



December 3, 2018

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

Regarding: Notice of Exempt Modification – Antenna and Ancillary Equipment Modifications
Property Address: 204 Burwell Road; West Haven, CT 06516 - also known as 1 Burwell Road (“The Property”)
Applicant: AT&T Mobility (“AT&T”, Site # CT2064)

Dear Ms. Bachman:

AT&T currently maintains a wireless telecommunications facility on an existing 155-foot self-support lattice tower at the above-referenced address, latitude 41.29533889, longitude -72.97332778. Said self-support is owned by American Tower Corporation. The existing equipment shelter is 25.66’ by 25.66’, totaling 658.44 square feet.

AT&T desires to modify its existing telecommunications facility by swapping (3) panel antennas, (6) Remote Radio Units and (3) A-2 Units, and adding (6) diplexers and a squid surge suppressor with associated cabling. The centerline height of said antennas is and will remain at 154 feet. Antennas are mounted utilizing a sector frame.

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 the Honorable Nancy R. Rossi, Mayor of West Haven, CT; Fred A. Messoro, Commissioner in the City of West Haven’s Department of Planning and Development, and property owner and the tower owner, American Tower.

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). Specifically:

1. The planned modification will not result in an increase in the height of the existing structure. The added antennas and accessory equipment along with equipment to be swapped will be installed at the existing height of 154 feet on the 155-foot self-support lattice tower.
2. The proposed modifications will not involve any changes to ground-mounted equipment, and therefore will not require an extension of the site boundary.
3. The proposed modification will not increase the noise level 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 Federal Communications Commission (FCC) safety standard. An RF emissions calculation (enclosed) for AT&T's modified facility is herein provided.
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 AT&T's proposed modifications (please see enclosed structural analysis completed by American Tower Corporation, dated November 8, 2018).

For the foregoing reasons, AT&T respectfully requests that the proposed remote-radio head installation be allowed within the exempt modifications under R.C.S.A. §16-50j-72 (b)(2).

Sincerely,

Julia Coughlin

Julia Coughlin
Site Acquisition Specialist

Enclosures: Exhibit 1 – Field Card and GIS Map
Exhibit 2 – Construction Drawings
Exhibit 3 – Structural Analysis
Exhibit 4 – RF Emissions Analysis Report Evaluation

cc:

Hon. Nancy R. Rossi, Mayor
City Hall, 3rd Floor Office of the Mayor
355 Main Street
City Hall, 3rd Floor Office of the Mayor
West Haven, CT 06516

Fred A. Messoro
Department of Planning and Development
City Hall, 1st Floor
355 Main Street
West Haven, CT 06516

American Tower Corp.
Attn: Ryan Tierney, Account Project Manager
10 Presidential Way
Woburn, MA 01801



Property Information

Owner	AMERICAN TOWERS INC.
Co-Owner	ATTN TAX DEPT
Address	204 BURWELL RD
Mailing Address	PO BOX 723597 ATLANTA GA 31139
Land Use	431V TEL REL TW MDL-00
Land Class	I

Vision ID	102787
Census Tract	
Neighborhood	
Zoning Code	
Acreage	0
Utilities	

Photo



Sketch



Primary Construction Details

Actual Year Built	
Effective Year Built	
Stories	
Building Style	
Building Use	
Building Condition	
Total Rooms	

Bedrooms	
Full Bathrooms	
Half Bathrooms	
Bath Style	
Kitchen Style	
Roof Style	
Roof Cover	

Exterior Walls	
Interior Walls	
Heating Type	
Heating Fuel	
AC Type	
Gross Bldg Area	
Total Living Area	0



**City of West Haven, CT
Property Listing Report**

Parcel ID 064-0314-0-CELL-A

Account 00022806

Valuation Summary (Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	0	0
Outbuildings	793900	555730
Improvements	793900	555730
Extras	0	0
Land	0	0
Total	793900	555730

Outbuilding and Extra Items

Description	Units
CELL SHED	168 S.F.
CELL SHED	676 S.F.
TOWER	3 SITES
FENCE-8' CHAIN	312 L.F.
CELL SHED	240 S.F.

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Total Area		

Sales History

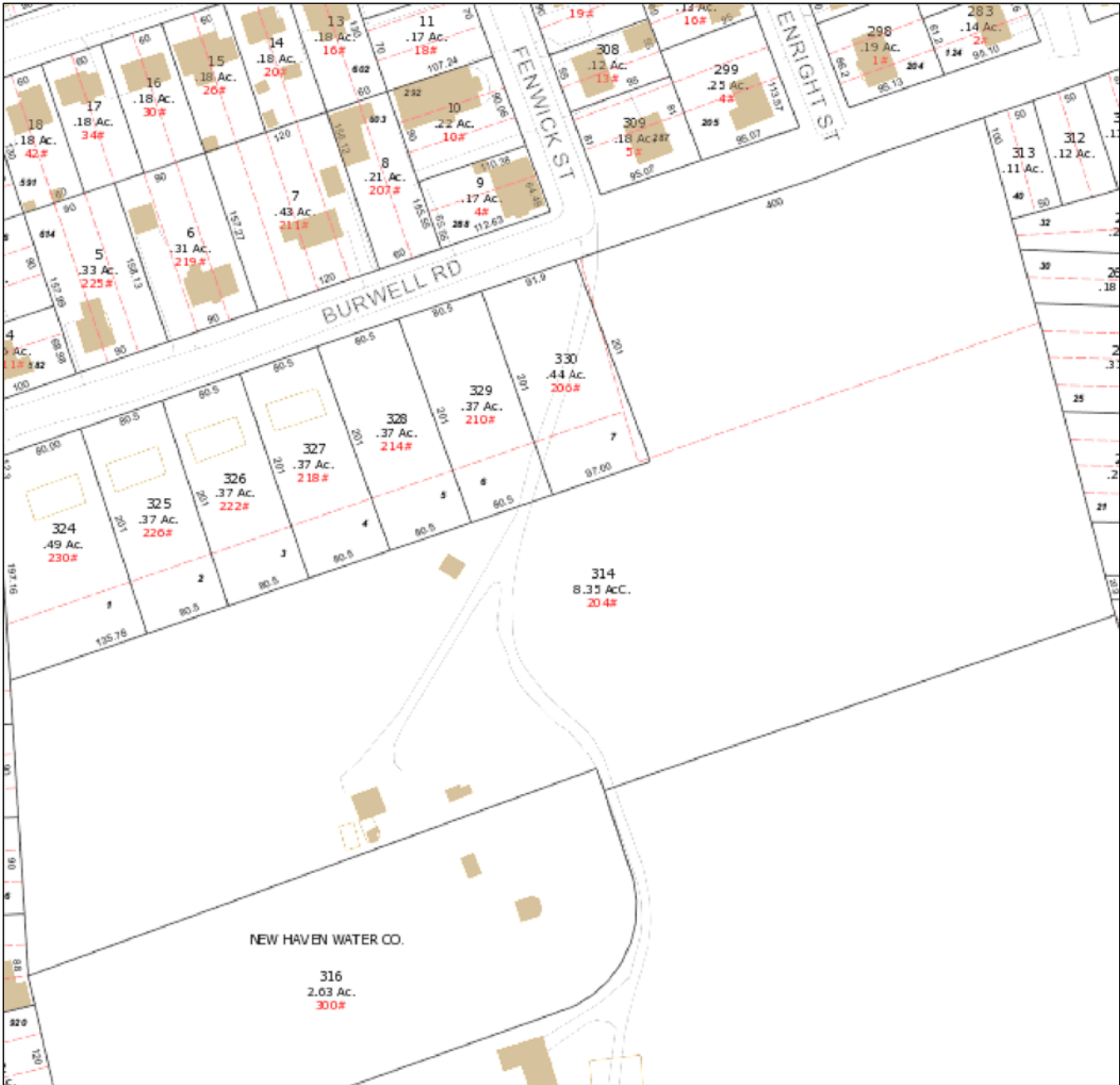
Owner of Record	Book/ Page	Sale Date	Sale Price
AMERICAN TOWERS INC.	000/ 000	10/1/2010	0

City of West Haven Geographic Information System (GIS)

204 Burwell Road; West Haven, CT 06516



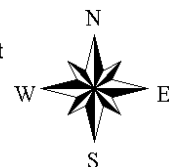
Date Printed: 11/30/2018



MAP DISCLAIMER - NOTICE OF LIABILITY

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Approximate Scale: 1 inch = 150 feet



GENERAL NOTES:

- THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING 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.
- ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GE'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
- THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 50 HMS OR LESS.
- THE SUBCONTRACTOR 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 GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 AWG COPPER WIRE 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 BTS EQUIPMENT.
- EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE EQUIPMENT GROUND RING WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS; 2 AWG STRANDED COPPER FOR OUTDOOR BTS.
- 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.
- ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING, SHALL BE #2 AWG SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
- 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. ALL BENDS SHALL BE MADE WITH 12" RADIUS OR LARGER.
- EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
- ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS EXCEPT FOR GROUND BAR CONNECTION FROM MGB TO OUTSIDE EXTERIOR GROUND SHALL ALL BE CADWELD CONNECTIONS.
- COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
- ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED TO THE TOWER GROUND BAR.
- APPROVED ANTIOXIDANT COATINGS (I.E. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
- ALL EXTERIOR AND INTERIOR 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 MAIN GROUND WIRES WITH 1-#2 AWG TIN-PLATED COPPER GROUND CONDUCTOR.
- 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.
- ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/4" 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.
- FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
 CONTRACTOR - EMPIRE TELECOM
 SUBCONTRACTOR - GENERAL CONTRACTOR (CONSTRUCTION)
 OWNER - AT&T (NEW CINGULAR WIRELESS PCS, LLC)
- ALL SITE WORK SHALL BE COMPLETED AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.
- DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
- 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.
- UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

- THE SUBCONTRACTOR 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 SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.
- 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.
- THE SUBCONTRACTOR 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 THE RESPONSIBLE ENGINEER. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. SUBCONTRACTOR 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 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, AS DIRECTED BY THE RESPONSIBLE ENGINEER, AND SUBJECT TO THE APPROVAL OF THE OWNER AND/OR LOCAL UTILITIES.
- 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.
- SUBCONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
- 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 SUBGRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
- THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.
- IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
- THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE.
- SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
- PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACTOR.
- 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.
- ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.
- ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS.
- 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.
- CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T MOBILITY SITES."
- 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.
- 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.
- 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 ALERT OF DANGEROUS EXPOSURE LEVELS.



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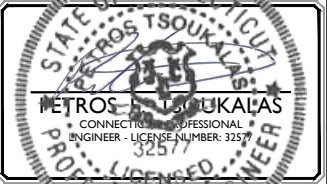


16 ESQUIRE ROAD
 BILLERICA, MA 01862



SCALE: AS SHOWN JOB NUMBER: 18963004A

REV	DATE	DESCRIPTION	DRAWN	CHECKED
0	09/28/18	FOR CONSTRUCTION	AJC	RA
2	09/25/18	REVISED PER COMMENTS	AJC	RA
1	09/06/18	ISSUED FOR PERMIT	MSG	RA



IT IS A VIOLATION OF LAW FOR ANY PERSON UNLESS THEY ARE REGISTERED UNDER THE DIRECTION OF THE RESPONSIBLE LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SITE NAME:
 BANM WESTHAVEN
 FA# 10035024
 SITE# CT2064
 1 BURWELL ROAD
 WEST HAVEN, CT 06516
 NEW HAVEN COUNTY

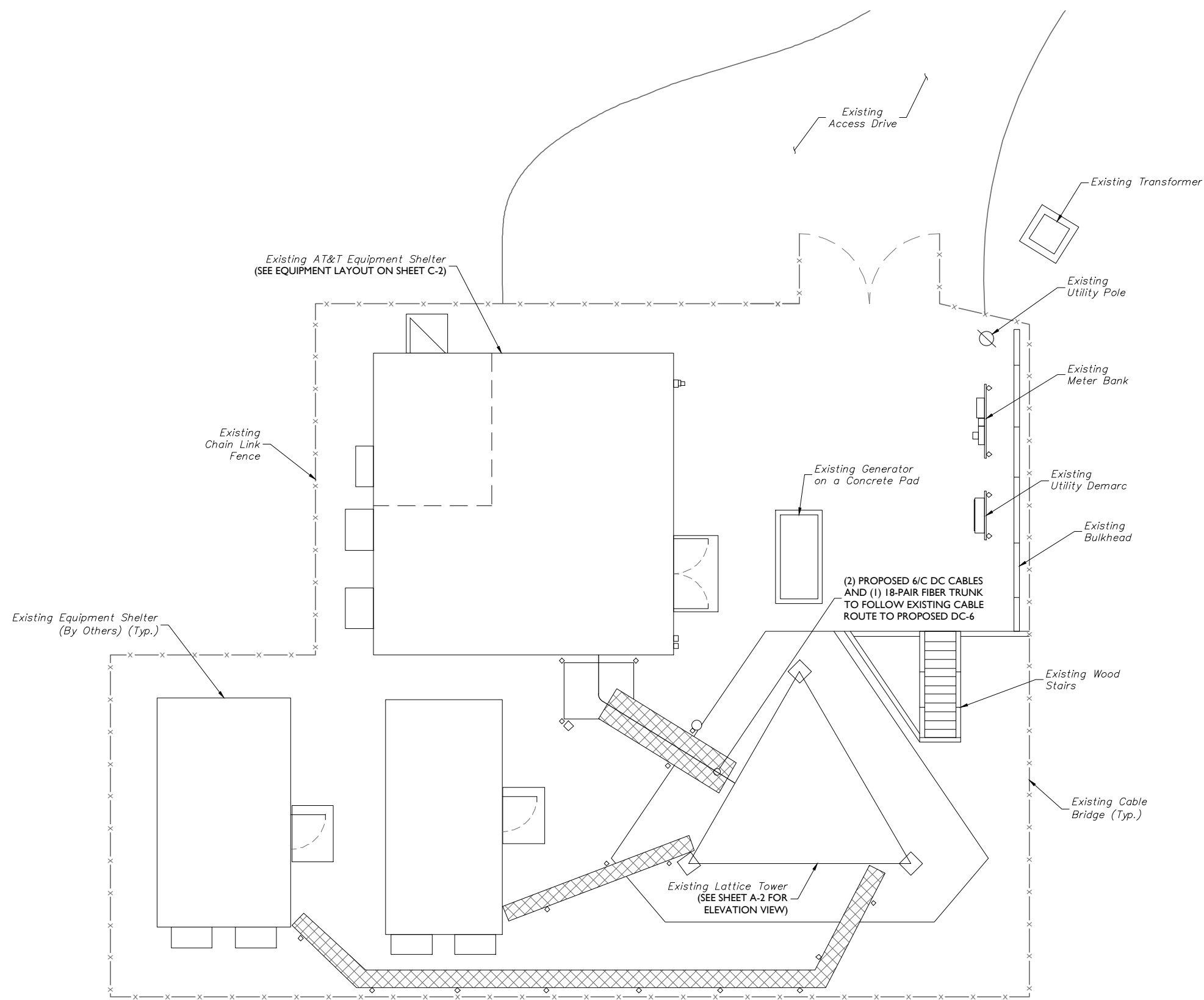
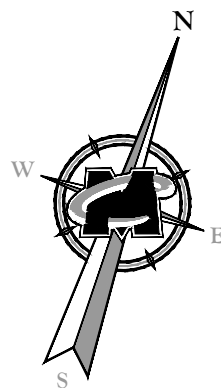


RED BANK OFFICE
 331 Newman Springs Road
 Suite 203
 Red Bank NJ 07701-5699
 Phone: 732.383.1950
 Fax: 732.383.1984
 email: solutions@maserconsulting.com

SHEET TITLE:
GENERAL NOTES

SHEET NUMBER:
GN-1

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COMPOUND PLAN



SCALE : 1" = 5' FOR 22"X34"
 (SCALE : 1" = 10' FOR 11"X17")



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 Know what's below.
 Call before you dig.
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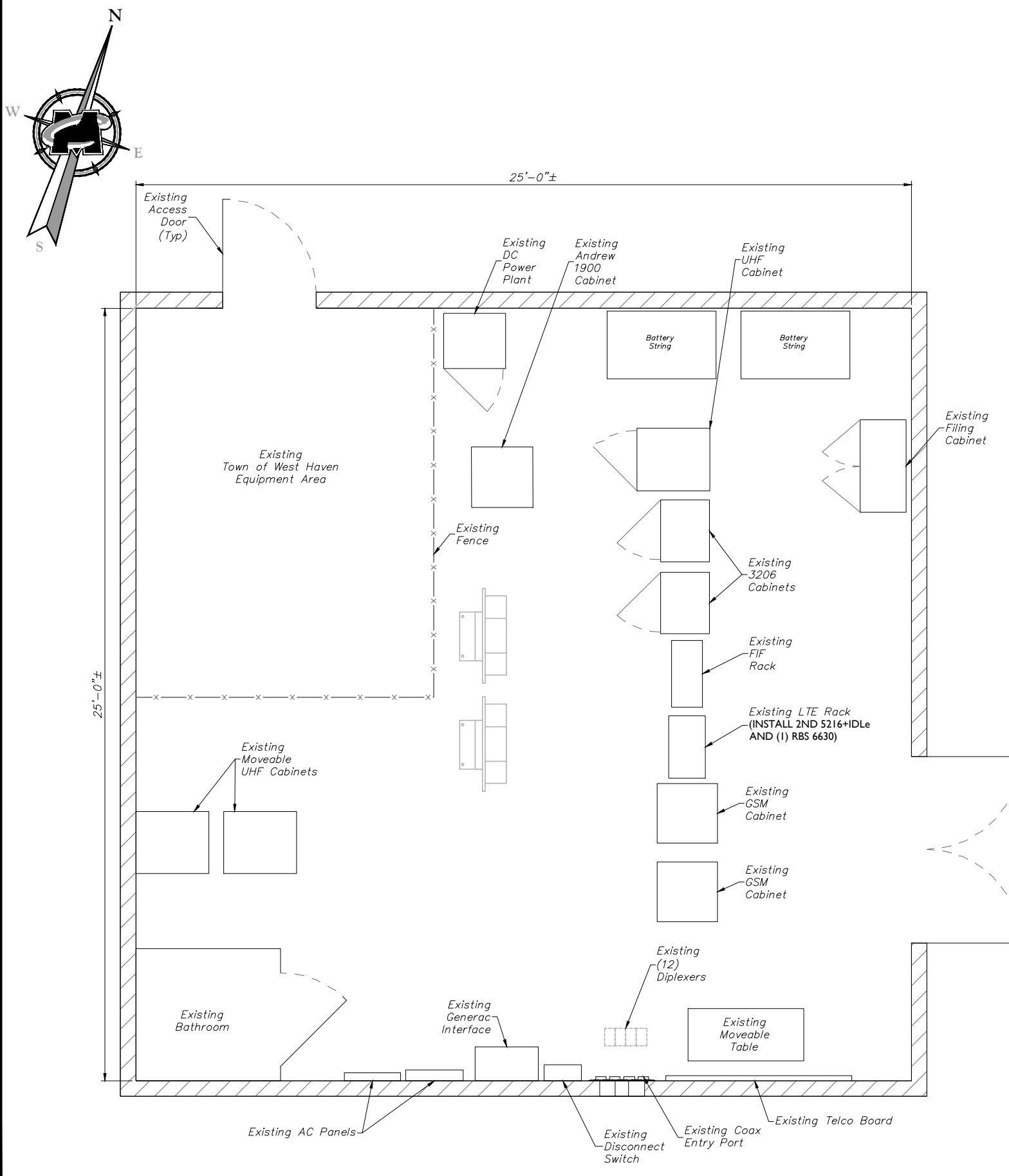
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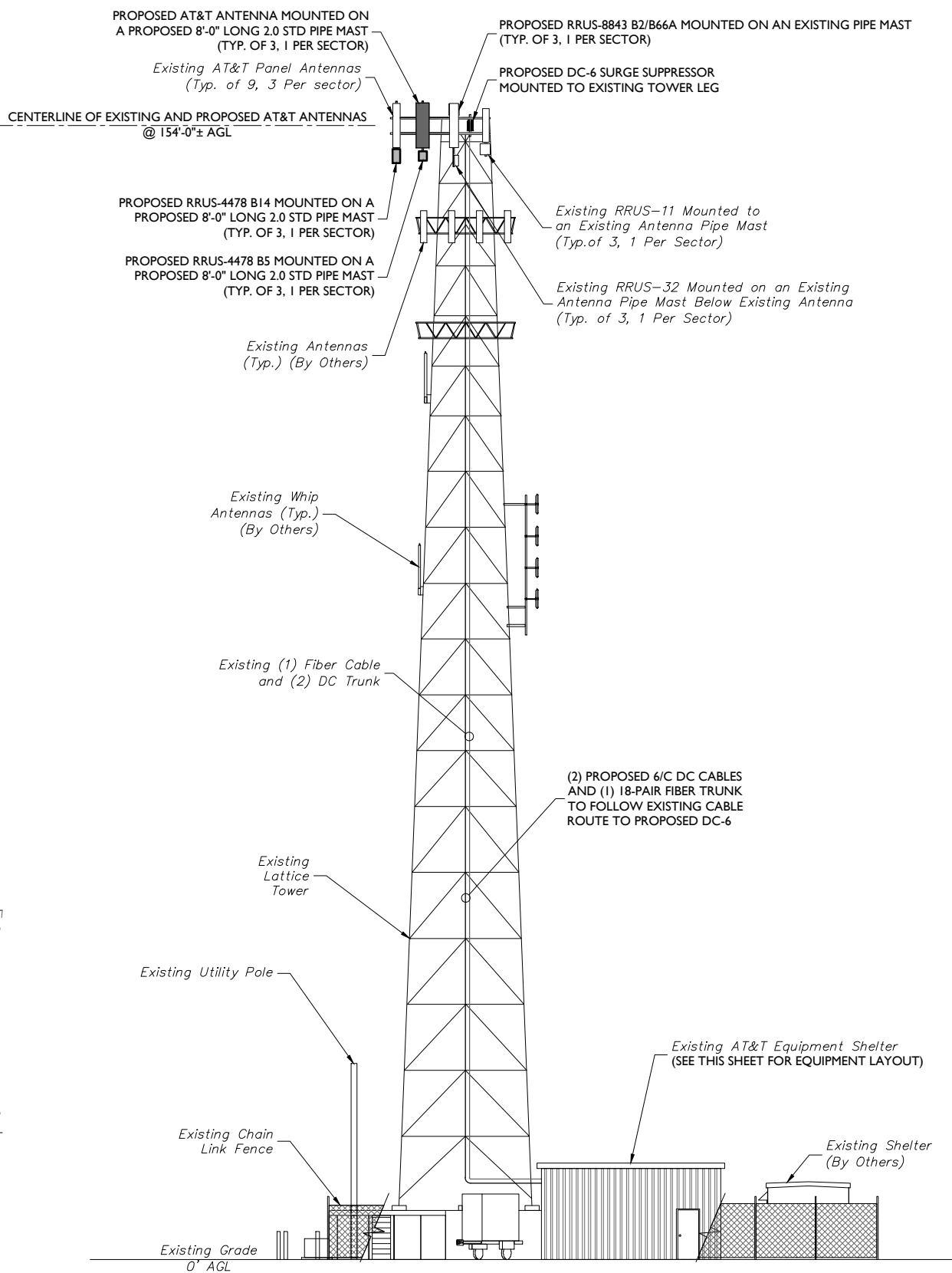
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SHEET NUMBER: C-1

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EQUIPMENT LAYOUT
 SCALE: 1" = 2' FOR 22"X34"
 (SCALE: 1" = 4' FOR 11"X17")



ELEVATION VIEW
 SCALE: 1" = 10' FOR 22"X34"
 (SCALE: 1" = 20' FOR 11"X17")

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PROFESSIONAL ENGINEER
 STATE OF CONNECTICUT
 METROS TSOUKALAS
 CONNECTICUT PROFESSIONAL ENGINEER - LICENSE NUMBER: 32577

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 Fax: 732.383.1984
 email: solutions@maserconsulting.com

SHEET TITLE:
EQUIPMENT LAYOUT AND ELEVATION VIEW

SHEET NUMBER:
C-2

3/20/18 10:00 AM Maser Consulting Connecticut 0206000001 18963004A.ctb REV A_C02.dwg C3

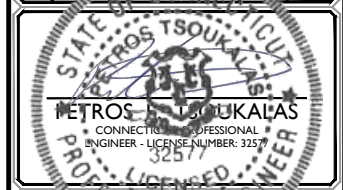
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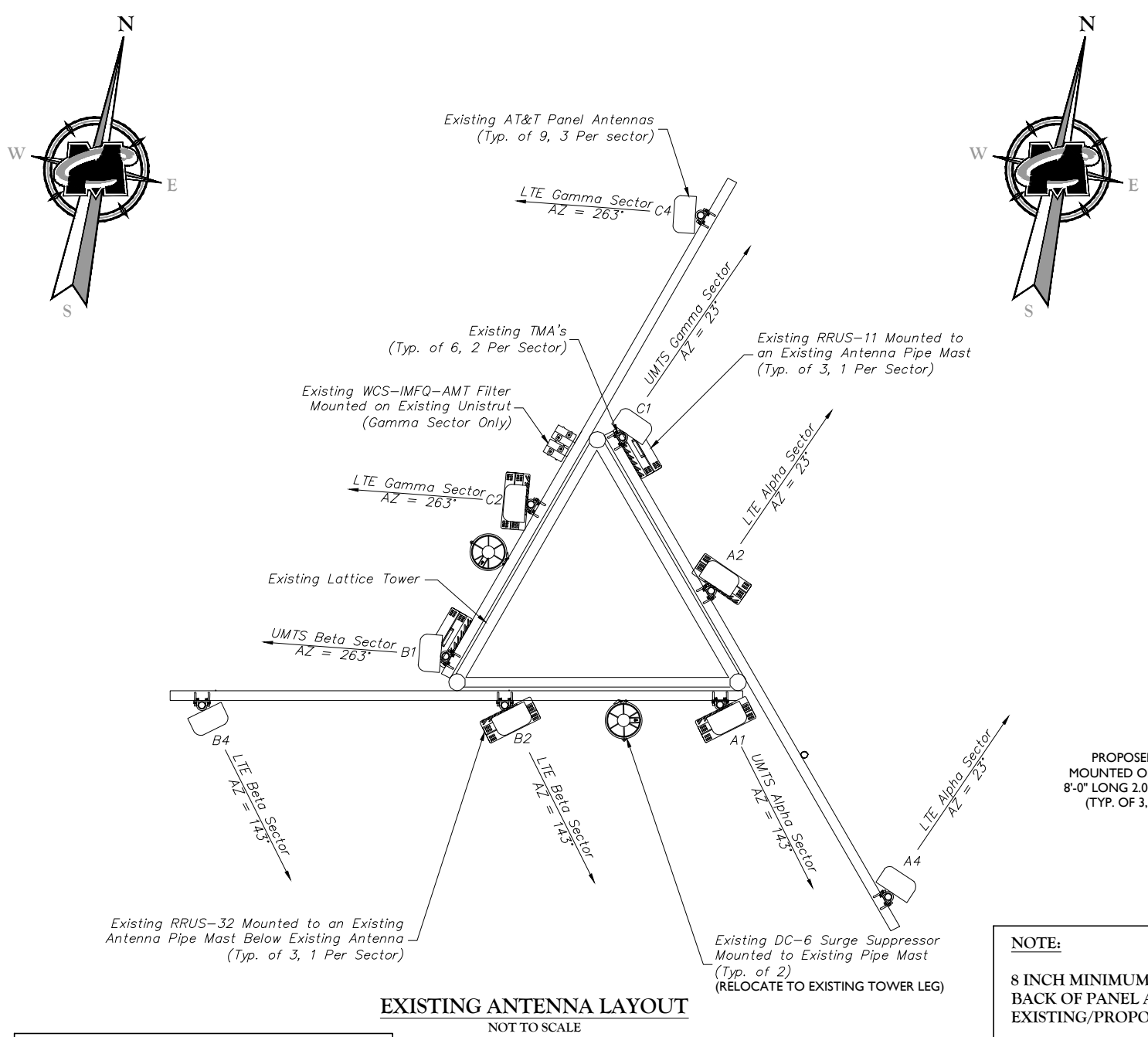
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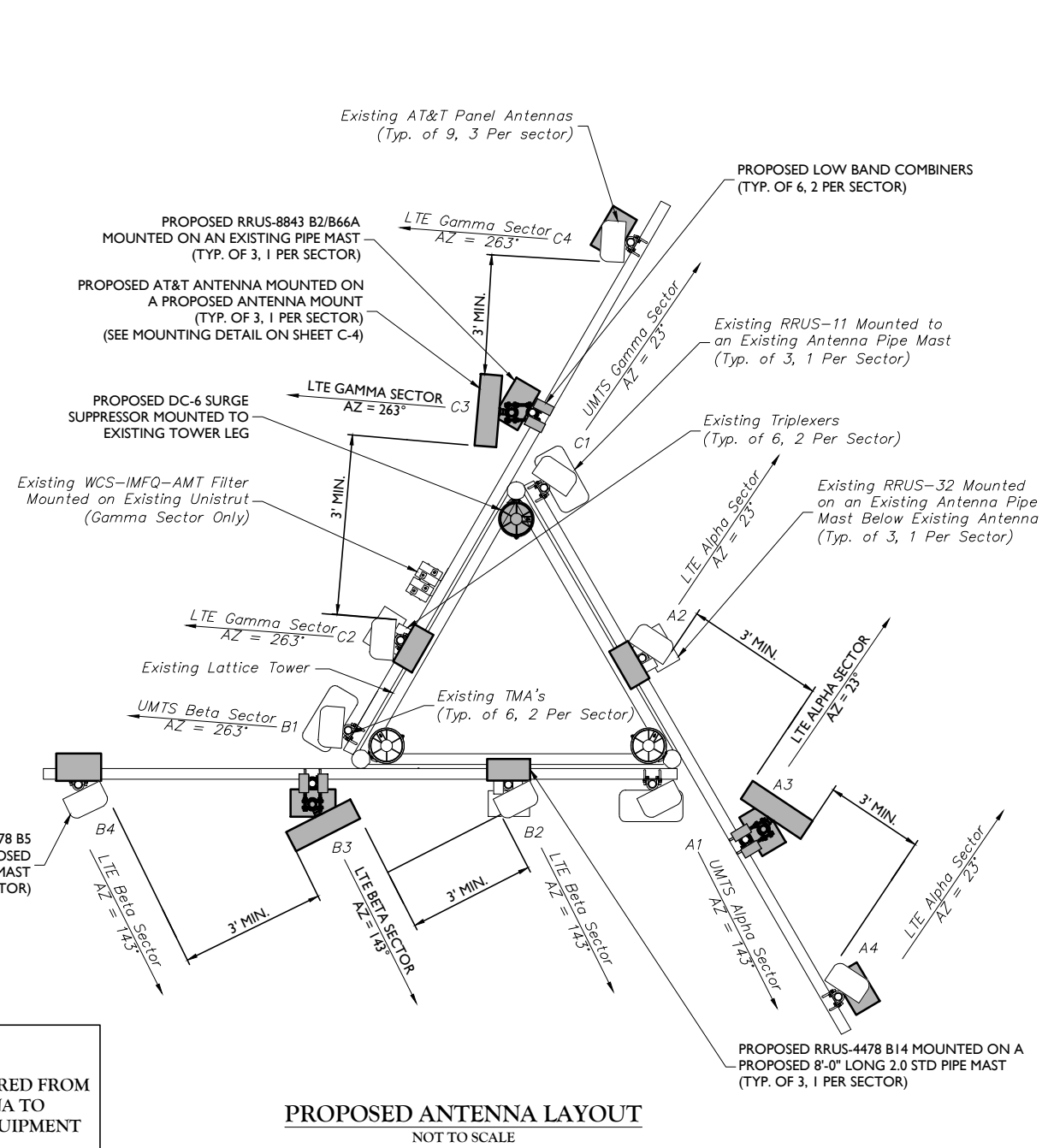
SHEET TITLE:
ANTENNA LAYOUT AND ANTENNA SCHEDULE

SHEET NUMBER:
C-3



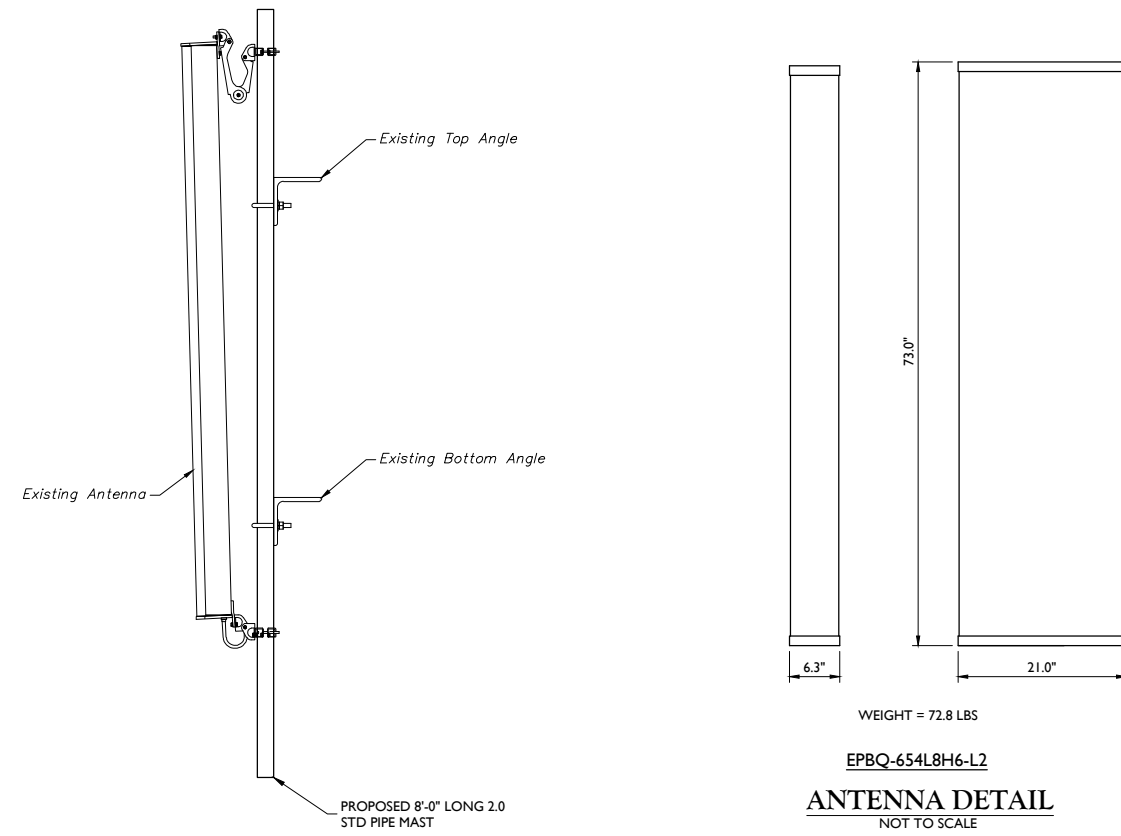
NOTE:
 RELOCATE ANTENNAS IN POSITION #2 CLOSER TO POSITION #1 UMTS ANTENNA IN ORDER TO MAINTAIN REQUIRED 3' MIN. SEPERATION BETWEEN LTE ANTENNAS (TYP. OF ALL SECTORS)

NOTE:
 8 INCH MINIMUM REQUIRED FROM BACK OF PANEL ANTENNA TO EXISTING/PROPOSED EQUIPMENT

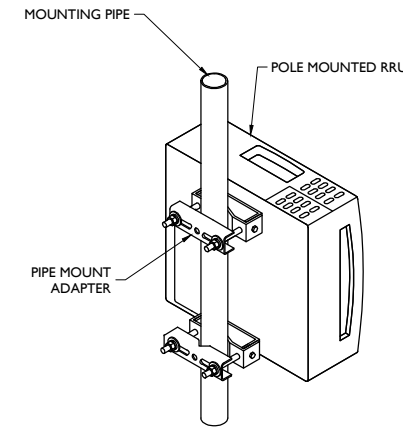


NOTE:
 8 INCH MINIMUM REQUIRED FROM BACK OF PANEL ANTENNA TO EXISTING/PROPOSED EQUIPMENT

PROPOSED ANTENNA AND RRUS CONFIGURATION															
SECTOR	EXISTING ANTENNA CONFIGURATION	PROPOSED ANTENNA CONFIGURATION	TECHNOLOGY	ANTENNA STATUS	HEIGHT (in)	WIDTH (in)	DEPTH (in)	WEIGHT (lbs)	ANTENNA AZIMUTH	ANT. CL. ELEV. (ft)	RRUS CONFIGURATION	STATUS	FEEDER COUNT	FEEDER TYPE	FEEDER STATUS
ALPHA	C1	Povernave 7770	UMTS	REMAIN	55.00	11.00	5.00	35.00	23°	154'	(2) LGP 21901 DIPLEXER (2) LGP 21401 TMA	REMAIN			
	A2	CCI OPA-65R-LCUU-H6	LTE	REMAIN	72.00	14.80	7.40	73.00	23°	154'	(1) RRUS-E2 (AT GRADE) (1) RRUS-32 (4) TPX-070821 TRIPLEXER	REMAIN			
	A3		LTE	PROPOSED	73.00	21.00	6.30	72.80	23°	154'	(1) RRUS-4478 B14 (1) RRUS-4478 B5 (1) RRUS-8848 B2/668A (2) DBCT108F1V92-1	PROPOSED	1/2	FIBER/DC	PROPOSED
	A4	KMW AM-X-CD-16-65-OOT-RET	LTE	REMAIN	72.00	11.80	5.90	48.50	23°	154'	(1) RRUS-11	REMAIN	1/2	FIBER/DC	EXISTING
BETA	A1	Povernave 7770	UMTS	REMAIN	55.00	11.00	5.00	35.00	143°	154'	(2) LGP 21901 DIPLEXER (2) LGP 21401 TMA	REMAIN			
	B2	CCI OPA-65R-LCUU-H6	LTE	REMAIN	72.00	14.80	7.40	73.00	143°	154'	(1) RRUS-E2 (AT GRADE) (1) RRUS-32 (4) TPX-070821 TRIPLEXER	REMAIN			
	B3		LTE	PROPOSED	73.00	21.00	6.30	72.80	143°	154'	(1) RRUS-4478 B14 (1) RRUS-4478 B5 (1) RRUS-8848 B2/668A (2) DBCT108F1V92-1	PROPOSED			
	B4	KMW AM-X-CD-16-65-OOT-RET	LTE	REMAIN	72.00	11.80	5.90	48.50	143°	154'	(1) RRUS-11	REMAIN	1/2	FIBER/DC	EXISTING
GAMMA	B1	Povernave 7770	UMTS	REMAIN	55.00	11.00	5.00	35.00	263°	154'	(2) LGP 21901 DIPLEXER (2) LGP 21401 TMA	REMAIN			
	C2	CCI OPA-65R-LCUU-H6	LTE	REMAIN	72.00	14.80	7.40	73.00	263°	154'	(1) RRUS-E2 (AT GRADE) (1) RRUS-32 (4) TPX-070821 TRIPLEXER	REMAIN			
	C3		LTE	PROPOSED	73.00	21.00	6.30	72.80	263°	154'	(1) RRUS-4478 B14 (1) RRUS-4478 B5 (1) RRUS-8848 B2/668A (2) DBCT108F1V92-1	PROPOSED			
	C4	KMW AM-X-CD-16-65-OOT-RET	LTE	REMAIN	72.00	11.80	5.90	48.50	263°	154'	(1) RRUS-11	REMAIN			

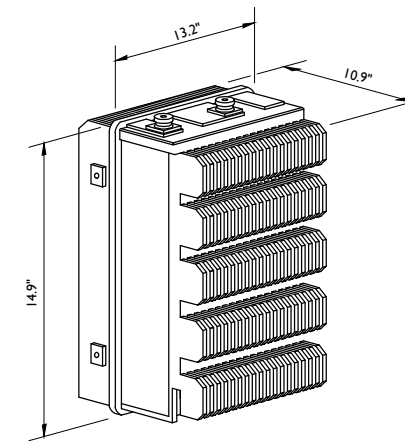


ANTENNA MOUNTING DETAIL (POSITION 2 ONLY)
NOT TO SCALE



DIMENSIONS (H X W X D): 16.5"H X 13.4"W X 7.7"D (INCLUDES SUNSHIELD)
WEIGHT: 59.9 LBS

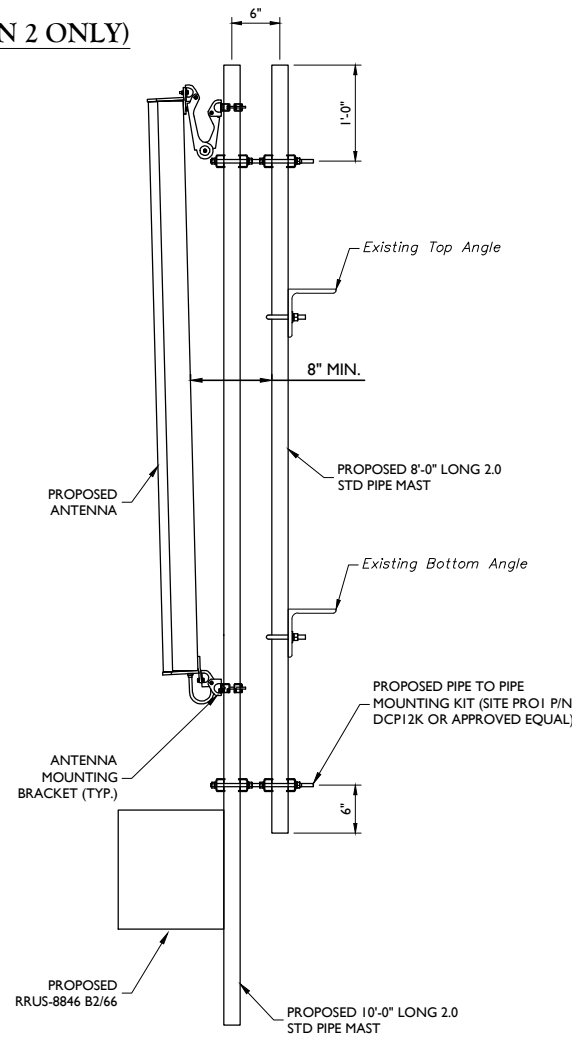
RRU-4478-B5 DETAIL
NOT TO SCALE



RRUS-8843 B2/B66A DIMENSIONS
(H X W X D): 14.9" X 13.2" X 10.9"
WEIGHT: 72 LBS

DIMENSIONS (H X W X D): 18.1"H X 13.4"W X 8.3"D (INCLUDES SUNSHIELD)
WEIGHT: 59.4 LBS

RRUS-4478 B14 DETAIL
NOT TO SCALE

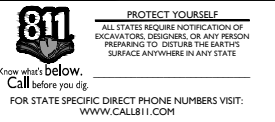


ANTENNA MOUNTING DETAIL (POSITION 3 ONLY)
NOT TO SCALE

NOTE:
8 INCH MINIMUM REQUIRED FROM BACK OF PANEL ANTENNA TO EXISTING/PROPOSED EQUIPMENT



16 ESQUIRE ROAD
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SCALE	JOB NUMBER			
AS SHOWN	18963004A			
0	09/28/18 FOR CONSTRUCTION	AJC	RA	
2	09/25/18 REVISED PER COMMENTS	AJC	RA	
1	09/06/18 ISSUED FOR PERMITS	MSG	RA	
REV	DATE	DESCRIPTION	DRAWN	CHECKED



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SITE# CT2064
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WEST HAVEN, CT 06516
NEW HAVEN COUNTY





16 ESQUIRE ROAD
BILLERICA, MA 01862

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1	09/06/18	ISSUED FOR CONSTRUCTION	MSG	RA



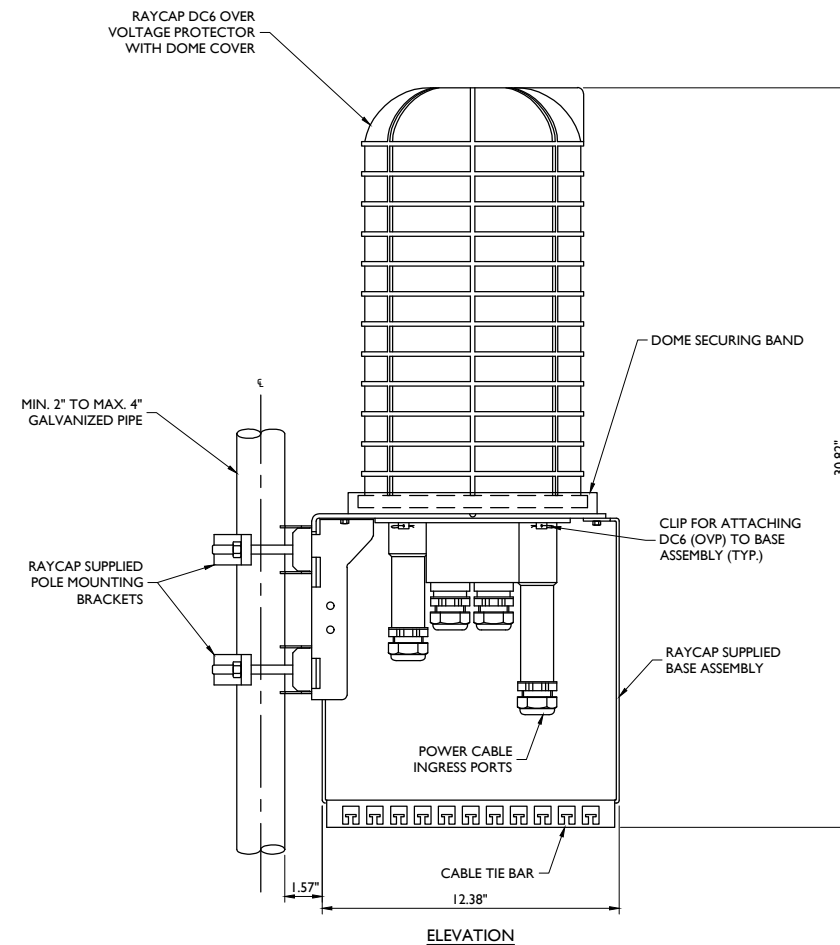
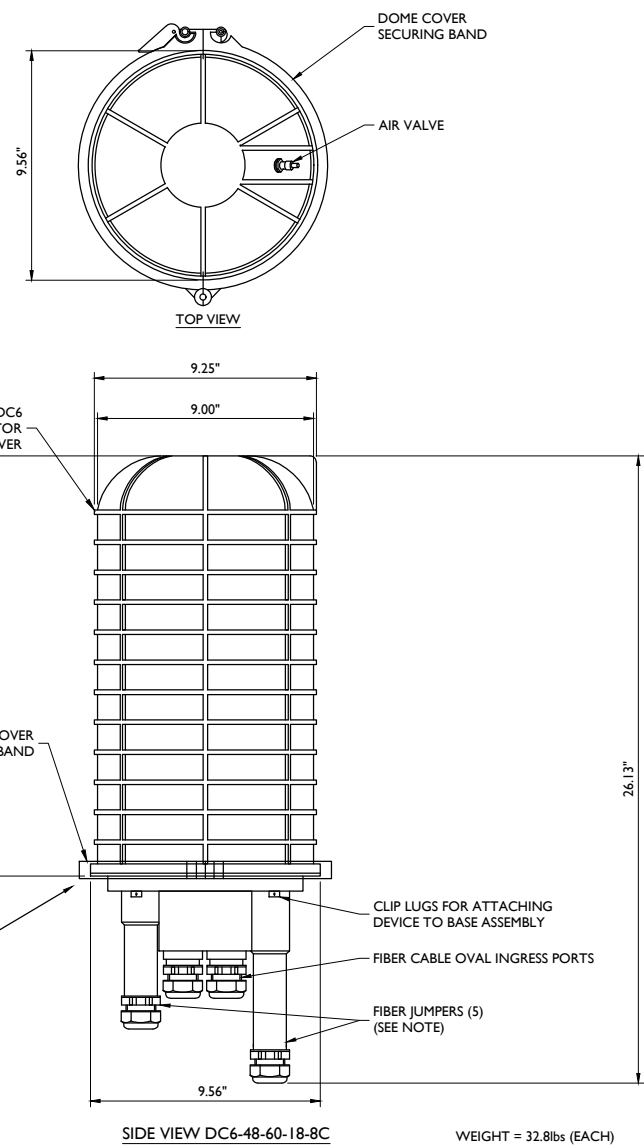
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1 BURWELL ROAD
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NEW HAVEN COUNTY

RED BANK OFFICE
331 Newman Springs Road
Suite 203
Red Bank NJ 07701-5699
Phone: 732.383.1950
Fax: 732.383.1984
email: solutions@maserconsulting.com

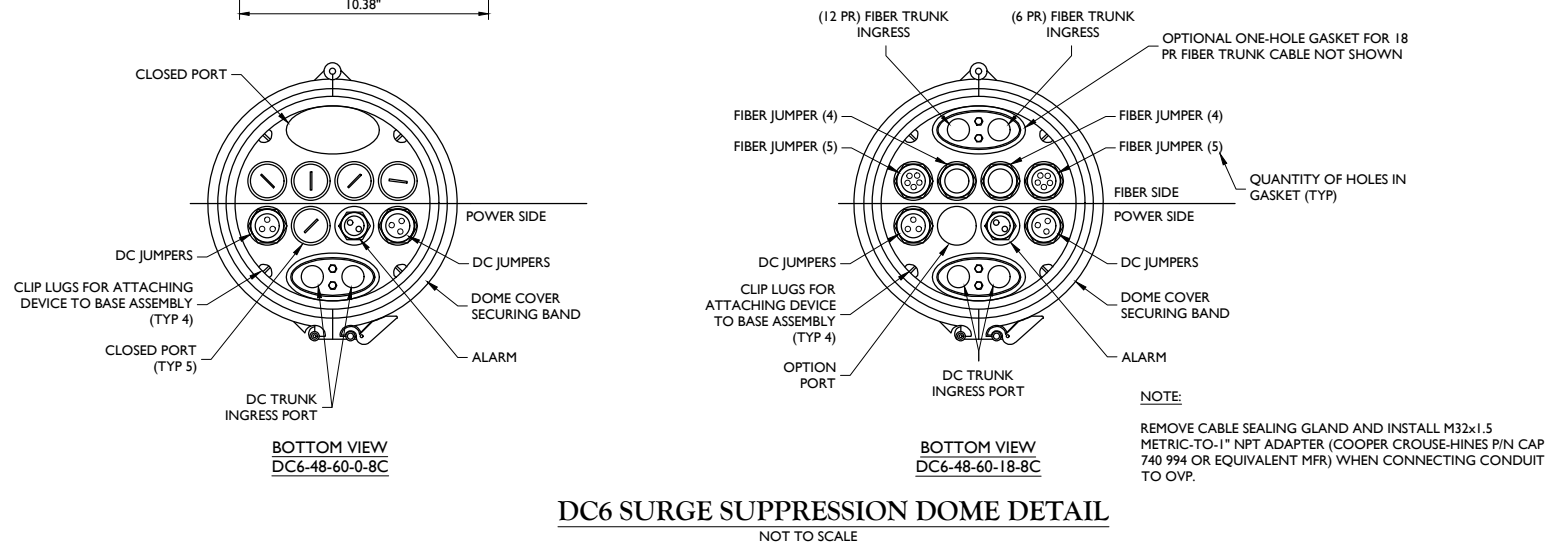
SHEET TITLE: DETAILS
SHEET NUMBER: A-2



NOTES:

RAYCAP VIA AT&T SUPPLIES THE DC6 OVER VOLTAGE PROTECTOR AND PIPE MOUNTING BRACKETS. SUBCONTRACTOR SHALL SUPPLY THE PIPE.

**RAYCAP DC6-48-60-18-8C & DC6-48-60-0-8C
DC POWER OVER VOLTAGE PROTECTOR (OVP)
POLE MOUNT BASE ASSEMBLY**
NOT TO SCALE



DC6 SURGE SUPPRESSION DOME DETAIL
NOT TO SCALE

300418P0000A Connecticut 02/20/2018 18963004A REV A CD 04/24/18



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		CHECKED BY	



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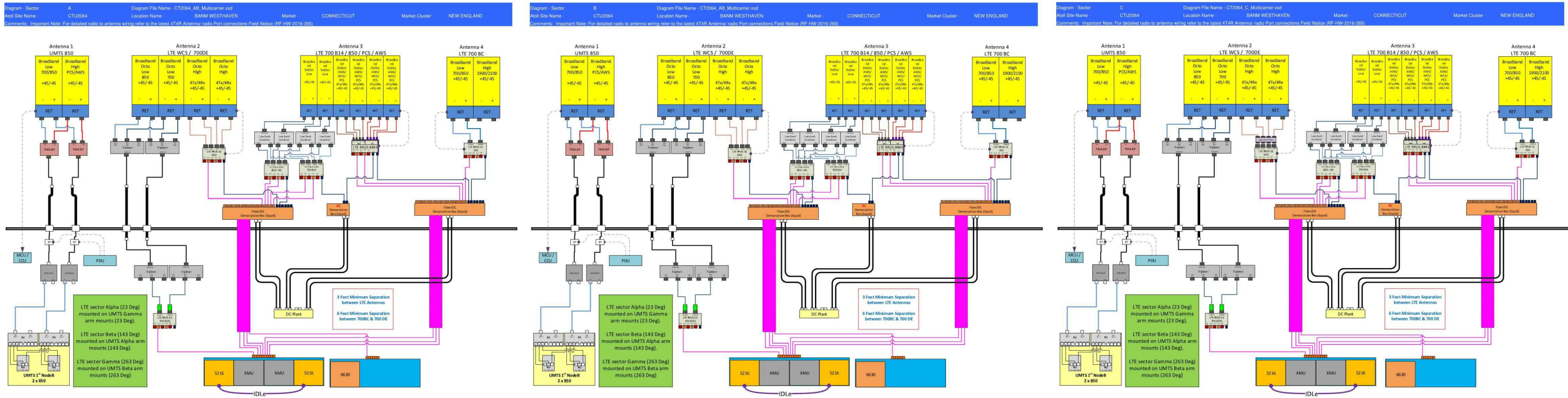
SITE NAME:

BANM WESTHAVEN
 FA# 10035024
 SITE# CT2064
 1 BURWELL ROAD
 WEST HAVEN, CT 06516
 NEW HAVEN COUNTY

RED BANK OFFICE
 331 Newman Springs Road
 Suite 203
 Red Bank NJ 07701-5699
 Phone: 732.383.1950
 Fax: 732.383.1984
 email: solutions@maserconsulting.com

SHEET TITLE:
RF PLUMBING DIAGRAM

SHEET NUMBER:
A-3



ALPHA SECTOR

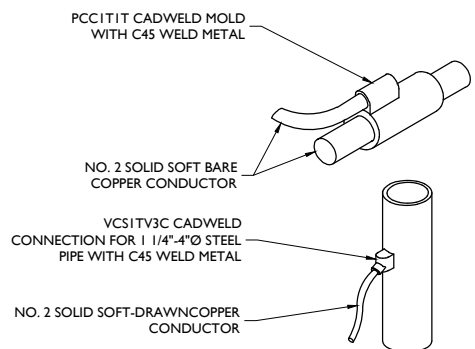
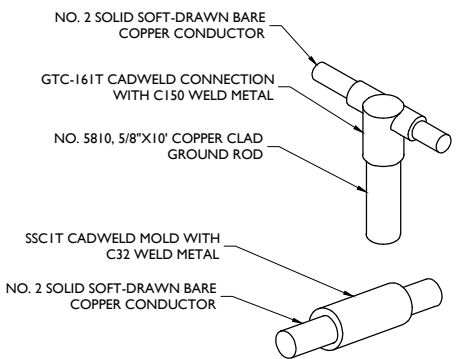
BETA SECTOR

GAMMA SECTOR

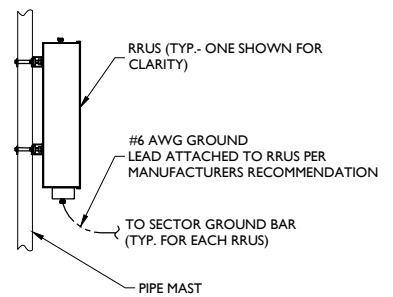
BASED ON: RF ENGINEERING DESIGN ENTITLED "NEW-ENGLAND_CONNECTICUT_CTU2064_2018-LTE-Next-Carrier_LTE_sp656b_2051A0G...", LAST REVISED 08/13/2018.

RF PLUMBING DIAGRAMS

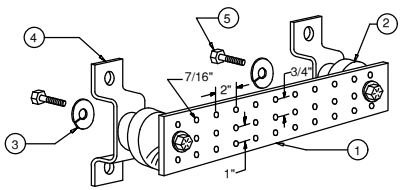
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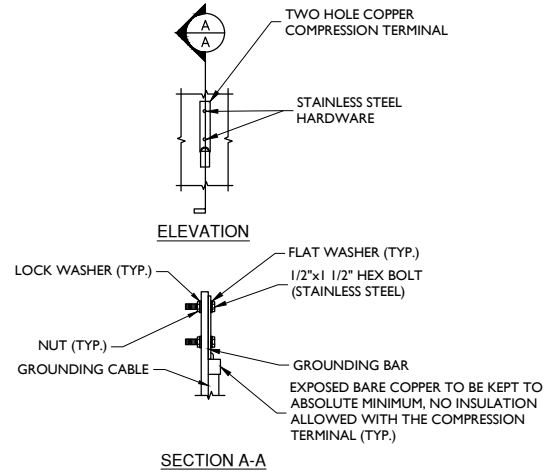
CADWELD DETAILS
NOT TO SCALE



RRU GROUNDING
NOT TO SCALE

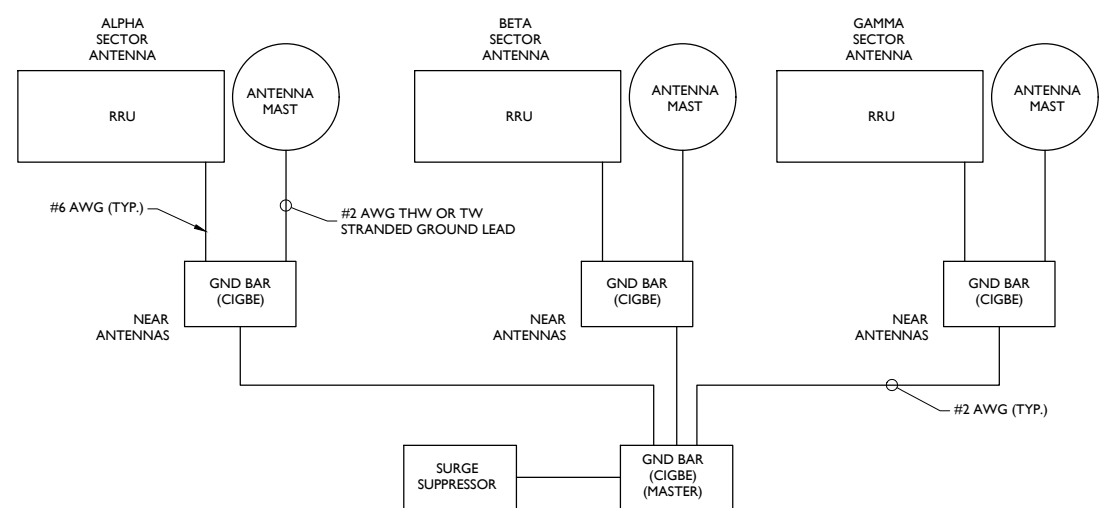


- LEGEND**
- 1- TINNED COPPER GROUND BAR, 1/4"x4"x20", NEWTON INSTRUMENT CO, CAT. NO. B-6142 OR EQUAL. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.
 - 2- INSULATORS, NEWTON INSTRUMENT CAT. NO. 3061-4
 - 3- 5/8" LOCKWASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8
 - 4- WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT NO. A-5056
 - 5- 5/8-11 X 1" HHCS BOLTS, NEWTON INSTRUMENT CO. CAT NO. 3012-1
 - 6- EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.
- SECTION "P" - SURGE PRODUCERS
- CABLE ENTRY PORTS (HATCH PLATES) (#2)
 - GENERATOR FRAMEWORK (IF AVAILABLE) (#2)
 - TELCO GROUND BAR
 - COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2)
 - +24V POWER SUPPLY RETURN BAR (#2)
 - 48V POWER SUPPLY RETURN BAR (#2)
 - RECTIFIER FRAMES.
- SECTION "A" - SURGE ABSORBERS
- INTERIOR GROUND RING (#2)
 - EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2)
 - METALLIC COLD WATER PIPE (IF AVAILABLE) (#2)
 - BUILDING STEEL (IF AVAILABLE) (#2)

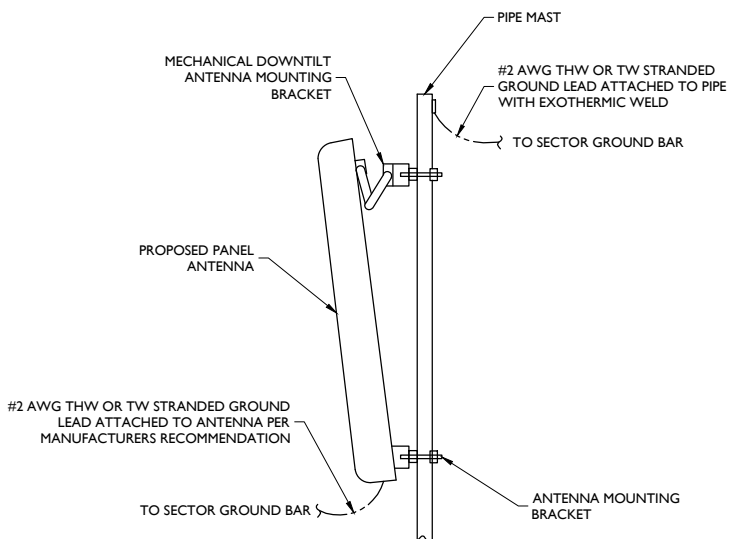


TYPICAL GROUND BAR CONNECTION DETAIL
NOT TO SCALE

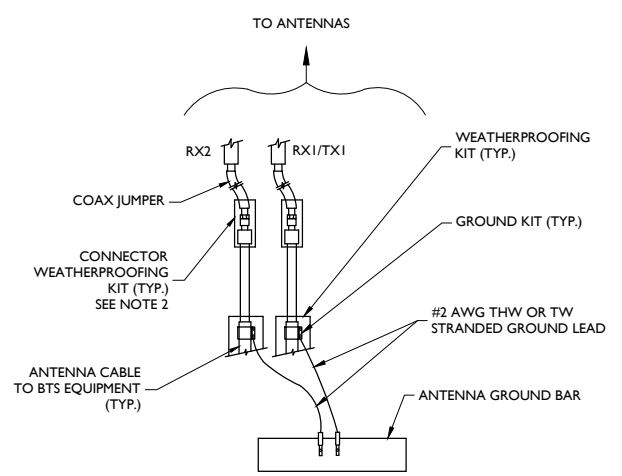
MASTER GROUND BAR
NOT TO SCALE



SCHEMATIC DIAGRAM GROUNDING SYSTEM



ANTENNA GROUNDING
NOT TO SCALE



- NOTES:**
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO ANTENNA GROUND BAR.
 2. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT, COLD SHRINK SHALL NOT BE USED.

TYPICAL GROUND WIRE TO GROUNDING BAR
NOT TO SCALE

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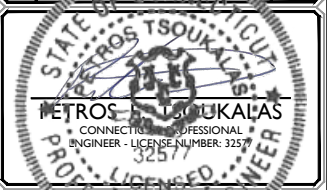


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REV	DATE	DESCRIPTION	DRAWN CHECKED BY
0	09/28/18	FOR CONSTRUCTION	AJC RA
2	09/25/18	REVISED PER COMMENTS	AJC RA
1	09/06/18	ISSUED FOR PERMIT	MSG RA



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SITE NAME:
BANM WESTHAVEN
FA# 10035024
SITE# CT2064

1 BURWELL ROAD
WEST HAVEN, CT 06516
NEW HAVEN COUNTY

RED BANK OFFICE
331 Newnam Springs Road
Suite 203
Red Bank NJ 07701-5699
Phone: 732.383.1950
Fax: 732.383.1984
email: solutions@maserconsulting.com

GROUNDING DETAILS

SHEET NUMBER: **G-1**



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CORPORATION

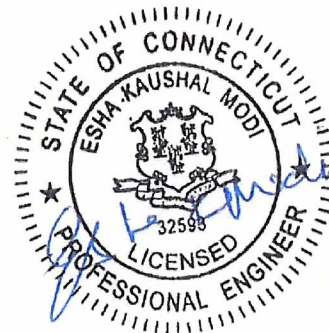
Structural Analysis Report

Structure : 155 ft Self Supported Tower
ATC Site Name : Wshn - West Haven, CT
ATC Site Number : 302505
Engineering Number : OAA741768_C3_01
Proposed Carrier : AT&T Mobility
Carrier Site Name : Banm Westhaven
Carrier Site Number : CT2064
Site Location : 204 Burwell Street
West Haven, CT 06516-1105
41.295300,-72.973300
County : New Haven
Date : November 8, 2018
Max Usage : 76%
Result : Pass

Prepared By:
Parvin NikpoorParizi
Structural Engineer I

Parvin NikpoorParizi

Reviewed By:



Authorized by "EOR"
Nov 8 2018 5:53 PM

cosign

COA: PEC.0001553



Table of Contents

Introduction	1
Supporting Documents	1
Analysis	1
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Existing and Reserved Equipment.....	2
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Calculations	Attached



Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 155 ft self supported tower to reflect the change in loading by AT&T Mobility.

Supporting Documents

Tower Drawings	Stainless Report #2940-3, dated August 14, 1981
Foundation Drawing	Mapping by TEP Project #03290, dated July 28, 2003
Geotechnical Report	GEOServices Project #21-07254, dated November 28, 2007
Modifications	SpectraSite Dwg #CT-0041-E1, dated August 08, 2003 ATC Project #53874032, dated July 23, 2013

Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

Basic Wind Speed:	97 mph (3-Second Gust, V_{ASD}) / 125 mph (3-Second Gust, V_{ULT})
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Code:	ANSI/TIA-222-G / 2012 IBC / 2016 Connecticut State Building Code
Structure Class:	II
Exposure Category:	B
Topographic Category:	3
Crest Height:	81 ft
Spectral Response:	$S_s = 0.19$, $S_1 = 0.06$
Site Class:	D - Stiff Soil

Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.



Existing and Reserved Equipment

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
154.0	154.0	1	Commscope WCS-IMFQ-AMT	Sector Frames	(4) 0.78" 8 AWG 6 (12) 1 5/8" Coax (2) 3" Conduit (2) 0.39" Fiber Trunk	AT&T Mobility
		3	CCI OPA-65R-LCUU-H6			
		3	Ericsson RRUS-32 (77 lbs)			
		6	Powerwave LGP21401			
		3	Raycap DC6-48-60-18-8F ("Squid")			
		6	CCI TPX-070821			
		3	Powerwave 7770.00			
		3	KMW AM-X-CD-16-65-00T-RET			
		3	Ericsson RRUS-11			
149.0	149.0	4	Andrew 844G45VTZASX	Sector Frames	(12) 1 1/4" Coax	Sprint Nextel
		8	Decibel DB844H90E-XY			
131.0	-	-	-	Empty Sector Frames	-	-
127.0	127.0	2	6' Ice Shield	Leg	-	City Of West Haven
123.0	123.0	2	Andrew VHLP2-26-1GR	Leg	(4) 0.41" CNT-400	
		4	Radio/ODU			
110.0	112.0	1	Lone Star Electronics LS-230	Stand-Off	(1) 7/8" Coax	
103.0	108.0	1	10' Omni	Side Arm	(1) 7/8" Coax	
100.0	103.0	1	RFI Antennas BA80-67	Side Arm	(1) 7/8" Coax	
89.0	99.0	1	Andrew DB224	Side Arm	(1) 7/8" Coax	South Connecticut Gas
82.0	86.0	1	8' Omni	Leg	(1) 1/2" Coax	Other
78.0	78.0	2	Andrew ASPR766P	Stand-Offs	(1) 7/8" Coax	South Connecticut Gas

Equipment to be Removed

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
154.0	154.0	3	Powerwave 7770.00	-	-	AT&T Mobility
		6	Powerwave LGP21401			
		6	Ericsson RRUS 12			
		3	Ericsson RRUS A2 Module			

Proposed Equipment

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
154.0	154.0	3	KMW EPBQ-654L8H6-L2	Sector Frames	(2) 0.78" 8 AWG 6 (1) 2" conduit	AT&T Mobility
		3	Ericsson RRUS 4478 B5 (56.1 lbs)			
		3	Ericsson RRUS 4478 B14			
		3	Ericsson Radio 8843 - B2 + B66A			
		6	Kaelus DBCT108F1V92-1			

¹Mount elevation is defined as height above bottom of steel structure to the bottom of mount, RAD elevation is defined as center of antenna above ground level (AGL).

Install proposed coax alongside existing AT&T Mobility coax.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Legs	76%	Pass
Diagonals	66%	Pass
Horizontals	46%	Pass
Anchor Bolts	21%	Pass
Leg Bolts	53%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-ft)	3518.0	68%
Axial (Kips)	229.6	28%
Shear (Kips)	23.3	15%

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

Deflection, Twist and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Twist (°)	Sway (Rotation) (°)
154.0	Kaelus DBCT108F1V92-1	AT&T Mobility	0.269	0.211	0.423
	Ericsson Radio 8843 - B2 + B66A				
	Ericsson RRUS 4478 B14				
	Ericsson RRUS 4478 B5 (56.1 lbs)				
123.0	KMW EPBQ-654L8H6-L2	City of West Haven	0.165	0.152	0.164

*Deflection, Twist and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-G



Standard Conditions

All engineering services performed by A.T. Engineering Service, PLLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

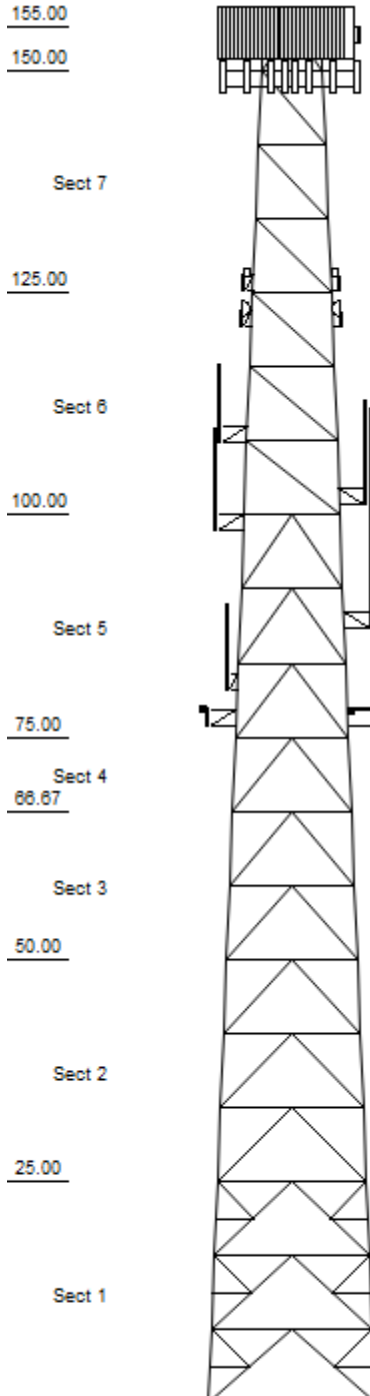
- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

All assets of American Tower Corporation, its affiliates and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

Unless explicitly agreed by both the client and A.T. Engineering Service, PLLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

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Loads: 97 mph no ice
 50 mph w/ 3/4" radial ice
 Site Class: D Ss: 0.19 S1: 0.06
 60 mph Serviceability

Job Information		
Tower : 302505	Location : Wshn - West	Base Width : 19.00 ft
Client : AT&T Mobility		Top Width : 7.00 ft
Code : ANSI/TIA-222-G		Tower Ht : 155.00 ft
		Shape : Triangle

Sections Properties			
Section	Leg Members	Diagonal Members	Horizontal Members
1 - 2	PSP 50 ksi 5" OD x .500"	PSP 50 ksi STLSS 3" OD X0.25"	DAL 36 ksi 3X2.5X0.25
3	PSP 50 ksi 5" OD x .500"	PSP 50 ksi STLSS 2.75" OD	SAE 36 ksi 3X3X0.25
4	PSP 50 ksi 5" OD x .500"	PSP 50 ksi STLSS 2.75" OD	DAL 36 ksi 3X2.5X0.25
5	PSP 50 ksi 5" OD x .300"	PSP 50 ksi STLSS 2.75" OD	DAL 36 ksi 3X2.5X0.25
6	PSP 50 ksi STLSS 5" OD	PSP 50 ksi STLSS 3" OD X0.25"	DAL 36 ksi 3X2.5X0.25
7	PSP 50 ksi STLSS 5" OD	PSP 50 ksi STLSS 2.75" OD	SAE 36 ksi 3X3X0.25
8	PSP 50 ksi STLSS 5" OD	DAL 36 ksi 2.5X2X0.1875	CHN 36 ksi C4 x 5.4

Redundant Secondary Bracing						
Section	Sub Diag 1	Sub Horiz 1	Sub Diag 2	Sub Horiz 2	Sub Diag 3	Sub Horiz 3
1	P2.5" OD x	P2.5" OD x	-	-	-	-
2 - 8	-	-	-	-	-	-

Discrete Appurtenance			
Elev (ft)	Type	Qty	Description
154.00	Panel	3	KMW EPBQ-654L8H6-L2
154.00	Panel	3	Ericsson RRUS 4478 B5 (56.1 lb
154.00	Panel	3	Ericsson RRUS 4478 B14
154.00	Panel	3	Ericsson Radio 8843 - B2 + B66
154.00	Panel	6	Kaelus DBCT108F1V92-1
154.00	Panel	1	Commscope WCS-IMFQ-AMT
154.00	Panel	3	CCI OPA-65R-LCUU-H6
154.00	Panel	3	Ericsson RRUS-32 (77 lbs)
154.00	Panel	6	Powerwave Allgon LGP21401
154.00	Panel	3	Raycap DC6-48-60-18-8F ("Squid
154.00	Panel	6	CCI TPX-070821
154.00	Panel	3	Powerwave Allgon 7770.00
154.00	Panel	3	KMW AM-X-CD-16-65-00T-RET
154.00	Panel	3	Ericsson RRUS-11
154.00	Mounting Frame	3	Flat Light Sector Frame
149.00	Mounting Frame	3	Flat Light Sector Frame
149.00	Panel	4	Andrew 844G45VTZASX
149.00	Panel	8	Decibel DB844H90E-XY
131.00	Mounting Frame	3	Empty Round Sector Frame
127.00	Panel	2	6' Ice Shield
123.00	Dish	2	Andrew Microwaves VHLP2-26-1GR
123.00	Panel	4	Radio/ODU
110.00	Whip	1	Lone Star Electronics LS-230
110.00	Straight Arm	1	Stand-Off
103.00	Whip	1	10' Omni
103.00	Straight Arm	1	Round Side Arm
100.00	Whip	1	RFI Antennas BA80-67
100.00	Straight Arm	1	Round Side Arm
89.00	Straight Arm	1	Flat Side Arm
89.00	Whip	1	Andrew DB224
82.00	Whip	1	8' Omni
78.00	Straight Arm	2	Stand-Off
78.00	Yagi	2	Andrew ASPR766P

Linear Appurtenance			
Elev (ft)	From	To	Qty Description

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Job Information		
Tower : 302505	Location : Wshn - West	Base Width : 19.00 ft
Client : AT&T Mobility		Top Width : 7.00 ft
Code : ANSI/TIA-222-G		Tower Ht : 155.00 ft
		Shape : Triangle

0.00	155.00	1	Climbing Ladder
5.00	154.00	1	Waveguide
5.00	154.00	2	3" Conduit
5.00	154.00	12	1 5/8" Coax
5.00	154.00	4	0.78" 8 AWG 6
5.00	154.00	2	0.39" Fiber Trunk
0.00	154.00	1	2" conduit
0.00	154.00	2	0.78" (19.7mm) 8 AWG
5.00	149.00	1	Waveguide
5.00	149.00	12	1 1/4" Coax
0.00	123.00	2	0.41" CNT-400
0.00	123.00	2	0.41" CNT-400
0.00	110.00	1	7/8" Coax
0.00	103.00	1	7/8" Coax
0.00	100.00	1	7/8" Coax
0.00	89.00	1	7/8" Coax
0.00	82.00	1	1/2" Coax
0.00	78.00	1	7/8" Coax

Global Base Foundation Design Loads			
Load Case	Moment (k-ft)	Vertical (kip)	Horizontal (kip)
DL + WL	3,518.01	47.31	39.91
DL + WL + IL	1,257.18	127.97	15.00

Individual Base Foundation Design Loads		
Vertical (kip)	Uplift (kip)	Horizontal (kip)
229.57	196.99	23.28

Analysis Parameters

Location:	NEW HAVEN County, CT	Height (ft):	155
Code:	ANSI/TIA-222-G	Base Elevation (ft):	0.00
Shape:	Triangle	Bottom Face Width (ft):	19.00
Tower Manufacturer:	Stainless Inc.	Top Face Width (ft):	7.00
Tower Type:	Self Support	Anchor Bolt Detail Type	c
Kd:			
Ke:			

Ice & Wind Parameters

Structure Class:	II	Design Windspeed Without Ice:	97 mph
Exposure Category:	B	Design Windspeed With Ice:	50 mph
Topographic Category:	3	Operational Windspeed:	60 mph
Crest Height:	81 ft	Design Ice Thickness:	0.75 in

Seismic Parameters

Analysis Method:	Equivalent Modal Analysis & Equivalent Lateral Force Methods				
Site Class:	D - Stiff Soil				
Period Based on Rayleigh Method (sec):	0.89				
T_L (sec):	6	p:	1.3	C_S :	0.038
S_S :	0.189	S_1 :	0.063	$C_{S, Max}$:	0.038
F_a :	1.600	F_v :	2.400	$C_{S, Min}$:	0.030
S_{ds} :	0.202	S_{d1} :	0.101		

Load Cases

1.2D + 1.6W Normal	97 mph Normal with No Ice
1.2D + 1.6W 60 deg	97 mph 60 degree with No Ice
1.2D + 1.6W 90 deg	97 mph 90 degree with No Ice
0.9D + 1.6W Normal	97 mph Normal with No Ice (Reduced DL)
0.9D + 1.6W 60 deg	97 mph 60 deg with No Ice (Reduced DL)
0.9D + 1.6W 90 deg	97 mph 90 deg with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi Normal	50 mph Normal with 0.75 in Radial Ice
1.2D + 1.0Di + 1.0Wi 60 deg	50 mph 60 deg with 0.75 in Radial Ice
1.2D + 1.0Di + 1.0Wi 90 deg	50 mph 90 deg with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E Normal	Seismic Normal
(1.2 + 0.2Sds) * DL + E 60 deg	Seismic 60 deg
(1.2 + 0.2Sds) * DL + E 90 deg	Seismic 90 deg
(0.9 - 0.2Sds) * DL + E Normal	Seismic (Reduced DL) Normal
(0.9 - 0.2Sds) * DL + E 60 deg	Seismic (Reduced DL) 60 deg
(0.9 - 0.2Sds) * DL + E 90 deg	Seismic (Reduced DL) 90 deg
1.0D + 1.0W Service Normal	Serviceability - 60 mph Wind Normal
1.0D + 1.0W Service 60 deg	Serviceability - 60 mph Wind 60 deg
1.0D + 1.0W Service 90 deg	Serviceability - 60 mph Wind 90 deg

Tower Loading

Discrete Appurtenance Properties 1.2D + 1.6W

Elevation (ft)	Description	Qty	Wt. (lb)	EPA (sf)	Length (ft)	Width (in)	Depth (in)	K _a	Orient. Factor	Vert. Ecc.(ft)	M _u (lb-ft)	Q _z (psf)	F _a (WL) (lb)	P _a (DL) (lb)
154.0	CCI TPX-070821	6	8	0.6	0.8	5.8	2.1	0.80	0.50	0.0	0.0	23.38	42	54
154.0	Kaelus	6	14	0.7	0.9	7.1	6.8	0.80	0.50	0.0	0.0	23.38	56	100
154.0	Commscope WCS-	1	30	1.0	0.9	10.6	6.9	0.80	0.50	0.0	0.0	23.38	13	35
154.0	Powerwave Allgon	6	14	1.1	1.2	9.2	2.6	0.80	0.50	0.0	0.0	23.38	84	102
154.0	Raycap DC6-48-60-	3	32	1.3	2.0	11.0	11.0	0.80	1.00	0.0	0.0	23.38	98	114
154.0	Ericsson Radio 8843	3	72	1.6	1.3	13.2	10.9	0.80	0.50	0.0	0.0	23.38	63	259
154.0	Ericsson RRUS 4478	3	60	1.8	1.4	13.4	7.7	0.80	0.50	0.0	0.0	23.38	70	216
154.0	Ericsson RRUS 4478	3	56	2.0	1.5	13.5	7.8	0.80	0.67	0.0	0.0	23.38	104	202
154.0	Ericsson RRUS-32	3	77	3.3	2.5	13.3	9.5	0.80	0.67	0.0	0.0	23.38	169	277
154.0	Ericsson RRUS-11	3	55	3.8	2.1	18.2	6.7	0.80	0.67	0.0	0.0	23.38	194	198
154.0	Powerwave Allgon	3	35	5.5	4.6	11.0	5.0	0.80	0.65	0.0	0.0	23.38	273	126
154.0	KMW AM-X-CD-16-	3	49	8.0	6.0	11.8	5.9	0.80	0.67	0.0	0.0	23.38	410	175
154.0	CCI OPA-65R-LCUU-	3	73	9.7	6.0	14.8	7.4	0.80	0.66	0.0	0.0	23.38	487	263
154.0	KMW EPBQ-	3	73	13.2	6.1	21.0	6.3	0.80	0.61	0.0	0.0	23.38	616	262
154.0	Flat Light Sector	3	400	17.9	0.0	0.0	0.0	0.75	0.75	0.0	0.0	23.38	960	1440
149.0	Decibel DB844H90E-	8	14	3.6	4.0	6.5	8.0	0.80	0.74	0.0	0.0	23.22	540	134
149.0	Andrew	4	15	6.2	4.0	15.0	8.5	0.80	0.68	0.0	0.0	23.22	423	72
149.0	Flat Light Sector	3	400	17.9	0.0	0.0	0.0	0.75	0.75	0.0	0.0	23.22	954	1440
131.0	Empty Round Sector	3	300	14.4	0.0	0.0	0.0	0.75	0.75	0.0	0.0	22.68	750	1080
127.0	6' Ice Shield	2	450	3.9	1.2	100.0	48.0	1.00	1.00	0.0	0.0	22.57	239	1080
123.0	Radio/ODU	4	30	1.6	1.3	12.0	8.0	1.00	0.50	0.0	0.0	22.46	98	144
123.0	Andrew Microwaves	2	31	4.7	2.2	26.1	13.2	1.00	1.00	0.0	0.0	22.46	286	74
110.0	Lone Star	1	11	1.6	7.0	2.3	2.3	1.00	1.00	2.0	97.1	22.17	49	13
110.0	Stand-Off	1	75	2.5	0.0	0.0	0.0	1.00	1.00	0.0	0.0	22.12	75	90
103.0	10' Omni	1	25	3.0	10.0	3.0	3.0	1.00	1.00	5.0	450.4	22.08	90	30
103.0	Round Side Arm	1	150	5.2	0.0	0.0	0.0	1.00	1.00	0.0	0.0	21.96	155	180
100.0	RFI Antennas BA80-	1	18	3.3	9.8	2.0	2.0	1.00	1.00	3.0	300.2	21.96	100	21
100.0	Round Side Arm	1	150	5.2	0.0	0.0	0.0	1.00	1.00	0.0	0.0	21.90	155	180
89.00	Andrew DB224	1	38	6.1	23.0	3.0	3.0	1.00	1.00	10.0	1800.3	21.88	180	46
89.00	Flat Side Arm	1	150	6.3	0.0	0.0	0.0	1.00	1.00	0.0	0.0	21.70	186	180
82.00	8' Omni	1	25	2.4	8.0	3.0	3.0	1.00	1.00	4.0	282.7	21.65	71	30
78.00	Andrew ASPR766P	2	2	0.9	1.0	30.0	0.0	1.00	1.00	0.0	0.0	21.56	55	4
78.00	Stand-Off	2	100	3.0	0.0	0.0	0.0	1.00	1.00	0.0	0.0	21.56	176	240
	Totals	91	7385	437.5									8221	8862

Discrete Appurtenance Properties 0.9D + 1.6W

Elevation (ft)	Description	Qty	Wt. (lb)	EPA (sf)	Length (ft)	Width (in)	Depth (in)	K _a	Orient. Factor	Vert. Ecc.(ft)	M _u (lb-ft)	Q _z (psf)	F _a (WL) (lb)	P _a (DL) (lb)
154.0	CCI TPX-070821	6	8	0.6	0.8	5.8	2.1	0.80	0.50	0.0	0.0	23.38	42	41
154.0	Kaelus	6	14	0.7	0.9	7.1	6.8	0.80	0.50	0.0	0.0	23.38	56	75
154.0	Commscope WCS-	1	30	1.0	0.9	10.6	6.9	0.80	0.50	0.0	0.0	23.38	13	27
154.0	Powerwave Allgon	6	14	1.1	1.2	9.2	2.6	0.80	0.50	0.0	0.0	23.38	84	76
154.0	Raycap DC6-48-60-	3	32	1.3	2.0	11.0	11.0	0.80	1.00	0.0	0.0	23.38	98	86
154.0	Ericsson Radio 8843	3	72	1.6	1.3	13.2	10.9	0.80	0.50	0.0	0.0	23.38	63	194
154.0	Ericsson RRUS 4478	3	60	1.8	1.4	13.4	7.7	0.80	0.50	0.0	0.0	23.38	70	162
154.0	Ericsson RRUS 4478	3	56	2.0	1.5	13.5	7.8	0.80	0.67	0.0	0.0	23.38	104	151
154.0	Ericsson RRUS-32	3	77	3.3	2.5	13.3	9.5	0.80	0.67	0.0	0.0	23.38	169	208
154.0	Ericsson RRUS-11	3	55	3.8	2.1	18.2	6.7	0.80	0.67	0.0	0.0	23.38	194	149
154.0	Powerwave Allgon	3	35	5.5	4.6	11.0	5.0	0.80	0.65	0.0	0.0	23.38	273	95
154.0	KMW AM-X-CD-16-	3	49	8.0	6.0	11.8	5.9	0.80	0.67	0.0	0.0	23.38	410	131
154.0	CCI OPA-65R-LCUU-	3	73	9.7	6.0	14.8	7.4	0.80	0.66	0.0	0.0	23.38	487	197

Site Number: 302505

Code: ANSI/TIA-222-G

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Site Name: Wshn - West Haven, CT

Engineering Number: OAA741768_C3_01

11/8/2018 1:25:04 PM

Customer: AT&T Mobility

Tower Loading

154.0	KMW EPBQ-	3	73	13.2	6.1	21.0	6.3	0.80	0.61	0.0	0.0	23.38	616	197
154.0	Flat Light Sector	3	400	17.9	0.0	0.0	0.0	0.75	0.75	0.0	0.0	23.38	960	1080
149.0	Decibel DB844H90E-	8	14	3.6	4.0	6.5	8.0	0.80	0.74	0.0	0.0	23.22	540	101
149.0	Andrew	4	15	6.2	4.0	15.0	8.5	0.80	0.68	0.0	0.0	23.22	423	54
149.0	Flat Light Sector	3	400	17.9	0.0	0.0	0.0	0.75	0.75	0.0	0.0	23.22	954	1080
131.0	Empty Round Sector	3	300	14.4	0.0	0.0	0.0	0.75	0.75	0.0	0.0	22.68	750	810
127.0	6' Ice Shield	2	450	3.9	1.2	100.0	48.0	1.00	1.00	0.0	0.0	22.57	239	810
123.0	Radio/ODU	4	30	1.6	1.3	12.0	8.0	1.00	0.50	0.0	0.0	22.46	98	108
123.0	Andrew Microwaves	2	31	4.7	2.2	26.1	13.2	1.00	1.00	0.0	0.0	22.46	286	56
110.0	Lone Star	1	11	1.6	7.0	2.3	2.3	1.00	1.00	2.0	97.1	22.17	49	10
110.0	Stand-Off	1	75	2.5	0.0	0.0	0.0	1.00	1.00	0.0	0.0	22.12	75	68
103.0	10' Omni	1	25	3.0	10.0	3.0	3.0	1.00	1.00	5.0	450.4	22.08	90	23
103.0	Round Side Arm	1	150	5.2	0.0	0.0	0.0	1.00	1.00	0.0	0.0	21.96	155	135
100.0	RFI Antennas BA80-	1	18	3.3	9.8	2.0	2.0	1.00	1.00	3.0	300.2	21.96	100	16
100.0	Round Side Arm	1	150	5.2	0.0	0.0	0.0	1.00	1.00	0.0	0.0	21.90	155	135
89.00	Andrew DB224	1	38	6.1	23.0	3.0	3.0	1.00	1.00	10.0	1800.3	21.88	180	34
89.00	Flat Side Arm	1	150	6.3	0.0	0.0	0.0	1.00	1.00	0.0	0.0	21.70	186	135
82.00	8' Omni	1	25	2.4	8.0	3.0	3.0	1.00	1.00	4.0	282.7	21.65	71	23
78.00	Andrew ASPR766P	2	2	0.9	1.0	30.0	0.0	1.00	1.00	0.0	0.0	21.56	55	3
78.00	Stand-Off	2	100	3.0	0.0	0.0	0.0	1.00	1.00	0.0	0.0	21.56	176	180
Totals		91	7385	437.5									8221	6646

Discrete Appurtenance Properties 1.2D + 1.0Di + 1.0Wi

Elevation (ft)	Description	Qty	Ice Wt (lb)	Ice EPA (sf)	Length (ft)	Width (in)	Depth (in)	K _a	Orient. Factor	Vert. Ecc.(ft)	M _u (lb-ft)	Q _z (psf)	F _a (WL) (lb)	P _a (DL) (lb)
154.0	CCI TPX-070821	6	26	0.8	0.8	5.8	2.1	0.80	0.50	0.0	0.0	6.21	10	166
154.0	Kaelus	6	48	1.0	0.9	7.1	6.8	0.80	0.50	0.0	0.0	6.21	13	303
154.0	Commscope WCS-	1	73	1.4	0.9	10.6	6.9	0.80	0.50	0.0	0.0	6.21	3	79
154.0	Powerwave Allgon	6	48	1.6	1.2	9.2	2.6	0.80	0.50	0.0	0.0	6.21	20	306
154.0	Raycap DC6-48-60-	3	126	2.9	2.0	11.0	11.0	0.80	1.00	0.0	0.0	6.21	36	397
154.0	Ericsson Radio 8843	3	147	2.2	1.3	13.2	10.9	0.80	0.50	0.0	0.0	6.21	14	483
154.0	Ericsson RRUS 4478	3	128	2.4	1.4	13.4	7.7	0.80	0.50	0.0	0.0	6.21	15	420
154.0	Ericsson RRUS 4478	3	129	2.6	1.5	13.5	7.8	0.80	0.67	0.0	0.0	6.21	22	422
154.0	Ericsson RRUS-32	3	192	4.1	2.5	13.3	9.5	0.80	0.67	0.0	0.0	6.21	35	622
154.0	Ericsson RRUS-11	3	161	4.6	2.1	18.2	6.7	0.80	0.67	0.0	0.0	6.21	39	517
154.0	Powerwave Allgon	3	172	6.6	4.6	11.0	5.0	0.80	0.65	0.0	0.0	6.21	54	536
154.0	KMW AM-X-CD-16-	3	239	9.3	6.0	11.8	5.9	0.80	0.67	0.0	0.0	6.21	79	747
154.0	CCI OPA-65R-LCUU-	3	307	11.0	6.0	14.8	7.4	0.80	0.66	0.0	0.0	6.21	92	966
154.0	KMW EPBQ-	3	357	14.8	6.1	21.0	6.3	0.80	0.61	0.0	0.0	6.21	114	1115
154.0	Flat Light Sector	3	704	33.2	0.0	0.0	0.0	0.75	0.75	0.0	0.0	6.21	295	2353
149.0	Decibel DB844H90E-	8	125	3.9	4.0	6.5	8.0	0.80	0.74	0.0	0.0	6.17	97	1022
149.0	Andrew	4	187	7.2	4.0	15.0	8.5	0.80	0.68	0.0	0.0	6.17	82	760
149.0	Flat Light Sector	3	702	33.1	0.0	0.0	0.0	0.75	0.75	0.0	0.0	6.17	293	2347
131.0	Empty Round Sector	3	669	31.0	0.0	0.0	0.0	0.75	0.75	0.0	0.0	6.03	268	2188
127.0	6' Ice Shield	2	1279	8.0	1.2	100.0	48.0	1.00	1.00	0.0	0.0	6.00	81	2738
123.0	Radio/ODU	4	92	2.1	1.3	12.0	8.0	1.00	0.50	0.0	0.0	5.97	22	392
123.0	Andrew Microwaves	2	128	5.9	2.2	26.1	13.2	1.00	1.00	0.0	0.0	5.97	60	268
110.0	Lone Star	1	91	3.4	7.0	2.3	2.3	1.00	1.00	2.0	34.4	5.89	17	93
110.0	Stand-Off	1	111	3.8	0.0	0.0	0.0	1.00	1.00	0.0	0.0	5.88	19	126
103.0	10' Omni	1	156	5.9	10.0	3.0	3.0	1.00	1.00	5.0	147.2	5.87	29	161
103.0	Round Side Arm	1	222	7.9	0.0	0.0	0.0	1.00	1.00	0.0	0.0	5.84	39	252
100.0	RFI Antennas BA80-	1	119	5.2	9.8	2.0	2.0	1.00	1.00	3.0	77.9	5.84	26	122
100.0	Round Side Arm	1	222	7.9	0.0	0.0	0.0	1.00	1.00	0.0	0.0	5.82	39	252
89.00	Andrew DB224	1	332	15.0	23.0	3.0	3.0	1.00	1.00	10.0	740.3	5.81	74	340
89.00	Flat Side Arm	1	222	8.7	0.0	0.0	0.0	1.00	1.00	0.0	0.0	5.77	43	252

Site Number: 302505

Code: ANSI/TIA-222-G

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Site Name: Wshn - West Haven, CT

Engineering Number: OAA741768_C3_01

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Customer: AT&T Mobility

Tower Loading

82.00 8' Omni	1	130	4.4	8.0	3.0	3.0	1.00	1.00	4.0	85.9	5.75	21	135
78.00 Andrew ASPR766P	2	41	2.7	1.0	30.0	0.0	1.00	1.00	0.0	0.0	5.73	26	83
78.00 Stand-Off	2	148	4.5	0.0	0.0	0.0	1.00	1.00	0.0	0.0	5.73	44	336
Totals	91	19824	668.0									2124	21301

Discrete Appurtenance Properties 1.0D + 1.0W Service

Elevation (ft)	Description	Qty	Wt. (lb)	EPA (sf)	Length (ft)	Width (in)	Depth (in)	K _a	Orient. Factor	Vert. Ecc.(ft)	M _u (lb-ft)	Q _z (psf)	F _a (WL) (lb)	P _a (DL) (lb)
154.0	CCI TPX-070821	6	8	0.6	0.8	5.8	2.1	0.80	0.50	0.0	0.0	8.95	10	45
154.0	Kaelus	6	14	0.7	0.9	7.1	6.8	0.80	0.50	0.0	0.0	8.95	14	83
154.0	Commscope WCS-	1	30	1.0	0.9	10.6	6.9	0.80	0.50	0.0	0.0	8.95	3	30
154.0	Powerwave Allgon	6	14	1.1	1.2	9.2	2.6	0.80	0.50	0.0	0.0	8.95	20	85
154.0	Raycap DC6-48-60-	3	32	1.3	2.0	11.0	11.0	0.80	1.00	0.0	0.0	8.95	23	95
154.0	Ericsson Radio 8843	3	72	1.6	1.3	13.2	10.9	0.80	0.50	0.0	0.0	8.95	15	216
154.0	Ericsson RRUS 4478	3	60	1.8	1.4	13.4	7.7	0.80	0.50	0.0	0.0	8.95	17	180
154.0	Ericsson RRUS 4478	3	56	2.0	1.5	13.5	7.8	0.80	0.67	0.0	0.0	8.95	25	168
154.0	Ericsson RRUS-32	3	77	3.3	2.5	13.3	9.5	0.80	0.67	0.0	0.0	8.95	40	231
154.0	Ericsson RRUS-11	3	55	3.8	2.1	18.2	6.7	0.80	0.67	0.0	0.0	8.95	46	165
154.0	Powerwave Allgon	3	35	5.5	4.6	11.0	5.0	0.80	0.65	0.0	0.0	8.95	65	105
154.0	KMW AM-X-CD-16-	3	49	8.0	6.0	11.8	5.9	0.80	0.67	0.0	0.0	8.95	98	146
154.0	CCI OPA-65R-LCUU-	3	73	9.7	6.0	14.8	7.4	0.80	0.66	0.0	0.0	8.95	116	219
154.0	KMW EPBQ-	3	73	13.2	6.1	21.0	6.3	0.80	0.61	0.0	0.0	8.95	147	218
154.0	Flat Light Sector	3	400	17.9	0.0	0.0	0.0	0.75	0.75	0.0	0.0	8.95	230	1200
149.0	Decibel DB844H90E-	8	14	3.6	4.0	6.5	8.0	0.80	0.74	0.0	0.0	8.89	129	112
149.0	Andrew	4	15	6.2	4.0	15.0	8.5	0.80	0.68	0.0	0.0	8.89	101	60
149.0	Flat Light Sector	3	400	17.9	0.0	0.0	0.0	0.75	0.75	0.0	0.0	8.89	228	1200
131.0	Empty Round Sector	3	300	14.4	0.0	0.0	0.0	0.75	0.75	0.0	0.0	8.68	179	900
127.0	6' Ice Shield	2	450	3.9	1.2	100.0	48.0	1.00	1.00	0.0	0.0	8.64	57	900
123.0	Radio/ODU	4	30	1.6	1.3	12.0	8.0	1.00	0.50	0.0	0.0	8.59	23	120
123.0	Andrew Microwaves	2	31	4.7	2.2	26.1	13.2	1.00	1.00	0.0	0.0	8.59	68	62
110.0	Lone Star	1	11	1.6	7.0	2.3	2.3	1.00	1.00	2.0	23.2	8.48	12	11
110.0	Stand-Off	1	75	2.5	0.0	0.0	0.0	1.00	1.00	0.0	0.0	8.47	18	75
103.0	10' Omni	1	25	3.0	10.0	3.0	3.0	1.00	1.00	5.0	107.7	8.45	22	25
103.0	Round Side Arm	1	150	5.2	0.0	0.0	0.0	1.00	1.00	0.0	0.0	8.40	37	150
100.0	RFI Antennas BA80-	1	18	3.3	9.8	2.0	2.0	1.00	1.00	3.0	71.8	8.40	24	18
100.0	Round Side Arm	1	150	5.2	0.0	0.0	0.0	1.00	1.00	0.0	0.0	8.38	37	150
89.00	Andrew DB224	1	38	6.1	23.0	3.0	3.0	1.00	1.00	10.0	430.5	8.37	43	38
89.00	Flat Side Arm	1	150	6.3	0.0	0.0	0.0	1.00	1.00	0.0	0.0	8.30	44	150
82.00	8' Omni	1	25	2.4	8.0	3.0	3.0	1.00	1.00	4.0	67.6	8.29	17	25
78.00	Andrew ASPR766P	2	2	0.9	1.0	30.0	0.0	1.00	1.00	0.0	0.0	8.25	13	4
78.00	Stand-Off	2	100	3.0	0.0	0.0	0.0	1.00	1.00	0.0	0.0	8.25	42	200
Totals		91	7385	437.5									1966	7385

Site Number: 302505

Code:

ANSI/TIA-222-G

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Site Name: Wshn - West Haven, CT

Engineering Number: OAA741768_C3_01

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Customer: AT&T Mobility

Tower Loading

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Description	Qty	Width (in)	Weight (lb/ft)	Pct In Block	Spread On Faces	Bundling Arrangement	Cluster Dia (in)	Out Of Zone	Spacing (in)	Orientation Factor	Ka Override
0.00	155.0	Climbing Ladder	1	2.00	6.90	0	Lin App	Individual	0.00	N	1.00	1.00	0.00
0.00	154.0	0.78" (19.7mm) 8	2	0.78	0.59	0	Lin App	Individual	0.00	N	1.00	1.00	0.00
0.00	154.0	2" conduit	1	2.38	3.65	0	Lin App	Individual	0.00	N	1.00	1.00	0.00
5.00	154.0	0.39" Fiber Trunk	2	0.39	0.06	0	1	Individual	0.00	N	1.00	1.00	0.01
5.00	154.0	0.78" 8 AWG 6	4	0.78	0.59	0	1	Individual	0.00	N	1.00	1.00	0.01
5.00	154.0	1 5/8" Coax	12	1.98	0.82	42	1	Block	0.00	N	0.25	1.00	0.00
5.00	154.0	3" Conduit	2	3.50	7.58	0	1	Individual	0.00	N	1.00	1.00	0.00
5.00	154.0	Waveguide	1	2.00	6.00	0	1	Individual	0.00	N	1.00	1.00	0.00
5.00	149.0	1 1/4" Coax	12	1.55	0.63	0	3	Individual	0.00	N	1.00	1.00	0.00
5.00	149.0	Waveguide	1	2.00	6.00	0	3	Individual	0.00	N	1.00	1.00	0.00
0.00	123.0	0.41" CNT-400	2	0.41	0.07	0	Lin App	Individual	0.00	N	1.00	1.00	0.00
0.00	123.0	0.41" CNT-400	2	0.41	0.07	0	Lin App	Individual	0.00	N	1.00	1.00	0.00
0.00	110.0	7/8" Coax	1	1.09	0.33	0	Lin App	Individual	0.00	N	1.00	1.00	0.00
0.00	103.0	7/8" Coax	1	1.09	0.33	0	Lin App	Individual	0.00	N	1.00	1.00	0.00
0.00	100.0	7/8" Coax	1	1.09	0.33	0	Lin App	Individual	0.00	N	1.00	1.00	0.00
0.00	89.00	7/8" Coax	1	1.09	0.33	0	Lin App	Individual	0.00	N	1.00	1.00	0.00
0.00	82.00	1/2" Coax	1	0.63	0.15	0	Lin App	Individual	0.00	N	1.00	1.00	0.00
0.00	78.00	7/8" Coax	1	1.09	0.33	0	Lin App	Individual	0.00	N	1.00	1.00	0.00

Site Number: 302505

Code: ANSI/TIA-222-G

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Site Name: Wshn - West Haven, CT

Engineering Number: OAA741768_C3_01

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Customer: AT&T Mobility

Equivalent Lateral Force Method

(Based on ASCE7-10 Chapters 11, 12 & 15)

Spectral Response Acceleration for Short Period (S_{ds}):	0.19
Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.06
Long-Period Transition Period (T_L - Seconds):	6
Importance Factor (I_p):	1.00
Site Coefficient F_a :	1.60
Site Coefficient F_v :	2.40
Response Modification Coefficient (R):	3.00
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.20
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Seismic Response Coefficient (C_s):	0.04
Upper Limit C_s :	0.04
Lower Limit C_s :	0.03
Period based on Rayleigh Method (sec):	0.89
Redundancy Factor (p):	1.30
Seismic Force Distribution Exponent (k):	1.19
Total Unfactored Dead Load:	39.42 k
Seismic Base Shear (E):	1.95 k

LoadCase (1.2 + 0.2Sds) * DL + E

Seismic

Section	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
8	152.50	631	253,295	0.034	66	782
7	137.50	2,955	1,049,03	0.140	273	3,665
6	112.50	3,766	1,052,22	0.141	273	4,671
5	87.50	5,004	1,036,19	0.138	269	6,207
4	70.83	1,959	315,242	0.042	82	2,430
3	58.33	3,502	447,039	0.060	116	4,343
2	37.50	6,774	510,643	0.068	133	8,403
1	12.50	7,447	151,420	0.020	39	9,237
CCI TPX-070821	154.00	45	18,286	0.002	5	56
Kaelus DBCT108F1V92-1	154.00	83	33,890	0.005	9	103
Commscope WCS-IMFQ-AMT	154.00	30	11,988	0.002	3	37
Powerwave Allgon LGP21401	154.00	85	34,378	0.005	9	105
Raycap DC6-48-60-18-8F ("Squid")	154.00	95	38,767	0.005	10	118
Ericsson Radio 8843 - B2 + B66A	154.00	216	87,651	0.012	23	268
Ericsson RRUS 4478 B14	154.00	180	73,023	0.010	19	223
Ericsson RRUS 4478 B5 (56.1 lbs)	154.00	168	68,390	0.009	18	209
Ericsson RRUS-32 (77 lbs)	154.00	231	93,869	0.013	24	287
Ericsson RRUS-11	154.00	165	67,049	0.009	17	205
Powerwave Allgon 7770.00	154.00	105	42,668	0.006	11	130
KMW AM-X-CD-16-65-00T-RET	154.00	146	59,125	0.008	15	180
CCI OPA-65R-LCUU-H6	154.00	219	88,992	0.012	23	272
KMW EPBQ-654L8H6-L2	154.00	218	88,749	0.012	23	271
Flat Light Sector Frame	154.00	1,200	487,630	0.065	127	1,488
Decibel DB844H90E-XY	149.00	112	43,755	0.006	11	139
Andrew 844G45VTZASX	149.00	60	23,440	0.003	6	74

Site Number: 302505

Code: ANSI/TIA-222-G

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Site Name: Wshn - West Haven, CT

Engineering Number: OAA741768_C3_01

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Customer: AT&T Mobility

Equivalent Lateral Force Method

Flat Light Sector Frame	149.00	1,200	468,807	0.063	122	1,488
Empty Round Sector Frame	131.00	900	301,557	0.040	78	1,116
6' Ice Shield	127.00	900	290,608	0.039	76	1,116
Radio/ODU	123.00	120	37,297	0.005	10	149
Andrew Microwaves VHLP2-26-1GR	123.00	62	19,270	0.003	5	77
Lone Star Electronics LS-230	110.00	11	2,992	0.000	1	14
Stand-Off	110.00	75	20,403	0.003	5	93
10' Omni	103.00	25	6,288	0.001	2	31
Round Side Arm	103.00	150	37,728	0.005	10	186
RFI Antennas BA80-67	100.00	18	4,273	0.001	1	22
Round Side Arm	100.00	150	36,421	0.005	9	186
Andrew DB224	89.00	38	8,030	0.001	2	47
Flat Side Arm	89.00	150	31,696	0.004	8	186
8' Omni	82.00	25	4,791	0.001	1	31
Andrew ASPR766P	78.00	4	650	0.000	0	4
Stand-Off	78.00	200	36,108	0.005	9	248
		39,422	7,483,662	1.000	1,945	48,896

LoadCase (0.9 - 0.2Sds) * DL + E

Seismic (Reduced DL)

Section	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vx}	Horizontal Force (lb)	Vertical Force (lb)
8	152.50	631	253,295	0.034	66	542
7	137.50	2,955	1,049,03	0.140	273	2,540
6	112.50	3,766	1,052,22	0.141	273	3,237
5	87.50	5,004	1,036,19	0.138	269	4,302
4	70.83	1,959	315,242	0.042	82	1,684
3	58.33	3,502	447,039	0.060	116	3,010
2	37.50	6,774	510,643	0.068	133	5,824
1	12.50	7,447	151,420	0.020	39	6,402
CCI TPX-070821	154.00	45	18,286	0.002	5	39
Kaelus DBCT108F1V92-1	154.00	83	33,890	0.005	9	72
Commscope WCS-IMFQ-AMT	154.00	30	11,988	0.002	3	25
Powerwave Allgon LGP21401	154.00	85	34,378	0.005	9	73
Raycap DC6-48-60-18-8F ("Squid")	154.00	95	38,767	0.005	10	82
Ericsson Radio 8843 - B2 + B66A	154.00	216	87,651	0.012	23	185
Ericsson RRUS 4478 B14	154.00	180	73,023	0.010	19	154
Ericsson RRUS 4478 B5 (56.1 lbs)	154.00	168	68,390	0.009	18	145
Ericsson RRUS-32 (77 lbs)	154.00	231	93,869	0.013	24	199
Ericsson RRUS-11	154.00	165	67,049	0.009	17	142
Powerwave Allgon 7770.00	154.00	105	42,668	0.006	11	90
KMW AM-X-CD-16-65-00T-RET	154.00	146	59,125	0.008	15	125
CCI OPA-65R-LCUU-H6	154.00	219	88,992	0.012	23	188
KMW EPBQ-654L8H6-L2	154.00	218	88,749	0.012	23	188
Flat Light Sector Frame	154.00	1,200	487,630	0.065	127	1,032
Decibel DB844H90E-XY	149.00	112	43,755	0.006	11	96
Andrew 844G45VTZASX	149.00	60	23,440	0.003	6	52
Flat Light Sector Frame	149.00	1,200	468,807	0.063	122	1,032
Empty Round Sector Frame	131.00	900	301,557	0.040	78	774
6' Ice Shield	127.00	900	290,608	0.039	76	774
Radio/ODU	123.00	120	37,297	0.005	10	103
Andrew Microwaves VHLP2-26-1GR	123.00	62	19,270	0.003	5	53
Lone Star Electronics LS-230	110.00	11	2,992	0.000	1	9
Stand-Off	110.00	75	20,403	0.003	5	64

Site Number: 302505

Code: ANSI/TIA-222-G

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Site Name: Wshn - West Haven, CT

Engineering Number: OAA741768_C3_01

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Customer: AT&T Mobility

Equivalent Lateral Force Method

10' Omni	103.00	25	6,288	0.001	2	21
Round Side Arm	103.00	150	37,728	0.005	10	129
RFI Antennas BA80-67	100.00	18	4,273	0.001	1	15
Round Side Arm	100.00	150	36,421	0.005	9	129
Andrew DB224	89.00	38	8,030	0.001	2	33
Flat Side Arm	89.00	150	31,696	0.004	8	129
8' Omni	82.00	25	4,791	0.001	1	21
Andrew ASPR766P	78.00	4	650	0.000	0	3
Stand-Off	78.00	200	36,108	0.005	9	172
		39,422	7,483,662	1.000	1,945	33,890

Equivalent Modal Analysis Method

(Based on ASCE7-10 Chapters 11, 12 & 15 and ANSI/TIA-G, section 2.7)

Spectral Response Acceleration for Short Period (S_{ps}):	0.19
Spectral Response Acceleration at 1.0 Second Period (S_{p1}):	0.06
Importance Factor (I_p):	1.00
Site Coefficient F_a :	1.60
Site Coefficient F_v :	2.40
Response Modification Coefficient (R):	3.00
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.20
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Period Based on Rayleigh Method (sec):	0.89
Redundancy Factor (ρ):	1.30

LoadCase (1.2 + 0.2Sds) * DL + E

Seismic

Section	Height		Seismic				S_{az}	Horizontal Force (lb)	Vertical Force (lb)
	Above Base (ft)	Weight (lb)	a	b	c				
8	152.50	631	1.830	1.676	1.029	0.392	107	782	
7	137.50	2,955	1.487	0.470	0.528	0.207	265	3,665	
6	112.50	3,766	0.996	-0.111	0.129	0.062	102	4,671	
5	87.50	5,004	0.602	-0.054	0.015	0.048	105	6,207	
4	70.83	1,959	0.395	0.020	0.007	0.051	44	2,430	
3	58.33	3,502	0.268	0.052	0.015	0.048	73	4,343	
2	37.50	6,774	0.111	0.070	0.036	0.036	105	8,403	
1	12.50	7,447	0.012	0.058	0.034	0.021	68	9,237	
CCI TPX-070821	154.00	45	1.866	1.854	1.094	0.415	8	56	
Kaelus DBCT108F1V92-1	154.00	83	1.866	1.854	1.094	0.415	15	103	
Commscope WCS-IMFQ-AMT	154.00	30	1.866	1.854	1.094	0.415	5	37	
Powerwave Allgon LGP21401	154.00	85	1.866	1.854	1.094	0.415	15	105	
Raycap DC6-48-60-18-8F ("Squid")	154.00	95	1.866	1.854	1.094	0.415	17	118	
Ericsson Radio 8843 - B2 + B66A	154.00	216	1.866	1.854	1.094	0.415	39	268	
Ericsson RRUS 4478 B14	154.00	180	1.866	1.854	1.094	0.415	32	223	
Ericsson RRUS 4478 B5 (56.1 lbs)	154.00	168	1.866	1.854	1.094	0.415	30	209	
Ericsson RRUS-32 (77 lbs)	154.00	231	1.866	1.854	1.094	0.415	42	287	
Ericsson RRUS-11	154.00	165	1.866	1.854	1.094	0.415	30	205	
Powerwave Allgon 7770.00	154.00	105	1.866	1.854	1.094	0.415	19	130	
KMW AM-X-CD-16-65-00T-RET	154.00	146	1.866	1.854	1.094	0.415	26	180	
CCI OPA-65R-LCUU-H6	154.00	219	1.866	1.854	1.094	0.415	39	272	
KMW EPBQ-654L8H6-L2	154.00	218	1.866	1.854	1.094	0.415	39	271	
Flat Light Sector Frame	154.00	1,200	1.866	1.854	1.094	0.415	216	1,488	
Decibel DB844H90E-XY	149.00	112	1.747	1.306	0.888	0.342	17	139	
Andrew 844G45VTZASX	149.00	60	1.747	1.306	0.888	0.342	9	74	
Flat Light Sector Frame	149.00	1,200	1.747	1.306	0.888	0.342	178	1,488	
Empty Round Sector Frame	131.00	900	1.350	0.196	0.382	0.151	59	1,116	
6' Ice Shield	127.00	900	1.269	0.080	0.309	0.123	48	1,116	
Radio/ODU	123.00	120	1.190	-0.004	0.248	0.101	5	149	
Andrew Microwaves VHLP2-26-	123.00	62	1.190	-0.004	0.248	0.101	3	77	
Lone Star Electronics LS-230	110.00	11	0.952	-0.119	0.109	0.057	0	14	
Stand-Off	110.00	75	0.952	-0.119	0.109	0.057	2	93	
10' Omni	103.00	25	0.835	-0.117	0.064	0.048	1	31	
Round Side Arm	103.00	150	0.835	-0.117	0.064	0.048	3	186	
RFI Antennas BA80-67	100.00	18	0.787	-0.109	0.050	0.047	0	22	
Round Side Arm	100.00	150	0.787	-0.109	0.050	0.047	3	186	
Andrew DB224	89.00	38	0.623	-0.061	0.017	0.048	1	47	
Flat Side Arm	89.00	150	0.623	-0.061	0.017	0.048	3	186	
8' Omni	82.00	25	0.529	-0.027	0.008	0.050	1	31	
Andrew ASPR766P	78.00	4	0.479	-0.008	0.006	0.051	0	4	

Site Number: 302505

Code: ANSI/TIA-222-G

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Site Name: Wshn - West Haven, CT

Engineering Number: OAA741768_C3_01

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Customer: AT&T Mobility

Equivalent Modal Analysis Method

Stand-Off	78.00	200	0.479	-0.008	0.006	0.051	4	248
		39,422	51.803	33.324	22.562	9.150	1,777	48,896

LoadCase (0.9 - 0.2Sds) * DL + E

Seismic (Reduced DL)

Section	Height Above Base (ft)	Weight (lb)	a	b	c	S _{az}	Horizontal Force (lb)	Vertical Force (lb)
8	152.50	631	1.830	1.676	1.029	0.392	107	542
7	137.50	2,955	1.487	0.470	0.528	0.207	265	2,540
6	112.50	3,766	0.996	-0.111	0.129	0.062	102	3,237
5	87.50	5,004	0.602	-0.054	0.015	0.048	105	4,302
4	70.83	1,959	0.395	0.020	0.007	0.051	44	1,684
3	58.33	3,502	0.268	0.052	0.015	0.048	73	3,010
2	37.50	6,774	0.111	0.070	0.036	0.036	105	5,824
1	12.50	7,447	0.012	0.058	0.034	0.021	68	6,402
CCI TPX-070821	154.00	45	1.866	1.854	1.094	0.415	8	39
Kaelus DBCT108F1V92-1	154.00	83	1.866	1.854	1.094	0.415	15	72
Commscope WCS-IMFQ-AMT	154.00	30	1.866	1.854	1.094	0.415	5	25
Powerwave Allgon LGP21401	154.00	85	1.866	1.854	1.094	0.415	15	73
Raycap DC6-48-60-18-8F ("Squid")	154.00	95	1.866	1.854	1.094	0.415	17	82
Ericsson Radio 8843 - B2 + B66A	154.00	216	1.866	1.854	1.094	0.415	39	185
Ericsson RRUS 4478 B14	154.00	180	1.866	1.854	1.094	0.415	32	154
Ericsson RRUS 4478 B5 (56.1 lbs)	154.00	168	1.866	1.854	1.094	0.415	30	145
Ericsson RRUS-32 (77 lbs)	154.00	231	1.866	1.854	1.094	0.415	42	199
Ericsson RRUS-11	154.00	165	1.866	1.854	1.094	0.415	30	142
Powerwave Allgon 7770.00	154.00	105	1.866	1.854	1.094	0.415	19	90
KMW AM-X-CD-16-65-00T-RET	154.00	146	1.866	1.854	1.094	0.415	26	125
CCI OPA-65R-LCUU-H6	154.00	219	1.866	1.854	1.094	0.415	39	188
KMW EPBQ-654L8H6-L2	154.00	218	1.866	1.854	1.094	0.415	39	188
Flat Light Sector Frame	154.00	1,200	1.866	1.854	1.094	0.415	216	1,032
Decibel DB844H90E-XY	149.00	112	1.747	1.306	0.888	0.342	17	96
Andrew 844G45VTZASX	149.00	60	1.747	1.306	0.888	0.342	9	52
Flat Light Sector Frame	149.00	1,200	1.747	1.306	0.888	0.342	178	1,032
Empty Round Sector Frame	131.00	900	1.350	0.196	0.382	0.151	59	774
6' Ice Shield	127.00	900	1.269	0.080	0.309	0.123	48	774
Radio/ODU	123.00	120	1.190	-0.004	0.248	0.101	5	103
Andrew Microwaves VHLP2-26-	123.00	62	1.190	-0.004	0.248	0.101	3	53
Lone Star Electronics LS-230	110.00	11	0.952	-0.119	0.109	0.057	0	9
Stand-Off	110.00	75	0.952	-0.119	0.109	0.057	2	64
10' Omni	103.00	25	0.835	-0.117	0.064	0.048	1	21
Round Side Arm	103.00	150	0.835	-0.117	0.064	0.048	3	129
RFI Antennas BA80-67	100.00	18	0.787	-0.109	0.050	0.047	0	15
Round Side Arm	100.00	150	0.787	-0.109	0.050	0.047	3	129
Andrew DB224	89.00	38	0.623	-0.061	0.017	0.048	1	33
Flat Side Arm	89.00	150	0.623	-0.061	0.017	0.048	3	129
8' Omni	82.00	25	0.529	-0.027	0.008	0.050	1	21
Andrew ASPR766P	78.00	4	0.479	-0.008	0.006	0.051	0	3
Stand-Off	78.00	200	0.479	-0.008	0.006	0.051	4	172
		39,422	51.803	33.324	22.562	9.150	1,777	33,890

Site Number: 302505

Code: ANSI/TIA-222-G

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Site Name: Wshn - West Haven, CT

Engineering Number: OAA741768_C3_01

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Customer: AT&T Mobility

Force/Stress Summary

Section: 1		1		Bot Elev (ft): 0.00				Height (ft): 25.000								
		Pu	Len	Bracing %			F'y	Phic Pn	Num	Shear	Bear	Use				
		(kip)	(ft)	X	Y	Z	(ksi)	(kip)	Num	phiRnv	phiRn	%	Controls			
		Load Case		KL/R				Bolts	Holes	(kip)	(kip)					
Max Compression Member																
LEG	PSP - 5" OD x .500"	-216.30	1.2D + 1.6W	8.34	50	50	50	31.3	50.0	296.21	0	0	0.00	0.00	73	Member X
	HORIZDAL - 3X2.5X0.25	-7.74	1.2D + 1.6W 90	9.167	100	67	50	122.9	36.0	38.47	4	2	49.70	69.60	20	Member Y
DIAG	PSP - STLSS 3" OD X0	-11.18	1.2D + 1.6W 90	12.63	50	100	50	155.4	50.0	20.21	1	0	0.00	0.00	55	Member Y
Max Tension Member																
		Pu	Load Case	Fy	Fu	Phit Pn	Num	Num	Shear	Bear	Blk Shear	Use	Controls			
		(kip)		(ksi)	(ksi)	(kip)	Bolts	Holes	phiRnv	phiRn	phiRn	%				
									(kip)	(kip)	(kip)					
LEG	PSP - 5" OD x .500"	185.53	0.9D + 1.6W 60	50	65	318.15	0	0	0.00	0.00			58	Member		
	HORIZ DAL - 3X2.5X0.25	7.93	1.2D + 1.6W 90	36	58	73.57	4	2	49.70	55.68	41.05		19	Blk Shear		
DIAG	PSP - STLSS 3" OD X0	10.52	1.2D + 1.6W 90	50	65	97.20	1	0	0.00	19.01	0.00		55	Bolt Bear		
Max Splice Forces																
		Pu	Load Case	phiRnt	Use	Num	Bolt Type									
		(kip)		(kip)	%	Bolts										
	Top Tension	161.93	0.9D + 1.6W 60	0.00	0	0										
	Top Compression	189.00	1.2D + 1.6W	0.00	0											
	Bot Tension	198.05	0.9D + 1.6W 60	1094.09	21	6	1 3/4 A325									
	Bot Compression	229.96	1.2D + 1.6W	0.00	0											

Section: 2		2		Bot Elev (ft): 25.00				Height (ft): 25.000								
		Pu	Len	Bracing %			F'y	Phic Pn	Num	Shear	Bear	Use				
		(kip)	(ft)	X	Y	Z	(ksi)	(kip)	Num	phiRnv	phiRn	%	Controls			
		Load Case		KL/R				Bolts	Holes	(kip)	(kip)					
Max Compression Member																
LEG	PSP - 5" OD x .500"	-176.26	1.2D + 1.6W	8.34	100	100	100	62.5	50.0	239.05	0	0	0.00	0.00	73	Member X
	HORIZDAL - 3X2.5X0.25	-6.74	1.2D + 1.6W 90	8.167	100	67	50	110.7	36.0	44.69	4	2	49.70	69.60	15	Member Y
DIAG	PSP - STLSS 3" OD X0	-10.33	1.2D + 1.6W 90	11.90	100	100	100	146.4	50.0	22.78	1	0	0.00	0.00	45	Member X
Max Tension Member																
		Pu	Load Case	Fy	Fu	Phit Pn	Num	Num	Shear	Bear	Blk Shear	Use	Controls			
		(kip)		(ksi)	(ksi)	(kip)	Bolts	Holes	phiRnv	phiRn	phiRn	%				
									(kip)	(kip)	(kip)					
LEG	PSP - 5" OD x .500"	151.02	0.9D + 1.6W 60	50	65	318.15	0	0	0.00	0.00			47	Member		
	HORIZ DAL - 3X2.5X0.25	6.96	1.2D + 1.6W 90	36	58	73.57	4	2	49.70	55.68	41.05		16	Blk Shear		
DIAG	PSP - STLSS 3" OD X0	9.75	0.9D + 1.6W 90	50	65	97.20	1	0	0.00	19.01	0.00		51	Bolt Bear		
Max Splice Forces																
		Pu	Load Case	phiRnt	Use	Num	Bolt Type									
		(kip)		(kip)	%	Bolts										
	Top Tension	127.94	0.9D + 1.6W 60	0.00	0	0										
	Top Compression	149.40	1.2D + 1.6W	0.00	0											
	Bot Tension	161.93	0.9D + 1.6W 60	436.14	37	8	1 A325									
	Bot Compression	189.00	1.2D + 1.6W	0.00	0											

Site Number: 302505

Code: ANSI/TIA-222-G

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Site Name: Wshn - West Haven, CT

Engineering Number: OAA741768_C3_01

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Customer: AT&T Mobility

Force/Stress Summary

Section: 3 3 (bot 2 bays) Bot Elev (ft): 50.00 Height (ft): 16.667															
		Pu	Len	Bracing %			F'y	Phic Pn	Num	Shear	Bear			Use	
		(kip)	(ft)	X	Y	Z	(ksi)	(kip)	Boles	Holes	phiRnv	phiRn	%	Controls	
		Load Case		KL/R							(kip)	(kip)			
Max Compression Member															
LEG	PSP - 5" OD x .500"	-136.88	1.2D + 1.6W	8.34	100	100	100	62.5	50.0	239.05	0	0	0.00	0.00	57 Member X
HORIZ	SAE - 3X3X0.25	-5.86	1.2D + 1.6W 90	7.167	100	67	67	108.7	36.0	25.06	2	1	24.85	34.80	23 Bolt Shear
DIAG	PSP - STLSS 2.75" OD	-9.52	1.2D + 1.6W 90	11.21	100	100	100	147.9	50.0	14.98	1	0	0.00	0.00	63 Member X
Max Tension Member															
LEG	PSP - 5" OD x .500"	114.91	1.2D + 1.6W 60	50	65	318.15	0	0	0.00	0.00					36 Member
HORIZ	SAE - 3X3X0.25	6.01	1.2D + 1.6W 90	36	58	40.86	2	1	24.85	27.84			20.53		29 Blk Shear
DIAG	PSP - STLSS 2.75" OD	9.05	1.2D + 1.6W 90	50	65	65.25	1	0	0.00	13.69			0.00		66 Bolt Bear
Max Splice Forces															
		Pu	Load Case	phiRnt	Use	Num									
		(kip)		(kip)	%	Boles	Bolt Type								
	Top Tension	105.30	0.9D + 1.6W 60	0.00	0	0									
	Top Compression	123.59	1.2D + 1.6W	0.00	0										
	Bot Tension	127.94	0.9D + 1.6W 60	240.81	53	8	0.75" A325								
	Bot Compression	149.40	1.2D + 1.6W	0.00	0										

Section: 4 3 (top bay) Bot Elev (ft): 66.67 Height (ft): 8.333															
		Pu	Len	Bracing %			F'y	Phic Pn	Num	Shear	Bear			Use	
		(kip)	(ft)	X	Y	Z	(ksi)	(kip)	Boles	Holes	phiRnv	phiRn	%	Controls	
		Load Case		KL/R							(kip)	(kip)			
Max Compression Member															
LEG	PSP - 5" OD x .500"	-111.10	1.2D + 1.6W	8.34	100	100	100	62.5	50.0	239.05	0	0	0.00	0.00	46 Member X
HORIZ	DAL - 3X2.5X0.25	-5.32	1.2D + 1.6W 90	6.500	100	67	50	87.1	36.0	57.13	4	2	49.70	69.60	10 Bolt Shear
DIAG	PSP - STLSS 2.75" OD	-9.19	1.2D + 1.6W 90	10.77	100	100	100	142.1	50.0	16.22	1	0	0.00	0.00	56 Member X
Max Tension Member															
LEG	PSP - 5" OD x .500"	92.50	1.2D + 1.6W 60	50	65	318.15	0	0	0.00	0.00					29 Member
HORIZ	DAL - 3X2.5X0.25	5.46	1.2D + 1.6W 90	36	58	73.57	4	2	49.70	55.68			41.05		13 Blk Shear
DIAG	PSP - STLSS 2.75" OD	8.68	1.2D + 1.6W 90	50	65	65.25	1	0	0.00	13.69			0.00		63 Bolt Bear
Max Splice Forces															
		Pu	Load Case	phiRnt	Use	Num									
		(kip)		(kip)	%	Boles	Bolt Type								
	Top Tension	93.98	0.9D + 1.6W 60	0.00	0	0									
	Top Compression	110.72	1.2D + 1.6W	0.00	0										
	Bot Tension	105.30	0.9D + 1.6W 60	0.00	0										
	Bot Compression	123.59	1.2D + 1.6W	0.00	0										

Site Number: 302505

Code: ANSI/TIA-222-G

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Site Name: Wshn - West Haven, CT

Engineering Number: OAA741768_C3_01

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Customer: AT&T Mobility

Force/Stress Summary

Section: 5		4	Bot Elev (ft): 75.00				Height (ft): 25.000								
		Pu (kip)	Load Case	Len (ft)	Bracing %			F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
Max Compression Member															
LEG	PSP - 5" OD x .300"	-98.27	1.2D + 1.6W	8.34	100	100	100	60.1	50.0	153.05	0	0	0.00	0.00	64 Member X
HORIZ	DAL - 3X2.5X0.25	-7.60	1.2D + 1.6W	5.500	100	67	50	73.7	36.0	64.00	4	2	49.70	69.60	15 Bolt Shear
DIAG	PSP - STLSS 2.75" OD	-8.91	1.2D + 1.6W 90	10.57	100	100	100	139.4	50.0	16.86	1	0	0.00	0.00	52 Member X
Max Tension Member															
LEG	PSP - 5" OD x .300"	83.15	0.9D + 1.6W 60	50	65	199.35	0	0	0.00	0.00				41 Member	
HORIZ	DAL - 3X2.5X0.25	8.17	1.2D + 1.6W 90	36	58	73.57	4	2	49.70	55.68			41.05	19 Blk Shear	
DIAG	PSP - STLSS 2.75" OD	8.52	0.9D + 1.6W 90	50	65	65.25	1	0	0.00	13.69			0.00	62 Bolt Bear	
Max Splice Forces															
		Pu (kip)	Load Case		phiRnt (kip)	Use %	Num Bolts	Bolt Type							
Top	Tension	60.84	0.9D + 1.6W 60		0.00	0	0								
Top	Compression	72.61	1.2D + 1.6W		0.00	0									
Bot	Tension	93.98	0.9D + 1.6W 60		240.81	39	8	0.75" A325							
Bot	Compression	110.72	1.2D + 1.6W		0.00	0									

Section: 6		5	Bot Elev (ft): 100.0				Height (ft): 25.000								
		Pu (kip)	Load Case	Len (ft)	Bracing %			F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
Max Compression Member															
LEG	PSP - STLSS 5" OD X0	-66.83	1.2D + 1.6W	8.34	100	100	100	58.6	50.0	87.89	0	0	0.00	0.00	76 Member X
HORIZ	DAL - 3X2.5X0.25	-7.13	1.2D + 1.6W	10.33	100	100	50	160.7	36.0	23.00	4	2	49.70	69.60	31 Member Y
DIAG	PSP - STLSS 3" OD X0	-10.30	1.2D + 1.6W 90	13.53	100	100	100	166.4	50.0	17.61	1	0	0.00	0.00	58 Member X
Max Tension Member															
LEG	PSP - STLSS 5" OD X0	56.00	0.9D + 1.6W 60	50	65	112.95	0	0	0.00	0.00				49 Member	
HORIZ	DAL - 3X2.5X0.25	7.81	1.2D + 1.6W 90	36	58	73.57	4	2	49.70	55.68			41.05	19 Blk Shear	
DIAG	PSP - STLSS 3" OD X0	9.07	1.2D + 1.6W	50	65	97.20	1	0	0.00	19.01			0.00	47 Bolt Bear	
Max Splice Forces															
		Pu (kip)	Load Case		phiRnt (kip)	Use %	Num Bolts	Bolt Type							
Top	Tension	29.16	0.9D + 1.6W 60		0.00	0	0								
Top	Compression	37.62	1.2D + 1.6W		0.00	0									
Bot	Tension	60.84	0.9D + 1.6W 60		120.41	51	4	0.75" A325							
Bot	Compression	72.61	1.2D + 1.6W		0.00	0									

Site Number: 302505

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Site Name: Wshn - West Haven, CT

Engineering Number: OAA741768_C3_01

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Customer: AT&T Mobility

Force/Stress Summary

Section: 7		6		Bot Elev (ft): 125.0				Height (ft): 25.000							
		Pu		Len	Bracing %			F'y	Phic Pn	Num		Shear	Bear		
		(kip)	Load Case	(ft)	X	Y	Z	KL/R	(ksi)	(kip)	Bolts	Holes	phiRnv	phiRn	Use
													(kip)	(kip)	% Controls
Max Compression Member															
LEG	PSP - STLSS 5" OD X0	-31.65	1.2D + 1.6W	8.34	100	100	100	58.6	50.0	87.89	0	0	0.00	0.00	36 Member X
HORIZ	SAE - 3X3X0.25	-5.34	1.2D + 1.6W	8.333	100	100	100	168.9	36.0	11.40	2	1	24.85	34.80	46 Member Z
DIAG	PSP - STLSS 2.75" OD	-8.65	1.2D + 1.6W 90	12.02	100	100	100	158.6	50.0	13.03	1	0	0.00	0.00	66 Member X
Max Tension Member															
		Pu	Load Case	Fy	Fu	Phit Pn	Num	Num		Shear	Bear	Blk Shear			
		(kip)		(ksi)	(ksi)	(kip)	Bolts	Holes		phiRnv	phiRn	phit Pn	Use	Controls	
										(kip)	(kip)	(kip)	%		
LEG	PSP - STLSS 5" OD X0	24.91	0.9D + 1.6W 60	50	65	112.95	0	0		0.00	0.00		22	Member	
HORIZ	SAE - 3X3X0.25	5.67	1.2D + 1.6W 90	36	58	40.86	2	1		24.85	27.84	20.53	27	Blk Shear	
DIAG	PSP - STLSS 2.75" OD	7.59	1.2D + 1.6W	50	65	65.25	1	0		0.00	13.69	0.00	55	Bolt Bear	
Max Splice Forces															
		Pu	Load Case	phiRnt	Use	Num									
		(kip)		(kip)	%	Bolts	Bolt Type								
Top Tension		1.34	0.9D + 1.6W 60	0.00	0	0									
Top Compression		7.46	1.2D + 1.0Di +	0.00	0										
Bot Tension		29.16	0.9D + 1.6W 60	120.41	24	4	0.75" A325								
Bot Compression		37.62	1.2D + 1.6W	0.00	0										

Section: 8		7		Bot Elev (ft): 150.0				Height (ft): 5.000							
		Pu		Len	Bracing %			F'y	Phic Pn	Num		Shear	Bear		
		(kip)	Load Case	(ft)	X	Y	Z	KL/R	(ksi)	(kip)	Bolts	Holes	phiRnv	phiRn	Use
													(kip)	(kip)	% Controls
Max Compression Member															
LEG	PSP - STLSS 5" OD X0	-3.51	1.2D + 1.0Di +	5.00	100	100	100	35.1	50.0	103.22	0	0	0.00	0.00	3 Member X
HORIZ	CHN - C4 x 5.4	-1.36	1.2D + 1.6W	3.500	100	100	100	100.2	36.0	30.38	2	2	24.85	44.36	5 Bolt Shear
DIAG	DAL - 2.5X2X0.1875	-2.43	1.2D + 1.6W 90	6.103	100	100	50	116.8	36.0	25.58	2	2	24.85	26.10	9 Bolt Shear
Max Tension Member															
		Pu	Load Case	Fy	Fu	Phit Pn	Num	Num		Shear	Bear	Blk Shear			
		(kip)		(ksi)	(ksi)	(kip)	Bolts	Holes		phiRnv	phiRn	phit Pn	Use	Controls	
										(kip)	(kip)	(kip)	%		
LEG		0.00		0	0	0.00	0	0		0.00	0.00		0		
HORIZ	CHN - C4 x 5.4	1.57	1.2D + 1.6W 60	36	58	36.28	2	2		24.85	35.49	0.00	6	Bolt Shear	
DIAG	DAL - 2.5X2X0.1875	2.28	1.2D + 1.6W 90	36	58	43.68	2	2		24.85	15.66	17.74	14	Bolt Bear	
Max Splice Forces															
		Pu	Load Case	phiRnt	Use	Num									
		(kip)		(kip)	%	Bolts	Bolt Type								
Top Tension		0.00		0.00	0	0									
Top Compression		3.51	1.2D + 1.0Di +	0.00	0										
Bot Tension		1.34	0.9D + 1.6W 60	120.41	1	4	0.75" A325								
Bot Compression		7.46	1.2D + 1.0Di +	0.00	0										

Detailed Reactions

Load Case	Radius (ft)	Elevation (ft)	Azimuth (deg)	Node	FX (kip)	FY (kip)	FZ (kip)	(-) = Uplift (+) = Down
1.2D + 1.6W Normal	10.97	00.00	0	1	0.00	229.57	-23.28	
	10.97	00.00	120	1a	6.78	-91.13	-8.32	
	10.97	00.00	240	1b	-6.78	-91.13	-8.32	
1.2D + 1.6W 60 deg	10.97	00.00	0	1	-3.63	120.45	-11.95	
	10.97	00.00	120	1a	-12.16	120.18	2.83	
	10.97	00.00	240	1b	-17.89	-193.32	-10.33	
1.2D + 1.6W 90 deg	10.97	00.00	0	1	-4.27	15.77	-1.12	
	10.97	00.00	120	1a	-18.33	197.73	8.16	
	10.97	00.00	240	1b	-16.54	-166.19	-7.04	
0.9D + 1.6W Normal	10.97	00.00	0	1	0.00	225.35	-23.00	
	10.97	00.00	120	1a	7.01	-94.93	-8.46	
	10.97	00.00	240	1b	-7.01	-94.93	-8.46	
0.9D + 1.6W 60 deg	10.97	00.00	0	1	-3.63	116.37	-11.66	
	10.97	00.00	120	1a	-11.92	116.10	2.69	
	10.97	00.00	240	1b	-18.13	-196.99	-10.46	
0.9D + 1.6W 90 deg	10.97	00.00	0	1	-4.27	11.83	-0.84	
	10.97	00.00	120	1a	-18.09	193.55	8.02	
	10.97	00.00	240	1b	-16.78	-169.89	-7.18	
1.2D + 1.0Di + 1.0Wi Normal	10.97	00.00	0	1	0.00	119.06	-11.18	
	10.97	00.00	120	1a	0.39	4.46	-1.91	
	10.97	00.00	240	1b	-0.39	4.46	-1.91	
1.2D + 1.0Di + 1.0Wi 60 deg	10.97	00.00	0	1	-1.43	80.55	-6.99	
	10.97	00.00	120	1a	-6.77	80.45	2.25	
	10.97	00.00	240	1b	-4.66	-33.02	-2.69	
1.2D + 1.0Di + 1.0Wi 90 deg	10.97	00.00	0	1	-1.67	42.67	-2.87	
	10.97	00.00	120	1a	-9.09	108.29	4.29	
	10.97	00.00	240	1b	-4.13	-22.99	-1.42	
(1.2 + 0.2Sds) * DL + E Normal M1	10.97	00.00	0	1	0.00	29.68	-2.28	
	10.97	00.00	120	1a	-0.58	8.95	0.17	
	10.97	00.00	240	1b	0.58	8.95	0.17	
(1.2 + 0.2Sds) * DL + E Normal M2	10.97	00.00	0	1	0.00	29.64	-2.20	
	10.97	00.00	120	1a	-0.60	8.97	0.21	
	10.97	00.00	240	1b	0.60	8.97	0.21	
(1.2 + 0.2Sds) * DL + E 60 deg M1	10.97	00.00	0	1	-0.14	22.77	-1.72	
	10.97	00.00	120	1a	-1.56	22.77	0.74	
	10.97	00.00	240	1b	0.02	2.03	0.01	
(1.2 + 0.2Sds) * DL + E 60 deg M2	10.97	00.00	0	1	-0.12	22.75	-1.67	
	10.97	00.00	120	1a	-1.51	22.75	0.74	
	10.97	00.00	240	1b	0.09	2.08	0.05	
(1.2 + 0.2Sds) * DL + E 90 deg M1	10.97	00.00	0	1	-0.16	15.84	-1.15	
	10.97	00.00	120	1a	-1.89	27.84	0.99	
	10.97	00.00	240	1b	0.11	3.90	0.16	
(1.2 + 0.2Sds) * DL + E 90 deg M2	10.97	00.00	0	1	-0.13	15.84	-1.15	
	10.97	00.00	120	1a	-1.82	27.80	0.97	

Site Number: 302505

Code:

ANSI/TIA-222-G

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Site Name: Wshn - West Haven, CT

Engineering Number: OAA741768_C3_01

11/8/2018 1:25:04 PM

Customer: AT&T Mobility

	10.97	00.00	240	1b	0.18	3.94	0.18
(0.9 - 0.2Sds) * DL + E Normal M1	10.97	00.00	0	1	0.00	24.77	-1.93
	10.97	00.00	120	1a	-0.27	4.10	-0.01
	10.97	00.00	240	1b	0.27	4.10	-0.01
(0.9 - 0.2Sds) * DL + E Normal M2	10.97	00.00	0	1	0.00	24.72	-1.84
	10.97	00.00	120	1a	-0.30	4.13	0.04
	10.97	00.00	240	1b	0.30	4.13	0.04
(0.9 - 0.2Sds) * DL + E 60 deg M1	10.97	00.00	0	1	-0.14	17.88	-1.36
	10.97	00.00	120	1a	-1.25	17.88	0.56
	10.97	00.00	240	1b	-0.29	-2.79	-0.17
(0.9 - 0.2Sds) * DL + E 60 deg M2	10.97	00.00	0	1	-0.12	17.86	-1.32
	10.97	00.00	120	1a	-1.20	17.86	0.56
	10.97	00.00	240	1b	-0.21	-2.74	-0.12
(0.9 - 0.2Sds) * DL + E 90 deg M1	10.97	00.00	0	1	-0.16	10.98	-0.80
	10.97	00.00	120	1a	-1.58	22.93	0.82
	10.97	00.00	240	1b	-0.20	-0.93	-0.02
(0.9 - 0.2Sds) * DL + E 90 deg M2	10.97	00.00	0	1	-0.13	10.98	-0.80
	10.97	00.00	120	1a	-1.51	22.89	0.79
	10.97	00.00	240	1b	-0.13	-0.89	0.01
1.0D + 1.0W Service Normal	10.97	00.00	0	1	0.00	64.84	-6.32
	10.97	00.00	120	1a	1.07	-12.71	-1.68
	10.97	00.00	240	1b	-1.07	-12.71	-1.68
1.0D + 1.0W Service 60 deg	10.97	00.00	0	1	-0.89	38.46	-3.56
	10.97	00.00	120	1a	-3.53	38.40	1.01
	10.97	00.00	240	1b	-3.76	-37.44	-2.17
1.0D + 1.0W Service 90 deg	10.97	00.00	0	1	-1.04	13.14	-0.93
	10.97	00.00	120	1a	-5.03	57.15	2.31
	10.97	00.00	240	1b	-3.43	-30.87	-1.38

Max Uplift:	196.99 (kip)	Moment Ice:	1,257.18 (kip-ft)	Moment:	3,518.01 (kip-ft)	1.2D + 1.6W Normal
Max Down:	229.57 (kip)	Total Down Ice:	127.97 (kip)	Total Down:	47.31 (kip)	
Max Shear:	23.28 (kip)	Total Shear Ice:	15.00 (kip)	Total Shear:	39.91 (kip)	

Triangular Mat & Pier Foundation Capacity Calculations

Last Updated: 7/26/2011

For Self Supported Towers

Site #:	302505
Site Name:	Wshn - West Haven, CT
Eng. #:	OAA681694_C3_02
Date:	1/23/2017
Engineer:	I. Dodson
Code:	TIA-222-G

Total Down (Tower + Appurt. Wt.):	47.3 k
Total Shear:	23.3 k
Moment (Overturning):	3518.0 k-ft
Pier Diameter:	3.50 ft
Depth to Base of Foundation:	7.75 ft
Number of Tower Legs/Piers:	3
Pier Height Above Ground (Average):	1.25 ft
Edge of Tower Face to Edge of Pad:	4.75 ft
Pad Thickness:	6.50 ft
Tower Face Width:	19.00 ft
Mat Edge Type:	Round

Depth to Groundwater:	99.00 ft
Concrete Density:	150 pcf
Soil Density Above Water Line:	100 pcf
Soil Density Below Water Line:	50 pcf
Water Density:	62.4 pcf
Ultimate Bearing Capacity:	15000 psf
Sliding Resistance Factor:	0.40
Allowable Stress Increase:	1.00
ϕ Soil and Concrete Weight:	0.9
ϕ Bearing & Sliding:	0.75

Overturning Resistance:

OTM Capacity:	5475.1 k-ft
OTM Design Load:	3727.5 k-ft
OTM Usage:	0.68 Result: OK

Bearing Pressure Usage:

Bearing Stress (Due to OTM):	3097 psf
Nominal Bearing Pressure:	11250 psf
Bearing Usage:	0.28 Result: OK

Sliding Resistance:

Acting Sliding Force:	23.3 k
Nominal Sliding Resistance:	160.5 k
Sliding Factor of Safety:	0.15 Result: OK



Radio Frequency Emissions Analysis Report

AT&T Existing Facility

Site ID: CT2064

FA#: 10035024

BANM WestHaven
1 Burwell Road
West Haven, CT 06516

November 29, 2018

Centerline Communications Project Number: 950006-148

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	6.31 %



November 29, 2018

AT&T Mobility – New England
Attn: John Benedetto, RF Manager
550 Cochituate Road
Suite 550 – 13&14
Framingham, MA 06040

Emissions Analysis for Site: **CT2064 – BANM WestHaven**

Centerline Communications, LLC (“Centerline”) was directed to analyze the proposed AT&T facility located at **1 Burwell Road, West Haven, CT**, for the purpose of determining whether the emissions from the Proposed AT&T Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The number of $\mu\text{W}/\text{cm}^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

Population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The general population exposure limits for the 700 and 850 MHz Bands are approximately $467 \mu\text{W}/\text{cm}^2$ and $567 \mu\text{W}/\text{cm}^2$ respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 2300 MHz (WCS) bands is $1000 \mu\text{W}/\text{cm}^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.



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

Additional details can be found in FCC OET 65.



CALCULATIONS

Calculations were performed for the proposed AT&T Wireless antenna facility located at **1 Burwell Road, West Haven, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. All power values expressed and analyzed are maximum power levels expected to be used on all radios.

All emissions values for additional carriers were taken from the Connecticut Siting Council (CSC) active MPE database. Values in this database are provided by the individual carriers themselves

For each sector the following channel counts, frequency bands and power levels were utilized as shown in *Table 1*:

Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
UMTS	850 MHz	2	30
LTE	700 MHz	2	40
LTE	2300 MHz (WCS)	4	30
LTE	700 MHz (Band 14)	4	40
LTE	850 MHz	2	40
LTE	1900 MHz (PCS)	4	40
LTE	2100 MHz (AWS)	4	30
LTE	700 MHz	2	40

Table 1: Channel Data Table



The following antennas listed in *Table 2* were used in the modeling for transmission in the 700 MHz, 850 MHz, 1900 MHz (PCS), 2100 MHz (AWS) and 2300 MHz (WCS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	Powerwave 7770	154
A	2	CCI OPA-65R-LCUU-H6	154
A	3	KMW EPBQ-654L8H6-L2	154
A	4	KMW AM-X-CD-16-65-00T-RET	154
B	1	Powerwave 7770	154
B	2	CCI OPA-65R-LCUU-H6	154
B	3	KMW EPBQ-654L8H6-L2	154
B	4	KMW AM-X-CD-16-65-00T-RET	154
C	1	Powerwave 7770	154
C	2	CCI OPA-65R-LCUU-H6	154
C	3	KMW EPBQ-654L8H6-L2	154
C	4	KMW AM-X-CD-16-65-00T-RET	154

Table 2: Antenna Data

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



RESULTS

Per the calculations completed for the proposed AT&T configurations *Table 3* shows resulting emissions power levels and percentages of the FCC's allowable general population limit.

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	Powerwave 7770	850 MHz	11.4	2	60	828.23	0.24
Antenna A2	CCI OPA-65R-LCUU-H6	700 MHz / 2300 MHz (WCS)	11.65 / 15.45	6	200	5,378.76	1.10
Antenna A3	KMW EPBQ-654L8H6-L2	700 MHz / 850 MHz / 1900 MHz (PCS) / 2100 MHz (AWS)	12.35 / 12.45 / 15.05 / 14.95	16	570	13,903.48	3.08
Antenna A4	KMW AM-X-CD-16-65-00T-RET	700 MHz	13.35	2	80	1,730.17	0.61
Sector A Composite MPE%							5.03
Antenna B1	Powerwave 7770	850 MHz	11.4	2	60	828.23	0.24
Antenna B2	CCI OPA-65R-LCUU-H6	700 MHz / 2300 MHz (WCS)	11.65 / 15.45	6	200	5,378.76	1.10
Antenna B3	KMW EPBQ-654L8H6-L2	700 MHz / 850 MHz / 1900 MHz (PCS) / 2100 MHz (AWS)	12.35 / 12.45 / 15.05 / 14.95	16	570	13,903.48	3.08
Antenna B4	KMW AM-X-CD-16-65-00T-RET	700 MHz	13.35	2	80	1,730.17	0.61
Sector B Composite MPE%							5.03
Antenna C1	Powerwave 7770	850 MHz	11.4	2	60	828.23	0.24
Antenna C2	CCI OPA-65R-LCUU-H6	700 MHz / 2300 MHz (WCS)	11.65 / 15.45	6	200	5,378.76	1.10
Antenna C3	KMW EPBQ-654L8H6-L2	700 MHz / 850 MHz / 1900 MHz (PCS) / 2100 MHz (AWS)	12.35 / 12.45 / 15.05 / 14.95	16	570	13,903.48	3.08
Antenna C4	KMW AM-X-CD-16-65-00T-RET	700 MHz	13.35	2	80	1,730.17	0.61
Sector C Composite MPE%							5.03

Table 3: AT&T Emissions Levels



The Following table (*table 4*) shows all additional carriers on site and their MPE% as recorded in the CSC active MPE database for this facility along with the newly calculated maximum AT&T MPE contributions per this report. FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. For this site, all three sectors have the same configuration yielding the same results on all three sectors. *Table 5* below shows a summary for each AT&T Sector as well as the composite MPE value for the site.

Site Composite MPE%	
Carrier	MPE%
AT&T – Max Per Sector Value	5.03 %
So CT Gas	0.49 %
West Haven Police	0.03 %
Sprint	0.76 %
Site Total MPE %:	6.31 %

Table 4: All Carrier MPE Contributions

AT&T Sector A Total:	5.03 %
AT&T Sector B Total:	5.03 %
AT&T Sector C Total:	5.03 %
Site Total:	6.31 %

Table 5: Site MPE Summary



FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. *Table 6* below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated AT&T sector(s). For this site, all three sectors have the same configuration yielding the same results on all three sectors.

AT&T _ Frequency Band / Technology Max Power Values (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
AT&T 850 MHz UMTS – Antenna 1	2	414.12	154	1.36	850 MHz	567	0.24%
AT&T 700 MHz LTE– Antenna 2	2	584.87	154	1.92	700 MHz	467	0.41%
AT&T 2300 MHz (WCS) LTE – Antenna 2	4	1,052.26	154	6.91	2300 MHz (WCS)	1000	0.69%
AT&T 700 MHz LTE (Band 14) – Antenna 3	4	687.16	154	4.51	700 MHz	467	0.97%
AT&T 850 MHz LTE – Antenna 3	2	703.17	154	2.31	850 MHz	567	0.41%
AT&T 1900 MHz (PCS) LTE – Antenna 3	4	1,279.56	154	8.40	1900 MHz (PCS)	1000	0.84%
AT&T 850 MHz 5G – Antenna 3	2	439.48	154	1.44	850 MHz	567	0.25%
AT&T 2100 MHz (AWS) LTE – Antenna 3	4	937.82	154	6.16	2100 MHz (AWS)	1000	0.62%
AT&T 700 MHz LTE – Antenna 4	2	865.09	154	2.84	700 MHz	467	0.61%
						Total:	5.03%

Table 6: AT&T Maximum Sector MPE Power Values



Summary

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

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

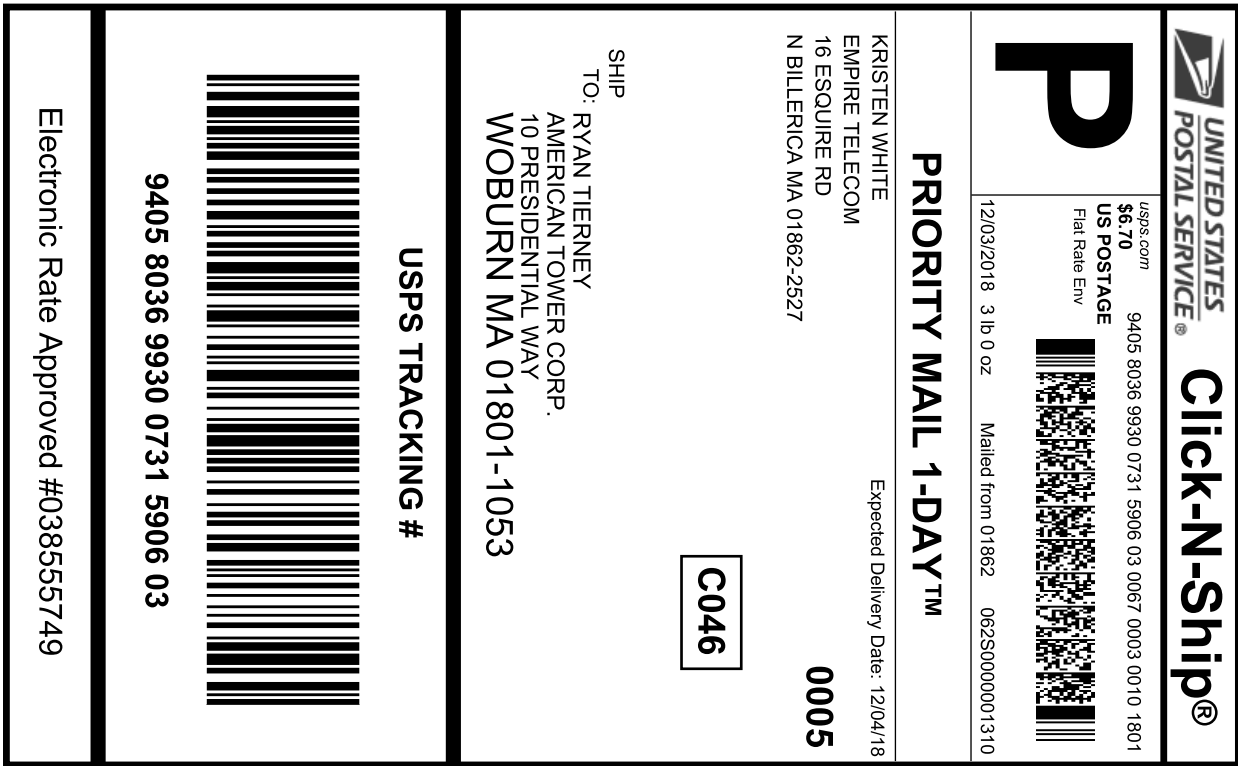
AT&T Sector	Power Density Value (%)
Sector A:	5.03 %
Sector B:	5.03 %
Sector C:	5.03 %
AT&T Maximum Total (per sector):	5.03 %
Site Total:	6.31 %
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **6.31 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

A handwritten signature in black ink, appearing to read 'Scott Heffernan', is positioned above the printed name.

Scott Heffernan
RF Engineering Director
Centerline Communications, LLC
95 Ryan Drive, Suite 1
Raynham, MA 02767



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Ship Date:	12/03/2018	Total	\$6.70
Expected Delivery Date:	12/04/2018		
Insured Value:	\$50.00		


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 EMPIRE TELECOM
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 N BILLERICA MA 01862-2527

To: RYAN TIERNEY
 AMERICAN TOWER CORP.
 10 PRESIDENTIAL WAY
 WOBURN MA 01801-1053

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 TO: HON NANCY R ROSSI
 OFFICE OF THE MAYOR
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Print Date:	12/03/2018	Insurance Fee	\$0.00
Ship Date:	12/03/2018	Total	\$6.70
Expected Delivery Date:	12/06/2018		
Insured Value:	\$50.00		

From: KRISTEN WHITE
 EMPIRE TELECOM
 16 ESQUIRE RD
 N BILLERICA MA 01862-2527

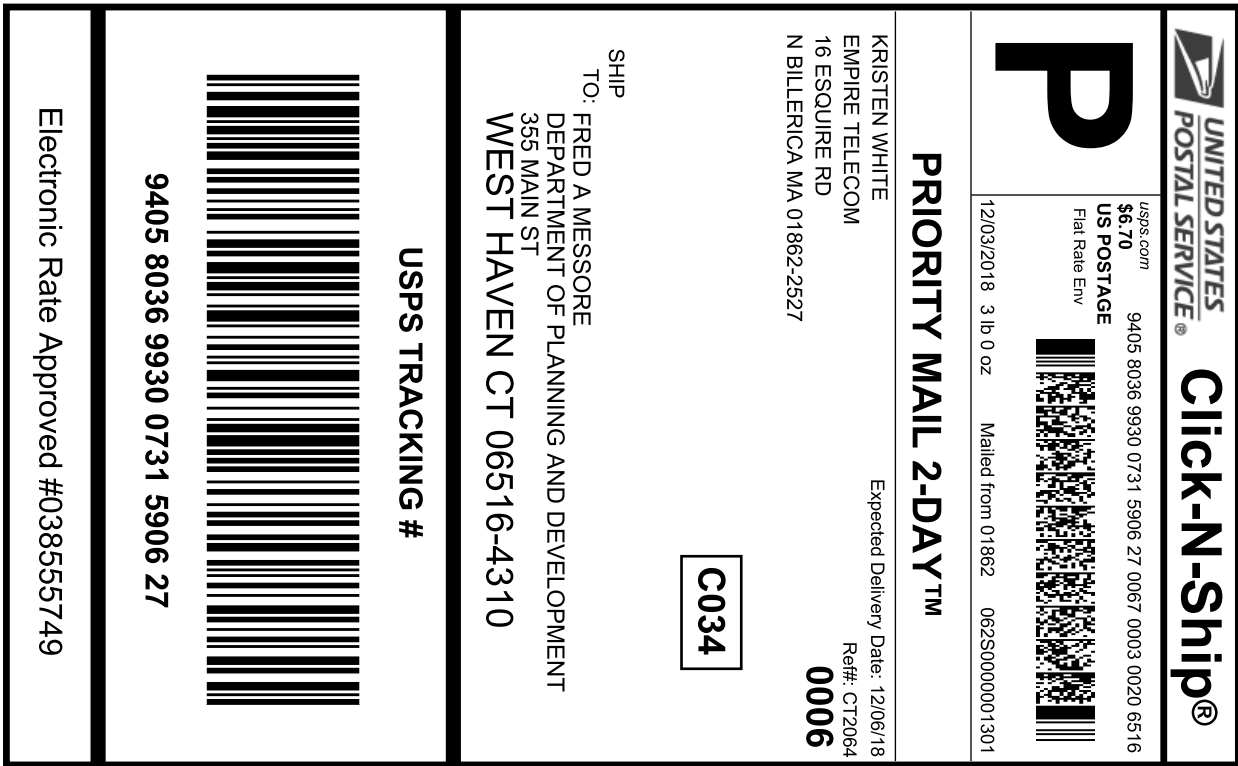
Ref#: CT2064

To: HON NANCY R ROSSI
 OFFICE OF THE MAYOR
 355 MAIN ST
 WEST HAVEN CT 06516-4310

* 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



Cut on dotted line.

Instructions

- 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.
- Place your label so it does not wrap around the edge of the package.
- 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.
- 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.
- Mail your package on the "Ship Date" you selected when creating this label.

Click-N-Ship® Label Record

**USPS TRACKING # / Insurance Number:
 9405 8036 9930 0731 5906 27**

Trans. #:	450111877	Priority Mail® Postage:	\$6.70
Print Date:	12/03/2018	Insurance Fee	\$0.00
Ship Date:	12/03/2018	Total	\$6.70
Expected Delivery Date:	12/06/2018		
Insured Value:	\$50.00		

From: KRISTEN WHITE Ref#: CT2064
 EMPIRE TELECOM
 16 ESQUIRE RD
 N BILLERICA MA 01862-2527

To: FRED A MESSORE
 DEPARTMENT OF PLANNING AND DEVELOPMENT
 355 MAIN ST
 WEST HAVEN CT 06516-4310

* 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!
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Track Another Package +

Tracking Number: 9405803699300731590610

Remove X

Expected Delivery on

THURSDAY

6

DECEMBER
2018 ⓘ

by

8:00pm ⓘ

 **Delivered**

December 6, 2018 at 11:55 am
Delivered, Front Door/Porch
WEST HAVEN, CT 06516

Get Updates ▼

Text & Email Updates



Tracking History



Product Information



See Less ^

Feedback

Tracking Number: 9405803699300731590603

Remove X

On Time

Expected Delivery on

THURSDAY

6

DECEMBER
2018 ⓘ

by

8:00pm ⓘ

 **Delivered**

December 6, 2018 at 1:12 pm
Delivered, Front Desk/Reception/Mail Room
WOBURN, MA 01801

Get Updates ▾

See More ▾

Feedback

Tracking Number: 9405803699300731590627

Remove X

Expected Delivery on

THURSDAY

6

DECEMBER
2018 ⓘ

by

8:00pm ⓘ

 **Delivered**

December 6, 2018 at 11:55 am
Delivered, Front Door/Porch
WEST HAVEN, CT 06516

Get Updates ▾

See More ▾