolt Tension
		Diagonal	A325N	0.63	3	2.14	12.43	0.173 ✓	1	Bolt Shear
		Horizontal	A325N	0.63	2	2.07	12.43	0.167 ✓	1	Bolt Shear

### Compression Checks

#### Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	$L_u$ ft	$KI/r$	A $in^2$	$P_u$ K	$\phi P_n$ K	Ratio $\frac{P_u}{\phi P_n}$
T1	100 - 80	Pipe 2.875" x 0.203" (2.5 STD)	20.00	6.53	82.7 K=1.00	1.70	-8.93	46.52	0.192 <sup>1</sup> ✓
T2	80 - 60	Pipe 3.5" x 0.216" (3 STD)	20.03	6.54	67.4 K=1.00	2.23	-33.74	71.91	0.469 <sup>1</sup> ✓
T3	60 - 40	Pipe 4" x 0.226" (3.5 STD)	20.03	6.54	58.7 K=1.00	2.68	-58.37	93.72	0.623 <sup>1</sup> ✓
T4	40 - 20	Pipe 4.5" x 0.337" (4 XS)	20.05	10.02	81.4 K=1.00	4.41	-76.65	122.11	0.628 <sup>1</sup> ✓
T5	20 - 0	Pipe 5.5" x 0.375" (5 EH)	20.05	10.03	66.2 K=1.00	6.04	-96.18	197.17	0.488 <sup>1</sup> ✓

<sup>1</sup>  $P_u / \phi P_n$  controls

#### Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	$L_u$ ft	$KI/r$	A $in^2$	$P_u$ K	$\phi P_n$ K	Ratio $\frac{P_u}{\phi P_n}$
T1	100 - 80	Pipe 2.375" x 0.154" (2 STD)	7.80	7.58	115.6 K=1.00	1.07	-4.74	18.17	0.261 <sup>1</sup> ✓
T2	80 - 60	Pipe 2.375" x 0.154" (2 STD)	8.41	8.17	124.6	1.07	-6.43	15.63	0.412 <sup>1</sup>



Section No.	Elevation ft	Size	L ft	$L_u$ ft	$Kl/r$	A $in^2$	$P_u$ K	$\phi P_n$ K	Ratio $\frac{P_u}{\phi P_n}$
T3	60 - 40	STD) Pipe 2.375" x 0.154" (2 STD)	9.08	8.84	K=1.00 134.8	1.07	-5.96	13.36	0.446 <sup>1</sup> ✓
T4	40 - 20	Pipe 2.875" x 0.203" (2.5 STD)	12.49	12.18	K=1.00 154.3	1.70	-6.89	16.18	0.426 <sup>1</sup> ✓
T5	20 - 0	Pipe 2.875" x 0.203" (2.5 STD)	13.28	12.93	K=1.00 163.8	1.70	-6.40	14.35	0.446 <sup>1</sup> ✓

<sup>1</sup>  $P_u / \phi P_n$  controls

### Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	$L_u$ ft	$Kl/r$	A $in^2$	$P_u$ K	$\phi P_n$ K	Ratio $\frac{P_u}{\phi P_n}$
T1	100 - 80	Pipe 1.9" x 0.145" (1.5 STD)	8.53	4.14	K=1.00 79.9	0.80	-2.55	22.56	0.113 <sup>1</sup> ✓
T2	80 - 60	Pipe 1.9" x 0.145" (1.5 STD)	9.92	4.81	K=1.00 92.8	0.80	-4.00	19.18	0.208 <sup>1</sup> ✓
T3	60 - 40	Pipe 2.375" x 0.154" (2 STD)	11.96	5.81	K=1.00 88.6	1.07	-4.06	27.23	0.149 <sup>1</sup> ✓
T4	40 - 20	Pipe 2.375" x 0.154" (2 STD)	13.79	6.71	K=1.00 102.3	1.07	-4.02	22.51	0.179 <sup>1</sup> ✓
T5	20 - 0	Pipe 2.375" x 0.154" (2 STD)	16.21	7.88	K=1.00 120.1	1.07	-4.07	16.84	0.242 <sup>1</sup> ✓

<sup>1</sup>  $P_u / \phi P_n$  controls

### Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	$L_u$ ft	$Kl/r$	A $in^2$	$P_u$ K	$\phi P_n$ K	Ratio $\frac{P_u}{\phi P_n}$
T1	100 - 80	Pipe 1.9" x 0.145" (1.5 STD)	8.50	4.13	K=1.00 79.6	0.80	-0.73	22.63	0.032 <sup>1</sup> ✓

<sup>1</sup>  $P_u / \phi P_n$  controls

### Inner Bracing Design Data (Compression)

Section No.	Elevation ft	Size	L ft	$L_u$ ft	$Kl/r$	A $in^2$	$P_u$ K	$\phi P_n$ K	Ratio $\frac{P_u}{\phi P_n}$
T1	100 - 80	L 2 x 2 x 1/8	4.25	4.25	K=1.00 128.3	0.48	-0.01	6.56	0.002 <sup>1</sup> ✓
T2	80 - 60	L 2 x 2 x 1/8	4.96	4.96	K=1.00 149.7	0.48	-0.00	4.88	0.001 <sup>1</sup> ✓
T3	60 - 40	L 2 x 2 x 1/8	5.98	5.98	K=1.00 180.5	0.48	-0.01	3.36	0.002 <sup>1</sup> ✓
T4	40 - 20	L 2 x 2 x 1/8	6.90	6.90	K=1.00 208.2	0.48	-0.01	2.53	0.003 <sup>1</sup> ✓

Section No.	Elevation ft	Size	L ft	$L_u$ ft	$Kl/r$	A $in^2$	$P_u$ K	$\phi P_n$ K	Ratio $\frac{P_u}{\phi P_n}$
T5	20 - 0	L 2.5 x 2.5 x 3/16	8.10	8.10	196.5 K=1.00	0.90	-0.01	5.28	0.002 <sup>1</sup> ✓

<sup>1</sup>  $P_u / \phi P_n$  controls

### Tension Checks

### Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	$L_u$ ft	$Kl/r$	A $in^2$	$P_u$ K	$\phi P_n$ K	Ratio $\frac{P_u}{\phi P_n}$
T1	100 - 80	Pipe 2.875" x 0.203" (2.5 STD)	20.00	6.53	82.7	1.70	4.40	76.68	0.057 <sup>1</sup> ✓
T2	80 - 60	Pipe 3.5" x 0.216" (3 STD)	20.03	6.54	67.4	2.23	25.94	100.28	0.259 <sup>1</sup> ✓
T3	60 - 40	Pipe 4" x 0.226" (3.5 STD)	20.03	6.54	58.7	2.68	49.03	120.58	0.407 <sup>1</sup> ✓
T4	40 - 20	Pipe 4.5" x 0.337" (4 XS)	20.05	10.02	81.4	4.41	65.64	198.34	0.331 <sup>1</sup> ✓
T5	20 - 0	Pipe 5.5" x 0.375" (5 EH)	20.05	10.03	66.2	6.04	82.88	271.70	0.305 <sup>1</sup> ✓

<sup>1</sup>  $P_u / \phi P_n$  controls

### Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	$L_u$ ft	$Kl/r$	A $in^2$	$P_u$ K	$\phi P_n$ K	Ratio $\frac{P_u}{\phi P_n}$
T1	100 - 80	Pipe 2.375" x 0.154" (2 STD)	7.80	7.58	115.6	1.07	4.67	48.35	0.096 <sup>1</sup> ✓
T2	80 - 60	Pipe 2.375" x 0.154" (2 STD)	8.41	8.17	124.6	1.07	6.35	48.35	0.131 <sup>1</sup> ✓
T3	60 - 40	Pipe 2.375" x 0.154" (2 STD)	8.63	8.39	128.0	1.07	6.24	48.35	0.129 <sup>1</sup> ✓
T4	40 - 20	Pipe 2.875" x 0.203" (2.5 STD)	12.15	11.84	150.0	1.70	6.90	76.68	0.090 <sup>1</sup> ✓
T5	20 - 0	Pipe 2.875" x 0.203" (2.5 STD)	12.88	12.53	158.7	1.70	6.22	76.68	0.081 <sup>1</sup> ✓

<sup>1</sup>  $P_u / \phi P_n$  controls

### Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	$L_u$ ft	$Kl/r$	A $in^2$	$P_u$ K	$\phi P_n$ K	Ratio $\frac{P_u}{\phi P_n}$
T1	100 - 80	Pipe 1.9" x 0.145" (1.5	8.53	4.14	79.9	0.80	2.58	35.98	0.072 <sup>1</sup>



Section No.	Elevation ft	Size	L ft	$L_u$ ft	$Kl/r$	A $in^2$	$P_u$ K	$\phi P_n$ K	Ratio $\frac{P_u}{\phi P_n}$
T2	80 - 60	STD) Pipe 1.9" x 0.145" (1.5 STD)	9.92	4.81	92.8	0.80	4.03	35.98	0.112 <sup>1</sup> ✓
T3	60 - 40	STD) Pipe 2.375" x 0.154" (2 STD)	10.63	5.15	78.5	1.07	4.12	48.35	0.085 <sup>1</sup> ✓
T4	40 - 20	STD) Pipe 2.375" x 0.154" (2 STD)	13.79	6.71	102.3	1.07	4.07	48.35	0.084 <sup>1</sup> ✓
T5	20 - 0	STD) Pipe 2.375" x 0.154" (2 STD)	16.21	7.88	120.1	1.07	4.14	48.35	0.086 <sup>1</sup> ✓

<sup>1</sup>  $P_u / \phi P_n$  controls

### Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	$L_u$ ft	$Kl/r$	A $in^2$	$P_u$ K	$\phi P_n$ K	Ratio $\frac{P_u}{\phi P_n}$
T1	100 - 80	Pipe 1.9" x 0.145" (1.5 STD)	8.50	4.13	79.6	0.80	0.73	35.98	0.020 <sup>1</sup> ✓

<sup>1</sup>  $P_u / \phi P_n$  controls

### Inner Bracing Design Data (Tension)

Section No.	Elevation ft	Size	L ft	$L_u$ ft	$Kl/r$	A $in^2$	$P_u$ K	$\phi P_n$ K	Ratio $\frac{P_u}{\phi P_n}$
T1	100 - 80	L 2 x 2 x 1/8	4.25	4.25	81.4	0.48	0.01	15.69	0.001 <sup>1</sup> ✓
T2	80 - 60	L 2 x 2 x 1/8	4.29	4.29	82.2	0.48	0.00	15.69	0.000 <sup>1</sup> ✓
T3	60 - 40	L 2 x 2 x 1/8	5.31	5.31	101.8	0.48	0.00	15.69	0.000 <sup>1</sup> ✓
T4	40 - 20	L 2 x 2 x 1/8	6.31	6.31	121.0	0.48	0.00	15.69	0.000 <sup>1</sup> ✓

<sup>1</sup>  $P_u / \phi P_n$  controls

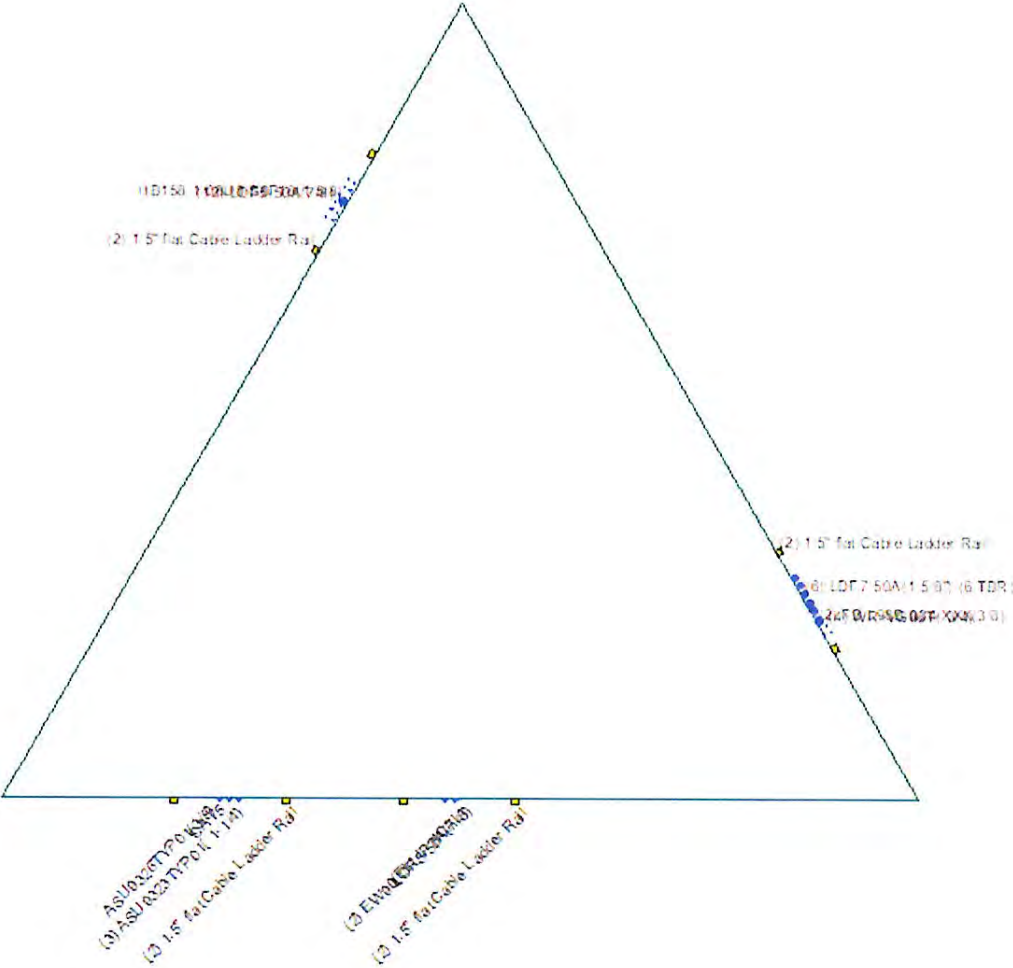
### Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$\phi P_{allow}$ K	% Capacity	Pass Fail
T1	100 - 80	Leg	Pipe 2.875" x 0.203" (2.5 STD)	1	-8.93	46.52	19.2	Pass
T2	80 - 60	Leg	Pipe 3.5" x 0.216" (3 STD)	40	-33.74	71.91	46.9	Pass
T3	60 - 40	Leg	Pipe 4" x 0.226" (3.5 STD)	79	-58.37	93.72	62.3	Pass
T4	40 - 20	Leg	Pipe 4.5" x 0.337" (4 XS)	118	-76.65	122.11	62.8	Pass
T5	20 - 0	Leg	Pipe 5.5" x 0.375" (5 EH)	145	-96.18	197.17	48.8	Pass
T1	100 - 80	Diagonal	Pipe 2.375" x 0.154" (2 STD)	9	-4.74	18.17	26.1	Pass
T2	80 - 60	Diagonal	Pipe 2.375" x 0.154" (2 STD)	45	-6.43	15.63	41.2	Pass
T3	60 - 40	Diagonal	Pipe 2.375" x 0.154" (2 STD)	84	-5.96	13.36	44.6	Pass
T4	40 - 20	Diagonal	Pipe 2.875" x 0.203" (2.5 STD)	123	-6.89	16.18	42.6	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$\phi P_{allow}$ K	% Capacity	Pass Fail	
T5	20 - 0	Diagonal	STD) Pipe 2.875" x 0.203" (2.5	150	-6.40	14.35	44.6	Pass	
T1	100 - 80	Horizontal	STD) Pipe 1.9" x 0.145" (1.5 STD)	7	-2.55	22.56	11.3	Pass	
T2	80 - 60	Horizontal	Pipe 1.9" x 0.145" (1.5 STD)	43	-4.00	19.18	20.8	Pass	
T3	60 - 40	Horizontal	Pipe 2.375" x 0.154" (2 STD)	82	-4.06	27.23	14.9	Pass	
T4	40 - 20	Horizontal	Pipe 2.375" x 0.154" (2 STD)	121	-4.02	22.51	16.6 (b) 17.9	Pass	
T5	20 - 0	Horizontal	Pipe 2.375" x 0.154" (2 STD)	148	-4.07	16.84	24.2	Pass	
T1	100 - 80	Top Girt	Pipe 1.9" x 0.145" (1.5 STD)	4	-0.73	22.63	3.2	Pass	
T1	100 - 80	Inner Bracing	L 2 x 2 x 1/8	17	-0.00	6.53	0.5	Pass	
T2	80 - 60	Inner Bracing	L 2 x 2 x 1/8	53	-0.00	4.88	0.6	Pass	
T3	60 - 40	Inner Bracing	L 2 x 2 x 1/8	91	-0.01	3.36	0.6	Pass	
T4	40 - 20	Inner Bracing	L 2 x 2 x 1/8	130	-0.01	2.53	0.7	Pass	
T5	20 - 0	Inner Bracing	L 2.5 x 2.5 x 3/16	159	-0.01	5.28	0.5	Pass	
							Summary		
							Leg (T4)	62.8	Pass
							Diagonal (T3)	44.6	Pass
							Horizontal (T5)	24.2	Pass
							Top Girt (T1)	3.2	Pass
							Inner Bracing (T4)	0.7	Pass
							Bolt Checks	37.5	Pass
							<b>RATING =</b>	<b>62.8</b>	<b>Pass</b>



**APPENDIX B**  
**BASE LEVEL DRAWING**





**APPENDIX C**  
**ADDITIONAL CALCULATIONS**





STANDARD CONDITIONS FOR FURNISHING OF PROFESSIONAL ENGINEERING SERVICES ON  
EXISTING STRUCTURES BY PAUL J. FORD AND COMPANY

- 1) Paul J. Ford and Company has not made a field inspection to verify the tower member sizes or the antenna/coax loading. If the existing conditions are not as represented on these drawings, we should be contacted immediately to evaluate the significance of the deviation.
- 2) No allowance was made for any damaged, missing, or rusted members. The analysis of this tower assumes that no physical deterioration has occurred in any of the structural components of the tower and that all the tower members have the same load carrying capacity as the day the tower was erected.
- 3) It is not possible to have all the detailed information to perform a thorough analysis of every structural sub-component of an existing tower. The structural analysis by Paul J. Ford and Company verifies the adequacy of the main structural members of the tower. Paul J. Ford and Company provides a limited scope of service in that we cannot verify the adequacy of every weld, plate connection detail, etc.
- 4) This tower has been analyzed according to the minimum design wind loads recommended by the Telecommunications Industry Association Standard ANSI/TIA-222-G. If the owner or local or state agencies require a higher design wind load, Paul J. Ford and Company should be made aware of this requirement.
- 5) The enclosed sketches are a schematic representation of the tower that we have analyzed. If any material is fabricated from these sketches, the contractor shall be responsible for field verifying the existing conditions and for the proper fit and clearance in the field.
- 6) 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.

K5170PG0193

DIANE W. FOX, AICP  
DIRECTOR PLANNING AND ZONING/ZONING  
ENFORCEMENT COORDINATOR/TOWN PLANNER



KATE BLANKLEY, AICP, Assistant Town Planner  
JOSEPH R. POLINZA, AICP, Senior Planner

5181

**PLANNING AND ZONING - LAND USE DEPARTMENT**

TOWN OF GREENWICH  
PLANNING AND ZONING COMMISSION  
SECRETARIAL CERTIFICATE


I, Frank Farricker, Secretary of the Planning and Zoning Commission of Town of Greenwich, Connecticut, do hereby certify that the following is a true copy of the decision rendered by such Commission, at its meeting held on Tuesday, April 25, 2006 at which a quorum was present. Details of any modifications will be found in the approved minutes of the meeting.

SPECIAL PERMIT CERTIFICATE #460

EFFECTIVE DATE: May 3, 2006

RESOLVED applications FSP-TELE #2875 and SP #2876 as submitted by the Town of Greenwich Department of Parks and Recreation and Neil Alexander, Esquire of Cuddy Feder, LLP for New Cingular Wireless PCS, LLC on behalf of record owner, the Town of Greenwich, for a final site plan and special permit for an additional wireless antennas installation at the 90-foot level on an existing 100-foot tower on a 154.27 acre property at the Griffith E. Harris Golf Course at 1323 King Street in the RA-4 zone as shown on plans entitled "Proposed Co-Location at an Existing Wireless Communication Facility" prepared by Natcomm, LLC dated 03/23/06 per Sections 6-15,6-17 and 6-140.1 of the Building Zone Regulations is hereby approved with modifications.

IN WITNESS WHEREOF, I have hereunto set my hand this 6<sup>th</sup> day of May 2006.

  
Frank Farricker  
Secretary, Planning and Zoning Commission

MAY 12 2006



BK5170PG1194

DIANE W. FOX, AICP  
DIRECTOR PLANNING AND ZONING/ZONING  
ENFORCEMENT COORDINATOR/TOWNS PLANNER



KATIE BLANKLEY, AICP, Assistant Town Planner  
JOSEPH R. POTENZA, AICP, Senior Planner

5155

PLANNING AND ZONING - LAND USE DEPARTMENT

SITE PLAN APPROVAL CERTIFICATE

I, Frank Farricker, Secretary of the Planning and Zoning Commission of the Town of Greenwich, Connecticut, do hereby certify that the Commission granted final site plan approval, for the following project at its meeting held on Tuesday, April 25, 2006 at which a quorum was present

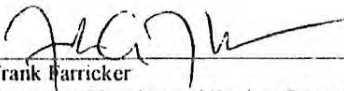
**RECORD OWNER:** Town of Greenwich  
**PROJECT:** Additional wireless antennas installation at the 90-foot level on an existing 100-foot tower on a 154.27 acre property at the Griffith E. Harris Golf Course  
**PROJECT LOCATION:** 1323 King Street  
**SITE PLAN NUMBER:** FSP-TELE #2875

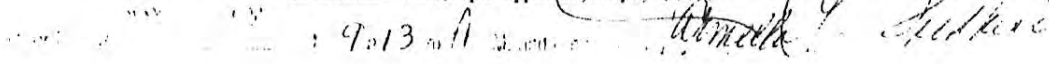
**SPECIAL PERMIT CERTIFICATE: 460**

RESOLVED application FSP-TELE #2875 and SP#2876 as submitted by the Town of Greenwich Department of Parks and Recreation and Neil Alexander, Esquire of Cuddy Feder, LLP for New Cingular Wireless PCS, LLC on behalf of record owner, the Town of Greenwich, for a final site plan and special permit for an additional wireless antennas installation at the 90-foot level on an existing 100-foot tower on a 154.27 acre property at the Griffith E. Harris Golf Course at 1323 King Street in the RA-4 zone as shown on plans entitled "Proposed Co-Location at an Existing Wireless Communications Facility" prepared by Natcomm, LLC dated 03/23/06 per sections 6-15, 6-17 and 6-140.1 of the Building Zone Regulations is hereby approved with modifications

The complete site plan is on file in the office of the Planning and Zoning Commission, Town Hall, Greenwich, Connecticut, as are the approved minutes of the meeting and the decision letter, which include any modifications to the approval.

IN WITNESS WHEREOF, I have hereunto set my hand this 6 day of May 2006

  
\_\_\_\_\_  
Frank Farricker  
Secretary, Planning and Zoning Commission

MAY 13 2006  


DIANE W. FOX, AICP  
DIRECTOR PLANNING AND ZONING/ZONING  
ENFORCEMENT COORDINATOR/TOWN PLANNER



KATIE BLANKLEY, AICP, Assistant Town Planner  
JOSEPH POTENZA, AICP, Senior Planner

DOREEN CARROLL-ANDREWS, Applications  
Coordinator

## PLANNING AND ZONING - LAND USE DEPARTMENT

### MEMORANDUM

**TO:** Bill Marr, Building Official  
Jim Maloney, Zoning Enforcement Officer

**FROM:** Diane Fox, Director of Planning and Zoning /  
Zoning Enforcement Coordinator / Town Planner  
Katie Blankley, Assistant Town Planner

**DATE:** August 23, 2006

**RE:** **Griffith E. Harris Golf Course at 1323 King Street**  
Application FSP-TELE #2875, SP #2876, and MI #547  
Zone: RA-4 Zone

The attached plans of Natcomm as listed below, have been approved by the Planning and Zoning for Building Department Sign-off under FSP-TELE #2875, SP #2876, and MI #547 on behalf of record owner, the Town of Greenwich, for a final site plan and special permit for an additional wireless antenna installation at the 90-foot level on an existing 100-foot tower and for municipal improvement authorizing use of Town-owned land and accompanying lease agreement on a 154.27 acre property at the Griffith E. Harris Golf Course at 1323 King Street in the RA-4 zone per Sections 6-15, 6-17 and 6-140.1 of the Building Zone Regulations and Section 6-99 of the Town Charter as shown on plans entitled "Proposed Co-Location at an Existing Wireless Communications Facility" prepared by Natcomm, LLC dated 07/31/06.

*Please note that work must begin in three (3) years from approval by the Commission and be completed in five (5) years from start of construction.*

**ALLOF THE FOLLOWING MODIFICATIONS THAT WERE REQUIRED TO BE MET PRIOR TO BUILDING DEPARTMENT SIGN-OFF HAVE BEEN MET:**

- 1) The lease agreement shall be approved by the Representative Town Meeting (RTM). Schedule A of the lease shall be revised to include the metes and bounds of the leased area. Schedule B of the lease shall be revised to clearly delineate the area of pavement that is going to be resurfaced (see **GLR Bk 5219 PG 0168**).
- 2) The following notes shall be added to the final plan:
  - a. Reference shall be made to this approval, the approval of the RTM, and book and page number of the lease agreement on file on the Town of Greenwich Land Records.

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An Affirmative Action/Equal Opportunity Employer, M/F/H

- b. The air conditioning units shall remain in compliance with the Town Noise Ordinance.
  - c. The light on the west elevation of the equipment building will be equipped with a motion detector.
  - d. Any change to the equipment on the Tower or equipment on the outside of the equipment room shall be reviewed by Planning and Zoning.
  - e. After the installation of the equipment approved in this application, but prior to the issuance of any Certificate of Occupancy, New Cingular Wireless shall conduct testing of the total output of non-ionizing electromagnetic emissions generated by all existing equipment on the rooftop regardless of owner and certify in writing that the emissions are in compliance with Federal and State Emission Standards. This certification must be submitted to the Planning and Zoning Office and the Building Department.
  - f. In the event that New Cingular Wireless's equipment causes interference with the Town Emergency Communication Equipment, New Cingular Wireless must immediately take all steps necessary to correct and eliminate the interference.
  - g. All signage required by the FCC and OSHA regarding standards for safety and human exposure to RF emissions should be complied with.
  - h. It should be noted that the equipment approved in this application is continuously subject to Section 6-140.1 of the Building Zone Regulations, particularly the Section on Monitoring and Maintenance.
- 3) The plans shall be revised to include the following:
- a. The size and species of the four trees proposed to screen the enclosed equipment area shall be shown.
  - b. The show soil and erosion controls around the proposed trenching for the underground power utility routed from the proposed transformer to the new CL&P tower shall be added to the soil and erosion plan.
  - c. The specifications of the facade of the proposed building shall be noted on the plan.
- 4) The owner of the propane tank shall be verified. It shall also be verified whether 7'-6" between the tower and the proposed New Cingular Wireless building is sufficient to access the propane tank if needed. It shall also be verified in writing that the proposed ice bridge about 9' or 10' off the ground allows sufficient space to get any required equipment.

These plans, signed off on by Diane Fox, Director of Planning and Zoning / Zoning Enforcement Coordinator / Town Planner on August 23, 2006 are hereby approved for building permit purposes with the following conditions:

1. This approval is subject to all the conditions of approval from the Planning and Zoning Commission as detailed in the May 9, 2006 approval letter (see attached).
2. The erosion controls shall be in place for the entire duration of the project. In addition, the site must be stabilized after work has been completed until vegetation can be established to naturally stabilize the site.
3. All plantings shown on the landscaping plan shall be maintained in healthy growing condition.

**PRIOR TO ANY C.O. THE FOLLOWING CONDITIONS MUST BE MET:**



1. All site improvements as shown on the attached plans and described in the lease agreement on file on the Land Records in Book 5219 and Page 0168 must be completed to the satisfaction of Planning and Zoning Staff or its designee prior to C.O.
2. All planting and site work shall be complete and inspected by P&Z Staff prior to any C.O.
3. Noise levels for the mechanical equipment, as taken at the property line, demonstrating that they are in compliance with the Town Noise Ordinance shall be submitted. Health Department shall provide written approval of said documentation.
4. After the installation of the equipment approved in this application, but prior to the issuance of any Certificate of Occupancy, New Cingular Wireless shall conduct testing of the total output of non-ionizing electromagnetic emissions generated by all existing equipment on the rooftop regardless of owner and certify in writing that the emissions are in compliance with Federal and State Emission Standards. This certification must be submitted to the Planning and Zoning Office and the Building Department.
5. 6 copies of final "as-built" plans showing all improvements shall be provided. The plan shall include the following notes:
  - a. Reference shall be made to this approval, the approval of the RTM, and book and page number of the lease agreement on file on the Town of Greenwich Land Records.
  - b. The air conditioning units shall remain in compliance with the Town Noise Ordinance.
  - c. The light on the west elevation of the equipment building will be equipped with a motion detector.
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  - e. In the event that New Cingular Wireless's equipment causes interference with the Town Emergency Communication Equipment, New Cingular Wireless must immediately take all steps necessary to correct and eliminate the interference.
  - f. All signage required by the FCC and OSHA regarding standards for safety and human exposure to RF emissions should be complied with.
  - g. It should be noted that the equipment approved in this application is continuously subject to Section 6-140.1 of the Building Zone Regulations, particularly the Section on Monitoring and Maintenance.

**APPROVED P&Z PLANS PREPARED BY NATCOMM:**

Site Plan and Abutters Map, Sheet C-1, last dated 7/31/06  
Metes and Bounds Survey, Sheet C-1a, last dated 7/31/06  
Compound Plan and Elevation, Sheet C-2, last dated 7/31/06  
Erosion Control, Details, and Site Notes, Sheet C-3, last dated 7/31/06  
Shelter Elevations, Sheet C-4, last dated 7/31/06

K5170PG0193

DIANE W. FOX, AICP  
DIRECTOR PLANNING AND ZONING/ZONING  
ENFORCEMENT COORDINATOR/TOWN PLANNER



KATHY BLANKLEY, AICP, Assistant Town Planner  
JOSEPH R. POLINZA, AICP, Senior Planner

5191

PLANNING AND ZONING - LAND USE DEPARTMENT

TOWN OF GREENWICH  
PLANNING AND ZONING COMMISSION  
SECRETARIAL CERTIFICATE

I, Frank Farricker, Secretary of the Planning and Zoning Commission of Town of Greenwich, Connecticut, do hereby certify that the following is a true copy of the decision rendered by such Commission, at its meeting held on Tuesday, April 25, 2006 at which a quorum was present. Details of any modifications will be found in the approved minutes of the meeting.

SPECIAL PERMIT CERTIFICATE #460

EFFECTIVE DATE: May 3, 2006

RESOLVED applications FSP-TELE #2875 and SP #2876 as submitted by the Town of Greenwich Department of Parks and Recreation and Neil Alexander, Esquire of Cuddy Feder, LLP for New Cingular Wireless PCS, LLC on behalf of record owner, the Town of Greenwich, for a final site plan and special permit for an additional wireless antennas installation at the 90-foot level on an existing 100-foot tower on a 154.27 acre property at the Griffith E. Harris Golf Course at 1323 King Street in the RA-4 zone as shown on plans entitled "Proposed Co-Location at an Existing Wireless Communication Facility" prepared by Natcomm, LLC dated 03/23/06 per Sections 6-15,6-17 and 6-140.1 of the Building Zone Regulations is hereby approved with modifications.

IN WITNESS WHEREOF, I have hereunto set my hand this 6<sup>th</sup> day of May 2006.

  
Frank Farricker  
Secretary, Planning and Zoning Commission

at 9:12 AM on MAY 3, 2006

BK 5170PG 0194

DIANE W. FOX, AICP  
DIRECTOR PLANNING AND ZONING/ZONING  
ENFORCEMENT COORDINATOR/TOWN PLANNER



KATIE BLANKLEY, AICP, Assistant Town Planner  
JOSEPH R. POTUSZA, AICP, Senior Planner

5165

PLANNING AND ZONING - LAND USE DEPARTMENT

SITE PLAN APPROVAL CERTIFICATE

I, Frank Farricker, Secretary of the Planning and Zoning Commission of the Town of Greenwich, Connecticut, do hereby certify that the Commission granted final site plan approval, for the following project at its meeting held on Tuesday, April 25, 2006 at which a quorum was present

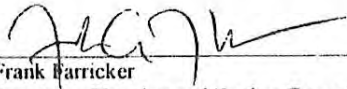
**RECORD OWNER:** Town of Greenwich  
**PROJECT:** Additional wireless antennas installation at the 90-foot level on an existing 100-foot tower on a 154.27 acre property at the Griffith E. Harris Golf Course  
**PROJECT LOCATION:** 1323 King Street  
**SITE PLAN NUMBER:** FSP-TELE #2875

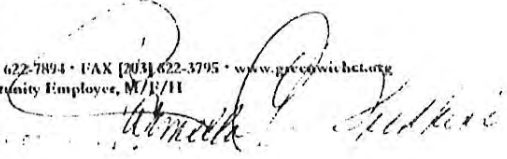
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The complete site plan is on file in the office of the Planning and Zoning Commission, Town Hall, Greenwich, Connecticut, as are the approved minutes of the meeting and the decision letter, which include any modifications to the approval.

IN WITNESS WHEREOF, I have hereunto set my hand this 6 day of May 2006

  
\_\_\_\_\_  
Frank Farricker  
Secretary, Planning and Zoning Commission

4/23/06  




DIANE W. FOX, AICP  
DIRECTOR PLANNING AND ZONING/ZONING  
ENFORCEMENT COORDINATOR/TOWN PLANNER



KATIE BLANKLEY, AICP, Assistant Town Planner  
JOSEPH POTENZA, AICP, Senior Planner

DOREEN CARROLL-ANDREWS, Applications  
Coordinator

## PLANNING AND ZONING - LAND USE DEPARTMENT

### MEMORANDUM

**TO:** Bill Marr, Building Official  
Jim Maloney, Zoning Enforcement Officer

**FROM:** Diane Fox, Director of Planning and Zoning /  
Zoning Enforcement Coordinator / Town Planner  
Katie Blankley, Assistant Town Planner

**DATE:** August 23, 2006

**RE:** Griffith E. Harris Golf Course at 1323 King Street  
Application FSP-TELE #2875, SP #2876, and MI #547  
Zone: RA-4 Zone

The attached plans of Natcomm as listed below, have been approved by the Planning and Zoning for Building Department Sign-off under FSP-TELE #2875, SP #2876, and MI #547 on behalf of record owner, the Town of Greenwich, for a final site plan and special permit for an additional wireless antenna installation at the 90-foot level on an existing 100-foot tower and for municipal improvement authorizing use of Town-owned land and accompanying lease agreement on a 154.27 acre property at the Griffith E. Harris Golf Course at 1323 King Street in the RA-4 zone per Sections 6-15, 6-17 and 6-140.1 of the Building Zone Regulations and Section 6-99 of the Town Charter as shown on plans entitled "Proposed Co-Location at an Existing Wireless Communications Facility" prepared by Natcomm, LLC dated 07/31/06.

*Please note that work must begin in three (3) years from approval by the Commission and be completed in five (5) years from start of construction.*

**ALLOF THE FOLLOWING MODIFICATIONS THAT WERE REQUIRED TO BE MET PRIOR TO BUILDING DEPARTMENT SIGN-OFF HAVE BEEN MET:**

- 1) The lease agreement shall be approved by the Representative Town Meeting (RTM). Schedule A of the lease shall be revised to include the metes and bounds of the leased area. Schedule B of the lease shall be revised to clearly delineate the area of pavement that is going to be resurfaced (see **GLR Bk 5219 PG 0168**).
- 2) The following notes shall be added to the final plan:
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- b. The air conditioning units shall remain in compliance with the Town Noise Ordinance.
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  - h. It should be noted that the equipment approved in this application is continuously subject to Section 6-140.1 of the Building Zone Regulations, particularly the Section on Monitoring and Maintenance.
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These plans, signed off on by Diane Fox, Director of Planning and Zoning / Zoning Enforcement Coordinator / Town Planner on August 23, 2006 are hereby approved for building permit purposes with the following conditions:

1. This approval is subject to all the conditions of approval from the Planning and Zoning Commission as detailed in the May 9, 2006 approval letter (see attached).
2. The erosion controls shall be in place for the entire duration of the project. In addition, the site must be stabilized after work has been completed until vegetation can be established to naturally stabilize the site.
3. All plantings shown on the landscaping plan shall be maintained in healthy growing condition.

**PRIOR TO ANY C.O. THE FOLLOWING CONDITIONS MUST BE MET:**

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3. Noise levels for the mechanical equipment, as taken at the property line, demonstrating that they are in compliance with the Town Noise Ordinance shall be submitted. Health Department shall provide written approval of said documentation.
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**APPROVED P&Z PLANS PREPARED BY NATCOMM:**

Site Plan and Abutters Map, Sheet C-1, last dated 7/31/06  
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Erosion Control, Details, and Site Notes, Sheet C-3, last dated 7/31/06  
Shelter Elevations, Sheet C-4, last dated 7/31/06



K5170PG0193

DIANE W. FOX, AICP  
DIRECTOR PLANNING AND ZONING/ZONING  
ENFORCEMENT COORDINATOR/TOWN PLANNER



KATE BLANKLEY, AICP, Assistant Town Planner  
JOSEPH R. POLINZA, AICP, Senior Planner

5181

PLANNING AND ZONING - LAND USE DEPARTMENT

TOWN OF GREENWICH  
PLANNING AND ZONING COMMISSION  
SECRETARIAL CERTIFICATE

I, Frank Farricker, Secretary of the Planning and Zoning Commission of Town of Greenwich, Connecticut, do hereby certify that the following is a true copy of the decision rendered by such Commission, at its meeting held on Tuesday, April 25, 2006 at which a quorum was present. Details of any modifications will be found in the approved minutes of the meeting.

SPECIAL PERMIT CERTIFICATE: #460                      EFFECTIVE DATE: May 3, 2006

RESOLVED applications FSP-TELE #2875 and SP #2876 as submitted by the Town of Greenwich Department of Parks and Recreation and Neil Alexander, Esquire of Cuddy Feder, LLP for New Cingular Wireless PCS, LLC on behalf of record owner, the Town of Greenwich, for a final site plan and special permit for an additional wireless antennas installation at the 90-foot level on an existing 100-foot tower on a 154.27 acre property at the Griffith E. Harris Golf Course at 1323 King Street in the RA-4 zone as shown on plans entitled "Proposed Co-Location at an Existing Wireless Communication Facility" prepared by Natcomm, LLC dated 03/23/06 per Sections 6-15,6-17 and 6-140.1 of the Building Zone Regulations is hereby approved with modifications.

IN WITNESS WHEREOF, I have hereunto set my hand this 6 day of May 2006.

  
Frank Farricker  
Secretary, Planning and Zoning Commission

at 9:12 on 1 day of MAY 2006

3K5170P6-1194

DIANE W. FOX, AICP  
DIRECTOR PLANNING AND ZONING/ZONING  
ENFORCEMENT COORDINATOR/TOWN PLANNER



KATIE BLANKLEY, AICP, Assistant Town Planner  
JOSEPH R. POTENZA, AICP, Senior Planner

5105

PLANNING AND ZONING - LAND USE DEPARTMENT

SITE PLAN APPROVAL CERTIFICATE

I, Frank Farricker, Secretary of the Planning and Zoning Commission of the Town of Greenwich, Connecticut, do hereby certify that the Commission granted final site plan approval, for the following project at its meeting held on Tuesday, April 25, 2006 at which a quorum was present.

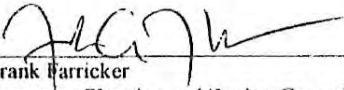
**RECORD OWNER:** Town of Greenwich  
**PROJECT:** Additional wireless antennas installation at the 90-foot level on an existing 100-foot tower on a 154.27 acre property at the Griffith E. Harris Golf Course  
**PROJECT LOCATION:** 1323 King Street  
**SITE PLAN NUMBER:** FSP-TELE #2875

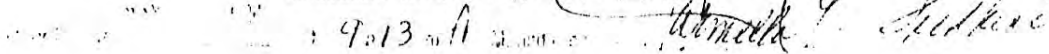
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The complete site plan is on file in the office of the Planning and Zoning Commission, Town Hall, Greenwich, Connecticut, as are the approved minutes of the meeting and the decision letter, which include any modifications to the approval.

IN WITNESS WHEREOF, I have hereunto set my hand this 6 day of May 2006

  
\_\_\_\_\_  
Frank Farricker  
Secretary, Planning and Zoning Commission

MAY 13 2006  


DIANE W. FOX, AICP  
DIRECTOR PLANNING AND ZONING/ZONING  
ENFORCEMENT COORDINATOR/TOWN PLANNER



KATIE BLANKLEY, AICP, Assistant Town Planner  
JOSEPH POTENZA, AICP, Senior Planner

DOREEN CARROLL-ANDREWS, Applications  
Coordinator

## PLANNING AND ZONING - LAND USE DEPARTMENT

### MEMORANDUM

**TO:** Bill Marr, Building Official  
Jim Maloney, Zoning Enforcement Officer

**FROM:** Diane Fox, Director of Planning and Zoning  
Zoning Enforcement Coordinator / Town Planner  
Katie Blankley, Assistant Town Planner

**DATE:** August 23, 2006

**RE:** **Griffith E. Harris Golf Course at 1323 King Street**  
Application FSP-TELE #2875, SP #2876, and MI #547  
Zone: RA-4 Zone

The attached plans of Natcomm as listed below, have been approved by the Planning and Zoning for Building Department Sign-off under FSP-TELE #2875, SP #2876, and MI #547 on behalf of record owner, the Town of Greenwich, for a final site plan and special permit for an additional wireless antenna installation at the 90-foot level on an existing 100-foot tower and for municipal improvement authorizing use of Town-owned land and accompanying lease agreement on a 154.27 acre property at the Griffith E. Harris Golf Course at 1323 King Street in the RA-4 zone per Sections 6-15, 6-17 and 6-140.1 of the Building Zone Regulations and Section 6-99 of the Town Charter as shown on plans entitled "Proposed Co-Location at an Existing Wireless Communications Facility" prepared by Natcomm, LLC dated 07/31/06.

*Please note that work must begin in three (3) years from approval by the Commission and be completed in five (5) years from start of construction.*

**ALLOF THE FOLLOWING MODIFICATIONS THAT WERE REQUIRED TO BE MET PRIOR TO BUILDING DEPARTMENT SIGN-OFF HAVE BEEN MET:**

- 1) The lease agreement shall be approved by the Representative Town Meeting (RTM). Schedule A of the lease shall be revised to include the metes and bounds of the leased area. Schedule B of the lease shall be revised to clearly delineate the area of pavement that is going to be resurfaced (see **GLR Bk 5219 PG 0168**).
- 2) The following notes shall be added to the final plan:
  - a. Reference shall be made to this approval, the approval of the RTM, and book and page number of the lease agreement on file on the Town of Greenwich Land Records.

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- b. The air conditioning units shall remain in compliance with the Town Noise Ordinance.
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These plans, signed off on by Diane Fox, Director of Planning and Zoning / Zoning Enforcement Coordinator / Town Planner on August 23, 2006 are hereby approved for building permit purposes with the following conditions:

1. This approval is subject to all the conditions of approval from the Planning and Zoning Commission as detailed in the May 9, 2006 approval letter (see attached).
2. The erosion controls shall be in place for the entire duration of the project. In addition, the site must be stabilized after work has been completed until vegetation can be established to naturally stabilize the site.
3. All plantings shown on the landscaping plan shall be maintained in healthy growing condition.

**PRIOR TO ANY C.O. THE FOLLOWING CONDITIONS MUST BE MET:**

1. All site improvements as shown on the attached plans and described in the lease agreement on file on the Land Records in Book 5219 and Page 0168 must be completed to the satisfaction of Planning and Zoning Staff or its designee prior to C.O.
2. All planting and site work shall be complete and inspected by P&Z Staff prior to any C.O.
3. Noise levels for the mechanical equipment, as taken at the property line, demonstrating that they are in compliance with the Town Noise Ordinance shall be submitted. Health Department shall provide written approval of said documentation.
4. After the installation of the equipment approved in this application, but prior to the issuance of any Certificate of Occupancy, New Cingular Wireless shall conduct testing of the total output of non-ionizing electromagnetic emissions generated by all existing equipment on the rooftop regardless of owner and certify in writing that the emissions are in compliance with Federal and State Emission Standards. This certification must be submitted to the Planning and Zoning Office and the Building Department.
5. 6 copies of final "as-built" plans showing all improvements shall be provided. The plan shall include the following notes:
  - a. Reference shall be made to this approval, the approval of the RTM, and book and page number of the lease agreement on file on the Town of Greenwich Land Records.
  - b. The air conditioning units shall remain in compliance with the Town Noise Ordinance.
  - c. The light on the west elevation of the equipment building will be equipped with a motion detector.
  - d. Any change to the equipment on the Tower or equipment on the outside of the equipment room shall be reviewed by Planning and Zoning.
  - e. In the event that New Cingular Wireless's equipment causes interference with the Town Emergency Communication Equipment, New Cingular Wireless must immediately take all steps necessary to correct and eliminate the interference.
  - f. All signage required by the FCC and OSHA regarding standards for safety and human exposure to RF emissions should be complied with.
  - g. It should be noted that the equipment approved in this application is continuously subject to Section 6-140.1 of the Building Zone Regulations, particularly the Section on Monitoring and Maintenance.

**APPROVED P&Z PLANS PREPARED BY NATCOMM:**

Site Plan and Abutters Map, Sheet C-1, last dated 7/31/06  
Metes and Bounds Survey, Sheet C-1a, last dated 7/31/06  
Compound Plan and Elevation, Sheet C-2, last dated 7/31/06  
Erosion Control, Details, and Site Notes, Sheet C-3, last dated 7/31/06  
Shelter Elevations, Sheet C-4, last dated 7/31/06

ADMINISTRATIVE INFORMATION

OWNERSHIP

Tax ID 028/002

TRANSFER OF OWNERSHIP

Printed 09/20/2019 Card No. 1

of 3

PARCEL NUMBER  
10-4506

TOWN OF GREENWICH  
TOWN HALL  
GREENWICH, CT 06830

DATE  
10/31/1962

NA BK/Pg: 678, 103

\$0

Parent Parcel Number

LOTS 27A 28C 29A 30 KING ST CLIFFDALE RD E704

10/31/1962

NA

\$0

Property Address  
KING STREET 1323

Neighborhood  
182100 BEDFORD RD. [3]

10/31/1962

NA

\$0

Property Class  
299 Exempt Commercial

TAXING DISTRICT INFORMATION

10/31/1962

NA

\$0

Jurisdiction  
57 Greenwich, CT

Area  
001

10/31/1962

NA

\$0

Corporation  
057

District  
10

10/31/1962

NA

\$0

Section & Plat  
054

Routing Number  
4378E0070

10/31/1962

NA

\$0

Site Description

VALUATION

10/31/1962

NA

\$0

Topography:

70% Assessed

10/31/1962

NA

\$0

Public Utilities:

Electric

10/31/1962

NA

\$0

Street or Road:

Neighborhood:

10/31/1962

NA

\$0

Zoning:

RA-4 Single Family 4

10/31/1962

NA

\$0

Legal Acres:

154.2700

10/31/1962

NA

\$0

Land Type

1 Active Recreation

1.00

107000.00

107000.00

Rating

154.2700

1.00

107000.00

107000.00

Actual

154.2700

1.00

107000.00

107000.00

Effective

154.2700

1.00

107000.00

107000.00

Frontage

154.2700

1.00

107000.00

107000.00

Table

154.2700

1.00

107000.00

107000.00

Depth

154.2700

1.00

107000.00

107000.00

Factor

154.2700

1.00

107000.00

107000.00

Extended

154.2700

1.00

107000.00

107000.00

Value

154.2700

1.00

107000.00

107000.00

Influence

154.2700

1.00

107000.00

107000.00

Factor

154.2700

1.00

107000.00

107000.00

Value

154.2700

1.00

107000.00

107000.00

Supplemental Cards

TRUE TAX VALUE

13486100

13486100

TOTAL LAND VALUE

13486100

13486100

13486100

Supplemental Cards

TOTAL LAND VALUE

13486100

13486100

Supplemental Cards

TOTAL LAND VALUE

13486100

13486100

Supplemental Cards

TOTAL LAND VALUE

13486100

13486100



10-4506

TOWN OF GREENWICH

KING STREET 1323

299

ADMINISTRATIVE INFORMATION

PARCEL NUMBER 10-4506  
Parent Parcel Number

OWNERSHIP  
TOWN OF GREENWICH  
TOWN HALL  
GREENWICH, CT 06830

Tax ID 028/002

TRANSFER OF OWNERSHIP

Printed 09/20/2019 Card No. 1

of 3

Property Address  
KING STREET 1323

Neighborhood  
162100 BEDFORD RD. [3]

Property Class  
299 Exempt Commercial

TAXING DISTRICT INFORMATION

Jurisdiction 57 Greenwich, CT

Area 001

Corporation 057

District 10

Section & Plat 054

Routing Number 437880070

Site Description

Topography:

Public Utilities:

Electric

Street or Road:

Neighborhood:

Zoning: RA-4 Single Family & Active Recreation  
Legal Acres: 154.2700

LOTS 27A 28C 29A 30 KING ST CLIFFDALE RD ET06

Date

10/31/1962

NA

Bk/Pg: 67B, 103

\$0

EXEMPT

VALUATION RECORD

Assessment Year	2008 List	2010 Reval	2015 Exclim	2015 Final	2016 List	2017 List	2018 List
Reason for Change	I	I	I	I	I	I	I
VALUATION	30854000	16506900	13441000	13486100	13486100	13486100	13486100
Market	E	E	E	E	E	E	E
	6175100	6299500	9637900	13025300	13025300	13025300	13025300
	37029100	22806400	23078900	26511400	26511400	26511400	26511400
VALUATION	I	I	I	I	I	I	I
70% Assessed	E	E	E	E	E	E	E
	4322570	4409650	9408700	9440270	9440270	9440270	9440270
	25920370	15964480	16155230	9117710	9117710	9117710	9117710
				18557980	18557980	18557980	18557980

LAND DATA AND CALCULATIONS

Rating	Measured	Table	Prod. Factor	Base Rate	Adjusted Rate	Extended Value	Influence Factor	Value
-or- Actual Frontage	-or- Acresage	Effective Depth	-or- Factor	Rate	Rate	Value	Factor	Value
	154.2700		1.00	107000.00	107000.00	16506900 F	-5% T -14%	13486100

Bp16: 16-1573: \$86,300 int alt  
Bp18: 15-0801: Replace Antenna \$15,000.  
DBA: Giffith E. Harris Golf Course; Ristorante Fiore  
C01 = Voided '10; C02 = Clubhouse; C03 = Maint garage;  
C04 = 2010 Pro Shop/Admin/Lav  
GEN: 1 putting green, 1 driving range, 1 chipping green  
P: 85 spcs  
VC:

Permit Number  
Type

FilingDate  
Est. Cost Field Visit

Supplemental Cards  
TRUE TAX VALUE

13486100

Supplemental Cards  
TOTAL LAND VALUE

13486100

ADMINISTRATIVE INFORMATION

PARCEL NUMBER 10-4506  
 Parent Parcel Number  
 Property Address KING STREET 1323  
 Neighborhood 182100 BEDFORD RD. (3)  
 Property Class 299 Exempt Commercial  
 TAXING DISTRICT INFORMATION  
 Jurisdiction 57 Greenwich, CT  
 Area 001  
 Corporation 057  
 District 10  
 Section & Plat 054  
 Routing Number 437850070

OWNERSHIP

TOWN OF GREENWICH  
 TOWN HALL  
 GREENWICH, CT 06830  
 LOTS 27A 28C 29A 30 KING ST CLIFFDALE RD E70&  
 Tax ID 028/002  
 TRANSFER OF OWNERSHIP  
 Date 10/31/1962 NR BK/Pg: 678, 103 \$0

Printed 09/20/2019 Card No. 1 of 3

# EXEMPT

VALUATION RECORD

Assessment Year	Reason for Change	2008 List	2010 Reval	2015 Prelim	2015 Final	2016 List	2017 List	2018 List
10/01/2008	10/01/2010	10/01/2015	10/01/2015	10/01/2016	10/01/2017	10/01/2018		
I	30854000	16506900	13441000	13486100	13486100	13486100	13486100	13486100
E	6175100	6299500	9637900	13025300	13025300	13025300	13025300	13025300
T	37029100	22806400	23078900	26511400	26511400	26511400	26511400	26511400
I	21597800	11554830	9408700	9440270	9440270	9440270	9440270	9440270
E	4322570	4409650	6746530	9117710	9117710	9117710	9117710	9117710
T	25920370	15964480	16155230	18557980	18557980	18557980	18557980	18557980

LAND DATA AND CALCULATIONS

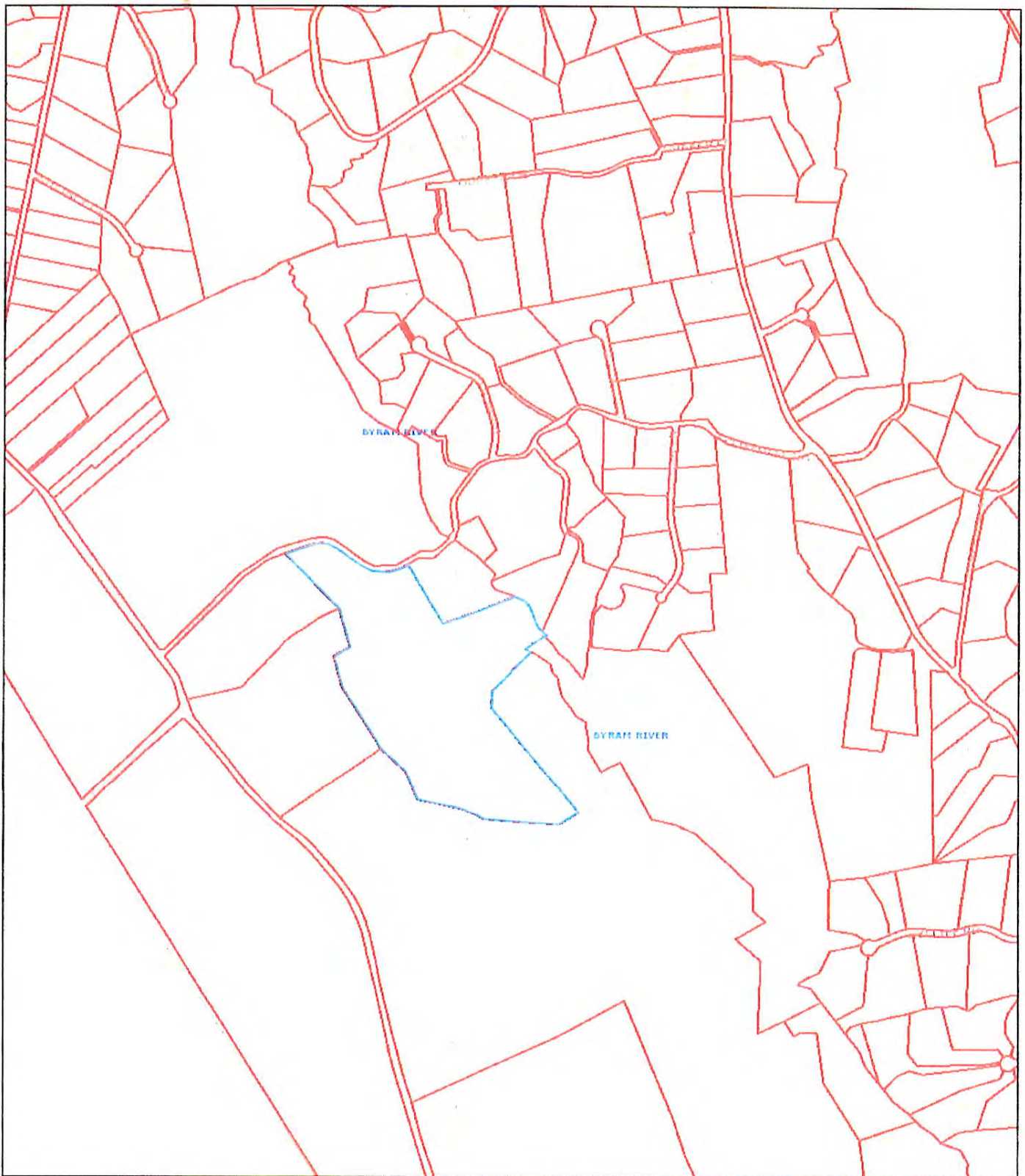
Rating	Measured	Table	Prod. Factor	Base	Adjusted	Extended	Influence	Value
Soil ID	Area	Depth	-or- Sqrare Feet	Rate	Rate	Value	Factor	
	154.2700		1.00	107000.00	107000.00	16506900 F	-5% T -14%	13486100

BR16: 16-1573: \$86,300 Int alt  
 BR18: 15-0801: Replace Antenna \$15,000.  
 DBR: Giffith E. Harris Golf Course; Rstorance Flore  
 C01 = Voided '10; C02 = Clubhouse; C03 = Maint garage;  
 C04 = 2010 Pro Shop/Admin/Inv  
 GEN: 1 putting green, 1 driving range, 1 chipping green  
 P: 85 spcs  
 VCI:

Permit Number  
 Type  
 FilingDate  
 Est. Cost  
 Field Visit

Supplemental Cards  
 TRUE TAX VALUE  
 13486100

Supplemental Cards  
 TOTAL LAND VALUE  
 13486100



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**1323 King Street**

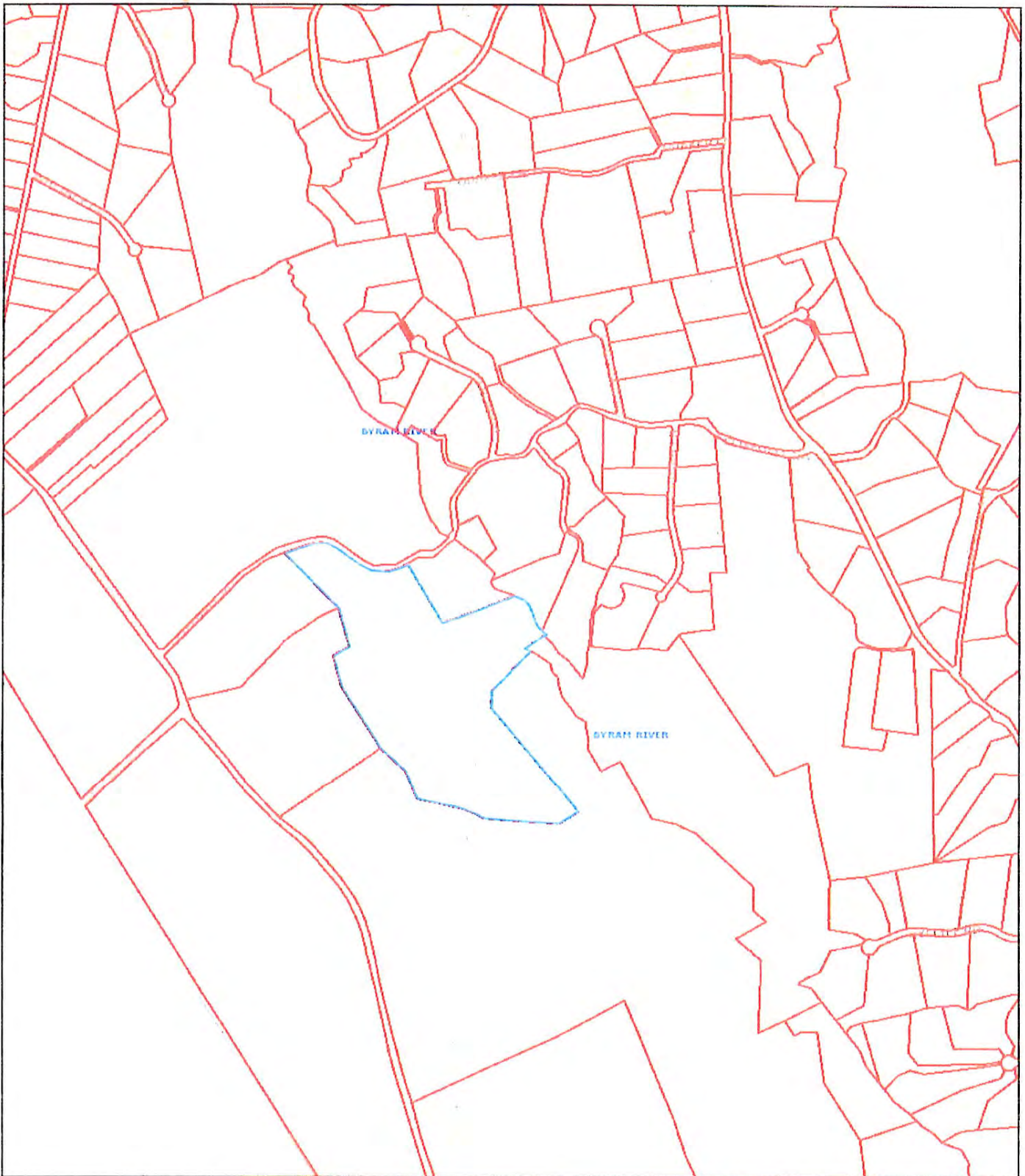
9/23/2019 8:11:25 AM



1:12000  
1"=1000'







This map was produced from the Town of Greenwich GIS. The Town expressly disclaims any liability that may result from the use of this map. Basemap: 4/2/08. Parcels: 10/1/12. Copyright 2005 Town of Greenwich

**1323 King Street**

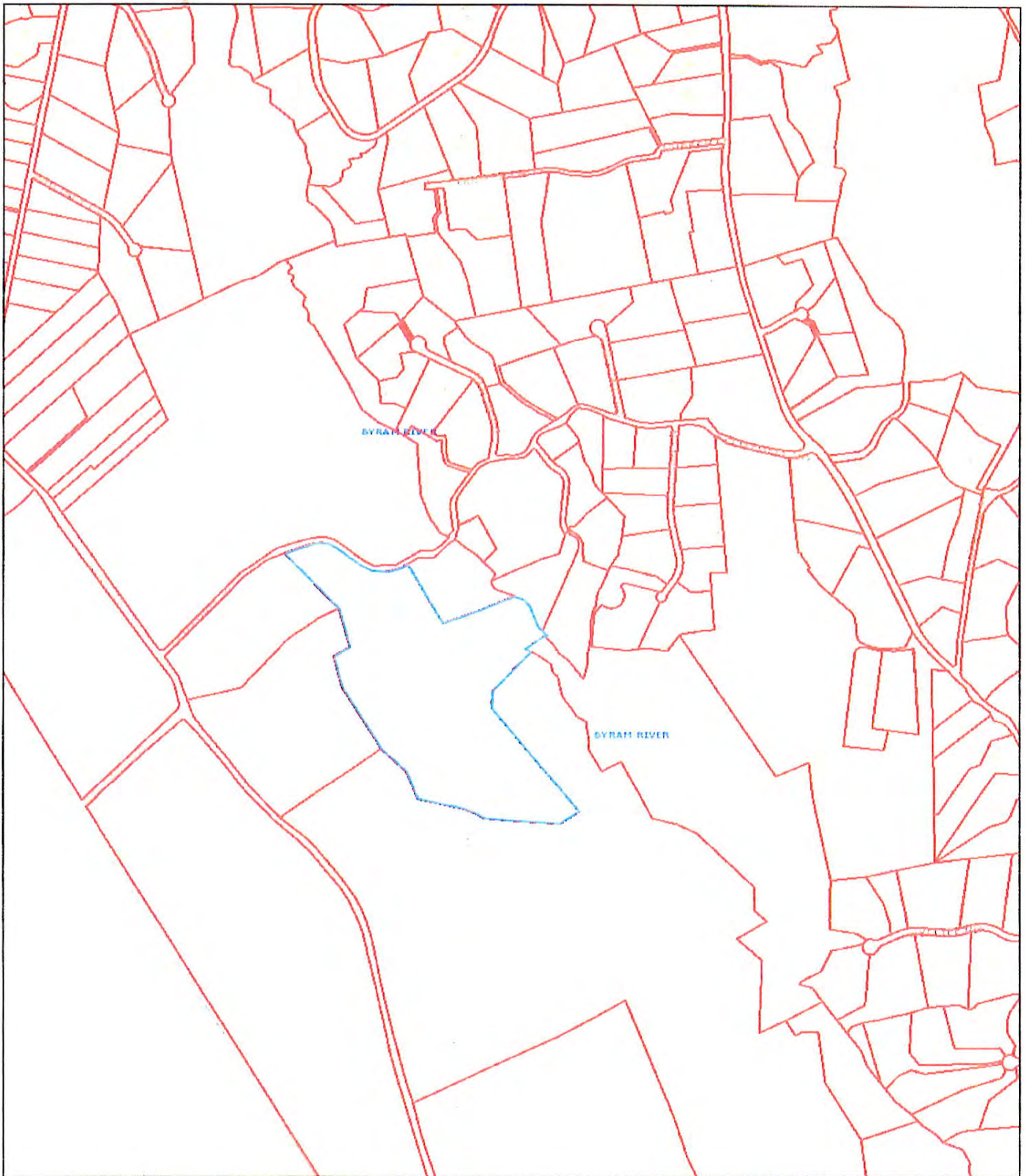
9/23/2019 8:11:25 AM



1:12000

1"=1000'





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**1323 King Street**

9/23/2019 8:11:25 AM



1:12000  
1"=1000'





April 6, 2018  
September 4, 2019 (Rev.1)  
**December 8, 2020 (Rev. 2)**



SAI Communications  
12 Industrial Way  
Salem NH, 03079

RE:     Site Number:             CT2347 (LTE 2C/3C/4C)  
          FA Number:             10050949  
          PACE Number:         MRCTB027630  
          PT Number:            2051A0ETPP  
          Site Name:             GREENWICH-KING STREET  
          Site Address:         1323 King Street  
                                      Greenwich, CT 06831

To Whom It May Concern:

Hudson Design Group LLC (HDG) has been authorized by SAI Communications to perform a mount analysis on the existing AT&T antenna/RRH mounts to determine their capability of supporting the following additional loading:

- (1) Squid Surge Arrestor (24.0"x9.7"  $\Phi$  – Wt. = 33 lbs.) (Tower Mount)
- **(3) HPA-65R-BUU-H6 Antennas (72.0"x14.8"x7.4" – Wt. = 51 lbs. /each)**
- **(3) QS66512-2 Antennas (72.0"x12.0"x9.6" – Wt. = 111 lbs. /each)**
- (3) RRUS-32 RRH's (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each) (Tower Mount)
- (3) 8843 B2/B66A RRH's (14.9"x13.2"x10.9" – Wt. = 72 lbs. /each) (Tower Mount)
- (3) 4449 B5/B12 RRH's (17.9"x13.2"x9.4" – Wt. = 73 lbs. /each) (Tower Mount)
- (1) Squid Surge Arrestor (24.0"x9.7"  $\Phi$  – Wt. = 33 lbs.) (Tower Mount)

*\*Proposed equipment shown in bold*

No original structural design documents or fabrication drawings were available for the existing mounts. HDG's subconsultant, ProVertic LLC, conducted a survey climb and mapping of the existing AT&T antenna mounts on March 21, 2018.



Mount Analysis Methods:

- This analysis was conducted in accordance with EIA/TIA-222-H, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, the International Building Code 2015 with 2018 Connecticut State Building Code, and AT&T Mount Technical Directive – R13.
- HDG considers this mount to be asymmetrical and has applied wind loads in 30 degree increments all around the mount. Per TIA-222-H and Appendix N of the Connecticut State Building Code, the max basic wind speed for this site is equal to 120 mph with a max basic wind speed with ice of 50 mph and a max ice thickness of 1.0 in. An escalated ice thickness of 1.11 in was used for this analysis.
- HDG considers this site to be exposure category C; tower is located near large, flat, open, terrain/grasslands.
- HDG considers this site to be topographic category 1; tower is located on flat terrain or the bottom of a hill or ridge.
- The mount has been analyzed with load combinations consisting of 250 lbs live load using a service wind speed of 30 mph wind on the worst case antenna. Analysis performed on each antenna pipe to determine worst case location; worst case location was antenna position 3.
- HDG considers this site to have a spectral response acceleration parameter at short periods,  $S_s$ , of 0.259 and a spectral response acceleration parameter at a period of 1 second,  $S_1$ , of 0.070.
- The mount has been analyzed with load combinations consisting of a 250 lbs live load in a worst case location on the mount.
- The existing mount is secured to the existing tower with U-Bolts. The connection is considered OK by visual inspection.

Based on our evaluation, we have determined that the existing mounts **ARE CAPABLE** of supporting the proposed installation.

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
Existing (LTE 2C/3C/4C) Mount Rating	5	LC40	80%	PASS

Reference Documents:

- Mount mapping report prepared by ProVertic LLC dated April 6, 2018.

This determination was based on the following limitations and assumptions:

1. HDG is not responsible for any modifications completed prior to and hereafter which HDG was not directly involved.
2. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.
3. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer's requirements.
4. The existing mount has been adequately secured to the tower structure per the mount manufacturer's specifications.
5. All components pertaining to AT&T's mounts must be tightened and re-plumbed prior to the installation of new appurtenances.
6. HDG performed a localized analysis on the mount itself and not on the supporting tower structure.

Please feel free to contact our office should you have any questions.

Respectfully Submitted,  
Hudson Design Group LLC



Michael Cabral  
Vice President



Daniel P. Hamm, PE  
Principal

FIELD PHOTOS:









**HUDSON**  
Design Group LLC

## Wind & Ice Calculations

Date: 12/8/2020  
 Project Name: GREENWICH-KING STREET  
 Project No.: CT2347  
 Designed By: RL Checked By: MSC



**2.6.5.2 Velocity Pressure Coeff:**

$K_z = 2.01 (z/z_g)^{2/\alpha}$

$K_z = 1.244$

$z = 92$  (ft)  
 $z_g = 900$  (ft)  
 $\alpha = 9.5$

$K_{zmin} \leq K_z \leq 2.01$

**Table 2-4**

Exposure	$Z_g$	$\alpha$	$K_{zmin}$	$K_c$
B	1200 ft	7.0	0.70	0.9
C	900 ft	9.5	0.85	1.0
D	700 ft	11.5	1.03	1.1

**2.6.6.2 Topographic Factor:**

**Table 2-5**

Topo. Category	$K_t$	f
2	0.43	1.25
3	0.53	2.0
4	0.72	1.5

$K_{zt} = [1 + (K_c K_t / K_h)]^2$

$K_h = e^{(fz/H)}$

$K_{zt} = 1$

$K_h = 1$

*(If Category 1 then  $K_{zt} = 1.0$ )*

$K_c = 1$  (from Table 2-4)

$K_t = 0$  (from Table 2-5)

$f = 0$  (from Table 2-5)

$z = 92$

$z_s = 400$  (Mean elevation of base of structure above sea level)

$H = 0$  (Ht. of the crest above surrounding terrain)

$K_{zt} = 1.00$  (from 2.6.6.2.1)

$K_e = 0.99$  (from 2.6.8)

Category = 1

**2.6.10 Design Ice Thickness**

Max Ice Thickness =

$t_i = 1.00$  in

Importance Factor =

$I = 1.0$  (from Table 2-3)

$K_{iz} = 1.11$  (from Sec. 2.6.10)

$t_{iz} = t_i * I * K_{iz} * (K_{zt})^{0.35}$

$t_{iz} = 1.11$  in



Date: 12/8/2020  
 Project Name: GREENWICH-KING STREET  
 Project No.: CT2347  
 Designed By: RL Checked By: MSC



**2.6.9 Gust Effect Factor**

2.6.9.1 Self Supporting Lattice Structures

$G_h = 1.0$  Latticed Structures > 600 ft

$G_h = 0.85$  Latticed Structures 450 ft or less

$G_h = 0.85 + 0.15 [h/150 - 3.0]$   $h =$  ht. of structure

$h =$  107

$G_h =$  0.85

2.6.9.2 Guyed Masts

$G_h =$  0.85

2.6.9.3 Pole Structures

$G_h =$  1.1

2.6.9 Appurtenances

$G_h =$  1.0

2.6.9.4 Structures Supported on Other Structures

(Cantilevered tubular or latticed spines, pole, structures on buildings (ht. : width ratio > 5))

$G_h =$  1.35

$G_h =$  1.00

**2.6.11.2 Design Wind Force on Appurtenances**

$F = q_z * G_h * (EPA)_A$

$q_z = 0.00256 * K_z * K_{zt} * K_s * K_e * K_d * V_{max}^2$

$q_z =$	<b>38.41</b>
$q_{z(ice)} =$	<b>6.67</b>
$q_{z(30)} =$	<b>2.40</b>

$K_z =$	1.244 (from 2.6.5.2)
$K_{zt} =$	1.0 (from 2.6.6.2.1)
$K_s =$	1.0 (from 2.6.7)
$K_e =$	0.99 (from 2.6.8)
$K_d =$	0.85 (from Table 2-2)
$V_{max} =$	120 mph (Ultimate Wind Speed)
$V_{max(ice)} =$	50 mph
$V_{30} =$	30 mph

**Table 2-2**

Structure Type	Wind Direction Probability Factor, $K_d$
Latticed structures with triangular, square or rectangular cross sections	0.85
Tubular pole structures, latticed structures with other cross sections, appurtenances	0.95
Tubular pole structures supporting antennas enclosed within a cylindrical shroud	1.00

Date: 12/8/2020  
 Project Name: GREENWICH-KING STREET  
 Project No.: CT2347  
 Designed By: RL Checked By: MSC



Determine Ca:

**Table 2-9**

Force Coefficients (Ca) for Appurtenances				
Member Type		Aspect Ratio ≤ 2.5	Aspect Ratio = 7	Aspect Ratio ≥ 25
		Ca	Ca	Ca
Flat		1.2	1.4	2.0
Square/Rectangular HSS		$1.2 - 2.8(r_s) \geq 0.85$	$1.4 - 4.0(r_s) \geq 0.90$	$2.0 - 6.0(r_s) \geq 1.25$
Round	<b>C &lt; 39</b> (Subcritical)	0.7	0.8	1.2
	<b>39 ≤ C ≤ 78</b> (Transitional)	$4.14/(C^{0.485})$	$3.66/(C^{0.415})$	$46.8/(C^{1.0})$
	<b>C &gt; 78</b> (Supercritical)	0.5	0.6	0.6

Aspect Ratio is the overall length/width ratio in the plane normal to the wind direction.  
 (Aspect ratio is independent of the spacing between support points of a linear appurtenance,  
 Note: Linear interpolation may be used for aspect ratios other than those shown.

Ice Thickness = **1.11 in**      Angle = **0 (deg)**      Equivalent Angle = **180 (deg)**

<u>Appurtenances</u>	<u>Height</u>	<u>Width</u>	<u>Depth</u>	<u>Flat Area</u>	<u>Aspect Ratio</u>	<u>Ca</u>	<u>Force (lbs)</u>	<u>Force (lbs) (w/ Ice)</u>	<u>Force (lbs) (30 mph)</u>
HPA-65R-BUU-H6 Antenna	72.0	14.8	7.4	7.40	4.86	1.31	371	76	23
QS66512-2 Antenna	72.0	12.0	9.6	6.00	6.00	1.36	312	66	20
RRUS-32 RRH	27.2	12.1	7.0	2.29	2.25	1.20	105	23	7
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.20	63	15	4
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.36	1.20	76	17	5
Surge Arrestor	24.0	9.7	9.7	1.62	2.47	0.70	43	10	3
2" Pipe	2.4	12.0		0.20	0.20	1.20	9		

Date: 12/8/2020  
 Project Name: GREENWICH-KING STREET  
 Project No.: CT2347  
 Designed By: RL Checked By: MSC



**WIND LOADS**

Angle = **30** (deg)

Ice Thickness = **1.11** in.

Equivalent Angle = **210** (deg)

**WIND LOADS WITH NO ICE:**

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio	Aspect Ratio	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
HPA-65R-BUU-H6 Antenna	72.0	14.8	7.4	7.40	3.70	4.86	9.73	1.31	1.49	371	212	331
QS66512-2 Antenna	72.0	12.0	9.6	6.00	4.80	6.00	7.50	1.36	1.42	312	261	300
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	105	64	95
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	63	52	60
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	76	54	70

**WIND LOADS WITH ICE:**

HPA-65R-BUU-H6 Antenna	74.2	17.0	9.6	8.77	4.96	4.36	7.72	1.28	1.42	75	47	68
QS66512-2 Antenna	74.2	14.2	11.8	7.33	6.09	5.22	6.28	1.32	1.37	65	56	62
RRUS-32 RRH	29.4	14.3	9.2	2.92	1.88	2.05	3.19	1.20	1.23	23	15	21
8843 B2/B66A RRH	17.1	15.4	13.1	1.83	1.56	1.11	1.30	1.20	1.20	15	12	14
4449 B5/B12 RRH	20.1	15.4	11.6	2.15	1.62	1.30	1.73	1.20	1.20	17	13	16

**WIND LOADS AT 30 MPH:**

HPA-65R-BUU-H6 Antenna	72.0	14.8	7.4	7.40	3.70	4.86	9.73	1.31	1.49	23	13	21
QS66512-2 Antenna	72.0	12.0	9.6	6.00	4.80	6.00	7.50	1.36	1.42	20	16	19
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	7	4	6
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	3	4
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	5	3	4



Date: 12/8/2020  
 Project Name: GREENWICH-KING STREET  
 Project No.: CT2347  
 Designed By: RL Checked By: MSC



**WIND LOADS**

Angle = 60 (deg)      Ice Thickness = 1.11 in.      Equivalent Angle = 240 (deg)

**WIND LOADS WITH NO ICE:**

<u>Appurtenances</u>	<u>Height</u>	<u>Width</u>	<u>Depth</u>	<u>Flat Area</u> <u>(normal)</u>	<u>Flat Area</u> <u>(side)</u>	<u>Ratio</u> <u>(normal)</u>	<u>Ratio</u> <u>(side)</u>	<u>Ca</u> <u>(normal)</u>	<u>Ca</u> <u>(side)</u>	<u>Force (lbs)</u> <u>(normal)</u>	<u>Force (lbs)</u> <u>(side)</u>	<u>Force (lbs)</u> <u>(angle)</u>
HPA-65R-BUU-H6 Antenna	72.0	14.8	7.4	7.40	3.70	4.86	9.73	1.31	1.49	371	212	252
QS66512-2 Antenna	72.0	12.0	9.6	6.00	4.80	6.00	7.50	1.36	1.42	312	261	274
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	105	64	74
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	63	52	55
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	76	54	59

**WIND LOADS WITH ICE:**

HPA-65R-BUU-H6 Antenna	74.2	17.0	9.6	8.77	4.96	4.36	7.72	1.28	1.42	75	47	54
QS66512-2 Antenna	74.2	14.2	11.8	7.33	6.09	5.22	6.28	1.32	1.37	65	56	58
RRUS-32 RRH	29.4	14.3	9.2	2.92	1.88	2.05	3.19	1.20	1.23	23	15	17
8843 B2/B66A RRH	17.1	15.4	13.1	1.83	1.56	1.11	1.30	1.20	1.20	15	12	13
4449 B5/B12 RRH	20.1	15.4	11.6	2.15	1.62	1.30	1.73	1.20	1.20	17	13	14

**WIND LOADS AT 30 MPH:**

HPA-65R-BUU-H6 Antenna	72.0	14.8	7.4	7.40	3.70	4.86	9.73	1.31	1.49	23	13	16
QS66512-2 Antenna	72.0	12.0	9.6	6.00	4.80	6.00	7.50	1.36	1.42	20	16	17
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	7	4	5
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	3	3
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	5	3	4

Date: 12/8/2020  
 Project Name: GREENWICH-KING STREET  
 Project No.: CT2347  
 Designed By: RL Checked By: MSC



**WIND LOADS**

Angle = 90 (deg)

Ice Thickness = 1.11 in.

Equivalent Angle = 270 (deg)

**WIND LOADS WITH NO ICE:**

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
HPA-65R-BUU-H6 Antenna	72.0	14.8	7.4	7.40	3.70	4.86	9.73	1.31	1.49	371	212	212
QS66512-2 Antenna	72.0	12.0	9.6	6.00	4.80	6.00	7.50	1.36	1.42	312	261	261
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	105	64	64
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	63	52	52
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	76	54	54

**WIND LOADS WITH ICE:**

HPA-65R-BUU-H6 Antenna	74.2	17.0	9.6	8.77	4.96	4.36	7.72	1.28	1.42	75	47	47
QS66512-2 Antenna	74.2	14.2	11.8	7.33	6.09	5.22	6.28	1.32	1.37	65	56	56
RRUS-32 RRH	29.4	14.3	9.2	2.92	1.88	2.05	3.19	1.20	1.23	23	15	15
8843 B2/B66A RRH	17.1	15.4	13.1	1.83	1.56	1.11	1.30	1.20	1.20	15	12	12
4449 B5/B12 RRH	20.1	15.4	11.6	2.15	1.62	1.30	1.73	1.20	1.20	17	13	13

**WIND LOADS AT 30 MPH:**

HPA-65R-BUU-H6 Antenna	72.0	14.8	7.4	7.40	3.70	4.86	9.73	1.31	1.49	23	13	13
QS66512-2 Antenna	72.0	12.0	9.6	6.00	4.80	6.00	7.50	1.36	1.42	20	16	16
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	7	4	4
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	3	3
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	5	3	3

Date: 12/8/2020  
 Project Name: GREENWICH-KING STREET  
 Project No.: CT2347  
 Designed By: RL Checked By: MSC



**WIND LOADS**

Angle = 120 (deg)      Ice Thickness = 1.11 in.      Equivalent Angle = 300 (deg)

**WIND LOADS WITH NO ICE:**

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
HPA-65R-BUU-H6 Antenna	72.0	14.8	7.4	7.40	3.70	4.86	9.73	1.31	1.49	371	212	252
QS66512-2 Antenna	72.0	12.0	9.6	6.00	4.80	6.00	7.50	1.36	1.42	312	261	274
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	105	64	74
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	63	52	55
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	76	54	59

**WIND LOADS WITH ICE:**

HPA-65R-BUU-H6 Antenna	74.2	17.0	9.6	8.77	4.96	4.36	7.72	1.28	1.42	75	47	54
QS66512-2 Antenna	74.2	14.2	11.8	7.33	6.09	5.22	6.28	1.32	1.37	65	56	58
RRUS-32 RRH	29.4	14.3	9.2	2.92	1.88	2.05	3.19	1.20	1.23	23	15	17
8843 B2/B66A RRH	17.1	15.4	13.1	1.83	1.56	1.11	1.30	1.20	1.20	15	12	13
4449 B5/B12 RRH	20.1	15.4	11.6	2.15	1.62	1.30	1.73	1.20	1.20	17	13	14

**WIND LOADS AT 30 MPH:**

HPA-65R-BUU-H6 Antenna	72.0	14.8	7.4	7.40	3.70	4.86	9.73	1.31	1.49	23	13	16
QS66512-2 Antenna	72.0	12.0	9.6	6.00	4.80	6.00	7.50	1.36	1.42	20	16	17
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	7	4	5
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	3	3
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	5	3	4



Date: 12/8/2020  
 Project Name: GREENWICH-KING STREET  
 Project No.: CT2347  
 Designed By: RL Checked By: MSC



**WIND LOADS**

Angle = **150** (deg)      Ice Thickness = **1.11** in.      Equivalent Angle = **330** (deg)

**WIND LOADS WITH NO ICE:**

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
HPA-65R-BUU-H6 Antenna	72.0	14.8	7.4	7.40	3.70	4.86	9.73	1.31	1.49	371	212	331
QS66512-2 Antenna	72.0	12.0	9.6	6.00	4.80	6.00	7.50	1.36	1.42	312	261	300
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	105	64	95
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	63	52	60
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	76	54	70

**WIND LOADS WITH ICE:**

HPA-65R-BUU-H6 Antenna	74.2	17.0	9.6	8.77	4.96	4.36	7.72	1.28	1.42	75	47	68
QS66512-2 Antenna	74.2	14.2	11.8	7.33	6.09	5.22	6.28	1.32	1.37	65	56	62
RRUS-32 RRH	29.4	14.3	9.2	2.92	1.88	2.05	3.19	1.20	1.23	23	15	21
8843 B2/B66A RRH	17.1	15.4	13.1	1.83	1.56	1.11	1.30	1.20	1.20	15	12	14
4449 B5/B12 RRH	20.1	15.4	11.6	2.15	1.62	1.30	1.73	1.20	1.20	17	13	16

**WIND LOADS AT 30 MPH:**

HPA-65R-BUU-H6 Antenna	72.0	14.8	7.4	7.40	3.70	4.86	9.73	1.31	1.49	23	13	21
QS66512-2 Antenna	72.0	12.0	9.6	6.00	4.80	6.00	7.50	1.36	1.42	20	16	19
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	7	4	6
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	3	4
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	5	3	4

Date: 12/8/2020  
 Project Name: GREENWICH-KING STREET  
 Project No.: CT2347  
 Designed By: RL      Checked By: MSC



**ICE WEIGHT CALCULATIONS**

Thickness of ice: 1.11 in.  
 Density of ice: 56 pcf

**HPA-65R-BUU-H6 Antenna**

Weight of ice based on total radial SF area:  
 Height (in): 72.0  
 Width (in): 14.8  
 Depth (in): 7.4  
 Total weight of ice on object: 144 lbs  
 Weight of object: 51.0 lbs  
**Combined weight of ice and object: 195 lbs**

**QS66512-2 Antenna**

Weight of ice based on total radial SF area:  
 Height (in): 72.0  
 Width (in): 12.0  
 Depth (in): 9.6  
 Total weight of ice on object: 134 lbs  
 Weight of object: 111.0 lbs  
**Combined weight of ice and object: 245 lbs**

**RRUS-32 RRH**

Weight of ice based on total radial SF area:  
 Height (in): 27.2  
 Width (in): 12.1  
 Depth (in): 7.0  
 Total weight of ice on object: 46 lbs  
 Weight of object: 60.0 lbs  
**Combined weight of ice and object: 106 lbs**

**8843 B2/B66A RRH**

Weight of ice based on total radial SF area:  
 Height (in): 14.9  
 Width (in): 13.2  
 Depth (in): 10.9  
 Total weight of ice on object: 31 lbs  
 Weight of object: 72.0 lbs  
**Combined weight of ice and object: 103 lbs**

**4449 B5/B12 RRH**

Weight of ice based on total radial SF area:  
 Height (in): 17.9  
 Width (in): 13.2  
 Depth (in): 9.4  
 Total weight of ice on object: 35 lbs  
 Weight of object: 73.0 lbs  
**Combined weight of ice and object: 108 lbs**

**Squid Surge Arrestor**

Weight of ice based on total radial SF area:  
 Depth (in): 24.0  
 Diameter(in): 9.7  
 Total weight of ice on object: 29 lbs  
 Weight of object: 33 lbs  
**Combined weight of ice and object: 62 lbs**

**2" Pipe**

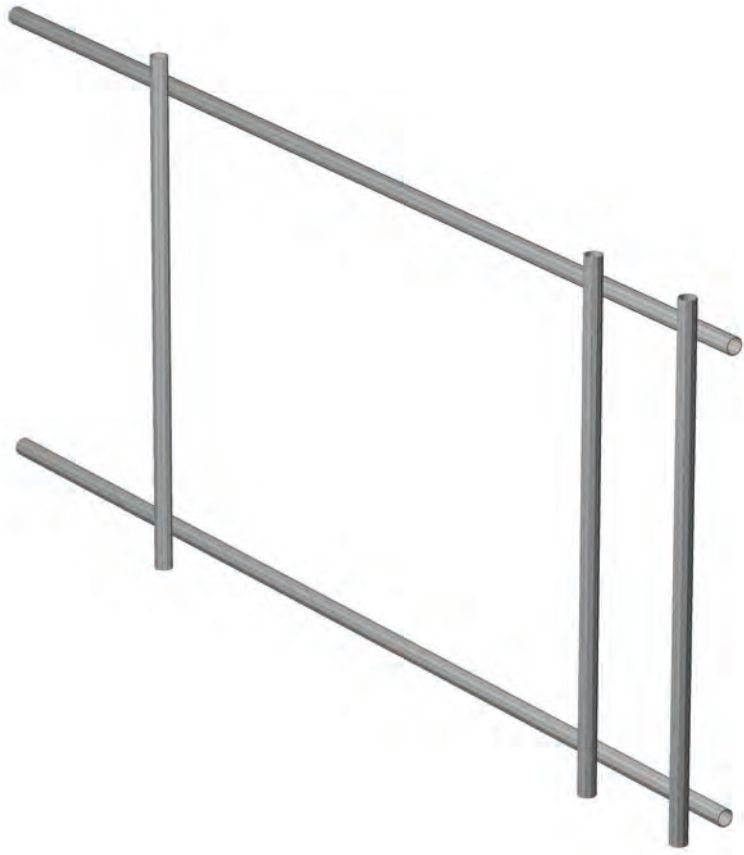
Per foot weight of ice:  
 diameter (in): 2.38  
**Per foot weight of ice on object: 5 plf**

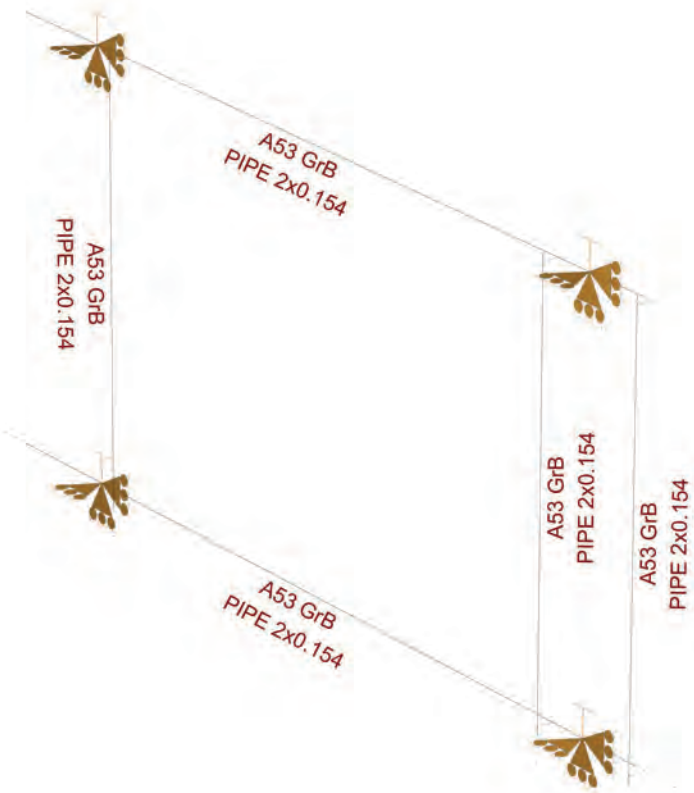


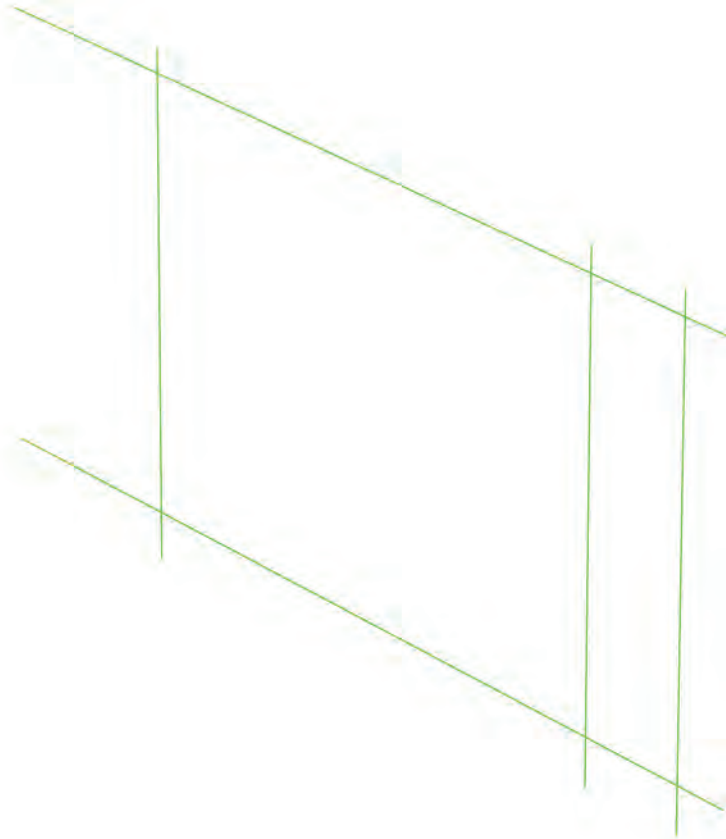
**HUDSON**  
Design Group LLC

**Mount Calculations  
(Existing Conditions)**

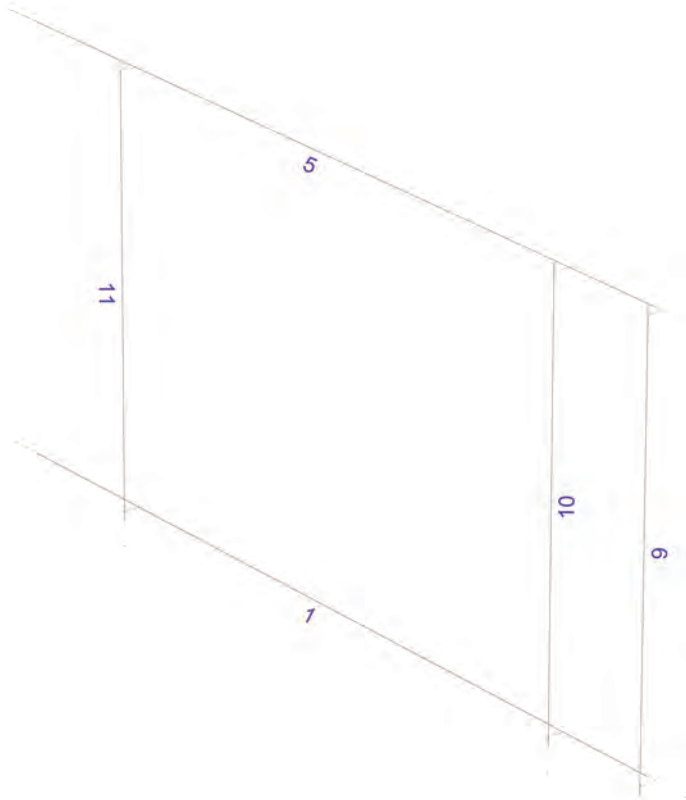












Current Date: 12/8/2020 9:42 AM

Units system: English

File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT2347\Rev. 2\CT2347 (LTE 2C-3C-4C).retx

## Load data

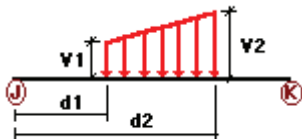
### GLOSSARY

Comb : Indicates if load condition is a load combination

### Load Conditions

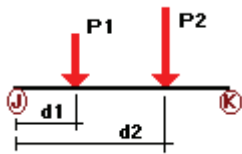
Condition	Description	Comb.	Category																																																																																			
D	Dead Load	No	DL																																																																																			
Wo	Wind Load (NO ICE)	No	WIND																																																																																			
W30	WL 30deg	No	WIND																																																																																			
W60	WL 60deg	No	WIND																																																																																			
W90	WL 90deg	No </tr <tr> <td>W120</td> <td>WL 120deg</td> <td>No</td> <td>WIND</td> </tr> <tr> <td>W150</td> <td>WL 150deg</td> <td>No</td> <td>WIND</td> </tr> <tr> <td>Di</td> <td>Ice Load</td> <td>No</td> <td>LL</td> </tr> <tr> <td>WI0</td> <td>WL ICE 0deg</td> <td>No</td> <td>WIND</td> </tr> <tr> <td>WI30</td> <td>WL ICE 30deg</td> <td>No</td> <td>WIND</td> </tr> <tr> <td>WI60</td> <td>WL ICE 60deg</td> <td>No</td> <td>WIND</td> </tr> <tr> <td>WI90</td> <td>WL ICE 90deg</td> <td>No</td> <td>WIND</td> </tr> <tr> <td>WI120</td> <td>WL ICE 120deg</td> <td>No</td> <td>WIND</td> </tr> <tr> <td>WI150</td> <td>WL ICE 150deg</td> <td>No</td> <td>WIND</td> </tr> <tr> <td>WL0</td> <td>WL 30 mph 0deg</td> <td>No</td> <td>WIND</td> </tr> <tr> <td>WL30</td> <td>WL 30 mph 30deg</td> <td>No</td> <td>WIND</td> </tr> <tr> <td>WL60</td> <td>WL 30 mph 60deg</td> <td>No</td> <td>WIND</td> </tr> <tr> <td>WL90</td> <td>WL 30 mph 90deg</td> <td>No</td> <td>WIND</td> </tr> <tr> <td>WL120</td> <td>WL 30 mph 120deg</td> <td>No</td> <td>WIND</td> </tr> <tr> <td>WL150</td> <td>WL 30 mph 150deg</td> <td>No</td> <td>WIND</td> </tr> <tr> <td>LL1</td> <td>250 lb Live Load Center of Mount</td> <td>No</td> <td>LL</td> </tr> <tr> <td>LL2</td> <td>250 lb Live Load Right End of Mount</td> <td>No</td> <td>LL</td> </tr> <tr> <td>LL3</td> <td>250 lb Live Load Left End of Mount</td> <td>No</td> <td>LL</td> </tr> <tr> <td>LLa1</td> <td>250 lb Live Load Antenna 1</td> <td>No</td> <td>LL</td> </tr> <tr> <td>LLa2</td> <td>250 lb Live Load Antenna 2</td> <td>No</td> <td>LL</td> </tr> <tr> <td>LLa3</td> <td>250 lb Live Load Antenna 3</td> <td>No</td> <td>LL</td> </tr>	W120	WL 120deg	No	WIND	W150	WL 150deg	No	WIND	Di	Ice Load	No	LL	WI0	WL ICE 0deg	No	WIND	WI30	WL ICE 30deg	No	WIND	WI60	WL ICE 60deg	No	WIND	WI90	WL ICE 90deg	No	WIND	WI120	WL ICE 120deg	No	WIND	WI150	WL ICE 150deg	No	WIND	WL0	WL 30 mph 0deg	No	WIND	WL30	WL 30 mph 30deg	No	WIND	WL60	WL 30 mph 60deg	No	WIND	WL90	WL 30 mph 90deg	No	WIND	WL120	WL 30 mph 120deg	No	WIND	WL150	WL 30 mph 150deg	No	WIND	LL1	250 lb Live Load Center of Mount	No	LL	LL2	250 lb Live Load Right End of Mount	No	LL	LL3	250 lb Live Load Left End of Mount	No	LL	LLa1	250 lb Live Load Antenna 1	No	LL	LLa2	250 lb Live Load Antenna 2	No	LL	LLa3	250 lb Live Load Antenna 3	No	LL
W120	WL 120deg	No	WIND																																																																																			
W150	WL 150deg	No	WIND																																																																																			
Di	Ice Load	No	LL																																																																																			
WI0	WL ICE 0deg	No	WIND																																																																																			
WI30	WL ICE 30deg	No	WIND																																																																																			
WI60	WL ICE 60deg	No	WIND																																																																																			
WI90	WL ICE 90deg	No	WIND																																																																																			
WI120	WL ICE 120deg	No	WIND																																																																																			
WI150	WL ICE 150deg	No	WIND																																																																																			
WL0	WL 30 mph 0deg	No	WIND																																																																																			
WL30	WL 30 mph 30deg	No	WIND																																																																																			
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WL150	WL 30 mph 150deg	No	WIND																																																																																			
LL1	250 lb Live Load Center of Mount	No	LL																																																																																			
LL2	250 lb Live Load Right End of Mount	No	LL																																																																																			
LL3	250 lb Live Load Left End of Mount	No	LL																																																																																			
LLa1	250 lb Live Load Antenna 1	No	LL																																																																																			
LLa2	250 lb Live Load Antenna 2	No	LL																																																																																			
LLa3	250 lb Live Load Antenna 3	No	LL																																																																																			

### Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
Wo	1	z	-0.009	-0.009	0.00	No	100.00	Yes
	5	z	-0.009	-0.009	0.00	No	100.00	Yes
	10	z	-0.009	-0.009	0.00	No	100.00	Yes
W30	1	z	-0.009	-0.009	0.00	No	100.00	Yes
	5	z	-0.009	-0.009	0.00	No	100.00	Yes
	9	z	-0.009	-0.009	0.00	No	100.00	Yes
	10	z	-0.009	-0.009	0.00	No	100.00	Yes
	11	z	-0.009	-0.009	0.00	No	100.00	Yes
W60	1	x	-0.009	-0.009	0.00	No	100.00	Yes
	5	x	-0.009	-0.009	0.00	No	100.00	Yes
	9	x	-0.009	-0.009	0.00	No	100.00	Yes
	10	x	-0.009	-0.009	0.00	No	100.00	Yes
	11	x	-0.009	-0.009	0.00	No	100.00	Yes
W90	9	x	-0.009	-0.009	0.00	No	100.00	Yes
	10	x	-0.009	-0.009	0.00	No	100.00	Yes
	11	x	-0.009	-0.009	0.00	No	100.00	Yes
W120	1	x	-0.009	-0.009	0.00	No	100.00	Yes
	5	x	-0.009	-0.009	0.00	No	100.00	Yes
	9	x	-0.009	-0.009	0.00	No	100.00	Yes
	10	x	-0.009	-0.009	0.00	No	100.00	Yes
	11	x	-0.009	-0.009	0.00	No	100.00	Yes
W150	1	z	0.009	0.009	0.00	No	100.00	Yes
	5	z	0.009	0.009	0.00	No	100.00	Yes
	9	z	0.009	0.009	0.00	No	100.00	Yes
	10	z	0.009	0.009	0.00	No	100.00	Yes
	11	z	0.009	0.009	0.00	No	100.00	Yes
Di	1	y	-0.005	-0.005	0.00	No	100.00	Yes
	5	y	-0.005	-0.005	0.00	No	100.00	Yes
	9	y	-0.005	-0.005	0.00	No	100.00	Yes
	10	y	-0.005	-0.005	0.00	No	100.00	Yes
	11	y	-0.005	-0.005	0.00	No	100.00	Yes

### Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
D	9	y	-0.026	0.50	No
		y	-0.026	5.50	No
	11	y	-0.056	0.50	No
		y	-0.056	5.50	No
Wo	9	z	-0.186	0.50	No
		z	-0.186	5.50	No
	11	z	-0.157	0.50	No
		z	-0.157	5.50	No
W30	9	3	-0.166	0.50	No
		3	-0.166	5.50	No
		3	-0.019	3.00	No
	11	3	-0.15	0.50	No
		3	-0.15	5.50	No
W60	9	3	-0.126	0.50	No

		3	-0.126	5.50	No
		3	-0.032	3.00	No
	11	3	-0.137	0.50	No
		3	-0.137	5.50	No
W90	9	x	-0.106	0.50	No
		x	-0.106	5.50	No
		x	-0.039	3.00	No
	11	x	-0.131	0.50	No
		x	-0.131	5.50	No
W120	9	2	-0.126	0.50	No
		2	-0.126	5.50	No
		2	-0.032	3.00	No
	11	2	-0.137	0.50	No
		2	-0.137	5.50	No
W150	9	2	-0.166	0.50	No
		2	-0.166	5.50	No
		2	-0.019	3.00	No
	11	2	-0.15	0.50	No
		2	-0.15	5.50	No
Di	9	y	-0.072	0.50	No
		y	-0.072	5.50	No
	11	y	-0.067	0.50	No
		y	-0.067	5.50	No
W10	9	z	-0.039	0.50	No
		z	-0.039	5.50	No
	11	z	-0.034	0.50	No
		z	-0.034	5.50	No
W130	9	3	-0.035	0.50	No
		3	-0.035	5.50	No
	11	3	-0.032	0.50	No
		3	-0.032	5.50	No
W160	9	3	-0.028	0.50	No
		3	-0.028	5.50	No
	11	3	-0.029	0.50	No
		3	-0.029	5.50	No
W190	9	x	-0.024	0.50	No
		x	-0.024	5.50	No
	11	x	-0.028	0.50	No
		x	-0.028	5.50	No
W1120	9	2	-0.028	0.50	No
		2	-0.028	5.50	No
	11	2	-0.029	0.50	No
		2	-0.029	5.50	No
W1150	9	2	-0.035	0.50	No
		2	-0.035	5.50	No
	11	2	-0.032	0.50	No
		2	-0.032	5.50	No
WL0	9	z	-0.012	0.50	No
		z	-0.012	5.50	No
	11	z	-0.01	0.50	No
		z	-0.01	5.50	No
WL30	9	3	-0.011	0.50	No
		3	-0.011	5.50	No
	11	3	-0.01	0.50	No
		3	-0.01	5.50	No
WL60	9	3	-0.008	0.50	No
		3	-0.008	5.50	No
	11	3	-0.009	0.50	No
		3	-0.009	5.50	No
WL90	9	x	-0.007	0.50	No



		x	-0.007	5.50	No
	11	x	-0.009	0.50	No
		x	-0.009	5.50	No
WL120	9	2	-0.008	0.50	No
		2	-0.008	5.50	No
	11	2	-0.009	0.50	No
		2	-0.009	5.50	No
WL150	9	2	-0.011	0.50	No
		2	-0.011	5.50	No
	11	2	-0.01	0.50	No
		2	-0.01	5.50	No
LL1	5	y	-0.25	50.00	Yes
LL2	5	y	-0.25	100.00	Yes
LL3	5	y	-0.25	0.00	Yes
LLa1	9	y	-0.25	50.00	Yes
LLa2	10	y	-0.25	50.00	Yes
LLa3	11	y	-0.25	50.00	Yes

### Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
D	Dead Load	No	0.00	-1.00	0.00
Wo	Wind Load (NO ICE)	No	0.00	0.00	0.00
W30	WL 30deg	No	0.00	0.00	0.00
W60	WL 60deg	No	0.00	0.00	0.00
W90	WL 90deg	No	0.00	0.00	0.00
W120	WL 120deg	No	0.00	0.00	0.00
W150	WL 150deg	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00
WI0	WL ICE 0deg	No	0.00	0.00	0.00
WI30	WL ICE 30deg	No	0.00	0.00	0.00
WI60	WL ICE 60deg	No	0.00	0.00	0.00
WI90	WL ICE 90deg	No	0.00	0.00	0.00
WI120	WL ICE 120deg	No	0.00	0.00	0.00
WI150	WL ICE 150deg	No	0.00	0.00	0.00
WL0	WL 30 mph 0deg	No	0.00	0.00	0.00
WL30	WL 30 mph 30deg	No	0.00	0.00	0.00
WL60	WL 30 mph 60deg	No	0.00	0.00	0.00
WL90	WL 30 mph 90deg	No	0.00	0.00	0.00
WL120	WL 30 mph 120deg	No	0.00	0.00	0.00
WL150	WL 30 mph 150deg	No	0.00	0.00	0.00
LL1	250 lb Live Load Center of Mount	No	0.00	0.00	0.00
LL2	250 lb Live Load Right End of Mount	No	0.00	0.00	0.00
LL3	250 lb Live Load Left End of Mount	No	0.00	0.00	0.00
LLa1	250 lb Live Load Antenna 1	No	0.00	0.00	0.00
LLa2	250 lb Live Load Antenna 2	No	0.00	0.00	0.00
LLa3	250 lb Live Load Antenna 3	No	0.00	0.00	0.00

### Earthquake (Dynamic analysis only)

Condition	a/g	Ang. [Deg]	Damp. [%]
D	0.00	0.00	0.00
Wo	0.00	0.00	0.00
W30	0.00	0.00	0.00
W60	0.00	0.00	0.00
W90	0.00	0.00	0.00
W120	0.00	0.00	0.00
W150	0.00	0.00	0.00
Di	0.00	0.00	0.00
WI0	0.00	0.00	0.00
WI30	0.00	0.00	0.00
WI60	0.00	0.00	0.00
WI90	0.00	0.00	0.00
WI120	0.00	0.00	0.00
WI150	0.00	0.00	0.00
WL0	0.00	0.00	0.00
WL30	0.00	0.00	0.00
WL60	0.00	0.00	0.00
WL90	0.00	0.00	0.00
WL120	0.00	0.00	0.00
WL150	0.00	0.00	0.00
LL1	0.00	0.00	0.00
LL2	0.00	0.00	0.00
LL3	0.00	0.00	0.00
LLa1	0.00	0.00	0.00
LLa2	0.00	0.00	0.00
LLa3	0.00	0.00	0.00



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## Steel Code Check

Report: Summary - Group by member

### Load conditions to be included in design :

LC1=1.2D+Wo  
LC2=1.2D+W30  
LC3=1.2D+W60  
LC4=1.2D+W90  
LC5=1.2D+W120  
LC6=1.2D+W150  
LC7=1.2D-Wo  
LC8=1.2D-W30  
LC9=1.2D-W60  
LC10=1.2D-W90  
LC11=1.2D-W120  
LC12=1.2D-W150  
LC13=0.9D+Wo  
LC14=0.9D+W30  
LC15=0.9D+W60  
LC16=0.9D+W90  
LC17=0.9D+W120  
LC18=0.9D+W150  
LC19=0.9D-Wo  
LC20=0.9D-W30  
LC21=0.9D-W60  
LC22=0.9D-W90  
LC23=0.9D-W120  
LC24=0.9D-W150  
LC25=1.2D+Di+Wl0  
LC26=1.2D+Di+Wl30  
LC27=1.2D+Di+Wl60  
LC28=1.2D+Di+Wl90  
LC29=1.2D+Di+Wl120  
LC30=1.2D+Di+Wl150  
LC31=1.2D+Di-Wl0  
LC32=1.2D+Di-Wl30  
LC33=1.2D+Di-Wl60  
LC34=1.2D+Di-Wl90  
LC35=1.2D+Di-Wl120  
LC36=1.2D+Di-Wl150  
LC38=1.2D+1.6LL1  
LC39=1.2D+1.6LL2  
LC40=1.2D+1.6LL3  
LC41=1.2D+Wl0+1.6LLa1  
LC42=1.2D+Wl30+1.6LLa1  
LC43=1.2D+Wl60+1.6LLa1  
LC44=1.2D+Wl90+1.6LLa1  
LC45=1.2D+Wl120+1.6LLa1  
LC46=1.2D+Wl150+1.6LLa1  
LC47=1.2D-Wl0+1.6LLa1  
LC48=1.2D-Wl30+1.6LLa1  
LC49=1.2D-Wl60+1.6LLa1  
LC50=1.2D-Wl90+1.6LLa1  
LC51=1.2D-Wl120+1.6LLa1  
LC52=1.2D-Wl150+1.6LLa1  
LC53=1.2D+Wl0+1.6LLa2

LC54=1.2D+WL30+1.6LLa2  
 LC55=1.2D+WL60+1.6LLa2  
 LC56=1.2D+WL90+1.6LLa2  
 LC57=1.2D+WL120+1.6LLa2  
 LC58=1.2D+WL150+1.6LLa2  
 LC59=1.2D-WL0+1.6LLa2  
 LC60=1.2D-WL30+1.6LLa2  
 LC61=1.2D-WL60+1.6LLa2  
 LC62=1.2D-WL90+1.6LLa2  
 LC63=1.2D-WL120+1.6LLa2  
 LC64=1.2D-WL150+1.6LLa2  
 LC65=1.2D+WL0+1.6LLa3  
 LC66=1.2D+WL30+1.6LLa3  
 LC67=1.2D+WL60+1.6LLa3  
 LC68=1.2D+WL90+1.6LLa3  
 LC69=1.2D+WL120+1.6LLa3  
 LC70=1.2D+WL150+1.6LLa3  
 LC71=1.2D-WL0+1.6LLa3  
 LC72=1.2D-WL30+1.6LLa3  
 LC73=1.2D-WL60+1.6LLa3  
 LC74=1.2D-WL90+1.6LLa3  
 LC75=1.2D-WL120+1.6LLa3  
 LC76=1.2D-WL150+1.6LLa3

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	<b>PIPE 2x0.154</b>	<b>1</b>	LC40 at 23.96%	0.29	OK	Eq. H1-1b
		<b>5</b>	LC40 at 19.79%	<b>0.80</b>	<b>OK</b>	Sec. F1
		<b>9</b>	LC39 at 8.33%	0.21	OK	Eq. H1-1b
		<b>10</b>	LC38 at 8.33%	0.17	OK	Eq. H1-1b
		<b>11</b>	LC40 at 8.33%	0.32	OK	Eq. H1-1b





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## Geometry data

### GLOSSARY

Cb22, Cb33 : Moment gradient coefficients  
 Cm22, Cm33 : Coefficients applied to bending term in interaction formula  
 d0 : Tapered member section depth at J end of member  
 DJX : Rigid end offset distance measured from J node in axis X  
 DJY : Rigid end offset distance measured from J node in axis Y  
 DJZ : Rigid end offset distance measured from J node in axis Z  
 DKX : Rigid end offset distance measured from K node in axis X  
 DKY : Rigid end offset distance measured from K node in axis Y  
 DKZ : Rigid end offset distance measured from K node in axis Z  
 dL : Tapered member section depth at K end of member  
 Ig factor : Inertia reduction factor (Effective Inertia/Gross Inertia) for reinforced concrete members  
 K22 : Effective length factor about axis 2  
 K33 : Effective length factor about axis 3  
 L22 : Member length for calculation of axial capacity  
 L33 : Member length for calculation of axial capacity  
 LB pos : Lateral unbraced length of the compression flange in the positive side of local axis 2  
 LB neg : Lateral unbraced length of the compression flange in the negative side of local axis 2  
 RX : Rotation about X  
 RY : Rotation about Y  
 RZ : Rotation about Z  
 TO : 1 = Tension only member    0 = Normal member  
 TX : Translation in X  
 TY : Translation in Y  
 TZ : Translation in Z

### Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
3	2.50	0.00	0.00	0
4	11.00	0.00	0.00	0
13	2.50	5.167	0.00	0
14	11.00	5.167	0.00	0

### Restraints

Node	TX	TY	TZ	RX	RY	RZ
3	1	1	1	0	1	0
4	1	1	1	0	1	0
13	1	1	1	0	1	0
14	1	1	1	0	1	0

## Members

---

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	Ig factor
1	1	2		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
5	11	12		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
9	26	27		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
10	24	25		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
11	22	23		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00

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## Orientation of local axes

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Member	Rotation [Deg]	Axes23	NX	NY	NZ
9	315.00	0	0.00	0.00	0.00
10	315.00	0	0.00	0.00	0.00
11	315.00	0	0.00	0.00	0.00

---

PK5170PG1193

DIANE W. FOX, AICP  
DIRECTOR PLANNING AND ZONING/ZONING  
ENFORCEMENT COORDINATOR/TOWN PLANNER



KATHY BLANKLEY, AICP, Assistant Town Planner  
JOSEPH R. POTENZA, AICP, Senior Planner

5131

**PLANNING AND ZONING - LAND USE DEPARTMENT**

**TOWN OF GREENWICH  
PLANNING AND ZONING COMMISSION  
SECRETARIAL CERTIFICATE**

I, Frank Farricker, Secretary of the Planning and Zoning Commission of Town of Greenwich, Connecticut, do hereby certify that the following is a true copy of the decision rendered by such Commission, at its meeting held on Tuesday, April 25, 2006 at which a quorum was present. Details of any modifications will be found in the approved minutes of the meeting.

SPECIAL PERMIT CERTIFICATE #460

EFFECTIVE DATE: May 3, 2006

RESOLVED applications FSP-TELE #2875 and SP #2876 as submitted by the Town of Greenwich Department of Parks and Recreation and Neil Alexander, Esquire of Cuddy Feder, LLP for New Cingular Wireless PCS, LLC on behalf of record owner, the Town of Greenwich, for a final site plan and special permit for an additional wireless antennas installation at the 90-foot level on an existing 100-foot tower on a 154.27 acre property at the Griffith E. Harris Golf Course at 1323 King Street in the RA-4 zone as shown on plans entitled "Proposed Co-Location at an Existing Wireless Communication Facility" prepared by Natcomm, LLC dated 03/23/06 per Sections 6-15,6-17 and 6-140.1 of the Building Zone Regulations is hereby approved with modifications.

IN WITNESS WHEREOF, I have hereunto set my hand this 6 day of May 2006.

Frank Farricker  
Secretary, Planning and Zoning Commission

MAY 2006

at 9:12 AM

BK5170PG 0194

DIANE W. FOX, AICP  
DIRECTOR PLANNING AND ZONING/ZONING  
ENFORCEMENT COORDINATOR/TOWN PLANNER



KATIE BLANKLEY, AICP, Assistant Town Planner  
JOSEPH R. POTENZA, AICP, Senior Planner

5105

**PLANNING AND ZONING - LAND USE DEPARTMENT**  
**SITE PLAN APPROVAL CERTIFICATE**

I, Frank Farricker, Secretary of the Planning and Zoning Commission of the Town of Greenwich, Connecticut, do hereby certify that the Commission granted final site plan approval, for the following project at its meeting held on Tuesday, April 25, 2006 at which a quorum was present.

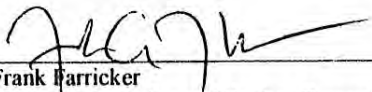
**RECORD OWNER:** Town of Greenwich  
**PROJECT:** Additional wireless antennas installation at the 90-foot level on an existing 100-foot tower on a 154.27 acre property at the Griffith E. Harris Golf Course  
**PROJECT LOCATION:** 1323 King Street  
**SITE PLAN NUMBER:** FSP-TELE #2875

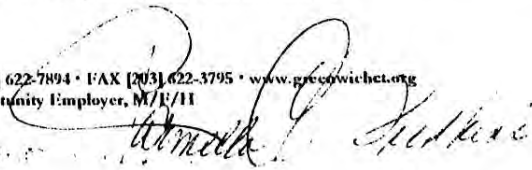
**SPECIAL PERMIT CERTIFICATE: 460**

RESOLVED application FSP-TELE #2875 and SP#2876 as submitted by the Town of Greenwich Department of Parks and Recreation and Neil Alexander, Esquire of Cuddy Feder, LLP for New Cingular Wireless PCS, LLC on behalf of record owner, the Town of Greenwich, for a final site plan and special permit for an additional wireless antennas installation at the 90-foot level on an existing 100-foot tower on a 154.27 acre property at the Griffith E. Harris Golf Course at 1323 King Street in the RA-4 zone as shown on plans entitled "Proposed Co-Location at an Existing Wireless Communications Facility" prepared by Natcomm, LLC dated 03/23/06 per sections 6-15, 6-17 and 6-140 I of the Building Zone Regulations is hereby approved with modifications.

The complete site plan is on file in the office of the Planning and Zoning Commission, Town Hall, Greenwich, Connecticut, as are the approved minutes of the meeting and the decision letter, which include any modifications to the approval.

IN WITNESS WHEREOF, I have hereunto set my hand this 6 day of May 2006.

  
\_\_\_\_\_  
Frank Farricker  
Secretary, Planning and Zoning Commission

9-13-11  




DIANE W. FOX, AICP  
DIRECTOR PLANNING AND ZONING/ZONING  
ENFORCEMENT COORDINATOR/TOWN PLANNER



KATIE BLANKLEY, AICP, Assistant Town Planner  
JOSEPH POTENZA, AICP, Senior Planner

DOREEN CARROLL-ANDREWS, Applications  
Coordinator

## PLANNING AND ZONING - LAND USE DEPARTMENT

### MEMORANDUM

**TO:** Bill Marr, Building Official  
Jim Maloney, Zoning Enforcement Officer

**FROM:** Diane Fox, Director of Planning and Zoning /  
Zoning Enforcement Coordinator / Town Planner  
Katie Blankley, Assistant Town Planner

**DATE:** August 23, 2006

**RE:** **Griffith E. Harris Golf Course at 1323 King Street**  
Application FSP-TELE #2875, SP #2876, and MI #547  
Zone: RA-4 Zone

The attached plans of Natcomm as listed below, have been approved by the Planning and Zoning for Building Department Sign-off under FSP-TELE #2875, SP #2876, and MI #547 on behalf of record owner, the Town of Greenwich, for a final site plan and special permit for an additional wireless antenna installation at the 90-foot level on an existing 100-foot tower and for municipal improvement authorizing use of Town-owned land and accompanying lease agreement on a 154.27 acre property at the Griffith E. Harris Golf Course at 1323 King Street in the RA-4 zone per Sections 6-15, 6-17 and 6-140.1 of the Building Zone Regulations and Section 6-99 of the Town Charter as shown on plans entitled "Proposed Co-Location at an Existing Wireless Communications Facility" prepared by Natcomm, LLC dated 07/31/06.

*Please note that work must begin in three (3) years from approval by the Commission and be completed in five (5) years from start of construction.*

**ALL OF THE FOLLOWING MODIFICATIONS THAT WERE REQUIRED TO BE MET PRIOR TO BUILDING DEPARTMENT SIGN-OFF HAVE BEEN MET:**

- 1) The lease agreement shall be approved by the Representative Town Meeting (RTM). Schedule A of the lease shall be revised to include the metes and bounds of the leased area. Schedule B of the lease shall be revised to clearly delineate the area of pavement that is going to be resurfaced (see **GLR Bk 5219 PG 0168**).
- 2) The following notes shall be added to the final plan:
  - a. Reference shall be made to this approval, the approval of the RTM, and book and page number of the lease agreement on file on the Town of Greenwich Land Records.

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- b. The air conditioning units shall remain in compliance with the Town Noise Ordinance.
  - c. The light on the west elevation of the equipment building will be equipped with a motion detector.
  - d. Any change to the equipment on the Tower or equipment on the outside of the equipment room shall be reviewed by Planning and Zoning.
  - e. After the installation of the equipment approved in this application, but prior to the issuance of any Certificate of Occupancy, New Cingular Wireless shall conduct testing of the total output of non-ionizing electromagnetic emissions generated by all existing equipment on the rooftop regardless of owner and certify in writing that the emissions are in compliance with Federal and State Emission Standards. This certification must be submitted to the Planning and Zoning Office and the Building Department.
  - f. In the event that New Cingular Wireless's equipment causes interference with the Town Emergency Communication Equipment, New Cingular Wireless must immediately take all steps necessary to correct and eliminate the interference.
  - g. All signage required by the FCC and OSHA regarding standards for safety and human exposure to RF emissions should be complied with.
  - h. It should be noted that the equipment approved in this application is continuously subject to Section 6-140.1 of the Building Zone Regulations, particularly the Section on Monitoring and Maintenance.
- 3) The plans shall be revised to include the following:
- a. The size and species of the four trees proposed to screen the enclosed equipment area shall be shown.
  - b. The show soil and erosion controls around the proposed trenching for the underground power utility routed from the proposed transformer to the new CL&P tower shall be added to the soil and erosion plan.
  - c. The specifications of the facade of the proposed building shall be noted on the plan.
- 4) The owner of the propane tank shall be verified. It shall also be verified whether 7'-6" between the tower and the proposed New Cingular Wireless building is sufficient to access the propane tank if needed. It shall also be verified in writing that the proposed ice bridge about 9' or 10' off the ground allows sufficient space to get any required equipment.

These plans, signed off on by Diane Fox, Director of Planning and Zoning / Zoning Enforcement Coordinator / Town Planner on August 23, 2006 are hereby approved for building permit purposes with the following conditions:

1. This approval is subject to all the conditions of approval from the Planning and Zoning Commission as detailed in the May 9, 2006 approval letter (see attached).
2. The erosion controls shall be in place for the entire duration of the project. In addition, the site must be stabilized after work has been completed until vegetation can be established to naturally stabilize the site.
3. All plantings shown on the landscaping plan shall be maintained in healthy growing condition.

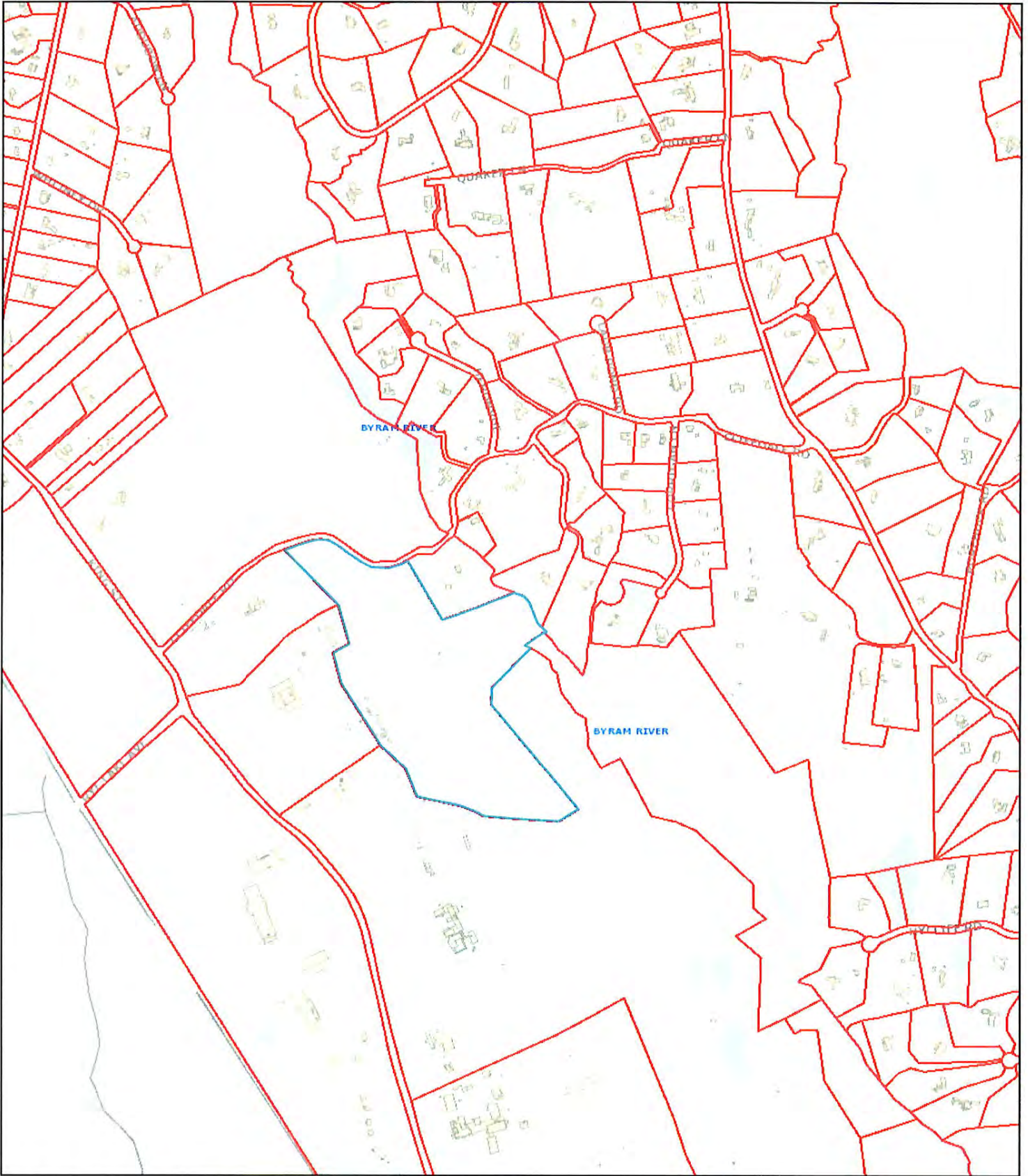
**PRIOR TO ANY C.O. THE FOLLOWING CONDITIONS MUST BE MET:**

1. All site improvements as shown on the attached plans and described in the lease agreement on file on the Land Records in Book 5219 and Page 0168 must be completed to the satisfaction of Planning and Zoning Staff or its designee prior to C.O.
2. All planting and site work shall be complete and inspected by P&Z Staff prior to any C.O.
3. Noise levels for the mechanical equipment, as taken at the property line, demonstrating that they are in compliance with the Town Noise Ordinance shall be submitted. Health Department shall provide written approval of said documentation.
4. After the installation of the equipment approved in this application, but prior to the issuance of any Certificate of Occupancy, New Cingular Wireless shall conduct testing of the total output of non-ionizing electromagnetic emissions generated by all existing equipment on the rooftop regardless of owner and certify in writing that the emissions are in compliance with Federal and State Emission Standards. This certification must be submitted to the Planning and Zoning Office and the Building Department.
5. 6 copies of final "as-built" plans showing all improvements shall be provided. The plan shall include the following notes:
  - a. Reference shall be made to this approval, the approval of the RTM, and book and page number of the lease agreement on file on the Town of Greenwich Land Records.
  - b. The air conditioning units shall remain in compliance with the Town Noise Ordinance.
  - c. The light on the west elevation of the equipment building will be equipped with a motion detector.
  - d. Any change to the equipment on the Tower or equipment on the outside of the equipment room shall be reviewed by Planning and Zoning.
  - e. In the event that New Cingular Wireless's equipment causes interference with the Town Emergency Communication Equipment, New Cingular Wireless must immediately take all steps necessary to correct and eliminate the interference.
  - f. All signage required by the FCC and OSHA regarding standards for safety and human exposure to RF emissions should be complied with.
  - g. It should be noted that the equipment approved in this application is continuously subject to Section 6-140.1 of the Building Zone Regulations, particularly the Section on Monitoring and Maintenance.

**APPROVED P&Z PLANS PREPARED BY NATCOMM:**

Site Plan and Abutters Map, Sheet C-1, last dated 7/31/06  
Metes and Bounds Survey, Sheet C-1a, last dated 7/31/06  
Compound Plan and Elevation, Sheet C-2, last dated 7/31/06  
Erosion Control, Details, and Site Notes, Sheet C-3, last dated 7/31/06  
Shelter Elevations, Sheet C-4, last dated 7/31/06





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**1323 King Street**

9/23/2019 8:11:25 AM



1:12000  
1"=1000'





ADMINISTRATIVE INFORMATION

OWNERSHIP

Tax ID 028/002

Printed 09/20/2019 Card No. 1 of 3

PARCEL NUMBER 10-4506
Parent Parcel Number

TOWN OF GREENWICH
TOWN HALL
GREENWICH, CT 06830
LOTS 27A 28C 29A 30 KING ST CLIFFDALE RD E70&

TRANSFER OF OWNERSHIP

Table with columns: Date, Bk/Pg, Value. Row: 10/31/1962 NA \$0

Property Address KING STREET 1323
Neighborhood 182100 BEDFORD RD. [3]

Property Class 299 Exempt Commercial

TAXING DISTRICT INFORMATION

Jurisdiction 57 Greenwich, CT
Area 001
Corporation 057
District 10
Section & Plat 054
Routing Number 4378E0070

EXEMPT

VALUATION RECORD

Table with columns: Assessment Year, Reason for Change, VALUATION, Market, 2008 List, 2010 Reval, 2015 Prelim, 2015 Final, 2016 List, 2017 List, 2018 List

Site Description

Topography:

Public Utilities: Electric

Street or Road:

Neighborhood:

Zoning: RA-4 Single Family 4 1 Active Recreation

Legal Acres: 154.2700

LAND DATA AND CALCULATIONS

Table with columns: Rating, Measured, Table, Prod. Factor, Depth Factor, Base Rate, Adjusted Rate, Extended Value, Influence Factor, Value

BP16: 16-1573: \$86,300 int alt
BP18: 15-0801; Replace Antenna \$15,000.
DBA: Griffith E. Harris Golf Course; Ristorante Fiore
C01 = Voided '10; C02 = Clubhouse; C03 = Maint garage;
C04 = 2010 Pro Shop/Admin/Lav
GEN: 1 putting green, 1 driving range, 1 chipping green
P: 85 spcs
VC:

Supplemental Cards

TRUE TAX VALUE 13486100

Permit Number FilingDate Est. Cost Field Visit
Type Est. SqFt

Supplemental Cards

TOTAL LAND VALUE 13486100

**SHIP TO:** MR. FRED CAMILLO  
TOWN OF GREENWICH  
101 FIELD POINT RD  
GREENWICH CT 06830-6463

**SHIP CC:** MS KATIE DELUCA - DIR PLANNING  
GREENWICH CT 06830-6463

**USPS TRACKING #**

**9405 5036 9930 0287 7969 85**

**QC DEVELOPMENT**  
PO BOX 916  
STORRS CT 06268-0916

**Expected Delivery Date: 02/27/21**

**P** usps.com **Click-N-Ship®**

**US POSTAGE \$7.95** Flat Rate Env

02/24/2021 Mailed from 06268 062S0000001309



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 # :**  
**9405 5036 9930 0287 7969 85**

Trans. #: 525803317	Priority Mail® Postage: <b>\$7.95</b>
Print Date: 02/24/2021	Total: <b>\$7.95</b>
Ship Date: 02/24/2021	
Expected Delivery Date: 02/27/2021	

**From:** QC DEVELOPMENT  
PO BOX 916  
STORRS CT 06268-0916

**To:** MR. FRED CAMILLO  
TOWN OF GREENWICH  
101 FIELD POINT RD  
CC: MS KATIE DELUCA - DIR PLANNING  
GREENWICH CT 06830-6463

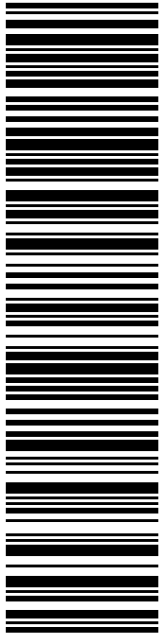
\* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.



Thank you for shipping with the United States Postal Service!  
Check the status of your shipment on the USPS Tracking® page at usps.com

**SHIP TO:** MS. MELANIE BACHMAN  
CONNECTICUT SITING COUNCIL  
10 FRANKLIN SQ  
NEW BRITAIN CT 06051-2655

**USPS TRACKING #**



**9405 5036 9930 0287 7969 92**

QC DEVELOPMENT  
PO BOX 916  
STORRS CT 06268-0916

**0024**

02/24/2021 Mailed from 06268 062S0000000312

**P**

usps.com  
**US POSTAGE** 9405 5036 9930 0287 7969 92 0079 5000 0010 6051  
Flat Rate Env  
**\$7.95**

**PRIORITY MAIL 1-DAY™**

Expected Delivery Date: 02/25/21

**Click-N-Ship®**

UNITED STATES POSTAL SERVICE®



Cut on dotted line.

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Check the status of your shipment on the USPS Tracking® page at usps.com