smartlink

April 23, 2014

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

Re:	**Notice of Exempt Modification – Three (3) New Remote Radio Units**
Property Address:	**299 Sheffield Street, Waterbury, CT 06704 (the "Property")**
Applicant:	**New Cingular Wireless PCS, LLC ("AT&T")**

Dear Ms. Bachman:

AT&T currently maintains a wireless telecommunications facility on an existing 158' tower owned by SBA Towers, Inc., and located on the Property (the "Tower"). AT&T's facility consists of nine (9) wireless telecommunication antennas and ancillary remote radio units ("RRUs") at antenna heights of 135' (RRUs) and 137' (panel antenna centerlines).

On June 29, 2012, the Connecticut Siting Council (the "Council") approved AT&T's application to modify its existing facility by adding antennas, including six (6) additional RRUs (the "Decision"). Subsequently, AT&T installed only three (3) RRUs and is now intending to install the remaining three (3) RRUs, to complete the installation (refer to Tab 1 for further specifications of the new RRUs). This application for an exempt modification approval is necessary because the Decision is over one year old.

Please accept this application as notification pursuant to R.C.S.A. §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16-50j-72(b)(2). In accordance with R.C.S.A. §16-50j-73, a copy of this letter is being sent to Neil M. O'Leary, Mayor for the City of Waterbury, CT. A copy of this letter is also being sent to Level Development Corp., at 293 Sheffield Street, Waterbury, CT 06704, the owner of the Property.

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

33 Boston Post Road West, Marlborough, Massachusetts 01752
p. 508 954 7702 • adam.braillard@smartlinkllc.com
www.smartlinkllc.com

1. The proposed modifications will not result in an increase in the height of the Tower. AT&T's additional RRUs will be installed at a height of 135'.
2. The proposed modifications will not involve any changes to ground-mounted equipment and, therefore, will not require and extension of the site boundary.
3. The proposed modifications will not increase the noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the modified facility will not increase radio frequency ("RF") emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A RF emissions calculation for AT&T's modified facility was provided as part of the application in connection with the Decision. Attached as Tab 3 is an existing power density calculation provided by the Council.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The tower and its foundation can support AT&T's proposed modifications. (See Structural Analysis Report included in (Tab 2).

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

Sincerely,

Adam F. Braillard

Cc:
Neil M. O'Leary, Mayor for the City of Waterbury, CT.
Level Development Corp., Land owner, at 293 Sheffield Street, Waterbury, CT

Enclosures

PROJECT INFORMATION

SCOPE OF WORK:	ITEMS TO BE MOUNTED ON THE MONOPOLE: (3) RRUS MOUNTED ON EXISTING MOUNTING PIPES ITEMS TO BE INSTALLED AT THE EXISTING AT&T EQUIPMENT AREA: • (1) 850 RXAIT & (1) 850 LLC • (6) NEW AT&T DIPLEXERS TO REPLACE EXISTING (12) DIPLEXERS ITEMS TO REMAIN: (6) GSM/UMTS ANTENNAS, (3) LTE ANTENNAS, (3) RRU'S, & (1) SURGE SUPPRESSOR.
SITE ADDRESS:	299 SHEFFIELD ST WATERBURY, CT 06704
LATITUDE: LONGITUDE:	41.59408 N 41° 35' 38.68" N −73.0506 W 73° 03' 02.16" W
USID:	15071
TOWER MANAGER:	SBA TOWERS, INC 5900 BROKEN SOUND PKWY NW 2ND FLOOR BOCA RATON, FL 33487−2797
PROPERTY OWNER:	LEVEL DEVELOPMENT CORP. 293 SHEFFIELD ST WATERBURY, CT 06704
TYPE OF SITE:	MONOPOLE/INDOOR EQUIPMENT
TOWER HEIGHT: RAD CENTER:	158'−0"± 137'−0"±
CURRENT USE: PROPOSED USE:	TELECOMMUNICATIONS FACILITY TELECOMMUNICATIONS FACILITY

at&t

FA NUMBER: 10035415
SITE NUMBER: CT1125
SITE NAME:
WATERBURY SHEFFIELD ST

PROJECT TEAM

CLIENT REPRESENTATIVE
COMPANY: SMARTLINK, LLC
ADDRESS: 1997 ANNAPOLIS EXCHANGE PARKWAY, SUITE 200
CITY, STATE, ZIP: ANNAPOLIS, MD 21401
CONTACT: TIM BOYCE
PHONE: (980) 333−3640
E−MAIL: tboyce@smartlinkllc.com

SITE ACQUISITION
COMPANY: SMARTLINK, LLC
ADDRESS: 33 BOSTON POST ROAD WEST, SUITE 210
CITY, STATE, ZIP: MARLBOROUGH, MA 01752
CONTACT: TODD OLIVER
PHONE: (774) 369−3618
E−MAIL: todd.oliver@smartlinkllc.com

ENGINEERING
COMPANY: HUDSON DESIGN GROUP, LLC.
ADDRESS: 1600 OSGOOD STREET BUILDING 20 NORTH, SUITE 3090
CITY, STATE, ZIP: NORTH ANDOVER, MA 01845
CONTACT: DANIEL P. HAMM, PE
PHONE: (978) 557−5553 X222
E−MAIL: daniel.hamm@hudsondesigngroupllc.com

RF ENGINEER
COMPANY: AT&T MOBILITY −NEW ENGLAND
ADDRESS: 550 COCHITUATE ROAD SUITE 550 13 AND 14
CITY, STATE, ZIP: FRAMINGHAM, MA 01701
CONTACT: CAMERON SYME
PHONE: (508) 596−7146
E−MAIL: cs6970@att.com

CONSTRUCTION MANAGER
COMPANY: SMARTLINK, LLC.
ADDRESS: 33 BOSTON POST ROAD WEST SUITE 210
CITY, STATE, ZIP: MARLBOROUGH, MA 01752
CONTACT: JERRY BRUNO
PHONE: (508) 920−7349
E−MAIL: jerry.bruno@smartlinkllc.com

DRAWING INDEX

VICINITY MAP

DIRECTIONS TO SITE:
FROM FRAMINGHAM, MA:
DEPART RT−30 W / COCHITUATE RD TOWARD BURR ST. 0.3 MI. TURN BACK ON RT−30 E / COCHITUATE RD. 0.3 MI. TAKE RAMP RIGHT FOR I−90 WEST TOWARD WORCESTER / SPRINGFIELD TOLL ROAD. 38.9 MI. AT EXIT 9, TAKE RAMP RIGHT FOR I−84 TOWARD NEW YORK CITY / HARTFORD. STOP FOR TOLL BOOTH. ENTERING CONNECTICUT. 74.1 MI. AT EXIT 20, TAKE RAMP RIGHT FOR CT−8 NORTH TOWARD TORRINGTON. 2.3 MI. AT EXIT 36, TAKE RAMP RIGHT FOR HUNTINGDON AVE TOWARD COLONIAL AVE. 0.2 MI. TURN RIGHT ONTO HUNTINGDON AVE. 0.3 MI. TURN LEFT ONTO THOMASTON AVE. 0.3 MI. TURN RIGHT ONTO SHEFFIELD ST. 0.5 MI. ARRIVE AT ENTRANCE TO SITE ON THE LEFT.

GENERAL NOTES

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF AT&T. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.
2. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE AT&T REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

72 HOURS
BEFORE YOU DIG
CALL TOLL FREE 800−922−4455
UNDERGROUND SERVICE ALERT

APPROVALS

THE FOLLOWING PARTIES HEREBY APPROVE AND ACCEPT THESE DOCUMENTS & AUTHORIZE THE SUBCONTRACTOR TO PROCEED WITH CONSTRUCTION DESCRIBED HEREIN. ALL DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT & MAY IMPOSE CHANGES OR MODIFICATIONS.

DISCIPLINE:	SIGNATURE:	DATE:
SMARTLINK SITE ACQUISITION:		
SMARTLINK CONSTRUCTION MANAGER:		
AT&T PROJECT MANAGER:		

Hudson Design Group LLC
1600 OSGOOD STREET
BUILDING 20 NORTH, SUITE 3090
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

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SCALE: AS SHOWN | DESIGNED BY: TH | DRAWN BY: SB

STATE OF CONNECTICUT — DANIEL P. HAMM — No. 24... — LICENSED PROFESSIONAL ENGINEER

AT&T

TITLE SHEET
(LTE−2C)

JOB NUMBER	DRAWING NUMBER	REV
1125.01	T−1	1

GROUNDING NOTES

1. THE SUBCONTRACTOR 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 SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.

2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.

3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.

4. 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 BTS EQUIPMENT.

5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS 2 AWG STRANDED COPPER FOR OUTDOOR BTS.

6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.

7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.

8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.

9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.

10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.

11. METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWS COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.

12. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
CONTRACTOR – SMARTLINK
SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
OWNER – AT&T MOBILITY

2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR 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 CONTRACTOR.

3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR 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.

4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.

5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.

7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.

9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.

10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.

11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.

15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.

16. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T MOBILITY SITES."

17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.

18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR 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.

19. 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.

20. APPLICABLE BUILDING CODES:
SUBCONTRACTOR'S 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: 2003 IBC WITH 2005 CT SUPPLEMENT & 2009 CT AMENDMENTS
ELECTRICAL CODE: REFER TO ELECTRICAL DRAWINGS
LIGHTENING CODE: REFER TO ELECTRICAL DRAWINGS

SUBCONTRACTOR'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-F, STRUCTURAL STANDARDS FOR STEEL

ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES; REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC ELECTRICAL STANDARDS.

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.

ABBREVIATIONS

AGL	ABOVE GRADE LEVEL	G.C.	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
AWG	AMERICAN WIRE GAUGE	MGB	MASTER GROUND BUS		
BCW	BARE COPPER WIRE	MIN	MINIMUM	TBD	TO BE DETERMINED
BTS	BASE TRANSCEIVER STATION	PROPOSED	NEW	TBR	TO BE REMOVED
EXISTING	EXISTING	N.T.S.	NOT TO SCALE	TBRR	TO BE REMOVED AND REPLACED
EG	EQUIPMENT GROUND	REF	REFERENCE	TYP	TYPICAL
EGR	EQUIPMENT GROUND RING	REQ	REQUIRED		

Hudson Design Group LLC
1600 OSGOOD STREET
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N. ANDOVER, MA 01845
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SCALE: AS SHOWN | DESIGNED BY: TH | DRAWN BY: SB

Daniel P. Hannan

AT&T

GENERAL NOTES
(LTE-2C)

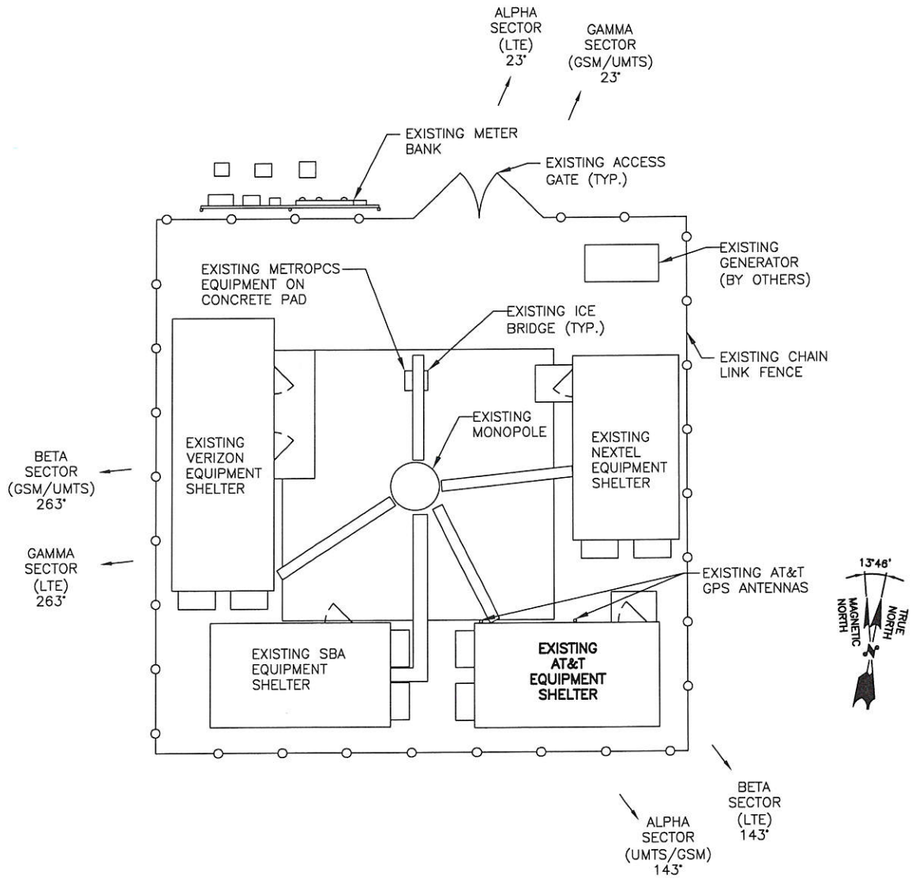
JOB NUMBER	DRAWING NUMBER	REV
1125.01	GN-1	1

NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.

NOTE:

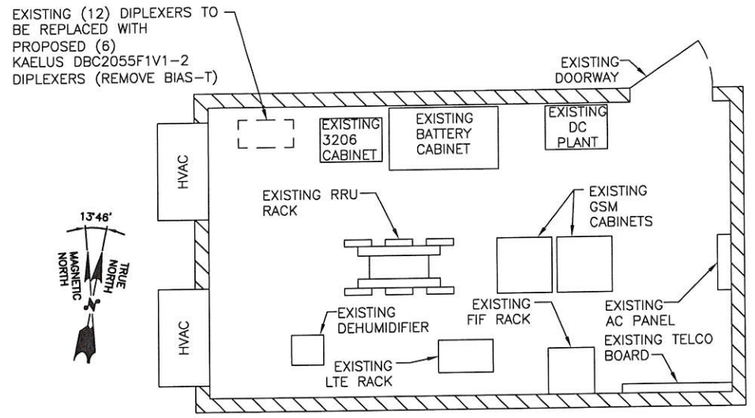
*RF DATA BASED ON PRELIMINARY RFDS. REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.



COMPOUND PLAN

SCALE: 1/8"=1'-0"

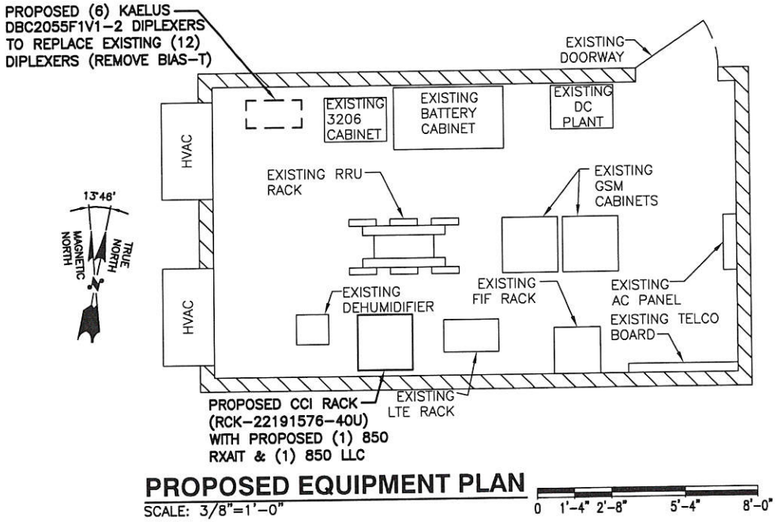
0 4'-0" 8'-0" 16'-0" 24'-0"



EXISTING EQUIPMENT PLAN

SCALE: 3/8"=1'-0"

0 1'-4" 2'-8" 5'-4" 8'-0"



PROPOSED EQUIPMENT PLAN

SCALE: 3/8"=1'-0"

0 1'-4" 2'-8" 5'-4" 8'-0"

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STATE OF CONNECTICUT · DANIEL P. HAMM · LICENSED PROFESSIONAL ENGINEER

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COMPOUND & EQUIPMENT PLAN (LTE-2C)

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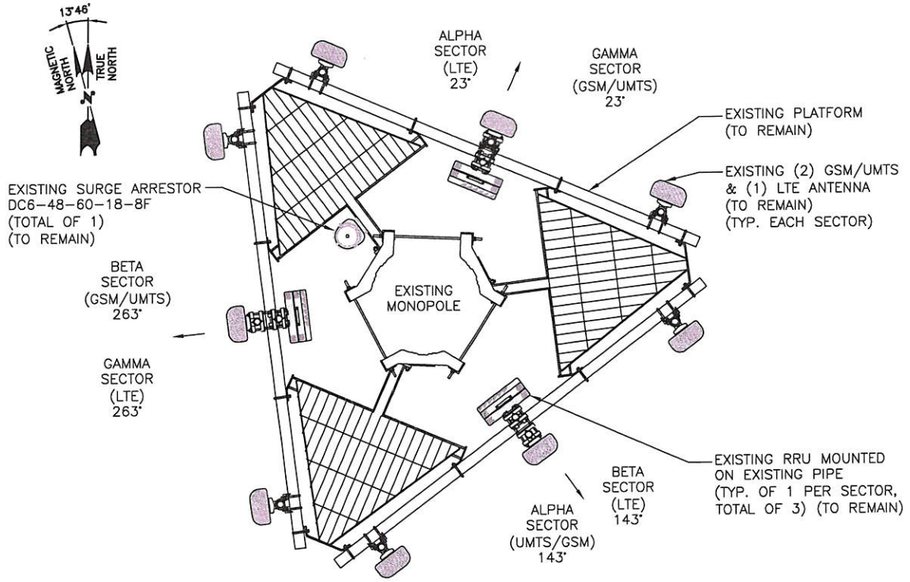
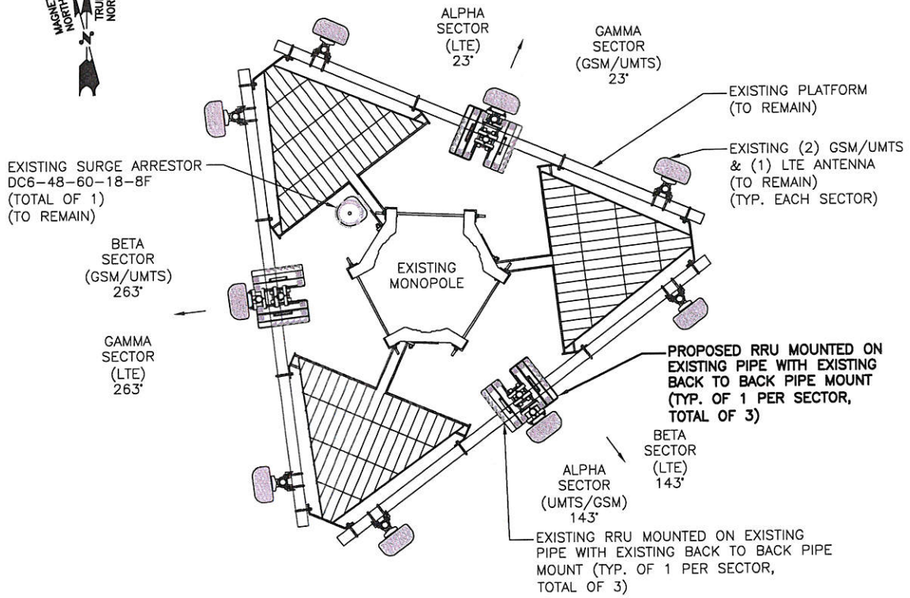


EXISTING ANTENNA LAYOUT

SCALE: N.T.S.



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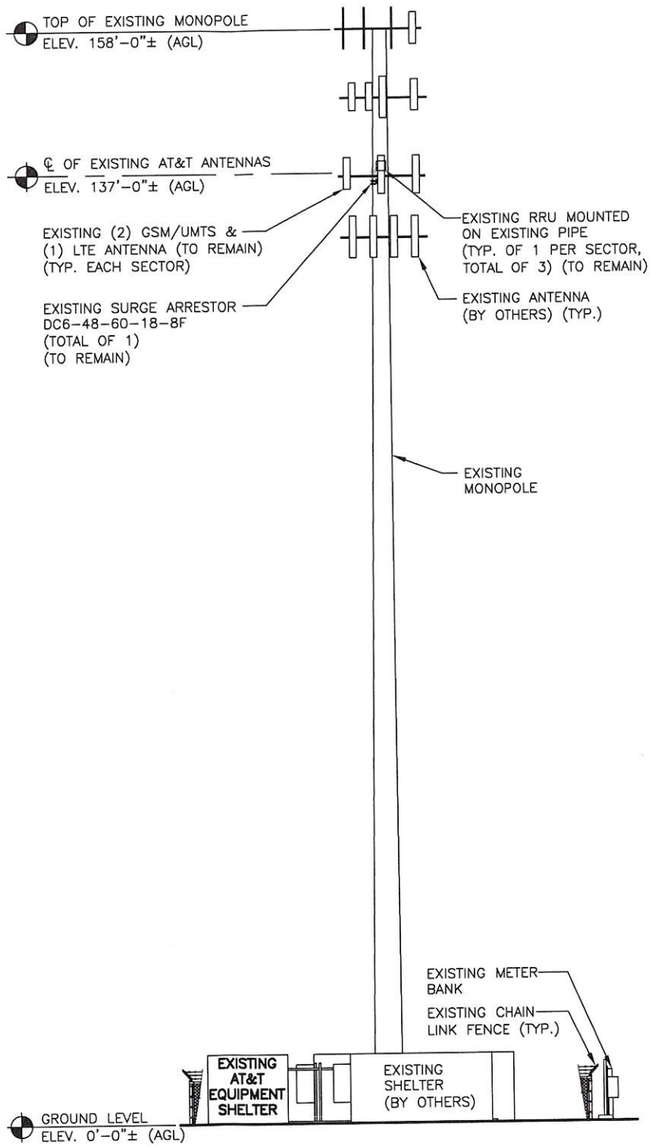

EXISTING SOUTH ELEVATION

SCALE: 3/32"=1'-0"

0 5'-4" 10'-8" 21'-4" 32'-0"

NOTE:

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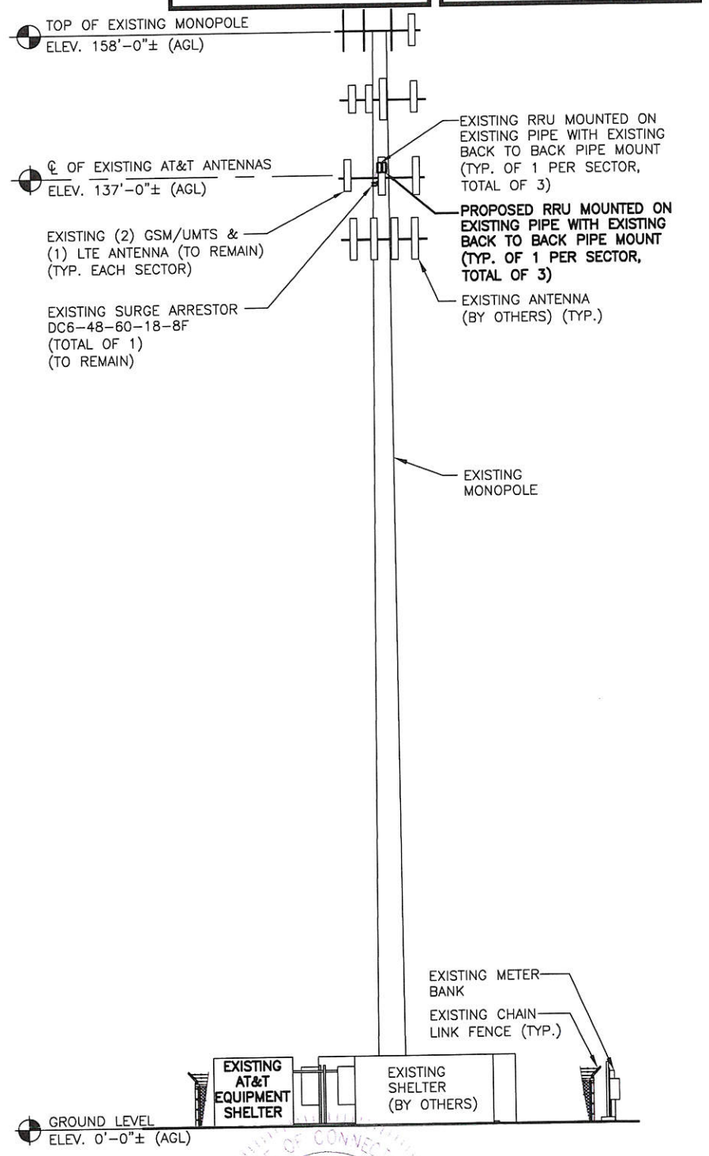

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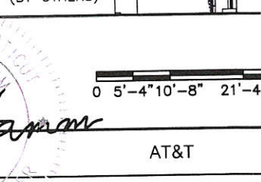
1	04/22/14	ISSUED FOR CONSTRUCTION	AP	TH	DPH
0	04/10/14	ISSUED FOR REVIEW	SB	TH	DPH
A	02/25/14	ISSUED FOR REVIEW	SB	TH	DPH

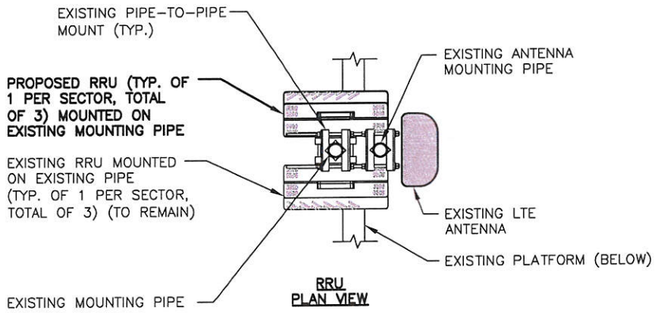
SCALE: AS SHOWN | DESIGNED BY: TH | DRAWN BY: SB



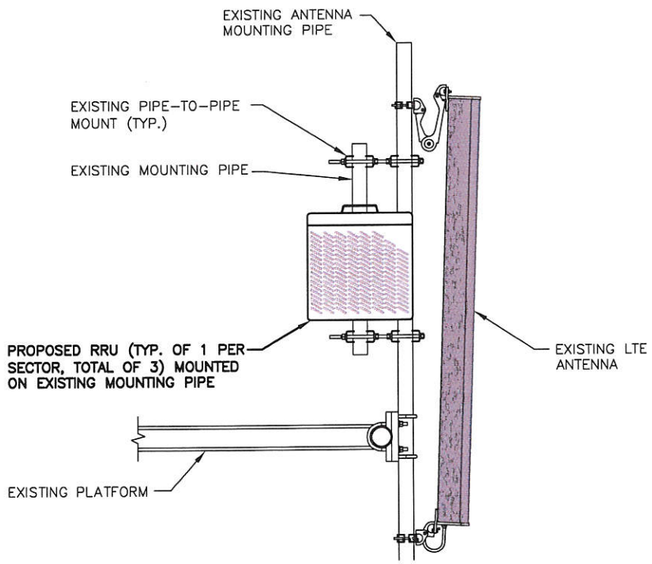
AT&T

ANTENNA LAYOUT AND ELEVATION (LTE-2C)

JOB NUMBER	DRAWING NUMBER	REV
1125.01	A-2	1



RRU
PLAN VIEW



PROPOSED RRU MOUNTING DETAIL

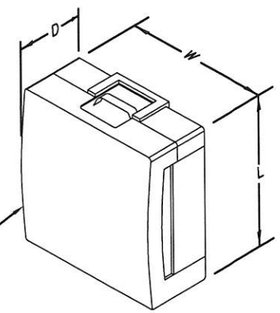
SCALE: N.T.S.

PROPOSED RRU SCHEDULE

SECTOR	MAKE	MODEL#	SIZE (INCHES)
ALPHA:	ERICSSON	RRUS-11	19.7x17.0x7.2
BETA:	ERICSSON	RRUS-11	19.7x17.0x7.2
GAMMA:	ERICSSON	RRUS-11	19.7x17.0x7.2

EXISTING ANTENNA SCHEDULE

SECTOR	MAKE	MODEL#	SIZE (INCHES)
ALPHA:	KMW	AM-X-CD-16-65-00T-RET	72.0x11.8x5.9
	KMW	AM-X-CD-16-65-00T-RET	72.0x11.8x5.9
	KATHREIN	80010121	54.5X10.3X5.9
BETA:	KMW	AM-X-CD-16-65-00T-RET	72.0x11.8x5.9
	KMW	AM-X-CD-16-65-00T-RET	72.0x11.8x5.9
	KATHREIN	80010121	54.5X10.3X5.9
GAMMA:	KMW	AM-X-CD-16-65-00T-RET	72.0x11.8x5.9
	KMW	AM-X-CD-16-65-00T-RET	72.0x11.8x5.9
	KATHREIN	80010121	54.5X10.3X5.9

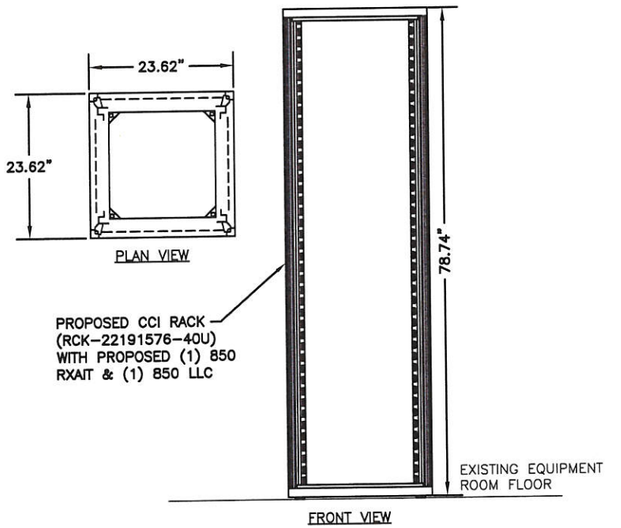


	L	W	D
RRUS – 11	19.7"	17.0"	7.2"
RRUS – 12	20.4"	18.5"	7.5"
RRUS – 32	26.7"	12.1"	6.7"
RRUS – E2	20"	20.4"	9.5"
LTE – A2	16.4"	15.2"	3.4"

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

RRU DETAIL

SCALE: N.T.S.



PROPOSED EQUIPMENT RACK DETAIL

SCALE: N.T.S.

Hudson Design Group LLC
1600 OSGOOD STREET
BUILDING 20 NORTH, SUITE 3090
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

smartlink
1997 ANNAPOLIS EXCHANGE PKWY
SUITE 200
ANNAPOLIS, MD 21401

SITE NUMBER: CT1125
SITE NAME:
WATERBURY SHEFFIELD ST
299 SHEFFIELD ST
WATERBURY, CT 06704
NEW HAVEN COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

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SCALE: AS SHOWN | DESIGNED BY: TH | DRAWN BY: SB

STATE OF CONNECTICUT — DANIEL P. HAMM — LICENSED PROFESSIONAL ENGINEER

AT&T

DETAILS
(LTE-2C)

JOB NUMBER	DRAWING NUMBER	REV
1125.01	A-3	1

FDH Engineering, Inc., 6521 Meridien Drive Raleigh, NC 27616, Ph. 919.755.1012

Structural Analysis for SBA Network Services, Inc.

158' Monopole Tower

SBA Site Name: Waterbury
SBA Site ID: CT02722-S
New Cingular Site ID: CT1125
New Cingular Site Name: Waterbury

FDH Project Number 12-04945E S1

Analysis Results

Tower Components	69.1%	Sufficient
Foundation	67.8%	Sufficient

Prepared By:

Daniel Chang, EI
Project Engineer

Reviewed By:

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

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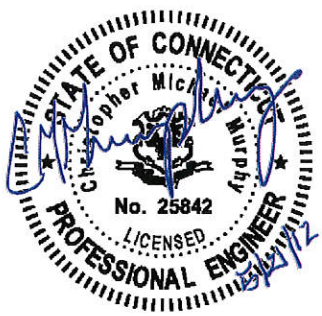
Raleigh, NC 27616
(919) 755-1012
info@fdh-inc.com



May 21, 2012

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

TABLE OF CONTENTS

EXECUTIVE SUMMARY

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

- ❑ Summit Manufacturing, LLC (Drawing No. 9302) original design drawings dated August 23, 2000
- ❑ Paul J. Ford and Company (Job No. 29200-553) foundation design drawings dated May 12, 2000
- ❑ SBA Network Services, Inc.

The *basic design wind speed* per the *TIA/EIA-222-F* standards and the *2005 Connecticut Building Code* is 85 mph without ice and 38 mph with 3/4" radial ice. Ice is considered to increase in thickness with height.

Conclusions

With the existing and proposed antennas from New Cingular in place at 137 and 135 ft, the tower meets the requirements of the *TIA/EIA-222-F* standards and the *2005 Connecticut Building Code* provided the **Recommendations** listed below are satisfied. Furthermore, provided the foundation was designed and constructed to support the original design reactions (see PJF Job No. 29200-553), the foundation should have the necessary capacity to support the existing and proposed loading. For a more detailed description of the analysis of the tower, see the **Results** section of this report.

Our structural analysis has been performed assuming all information provided to FDH Engineering, Inc. is accurate (i.e., the steel data, tower layout, existing antenna loading, and proposed antenna loading) and that the tower has been properly erected and maintained per the original design drawings.

Recommendations

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

1. The proposed coax should be installed inside the pole's shaft.
2. The proposed and existing TMAs should be installed directly behind the proposed and existing panel antennas.

APPURTENANCE LISTING

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

Table 1 - Appurtenance Loading

Existing Loading:

Antenna Elevation (ft)	Description	Coax and Lines[1]	Carrier	Mount Elevation (ft)	Mount Type
158	(3) RFS APXV18-206517S-C w/ Mount Pipe	(6) 1 5/8	Pocket	158	(1) Low Profile Platform
148	(6) Decibel DB844G65ZAXY w/ Mount Pipe (3) Powerwave P65-16-XL-2 w/ Mount Pipe (3) Rymsa MGD3-800T0 w/ Mount Pipe (6) RFS FD9R6004/2C-3L Diplexers	(12) 1 5/8	Verizon	148	(1) Low Profile Platform
137	(9) CSS DUO1417-8686-4-0 w/ Mount Pipe (3) Powerwave 7770.00 w/ Mount Pipe (6) ADC Cleargain CG1990w/850 TMAs (6) Powerwave LGP13519 Diplexers (3) CSS DBC-750 Combiners	(12) 1 5/8	New Cingular	137	(1) Low Profile Platform
127	(9) Decibel DB844H90E-XY w/Mount Pipe (3) Argus LLPX310R w/ Mount Pipe (3) Samsung U-RAS RRHs (2) Dragonwave A-ANT-23G-2-C Dishes	(12) 1 1/4 (6) 5/16 (2) 1/2	Sprint/Clearwire	127	(1) Low Profile Platform
122	(1) Nokia CS72188.01 Omni	(1) 1/2"	New Cingular	122	Direct

1 Coax are located inside the pole's shaft unless otherwise noted.

Proposed Loading:

Antenna Elevation (ft)	Description	Coax and Lines	Carrier	Mount Elevation (ft)	Mount Type
137	(6) KMW AM-X-CD-16-65-00T w/ Mount Pipe (3) Kathrein 800 10121 w/ Mount Pipe (3) Powerwave 7770.00 w/ Mount Pipe (6) CCI DTMABP7819VG12A TMAs (3) Powerwave LGP13519 TMAs (3) CSS DBC-750 Combiners	(12) 1 5/8 (1) 10 mm fiber[1] (2) 12 Ga. DC[1]	New Cingular	137	(1) Low Profile Platform
135	(6) Ericsson RRUS-11 RRUs (1) Raycap DC6-48-60-18-8F Surge Arrestor			135	(1) Andrew MTC3335 Collar Mount

1 The (1) 10 mm fiber cable and (2) 12 gauge DC power cables are to be installed inside (1) 3" conduit.

RESULTS

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

Table 2 - Material Strength

Member Type	Yield Strength
Tower Shaft Sections	65 ksi
Base Plate	50 ksi
Anchor Bolts	75 ksi (assumed)

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

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

See the **Appendix** for detailed modeling information

Table 3 - Summary of Working Percentage of Structural Components

Section No.	Elevation ft	Component Type	Size	% Capacity*	Pass Fail
L1	158 - 113.5	Pole	TP34.68x24x0.25	49.4	Pass
L2	113.5 - 78	Pole	TP42.7x33.1x0.3125	69.1	Pass
L3	78 - 38.5	Pole	TP51.55x40.755x0.4063	65.7	Pass
L4	38.5 - 0	Pole	TP59.98x49.1782x0.5	59.2	Pass
		Anchor Bolts	(20) 2.25"ø w/ BC = 67"	63.0	Pass
		Base Plate	PL 66" Square x 3.25" Thk	51.8	Pass

* Capacities include 1/3 allowable stress increase for wind per *TIA/EIA-222-F*.

Table 4 - Maximum Base Reactions

Base Reactions	Current Analysis *(TIA/EIA-222-F)*	Original Design *(TIA/EIA-222-F)*
Axial	45 k*	41 k
Shear	31 k	44 k
Moment	3,494 k-ft	5,150 k-ft

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

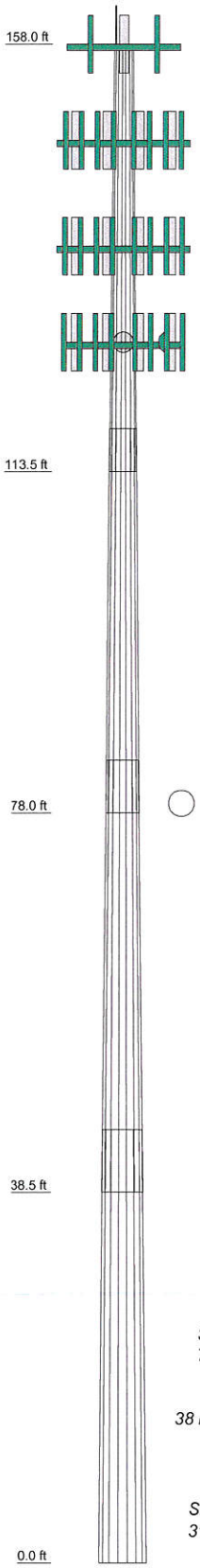
GENERAL COMMENTS

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

LIMITATIONS

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

APPENDIX



Section	1	2	3	4
Length (ft)	44.50	40.00	45.00	45.00
Number of Sides	18	18	18	18
Thickness (in)	0.2500	0.3125	0.4063	0.5000
Socket Length (ft)	4.50	5.50	6.50	
Top Dia (in)	24.0000	33.1000	40.7550	49.1782
Bot Dia (in)	34.6800	42.7000	51.5500	59.9800
Grade	A607-65			
Weight (K)	3.5	5.1	9.0	13.1

30.7

AXIAL
60 K

SHEAR
7 K

MOMENT
863 kip-ft

TORQUE 0 kip-ft
38 mph WIND - 0.7500 in ICE

AXIAL
45 K

SHEAR
31 K

MOMENT
3494 kip-ft

TORQUE 0 kip-ft
REACTIONS - 85 mph WIND

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod	158	(2) DTMABP7819VG12A TMA	137
APXV18-206517S-C W/Mount Pipe	158	(2) DTMABP7819VG12A TMA	137
APXV18-206517S-C W/Mount Pipe	158	(2) DTMABP7819VG12A TMA	137
APXV18-206517S-C W/Mount Pipe	158	LGP13519 TMA	137
(3) Antenna Mount Pipe	158	LGP13519 TMA	137
(3) Antenna Mount Pipe	158	LGP13519 TMA	137
(3) Antenna Mount Pipe	158	DBC-750	137
Low Profile Platform	158	DBC-750	137
(2) DB844G65ZAXY w/Mount Pipe	148	DBC-750	137
(2) DB844G65ZAXY w/Mount Pipe	148	Low Profile Platform	137
(2) DB844G65ZAXY w/Mount Pipe	148	(2) RRUS-11	135
P65-16-XL-2 W/ Mount Pipe	148	(2) RRUS-11	135
P65-16-XL-2 W/ Mount Pipe	148	DC6-48-60-18-8F Surge Arrestor	135
P65-16-XL-2 W/ Mount Pipe	148	Collar Mount	135
MGD3-800T0 W/Mount Pipe	148	(2) Empty Mount Pipe	135
MGD3-800T0 W/Mount Pipe	148	(2) Empty Mount Pipe	135
MGD3-800T0 W/Mount Pipe	148	(2) Empty Mount Pipe	135
(2) FD9R6004/2C-3L Diplexer	148	(2) RRUS-11	135
(2) FD9R6004/2C-3L Diplexer	148	(3) DB844H90E-XY w/Mount Pipe	127
(2) FD9R6004/2C-3L Diplexer	148	(3) DB844H90E-XY w/Mount Pipe	127
Low Profile Platform	148	(3) DB844H90E-XY w/Mount Pipe	127
(2) KMW AM-X-CD-16-65-00T w/ Mount Pipe	137	LLPX310R W/ Mount Pipe	127
		LLPX310R W/ Mount Pipe	127
(2) KMW AM-X-CD-16-65-00T w/ Mount Pipe	137	LLPX310R W/ Mount Pipe	127
		Antenna Mount Pipe	127
(2) KMW AM-X-CD-16-65-00T w/ Mount Pipe	137	Antenna Mount Pipe	127
		U-RAS RRH	127
800 10121 w/ Mount Pipe	137	U-RAS RRH	127
800 10121 w/ Mount Pipe	137	U-RAS RRH	127
800 10121 w/ Mount Pipe	137	Low Profile Platform	127
7770.00 w/Mount Pipe	137	A-ANT-23G-2-C	127
7770.00 w/Mount Pipe	137	A-ANT-23G-2-C	127
7770.00 w/Mount Pipe	137	Nokia CS72188.01	122

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A607-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 69.1%

FDH Engineering, Inc.
6521 Meridian Drive
Raleigh, NC 27616
Phone: (919) 755-1012
FAX: (919) 755-1031
Tower Analysis

Job: Waterbury (CT02722-S)			
Project: 12-04945E S1			
Client: SBA Network Services, Inc.	Drawn by: Daniel Chang	App'd:	
Code: TIA/EIA-222-F	Date: 05/21/12	Scale: NTS	
Path: \\FDH-SERVER\Projects\2012 Projects\4 - Apr\12-04945E\Waterbury, CT\S1- SA ATT\Analysis\Waterbury, CT02722-S.eri		Dwg No. E-1	

		Carrier	#Channels	ERP/Ch	Ant Ht	Power Density	MHz	S	%MPE	Site Total
EM-CING-151-120611	Waterbury - 299 Sheffield St.	AT&T UMTS	2	565	137	0.0216	880	0.5867	3.69%	
EM-CING-151-120611	Waterbury - 299 Sheffield St.	AT&T UMTS	2	1077	137	0.0413	1900	1.0000	4.13%	
EM-CING-151-120611	Waterbury - 299 Sheffield St.	AT&T GSM	1	491	137	0.0094	880	0.5867	1.60%	
EM-CING-151-120611	Waterbury - 299 Sheffield St.	AT&T GSM	4	813	137	0.0623	1900	1.0000	6.23%	
EM-CING-151-120611	Waterbury - 299 Sheffield St.	AT&T LTE	1	1313	137	0.0252	734	0.4893	5.14%	
EM-MetroPCS-151-130103-MA	Waterbury - 299 Sheffield St.	MetroPCS CDMA	3	727	158	0.0314	2135	1.0000	3.14%	
EM-MetroPCS-151-130103-MA	Waterbury - 299 Sheffield St.	MetroPCS LTE	1	1200	158	0.0173	2130	1.0000	1.73%	
EM-VER-151-130715	Waterbury - 299 Sheffield St.	Verizon cellular	9	250	148	0.0369	869	0.5793	6.38%	
EM-VER-151-130715	Waterbury - 299 Sheffield St.	Verizon PCS	11	240	148	0.0433	1970	1.0000	4.33%	
EM-VER-151-130715	Waterbury - 299 Sheffield St.	Verizon LTE	1	823	148	0.0135	698	0.4653	2.90%	
EM-VER-151-130715	Waterbury - 299 Sheffield St.	Verizon AWS	1	1750	148	0.0287	2145	1.0000	2.87%	
EM-Clearwire-151-091218	Waterbury - 299 Sheffield St.	Clearwire	2	153	127	0.0068	2496	1.0000	0.68%	
EM-Clearwire-151-091218	Waterbury - 299 Sheffield St.	Clearwire	1	211	127	0.0047	11 GHz	1.0000	0.47%	
EM-Sprint/Nextel-151-071207	Waterbury - 299 Sheffield St.	Nextel iDEN	12	100	127	0.0268	851	0.5673	4.72%	
EM-Sprint/Nextel-151-071207	Waterbury - 299 Sheffield St.	Nextel WiMAX	3	562	127	0.0376	2657	1.0000	3.76%	
EM-Sprint/Nextel-151-071207	Waterbury - 299 Sheffield St.	Nextel Microwave	2	4.42	128	0.0002	22500	1.0000	0.02%	51.79%