Crown Castle
12 Gill Street, Suite 5800
Woburn, MA 01801

February 24, 2016

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

RE: **Notice of Exempt Modification for AT&T / L700 Crown Site BU: 842870**
AT&T Site ID: CT5099
Located at: 434 Boston Post Road, Milford, CT 06460
Latitude: 41° 13' 42.69" / Longitude: -73° 4' 12.47

Dear Ms. Bachman,

AT&T currently maintains nine (9) antennas at the 141 foot level of the existing 150 foot monopole located at 434 Boston Post Road, Milford, CT. The tower is owned by Crown Castle. The property is owned by the City of Milford. AT&T now proposes to replace three (3) antennas and add three (3) RRUs (non-antennas); one (1) raycap; two (2) DC power cables; and, one (1) fiber cable. The antennas would be installed at the same 141 foot level of the tower.

This facility was approved by the City of Milford Planning and Zoning Office on February 10, 2000, zoning permit #434. There were no conditions placed on the original construction of the tower (please see attached zoning application and email from City).

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16-50j-72(b)(2). In accordance with R.S.C.A. § 16-50j-73, a copy of this letter is being sent to the Honorable Benjamin G. Blake, Mayor for the City of Milford, as well as the property owner and the tower owner.

1. The proposed modifications will not result in an increase in the height of the existing tower.

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

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

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

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

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

For the foregoing reasons, AT&T respectfully submits that the proposed modifications to the above-referenced telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Please send approval/rejection letter to Attn: Amanda Goodall.

Sincerely,

Amanda Goodall
Real Estate Specialist
12 Gill Street, Suite 5800, Woburn, MA 01801
339-205-7017
Amanda.Goodall@crowncastle.com
Attachments:

Tab 1: Exhibit-1: Compound plan and elevation depicting the planned changes
Tab 2: Exhibit-2: Structural Modification Report
Tab 4: Exhibit-3: General Power Density Table report (RF Emissions Analysis Report)

cc: Honorable Benjamin G. Blake, Mayor
City of Milford
110 River St
Milford, CT 06460

Crown Castle, Tower Owner
12 Gill Street, Suite 5800
Woburn, Ma 01801

City of Milford, Property Owner
Attn: Clerk's Office
70 West River St
Milford, CT 06460

DATE FILED 10 Feb 00

RECEIPT # Exempt

FEE (INCLUDES CZC) $ see above

434

City of Milford, Connecticut

APPLICATION FOR ZONING PERMIT

#4430

INSTRUCTIONS: Fill out this application in ball point pen. A scaled plot plan in duplicate, based on a certified surveyor's plot plan must be submitted with this application showing the proposed or existing lot and building dimensions and the location of all buildings in relation to the street lines, side lot lines and rear lot lines.

ADDRESS OF PROPERTY Boston Post Road **ZONE** GB

MAP 64 **BLOCK** 430 **PARCEL** 6 **LOT NO.** _____ **ADDRESS MAP NO.** _____ **LOT SIZE** 2.73 acres

WIDTH OF STREET RIGHT OF WAY LESS THAN 50 FT.? YES ____ NO X **CORNER LOT?** YES ____ NO X

IS ANY PORTION OF THE LOT BELOW REGULATORY FLOOD ELEVATION? YES ____ NO X **CAM** YES ____ NO X

CITY WATER NA **PRIVATE WELL*** ____ **SEWER**** NA **SEPTIC***** ____ **ENGINEERING OFF STREET PERMIT #** _____

OWNER City of Milford → AT&T Wireless PCS, LLC **PHONE** (203) 871-4022

ADDRESS OF OWNER c/o Dan Garber 149 Water St Norwalk CT 06854
STREET CITY STATE ZIP CODE

PRESENT USE OF PROPERTY Police Station

PROPOSED CONSTRUCTION NEW X ADDITION _____ ALTERATION _____ REPAIR _____

SIZE/USE OF PROPOSED CONSTRUCTION Truss construction antenna - roof antenna hardware belongs to City total height antenna - with fencing with barbwire enclosure 8' 54'X 64' irregular shape with 20'X12' equip. bldg*

NO. OF STORIES NA **HEIGHT** 150' **REQUIRED PARKING SPACES** NC **LOT COVERAGE** _____%

DATE OF APPROVALS: **ZBA** NA **CASPR** _____ **SITE PLAN** 10 Jan 00 **SPECIAL PERMIT** _____

EXEMPTION ISSUED NA **SUBDIV. NAME** _____ **HISTORIC DIST. CERT.OF APPROPRIATENESS** ____

CERTIFICATION: *(WARNING)* I hereby certify that I am making this application on behalf of and with full authority of the owner of the property and that I am aware of the Zoning Regulations pertinent in this case and that the statements made herein are true and correct. *APPROVAL SHALL BE VALID FOR PLANS AS SUBMITTED.*

THE OCCUPANCY AND USE OF LAND AND BUILDINGS OR STRUCTURES PRIOR TO THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY IS PROHIBITED

APPROVED BY:

Peter W. Gaffney AICP
Zoning Official

DATE ISSUED 10 Feb 00

APPLICANT:

NAME Peter H. Maxwell (Please Print)

SIGNATURE _____

ADDRESS URS Greiner Woodward Clyde, Two Enterprise Dr
Street

CITY Rocky Hill STATE CT ZIP 06706

TELEPHONE NO. (_____) _____

* **Permit required from State Health Dept. for apartments, subdivisions, trailer parks, shopping centers and public buildings.**

** **Permits for sewer connections are granted by Sewer Commission**

*** **Septic system approvals are granted by Health Department**

P&Z OFFICE - **WHITE** BUILDING DEPT. - **YELLOW** APPLICANT'S COPY - **PINK**

ZONPER7/96

RECEIVED
FEB 22 2000
Building Department
Milford, CT

* To be delivered to the site

From: Charles Corell [mailto:ccorell@ci.milford.ct.us]
Sent: Tuesday, February 23, 2016 2:53 PM
To: Goodall, Amanda
Cc: Joseph Griffith; Christine Angelica
Subject: RE: [Milford CT] Cell Tower-434 Boston Post Road

Good afternoon

We located the original file and plans from our archives, there are no conditions in these documents, there is a statement of special inspections and a final statement of special inspections for the construction. Let me know if this helps you at all

Thanks
Charlie Corell

SITE NAME: MILFORD
FA NUMBER: 10071130
SITE NUMBER: CTL05099

434 BOSTON POST ROAD
MILFORD, CT 06460
COUNTY: NEW HAVEN

CROWN SITE NAME: MILFORD
CROWN SITE NUMBER: 842870

PROJECT TEAM

CLIENT REPRESENTATIVE

COMPANY: SMARTLINK, LLC
ADDRESS: 1362 MELLON ROAD, SUITE 140
CITY, STATE, ZIP: HANOVER, MD 21076
CONTACT: RICH WAGNER
E-MAIL: RWAGNER@SMARTLINKLLC.COM

SITE ACQUISITION

COMPANY: SMARTLINK, LLC
ADDRESS: 33 BOSTON POST ROAD WEST, SUITE 210
CITY, STATE, ZIP: MARLBOROUGH, MA 01752
CONTACT: TODD OLIVER
PHONE: (774) 369-3618
E-MAIL: TODD.OLIVER@SMARTLINKLLC.COM

ENGINEER

COMPANY: MASER CONSULTING CONNECTICUT
ADDRESS: 331 NEWMAN SPRINTS RD., SUITE 203
CITY, STATE, ZIP: RED BANK, NJ 07701-5699
CONTACT: FRANK PAZDEN
PHONE: (973) 398-3110 x4505
E-MAIL: FPAZDEN@MASERCONSULTING.COM

RF ENGINEER

COMPANY: NEW CINGULAR WIRELESS PCS, LLC
ADDRESS: 550 COCHITUATE RD.
CITY, STATE, ZIP: FRAMINGHAM, MA 01701
CONTACT: CAMERON SYME
E-MAIL: CS6970@ATT.COM

CONSTRUCTION MANAGER

COMPANY: SMARTLINK, LLC.
ADDRESS: 33 BOSTON POST ROAD WEST, SUITE 210
CITY, STATE, ZIP: MARLBOROUGH, MA 01752
CONTACT: MARK DONNELLY
PHONE: (617) 515-2080
E-MAIL: MARK.DONNELLY@SMARTLINKLLC.COM

SITE INFORMATION

APPLICANT/LESSEE

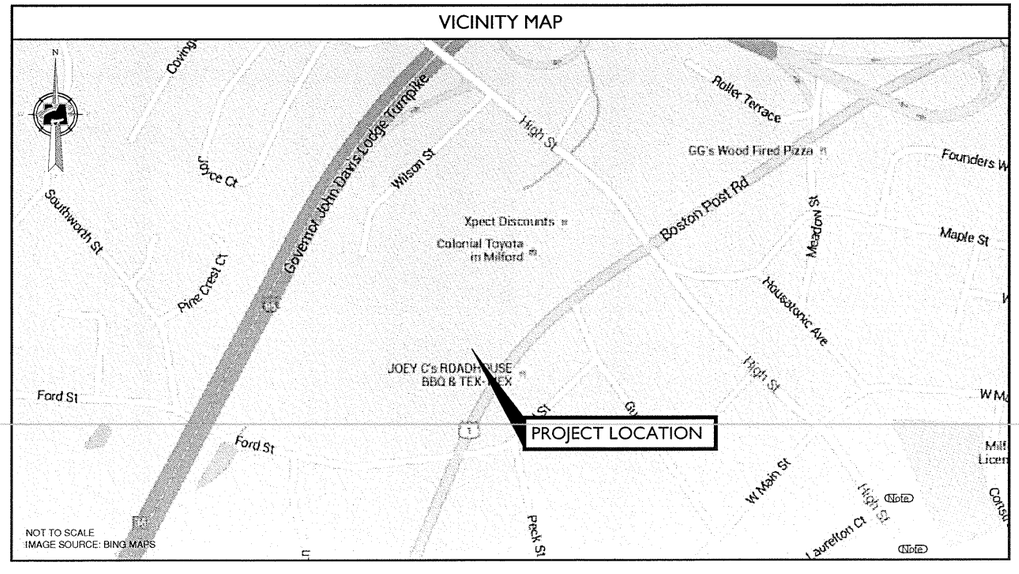
at&t

NEW CINGULAR WIRELESS PCS, LLC
550 COCHITUATE RD.
FRAMINGHAM, MA 01701

TOWER OWNER:

NAME:	CROWN CASTLE
ADDRESS:	12 GILL STREET, SUITE 5800
CITY, STATE, ZIP:	WOBURN, MA 01801
SITE ID #:	842870
LATITUDE:	41.2274919° N
LONGITUDE:	73.0705989° W
LAT./LONG. TYPE:	NAD 83
AREA OF CONSTRUCTION:	EXISTING EQUIPMENT SHELTER AND TOWER
ZONING/JURISDICTION:	CITY OF MILFORD
PROPOSED USE:	UNMANNED TELECOMMUNICATIONS FACILITY
HANDICAP REQUIREMENTS:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. HANDICAPPED ACCESS NOT REQUIRED.
CONSTRUCTION TYPE:	IIB
USE GROUP:	U

VICINITY MAP



CODE COMPLIANCE

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THE LATEST EDITIONS OF THE FOLLOWING CODES.

1. CONNECTICUT STATE BUILDING CODE (2005) & ALL SUBSEQUENT AMENDMENTS
2. NATIONAL ELECTRIC CODE 2011
3. NATIONAL FIRE PROTECTION ASSOCIATION 70 - 2011
4. LIGHTNING PROTECTION CODE 201
5. AMERICAN CONCRETE INSTITUTE 318
6. AMERICAN INSTITUTE OF STEEL CONSTRICTION 14 ED.
7. EIA/TIA-222 REVISION F
8. TIA 607 FOR GROUNDING
9. INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS 81
10. IEEE C2 LATEST EDITION
11. TELCORDIA GR-1275 12. ANSI T1.311

GENERAL CONTRACTOR NOTES

DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

GENERAL NOTES

THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. A TECHNICIAN WILL VISIT THE SITE AS REQUIRED FOR ROUTINE MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OR EFFECT ON DRAINAGE; NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE IS PROPOSED.

SHEET	DESCRIPTION
T-1	TITLE SHEET
GN-1	GENERAL NOTES
A-1	COMPOUND PLAN AND EQUIPMENT PLAN
A-2	ELEVATION VIEW AND ANTENNA SCHEDULE
A-3	ANTENNA LAYOUTS
A-4	DETAILS-1
A-5	RF PLUMBING DIAGRAMS
G-1	GROUNDING DETAILS
S-1	MODIFICATION DETAILS

PROJECT DESCRIPTION/SCOPE OF WORK

LTE WCS WILL BE 3C AT THE SITE WITH BRONZE STANDARD CONFIGURATION.

PROPOSED PROJECT SCOPE HEREIN BASED ON RFDS ID # 745882, VERSION 1.00, LAST REVISED 06/25/15.

THIS PROJECT WILL BE COMPRISED OF:

- (3) NEW ANTENNAS TO REPLACE (3) EXISTING ANTENNAS, (1) PER SECTOR
- (3) NEW LTE RRH'S, (1) PER SECTOR
- ADD (1) DC-6 SURGE SUPPRESSOR
- ADD (1) FIBER CABLE AND (2) DC TRUNK LINES

MASER CONSULTING —CONNECTICUT—
Customer Loyalty through Client Satisfaction
www.maserconsulting.com
Engineers ■ Planners ■ Surveyors
Landscape Architects ■ Environmental Scientists

smartlink
1362 MELLON ROAD
SUITE 140
HANOVER, MD 21076
TEL: (410) 582-8043 FAX: (443) 221-2962

at&t
NEW CINGULAR WIRELESS PCS, LLC
550 COCHITUATE ROAD
FARMINGHAM, MA 01701

811 Know what's below. Call before you dig.
PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTHS SURFACE ANYWHERE IN ANY STATE
FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

SCALE:	JOB NUMBER:
AS SHOWN	15946028A

NO.	DATE*	DESCRIPTION	BY	CHECKED BY
1	09/29/15	REVISED PER SMARTLINK COMMENTS	JRF	TSM
0	10/10/15	ISSUED FOR REVIEW	JRG	TSM

*DATE

STATE OF CONNECTICUT
FRANK E. PAZDEN
No. 23131
LICENSED PROFESSIONAL ENGINEER
REGISTERED PROFESSIONAL ENGINEER

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

SITE NAME:
MILFORD
FA# 10071130
SITE # CTL05099
CROWN SITE # 842870

434 BOSTON POST ROAD
MILFORD, CT 06460

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:
TITLE SHEET

SHEET NUMBER:
T-1

1. 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.
2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 50 HMS OR LESS.
4. 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.
5. 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.
6. 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.
7. 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.
8. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED. BACK TO BACK CONNECTIONS ON OPPOSITE SIDES OF THE GROUND BUS ARE PERMITTED.
9. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING, SHALL BE #2 AWG SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
10. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
11. 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.
12. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
13. 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.
14. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
15. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED TO THE TOWER GROUND BAR.
16. APPROVED ANTIOXIDANT COATINGS (I.E. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
17. ALL EXTERIOR AND INTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
18. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
19. BOND ALL METALLIC OBJECTS WITHIN 6 FT OF MAIN GROUND WIRES WITH 1-#2 AWG TIN-PLATED COPPER GROUND CONDUCTOR.
20. 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.
21. 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.

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

CONTRACTOR –	SMARTLINK
SUBCONTRACTOR –	GENERAL CONTRACTOR (CONSTRUCTION)
OWNER –	AT&T (NEW CINGULAR WIRELESS PCS, LLC)

2. ALL SITE WORK SHALL BE COMPLETED AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.
3. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
4. 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.
5. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
6. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.
9. 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.
10. THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
11. 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.
12. 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.
13. 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.
14. 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.
15. 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.
16. THE SUBGRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
17. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.
18. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
19. THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE.
20. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
21. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFORM TO CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACTOR.
22. 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.
23. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.
24. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS.
25. ALL STRUCTUAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (F_y = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (F_y = 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.
26. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T MOBILITY SITES."
27. 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 DESCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
28. 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.
29. 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 EXOPOSURE LEVELS.

MASER CONSULTING
— CONNECTICUT —
Customer Loyalty *through* Client Satisfaction
www.maserconsulting.com
Engineers ■ Planners ■ Surveyors
Landscape Architects ■ Environmental Scientists

smartlink
1362 MELLON ROAD
SUITE 140
HANOVER, MD 21076
TEL: (410) 582-8043 FAX: (443) 221-2962

at&t
NEW CINGULAR WIRELESS PCS, LLC
550 COCHITUATE ROAD
FARMINGHAM, MA 01701

811
PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE
Know what's below. Call before you dig.
FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT:
WWW.CALL811.COM

SCALE: AS SHOWN
JOB NUMBER: 15946028A

REV	DATE	DESCRIPTION	DRAWN BY	CHECKED BY
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
1	02/12/16	REVISED PER SMARTLINKS COMMENTS	JRF	TSM
0	10/22/15	ISSUED FOR REVIEW	DG	TSM

STATE OF CONNECTICUT
FRANK E. FAZDEN
No. 28180
LICENSED PROFESSIONAL ENGINEER
FRANK E. FAZDEN
CONNECTICUT PROFESSIONAL ENGINEER - LICENSE NUMBER: PEN.28180

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

SITE NAME:

MILFORD
FA# 10071130
SITE # CTL05099
CROWN SITE # 842870

434 BOSTON POST ROAD
MILFORD, CT 06460

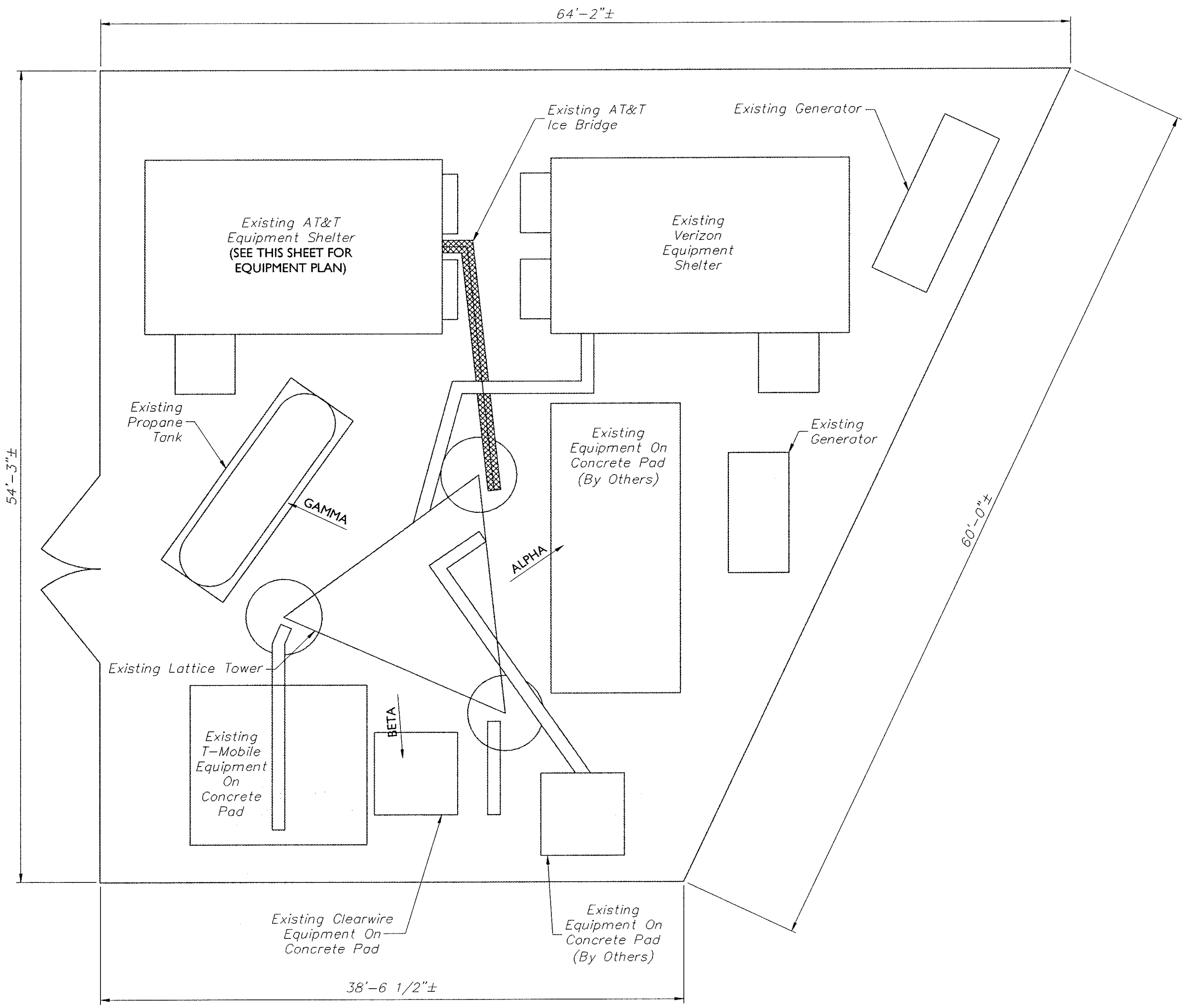
RED BANK OFFICE
331 Newman Springs Road
Suite 203
Red Bank, NJ 07701-5699
Phone: 732.383.1950
Fax: 732.383.1984
email: solutions@maserconsulting.com

SHEET TITLE:
GENERAL NOTES

SHEET NUMBER:
GN-1

NOTES:

1. THE CONDUIT ROUTING IS DIAGRAMMATICALLY SHOWN ON THE PLANS AND ARE ONLY APPROXIMATIONS. THE EXACT LOCATION AND ROUTING SHALL BE FIELD VERIFIED.
2. ALL DISCONNECTS AND CONTROLLING DEVICES SHALL BE PROVIDED WITH ENGRAVED LAMICOID NAMEPLATES, INDICATING THE CIRCUITS ORIGINATION AND ALL EQUIPMENT TERMINATIONS.
3. SUBCONTRACTOR SHALL PROVIDE ALL CONDUITS AND CIRCUITS AS REQUIRED FOR A COMPLETED SYSTEM AND SHALL BE IN COMPLIANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
4. ALL NEW CABLING TO BE ROUTED ON EXISTING CABLE RACKS.
5. ALL INSTALLED GROUND LUGS MUST BE INSPECTION HOLE LUGS.
6. INSTALLED GROUND LEADS MUST TERMINATE AT MGB, NOT HALO.
7. NO OVERLAPPING GROUND HARDWARE.



COMPOUND PLAN

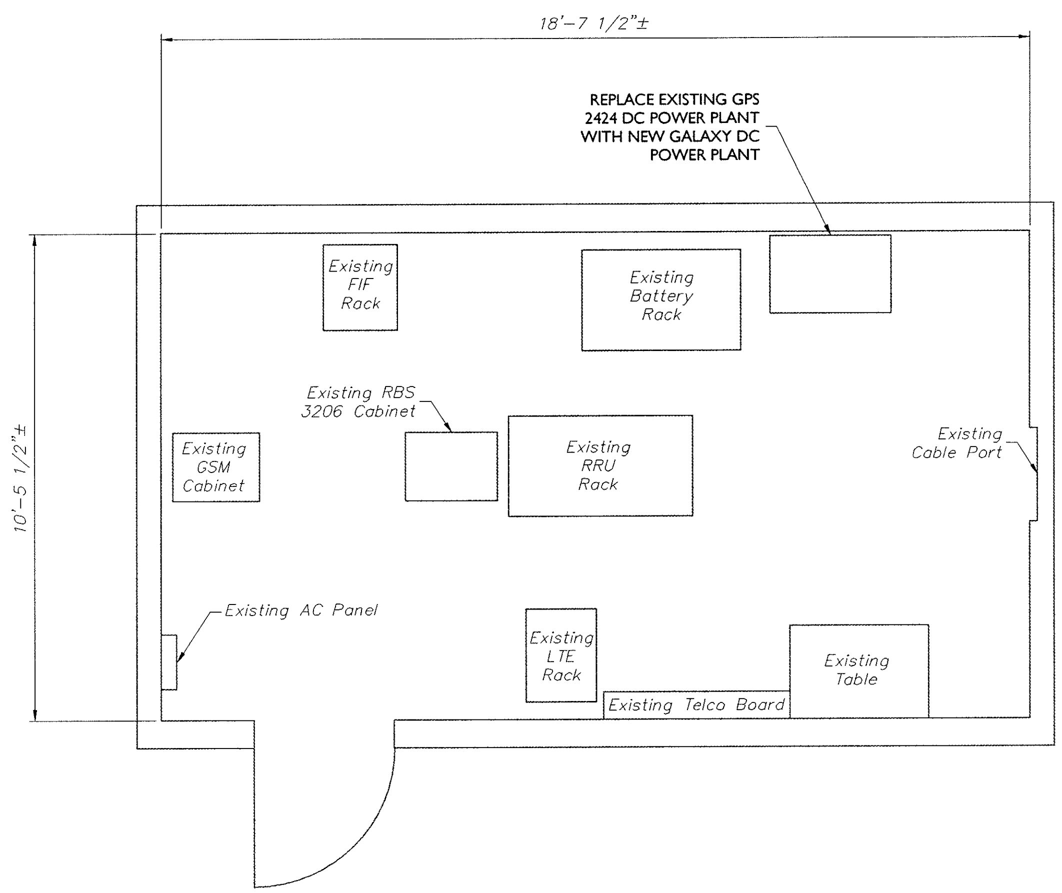
GRAPHIC SCALE

5 0 2.5 5 10

(IN FEET)

SCALE: 1" = 5' FOR 24"X36" DRAWINGS

(DO NOT SCALE 11"X17" DRAWINGS)



EQUIPMENT PLAN

GRAPHIC SCALE

2 0 1 2 4

(IN FEET)

SCALE: 1" = 2' FOR 24"X36" DRAWINGS

(DO NOT SCALE 11"X17" DRAWINGS)

MASER CONSULTING
— CONNECTICUT —

Customer Loyalty *through* Client Satisfaction
www.maserconsulting.com
Engineers ■ Planners ■ Surveyors
Landscape Architects ■ Environmental Scientists

smartlink
1362 MELLON ROAD
SUITE 140
HANOVER, MD 21076
TEL: (410) 582-8043 FAX: (443) 221-2962

at&t

NEW CINGULAR WIRELESS PCS, LLC
550 COCHITUATE ROAD
FARMINGHAM, MA 01701

811 Know what's below. Call before you dig.

PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE

FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

SCALE:	JOB NUMBER:
AS SHOWN	15946028A

REV	DATE	DESCRIPTION	DRAWN BY	CHECKED BY
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
1	02/[illegible]/16	REVISED PER SMARTLINKS COMMENTS	JRF	TSM
0	10/22/[illegible]	ISSUED FOR REVIEW	DG	TSM

STATE OF CONNECTICUT · FRANK E. PAZDEN · No. 28188 · LICENSED PROFESSIONAL ENGINEER

FRANK E. PAZDEN
CONNECTICUT PROFESSIONAL ENGINEER - LICENSE NUMBER: PEN.28188

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

SITE NAME:

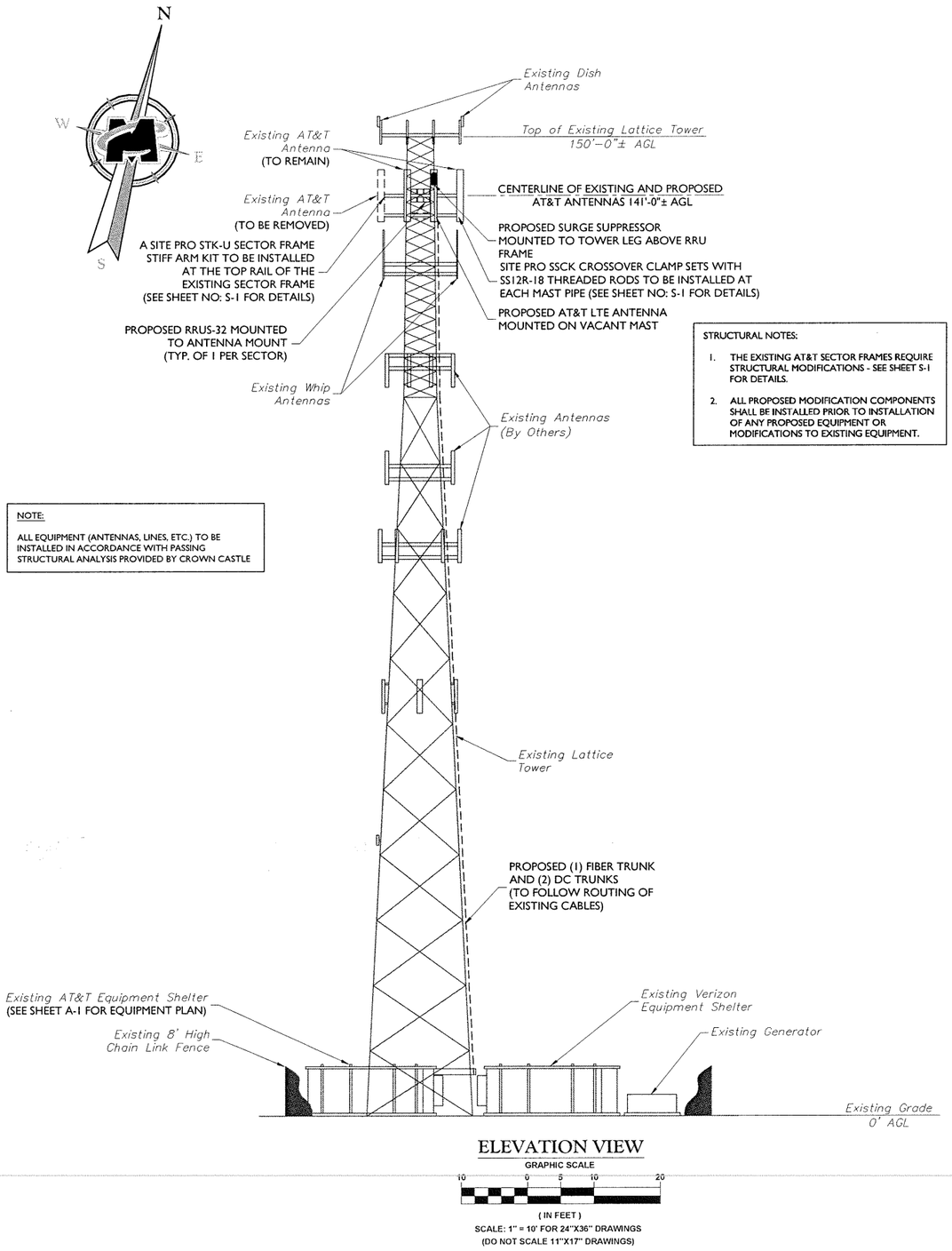
MILFORD
FA# 10071130
SITE # CTL05099
CROWN SITE # 842870

434 BOSTON POST ROAD
MILFORD, CT 06460

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:
COMPOUND PLAN AND EQUIPMENT PLAN

SHEET NUMBER:
A-1



NOTE:

ALL EQUIPMENT (ANTENNAS, LINES, ETC.) TO BE INSTALLED IN ACCORDANCE WITH PASSING STRUCTURAL ANALYSIS PROVIDED BY CROWN CASTLE

STRUCTURAL NOTES:

1. THE EXISTING AT&T SECTOR FRAMES REQUIRE STRUCTURAL MODIFICATIONS - SEE SHEET S-1 FOR DETAILS.
2. ALL PROPOSED MODIFICATION COMPONENTS SHALL BE INSTALLED PRIOR TO INSTALLATION OF ANY PROPOSED EQUIPMENT OR MODIFICATIONS TO EXISTING EQUIPMENT.

ELEVATION VIEW

GRAPHIC SCALE

10 0 5 10 20

(IN FEET)

SCALE: 1" = 10' FOR 24"X36" DRAWINGS

(DO NOT SCALE 11"X17" DRAWINGS)

PROPOSED ANTENNA AND RRUS CONFIGURATION

SECTOR		EXISTING ANTENNA CONFIGURATION	PROPOSED ANTENNA CONFIGURATION	TECHNOLOGY	ANTENNA STATUS	HEIGHT (ft)	WIDTH (in)	DEPTH (in)	WEIGHT (lbs)	ANTENNA AZIMUTH	ANT CL ELEV (ft)	RRUS CONFIGURATION	STATUS
ALPHA	A1	Powerwave 7770	Powerwave 7770	UMTS	REMAIN	55.00	11.00	5.90	35.00	30°	141'	-	-
	A2	VACANT MAST	CCI OPA-65R-LCUU-H4K	LTE	NEW	48.00	14.40	7.30	57.00	30°	141'	RRUS-32	NEW
	A3	KMWAM-X-CD-14-65-00T-RET	KMWAM-X-CD-14-55-00T-RET	LTE	REMAIN	48.00	11.80	5.90	36.40	30°	141'	(2) RRUS-11	REMAIN
	A4	Powerwave 7770	VACANT MAST	GSM	REMOVE	-	-	-	-	-	-	-	-
BETA	B1	Powerwave 7770	Powerwave 7770	UMTS	REMAIN	55.00	11.00	5.90	35.00	150°	141'	-	-
	B2	VACANT MAST	CCI OPA-65R-LCUU-H4K	LTE	NEW	48.00	14.40	7.30	57.00	150°	141'	RRUS-32	NEW
	B3	KMWAM-X-CD-14-65-00T-RET	KMWAM-X-CD-14-55-00T-RET	LTE	REMAIN	48.00	11.80	5.90	36.40	150°	141'	(2) RRUS-11	REMAIN
	B4	Powerwave 7770	VACANT MAST	GSM	REMOVE	-	-	-	-	-	-	-	-
GAMMA	C1	Powerwave 7770	Powerwave 7770	UMTS	REMAIN	55.00	11.00	5.90	35.00	270°	141'	-	-
	C2	VACANT MAST	CCI OPA-65R-LCUU-H4K	LTE	NEW	48.00	14.40	7.30	57.00	270°	141'	RRUS-32	NEW
	C3	KMWAM-X-CD-14-65-00T-RET	KMWAM-X-CD-14-55-00T-RET	LTE	REMAIN	48.00	11.80	5.90	36.40	270°	141'	(2) RRUS-11	REMAIN
	C4	Powerwave 7770	VACANT MAST	GSM	REMOVE	-	-	-	-	-	-	-	-

ANTENNA SCHEDULE

STRUCTURAL NOTES:

1. NO CONSTRUCTION OF THE PROPOSED LOADING SHOWN SHALL PROCEED UNTIL ADEQUACY OF THE EXISTING STRUCTURE AND FOUNDATION, INCLUDING THE PROPOSED AT&T ANTENNA MOUNTING CONFIGURATION SHOWN HEREIN, HAS BEEN COMPLETED.
2. THE STRUCTURE ELEVATION IS SHOWN FOR INFORMATIONAL PURPOSES ONLY AND MAY NOT REFLECT AS-BUILT FIELD CONDITIONS FOR ALL EXISTING INVENTORY LOADING/ANTENNAS/APPURTANENCES ON STRUCTURE. REFER TO THE LATEST STRUCTURAL ANALYSIS FOR EXISTING STRUCTURE LOADING AND THE PROPOSED METHOD OF ATTACHMENT OF THE PROPOSED ANTENNAS/CABLES.
3. THE CONTRACTOR IS RESPONSIBLE TO CONFIRM THAT ANY IMPROVEMENTS AND REINFORCEMENTS REQUIRED BY THE STRUCTURAL ANALYSIS CERTIFICATION ARE PROPERLY INSTALLED PRIOR TO THE ADDITION OF ANTENNAS, CABLES, SUPPORTS AND APPURTENANCES PROPOSED ON THESE DRAWINGS OR OTHERWISE NOTED IN THE STRUCTURAL ANALYSIS.

MASER CONSULTING — CONNECTICUT —
Customer Loyalty through Client Satisfaction
www.maserconsulting.com
Engineers ■ Planners ■ Surveyors
Landscape Architects ■ Environmental Scientists

smartlink
1362 MELLON ROAD
SUITE 140
HANOVER, MD 21076
TEL: (410) 582-8043 FAX: (443) 221-2962

at&t
NEW CINGULAR WIRELESS PCS, LLC
550 COCHITUATE ROAD
FARMINGHAM, MA 01701

PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE
Know what's below. Call before you dig.
FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

SCALE: AS SHOWN
JOB NUMBER: 15946028A

REV	DATE	DESCRIPTION	BY
1	02/12/16	REVISED PER SPRINT'S COMMENTS	TSH
0	10/22/15	ISSUED FOR REVIEW	TSH

STATE OF CONNECTICUT — FRANK E. BAZDEN — 28108 — REGISTERED PROFESSIONAL ENGINEER

FRANK E. BAZDEN
CONNECTICUT PROFESSIONAL ENGINEER LICENSE NUMBER: PEN.28108

SITE NAME:

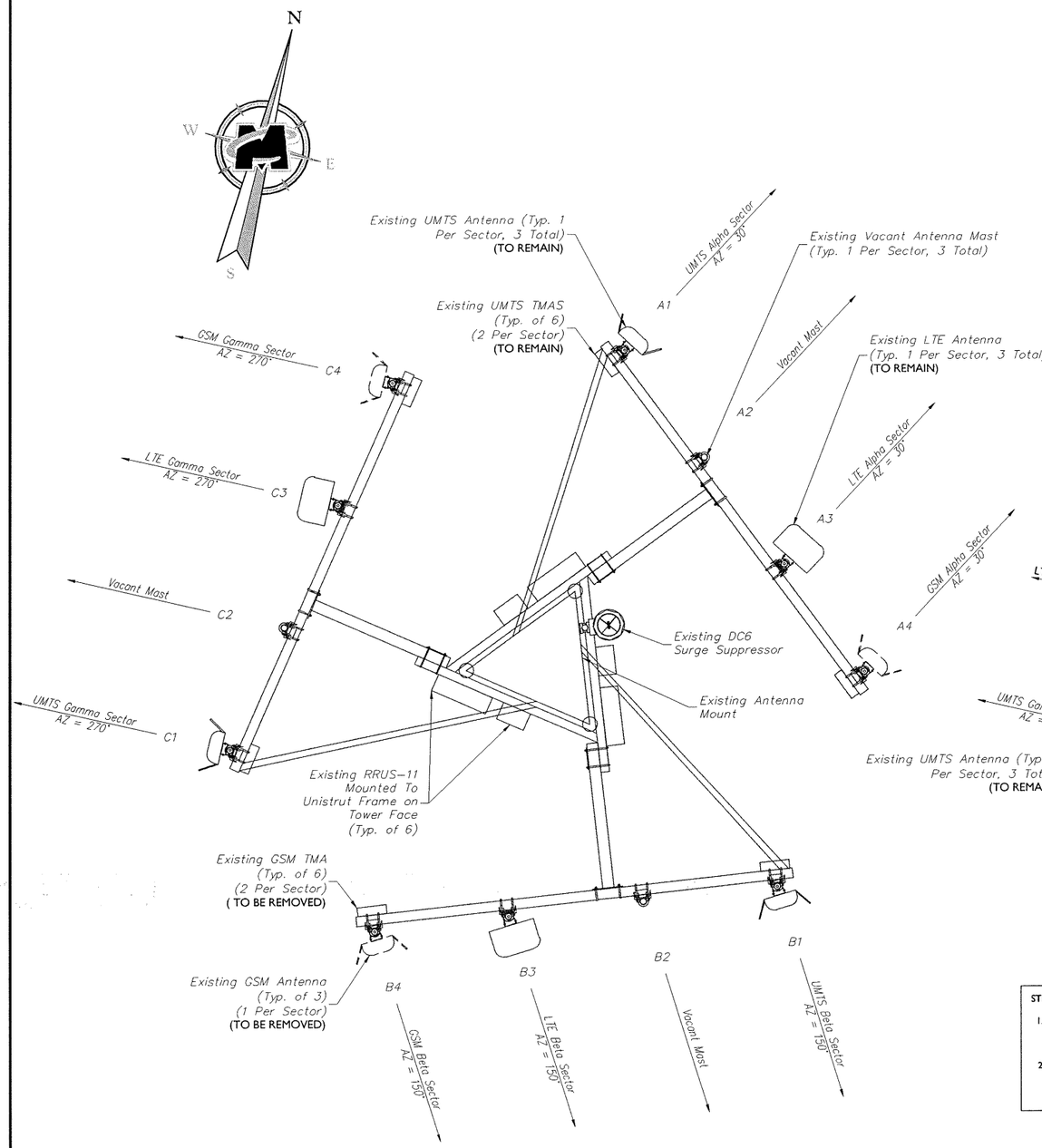
MILFORD
FA# 10071130
SITE # CTL05099
CROWN SITE # 842870

434 BOSTON POST ROAD
MILFORD, CT 06460

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

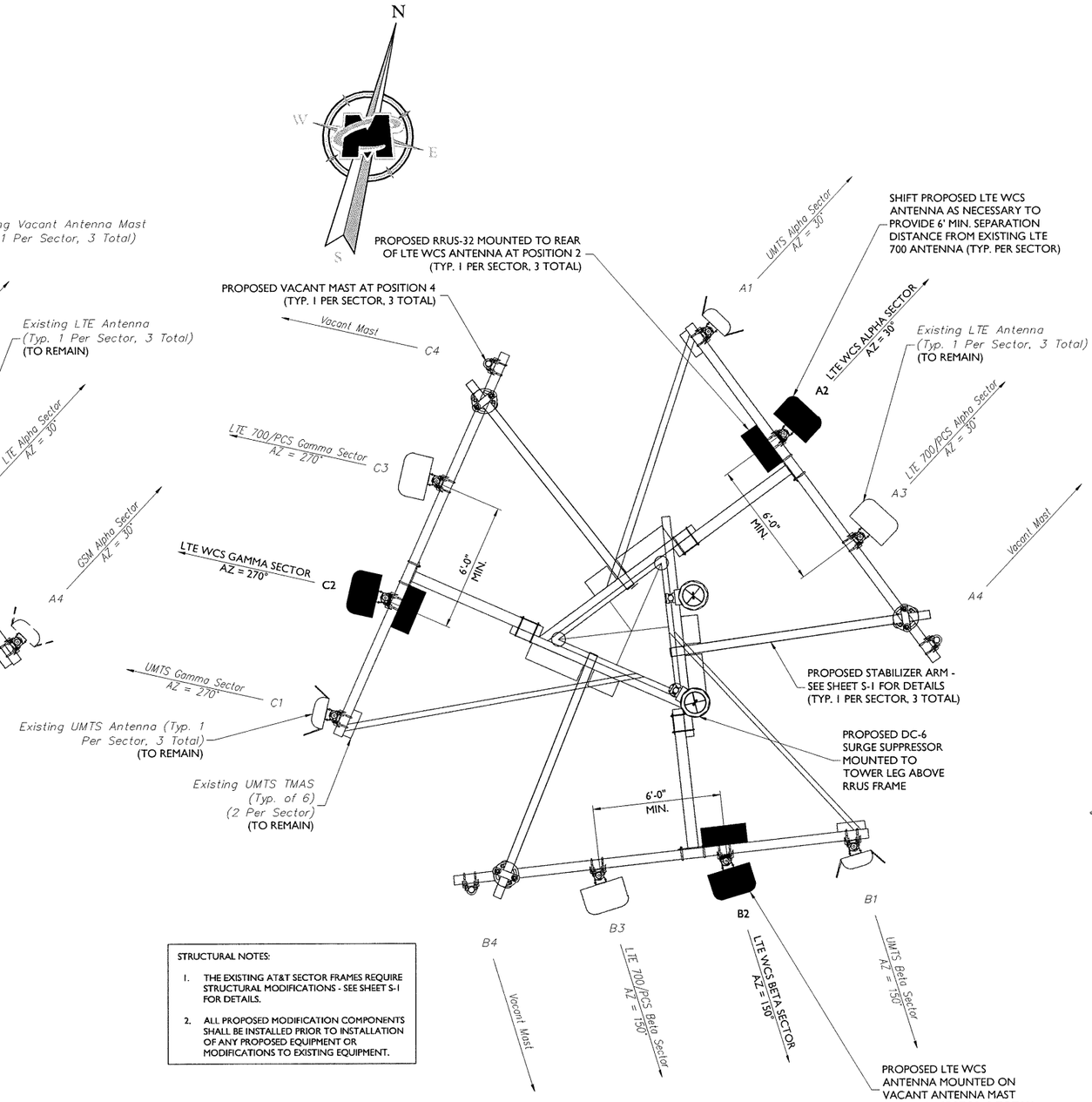
SHEET TITLE:
ELEVATION VIEW AND ANTENNA SCHEDULE

SHEET NUMBER:
A-2



EXISTING - ANTENNA LAYOUT

NOT TO SCALE



PROPOSED - ANTENNA LAYOUT

NOT TO SCALE

STRUCTURAL NOTES:

1. THE EXISTING AT&T SECTOR FRAMES REQUIRE STRUCTURAL MODIFICATIONS - SEE SHEET S-1 FOR DETAILS.
2. ALL PROPOSED MODIFICATION COMPONENTS SHALL BE INSTALLED PRIOR TO INSTALLATION OF ANY PROPOSED EQUIPMENT OR MODIFICATIONS TO EXISTING EQUIPMENT.

MASER CONSULTING —CONNECTICUT—

Customer Loyalty *through* Client Satisfaction
www.maserconsulting.com
Engineers ■ Planners ■ Surveyors
Landscape Architects ■ Environmental Scientists

smartlink
1362 MELLON ROAD
SUITE 140
HANOVER, MD 21076
TEL: (410) 582-8043 FAX: (443) 221-2962

at&t
NEW CINGULAR WIRELESS PCS, LLC
550 COCHITUATE ROAD
FARMINGHAM, MA 01701

811 Know what's below. Call before you dig.

PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, OBSERVERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE
FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

SCALE: AS SHOWN | JOB NUMBER: 15946028A

REV	DATE	DESCRIPTION	DRAWN	CHECKED BY
1	02/12/16	REVISED PER SMARTLINKS COMMENTS	JRF	TSM
0	10/22/15	ISSUED FOR REVIEW	DG	TSM

STATE OF CONNECTICUT
FRANK E. GAZDEK
LICENSED PROFESSIONAL ENGINEER
FRANK E. GAZDEK
CONNECTICUT PROFESSIONAL ENGINEER
LICENSE/REGISTRATION NUMBER: PEC.0018188
26188

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

SITE NAME:

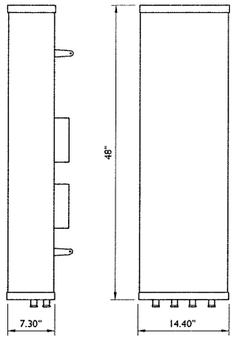
MILFORD
FA# 10071130
SITE # CTL05099
CROWN SITE # 842870

434 BOSTON POST ROAD
MILFORD, CT 06460

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: ANTENNA LAYOUTS

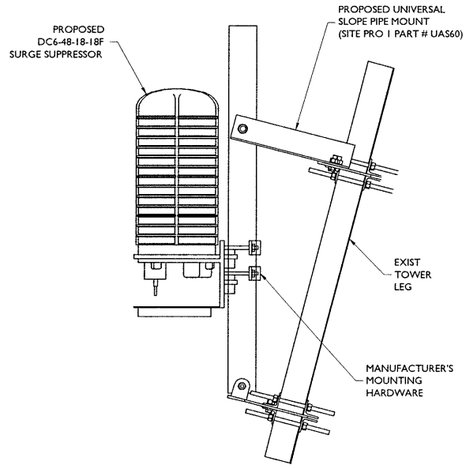
SHEET NUMBER: A-3



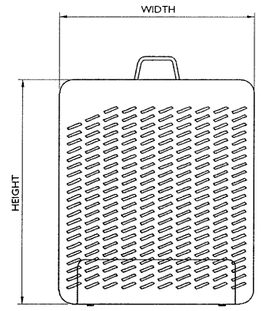
WEIGHT = 57 LBS

CCI OPA-65R-LCUU-H4

ANTENNA DETAIL
NOT TO SCALE



DC6 SURGE SUPPRESSOR MOUNTING TO TOWER LEG DETAIL
NOT TO SCALE



RRUS FRONT VIEW

SIZE AND WEIGHT TABLE

RRUS	WIDTH	DEPTH	HEIGHT	WEIGHT W/O BRACKET
RRUS-32 4X40-1900 (WITH SOLAR SHIELD)	-	-	-	-
RRUS-32 4X40-1900 (WITHOUT SOLAR SHIELD)	11.5"	6.4"	23.1"	50.7 LBS

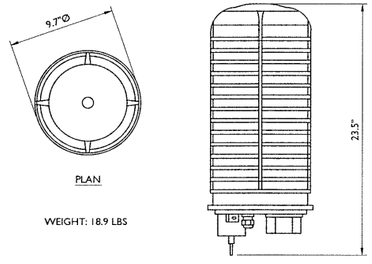
MINIMUM CLEARANCE TABLE

RRUS CABINET	CLEARANCES (INCHES)	COMMENTS
FRONT	36"	INSTALLATION ACCESS
REAR	2"	ZERO REAR CLEARANCE IS ALLOWED USING SUPPLIED MOUNTING BRACKETS
RIGHT	4"	AIR FLOW
LEFT	4"	AIR FLOW
TOP	12"	AIR FLOW
BOTTOM	12"	CONDUIT ROUTING

NOTE:

USE 1/2" COAXIAL CABLE W/7/16 DIN MALE CONNECTORS ON BOTH ENDS.

RRUS DETAIL
NOT TO SCALE

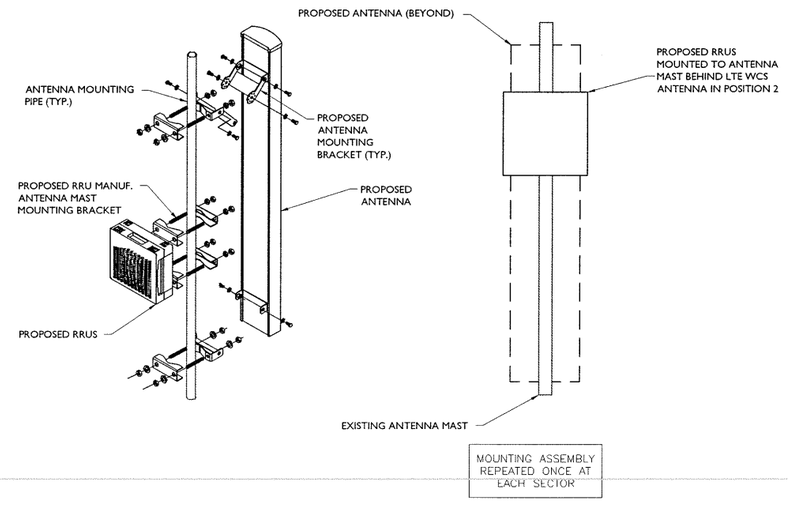


PLAN

WEIGHT: 18.9 LBS

ELEVATION

RAYCAP DC6-48-60-18-8F SURGE SUPPRESSOR
NOT TO SCALE



ANTENNA AND RRUS MOUNTING DETAILS
NOT TO SCALE

MASER CONSULTING
CONNECTICUT

Customer Loyalty through Client Satisfaction
www.maserconsulting.com
Engineers ■ Planners ■ Surveyors
Landscape Architects ■ Environmental Scientists

smartlink
1362 MELLON ROAD
SUITE 140
HANOVER, MD 21076
TEL: (410) 582-8043 FAX: (443) 221-2962

at&t
NEW CINGULAR WIRELESS PCS, LLC
550 COCHITUATE ROAD
FARMINGHAM, MA 01701

811 Know what's below. Call before you dig.

PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE

FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

SCALE:	JOB NUMBER:
AS SHOWN	15946028A

REV	DATE	DESCRIPTION	DRAWN BY	CHECKED BY
1	02/12/16	REVISED PER SMARTLINKS COMMENTS	JRF	TSM
0	10/22/15	ISSUED FOR REVIEW	DG	TSM

STATE OF CONNECTICUT
FRANK R. PAZDEN
LICENSED PROFESSIONAL ENGINEER
15196

FRANK R. PAZDEN
LICENSED PROFESSIONAL ENGINEER - LICENSE NUMBER: PEN.28

SITE NAME:

MILFORD
FA# 10071130
SITE # CTL05099
CROWN SITE # 842870

434 BOSTON POST ROAD
MILFORD, CT 06460

RED BANK OFFICE
331 Newman Springs Road
Suite 203
Red Bank, NJ 07701-5699
Phone: 732.383.1950
Fax: 732.383.1984

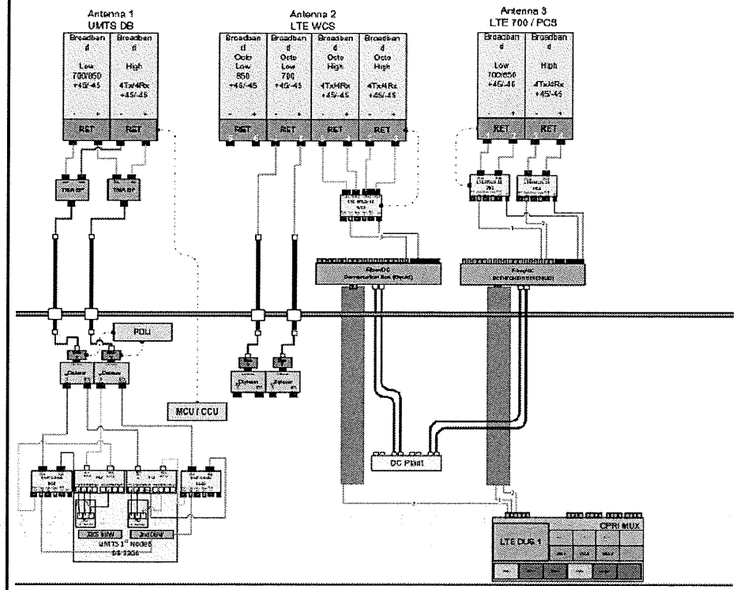
email: solutions @maserconsulting.com

SHEET TITLE:

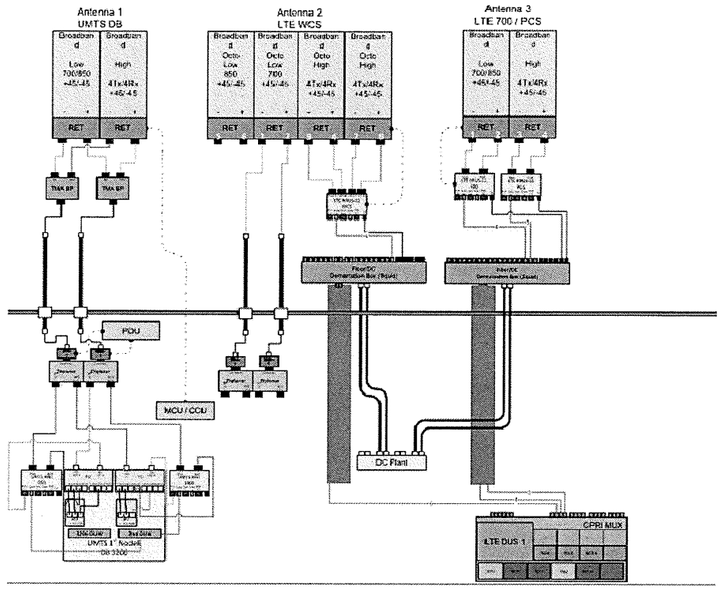
DETAILS - 1

SHEET NUMBER:

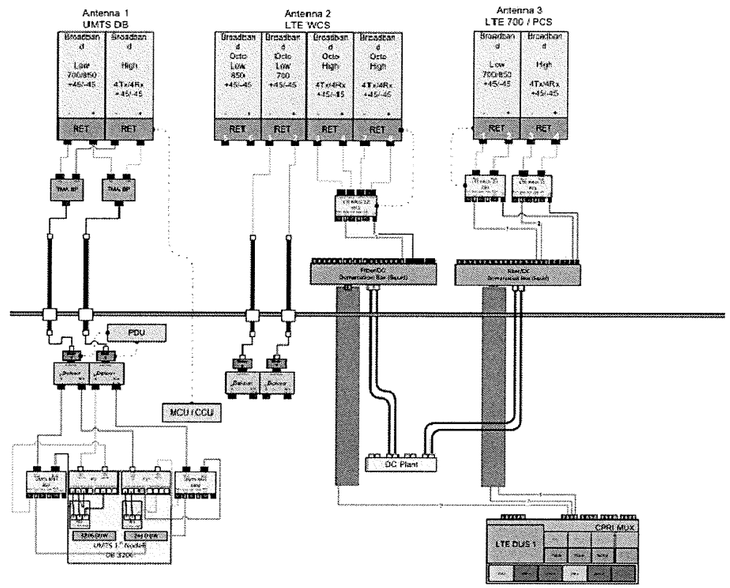
A-4



ALPHA SECTOR



BETA SECTOR



GAMMA SECTOR

BASED ON RF ENGINEERING DESIGN ENTITLED "NEW-ENGLAND_CONNECTICUT_CTU5099_2016-LTE-Next-Carrier_LTE-3C_om636a_2051A02J04_10071130_5798_06-25-2015_Preliminary-Approved_v1.00"

RF PLUMBING DIAGRAMS

MASER CONSULTING
—CONNECTICUT—

Customer Loyalty through Client Satisfaction
www.maserconsulting.com
Engineers ■ Planners ■ Surveyors
Landscape Architects ■ Environmental Scientists

smartlink
1362 MELLON ROAD
SUITE 140
HANOVER, MD 21076
TEL: (410) 582-8043 FAX: (443) 221-2962

at&t
NEW CINGULAR WIRELESS PCS, LLC
550 COCHITUATE ROAD
FARMINGHAM, MA 01701

811 Know what's below. Call before you dig.
PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE
FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

SCALE: AS SHOWN
JOB NUMBER: 15946028A

REV	DATE	DESCRIPTION	BY	CHECKED BY
1	02/12/16	REVISED PER SMARTLINKS COMMENTS	JRF	TSM
0	10/22/15	ISSUED	DG	TSM

STATE OF CONNECTICUT
FRANK E. PADEN
12
LICENSED PROFESSIONAL ENGINEER

FRANK E. PADEN
CONNECTICUT PROFESSIONAL ENGINEER
LICENSE NUMBER: PEN.28188

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

SITE NAME:

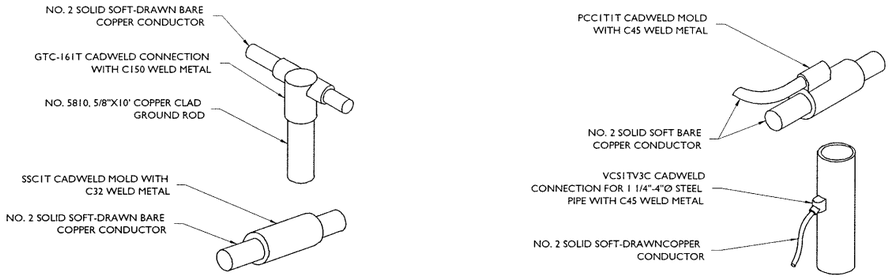
MILFORD
FA# 10071130
SITE # CTL05099
CROWN SITE # 842870

434 BOSTON POST ROAD
MILFORD, CT 06460

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

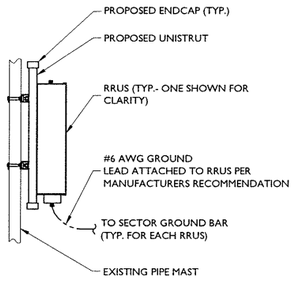
SHEET TITLE: RF PLUMBING DIAGRAMS

SHEET NUMBER: A-5

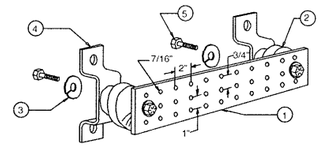


CADWELD DETAILS
NOT TO SCALE

NOT TO SCALE



RRH 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-B

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.

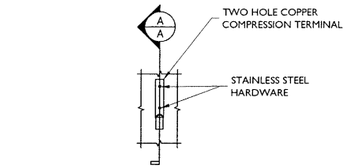
SECTION "P" - SURGE PRODUCERS

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 SUPPLT RETURN BAR (#2)
RECTIFIER FRAMES.

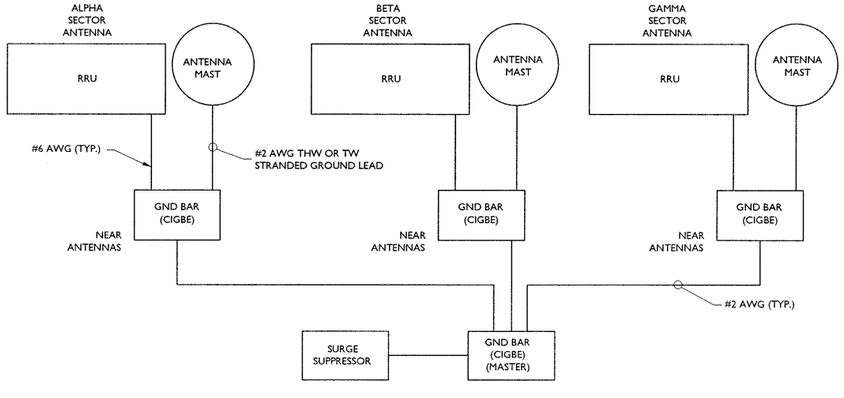
SECTION "A" - SURGE ABSORBERS

INTERIOR GROUND RING (#2)
EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2)
METALLIC COLD WATER PIPE (IF AVAILABLE) (#2)
BUILDING STEEL (IF AVAILABLE) (#2)

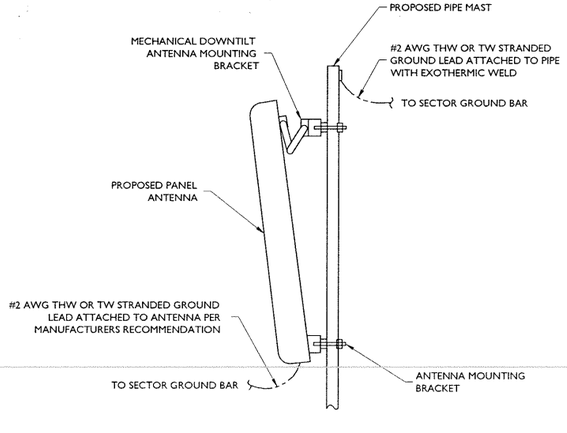
MASTER GROUND BAR
NOT TO SCALE



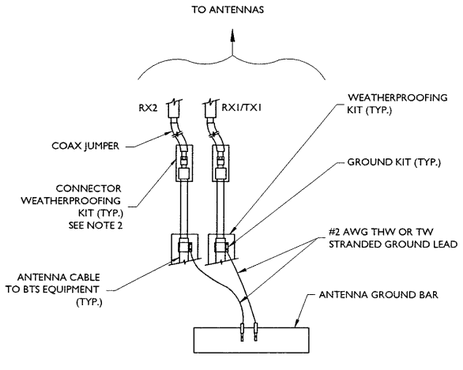
TYPICAL GROUND BAR CONNECTION DETAIL
NOT TO SCALE



SCHEMATIC DIAGRAM GROUNDING SYSTEM
NOT TO SCALE



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

MASER CONSULTING —CONNECTICUT—
Customer Loyalty through Client Satisfaction
www.maserconsulting.com
Engineers ■ Planners ■ Surveyors
Landscape Architects ■ Environmental Scientists

smartlink
1362 MELLON ROAD
SUITE 140
HANOVER, MD 21076
TEL: (410) 582-8043 FAX: (443) 221-2962

at&t
NEW CINGULAR WIRELESS PCS, LLC
550 COCHITUATE ROAD
FARMINGHAM, MA 01701

811 Know what's below. Call before you dig.
PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE.
FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

SCALE: AS SHOWN
JOB NUMBER: 15946028A

REV	DATE	DESCRIPTION	BY	CHECKED BY
1	02/12/16	REVISED PER SMARTLINKS COMMENTS	JRF	TSM
0	10/22/15	ISSUED FOR REVIEW	DG	TSM

STATE OF CONNECTICUT FRANK E. PAZDEN 6/2016 LICENSED PROFESSIONAL ENGINEER
FRANK E. PAZDEN
CONNECTICUT PROFESSIONAL ENGINEER - LICENSE NUMBER 28188
NO. 28188

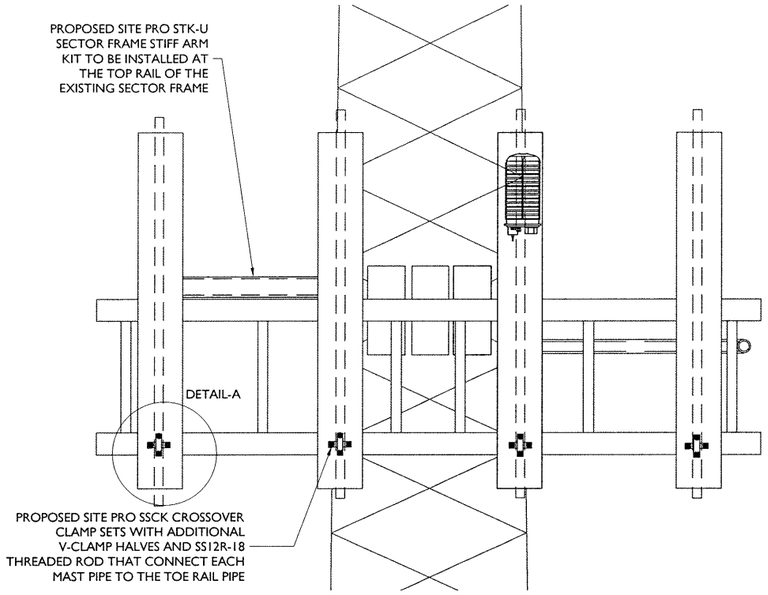
SITE NAME:
MILFORD
FA# 10071130
SITE # CTL05099
CROWN SITE # 842870

434 BOSTON POST ROAD
MILFORD, CT 06460

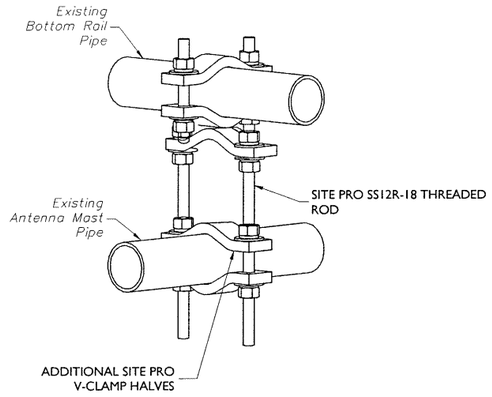
RED BANK OFFICE
331 Newman Springs Road
Suite 203
Red Bank, NJ 07701-5699
Phone: 732.383.1950
Fax: 732.383.1984
email: solutions @maserconsulting.com

SHEET TITLE: GROUNDING DETAILS

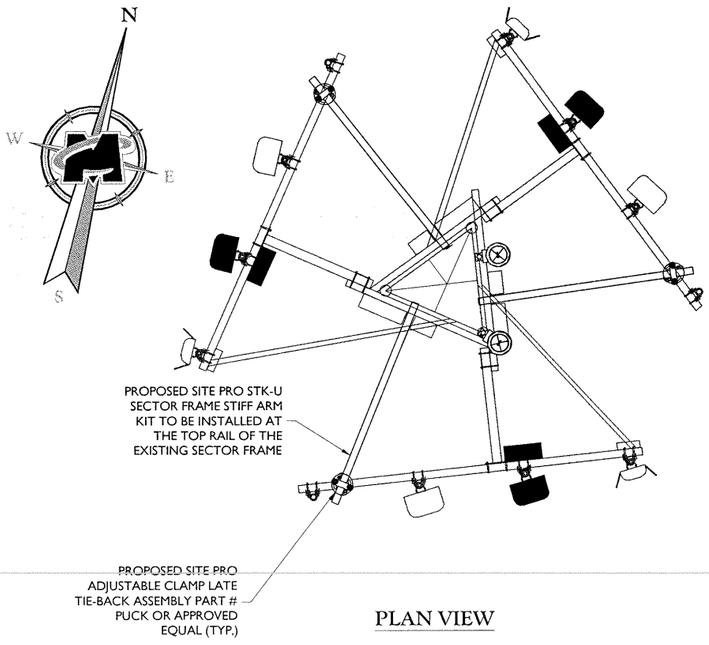
SHEET NUMBER: G-1



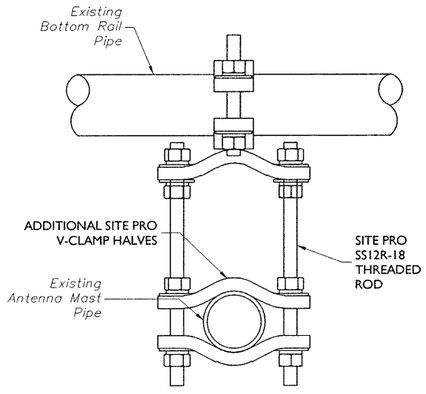
ELEVATION



CONNECTION DETAIL-A
ISOMETRIC VIEW
NOT TO SCALE



PLAN VIEW



CONNECTION DETAIL-B
SECTION A-A
NOT TO SCALE

ALL PROPOSED MODIFICATION COMPONENTS SHALL BE INSTALLED PRIOR TO INSTALLATION OF ANY PROPOSED EQUIPMENT OR MODIFICATIONS TO EXISTING EQUIPMENT.

MODIFICATION NOTES:

1. IF THE EXISTING CONDITIONS ARE NOT AS REPRESENTED ON THESE DRAWINGS, MASER CONSULTING SHOULD BE CONTACTED IMMEDIATELY TO RE-RVALUATE THE STRUCTURE BASED ON THE FIELD CONDITIONS AND DIMENSIONS FOUND.
2. IT IS ASSUMED THAT ANY STRUCTURAL MODIFICATION WORK SPECIFIED ON THESE DRAWINGS WILL BE ACCOMPLISHED BY KNOWLEDGEABLE WORKMEN WITH TOWER CONSTRUCTION EXPERIENCE.
3. THIS DRAWING DOES NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTORS SHALL SUPERVISE AND DIRECT THE WORK AND THEY SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES.
4. CONTRACTOR SHALL VERIFY PLACEMENT OF ALL NEW PIECES FOR ADEQUATE FIT, CLEARANCES, AND DESIGN INTENT BEFORE FABRICATION STARTS.
5. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE THE ERECTION PROCEDURE AND SEQUENCE TO INSURE THE STABILITY, SAFETY OF THE STRUCTURE AND MOUNTS (AS APPLICABLE), AND THE ADEQUACY OF TEMPORARY OR INCOMPLETE CONNECTIONS DURING CONSTRUCTION.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK. THIS INCLUDES WHATEVER PROVISIONS NEED TO BE TAKEN TO PROTECT THE PROPERTY IN THE VICINITY OF THE TOWER DURING CONSTRUCTION.
7. DURING CONSTRUCTION THE CONTRACTOR SHALL COORDINATE WITH THE TOWER/STRUCTURE OWNER AND CORDON OFF AREAS BELOW AND AROUND THE WORK TO PREVENT INJURY TO PERSONS AND/OR PROPERTY. DAMAGES RESULTING FROM THE CONTRATORS WORK SHALL BE REPAIRED AT TEH CONTRACTORS EXPENSE.
8. BACKCHARGES FOR CORRETIVE WORK OR REPLACEMENT MATERIALS WILL NOT BE ACCEPTED UNLESS EXPRESSLY AUTHORIZED BY MASER CONSULTING BEFORE ANY SUCH COSTS ARE INCURRED.
9. POST CONSTRUCTION INSPECTION TO BE COMPLETED BY OTHERS.
10. ALL FIELD CONNECTIONS, UNLESS NOTED OTHERWISE , SHALL BE BOLTED.
11. CUTTING OR BURNING OF STEEL IN THE FIELD IS STRICTLY PROHIBITED.
12. WHERE STEEL IS IN CONTACT WITH ALUMINUM PROVIDE ADEQUATE BARRIER TO PREVENT OXIDATION OF THE STEEL AND ALUMINUM.
13. ALL BOLT HOLES SHALL BE $\frac{1}{16}$" LARGER THAN BOLT DIAMETER. ALL BOLTS SHALL HAVE ONE FLAT WHASER, ONE LOCK WASHER, AND ONE NUT UNLESS NOTED OTHERWISE.
14. COMPLY WITH ALL APPLICABLE REQUIREMENTS OF THE CURRENT EDITIONS OF THE FOLLOWING STANDARDS AND CODES:
    - 14.1. AMERICAN INSTITURE OF STEEL CONSTRUCTION (AISC) "SPECIFICATIONS FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
    - 14.2. AMERICAN IRON AND STEEL INSTITUTE (AISI) "DESIGN OF COLD FORMED STEEL STRUCTURAL MEMBERS".
    - 14.3. ASTM A563-04 "STANDARD SPECIFICATION FOR CARBON AND ALLOY STEEL NUTS".
    - 14.4. ASTM F436-03 "STANDARD SPECIFICATION FOR HARDENED STEEL WASHERS"
    - 14.5. ASTM A325-04 "STANDARD SPECIFICATION FOR STRUCTURAL BOLTS, STEEL, HEAT TREATED, $\frac{120}{105}$ KSI MENIMUM TENSILE STRENGTH".
    - 14.6. ASTM A153/A153M-09 "STANDARD SPECIFICATION FOR ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE".
    - 14.7. ASTM 123/A1123M-09 "STANDARD SPECIFICATION FOR ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS".
15. ALL STEEL WORK SHALL BE ASTM A572 GRADE 50 FOR W-FLANGE SECTIONS AND A36 FOR ALL OTHER SHAPES AND GALVANIZED UNLESS NOTED OTHERWISE, GALVANIZED COATING THICKNESS TO BE G90.
16. SHOP WELDING SHALL BE PERFORMED BY WELDERS THAT ARE CERTIFIED (AWS "STANDARD QUALIFICATION PROCEDURE") TO PERFORM THE TYPE OF WORK REQUIRED. WELDS SHALL CONFORM TO AMERICAN WELDING SOCIETY (AWS) D1.1 "STRUCTURAL WELDING CODE - STEEL". PROVIDE THE MINIMUM SIZE PER PART 8 IN THE AISC "MANUAL OF STEEL CONSTRUCTION", LRFD 3RD EDITION, WHEN WELD SIZES ARE NOT SHOWN. USE E70XX ELECTRODES FOR ALL WELDING.
17. ALL CONNECTIONS, UNLESS OTHERWISE NOTED, SHALL BE CONSTRUCTION WITH A MINIMUM EDGE DISTANCE OF 1 1/2 INCHES AND BOLT SPACING OF 3 INCHES.
18. UNLESS NOTED OTHERWISE ALL BOLTS SHALL BE INSTALLED WITH HEADS UP OR TOWARD THE OUTSIDE FACE, AND NUTS DOWN OR ON THE SIDE MOST PROTECTED FROM WEATHER.
19. USE PRECAUTIONS & PROCEDURES PER AWS D1.1 WHEN WELDING GALVANIZED MATERIALS. AT COMPLETION OF WELDING, ALL DAMAGE TO GALVANIZED COATING SHALL BE REPAIRED.
20. TOUCHUP ALL DAMAGE GALVANIZED STEEL WITH COLD ZINC, "GALVANOX", "DRY GALV.", "ZINC-IT" OR APPROVED EQUIVALENT, IN ACCORDANCE WITH MANUFACTURER'S GUIDELINES. TOUCHUP DAMAGED NON GALVANIZED STEEL WITH SAME PAINT APPLIED IN SHOP OR FIELD.
21. ALL STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE CURRENT EDITION OF AISC "SPECIFICATIONS FOR DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS - LOAD AND RESISTANCE FACTOR DESIGN".
22. MEMBERS SHALL BE LAID PLUMB AND TRUE AS SHOWN ON THE DRAWINGS.
23. COPE ALL FRAMING AT ENDS AS NECESSARY, UNLESS NOTED OTHERWISE.
24. THE GENERAL CONTRACTOR AND THEIR SUBCONSULTANTS SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK.

MASER CONSULTING —CONNECTICUT—
Customer Loyalty through Client Satisfaction
www.maserconsulting.com
Engineers ■ Planners ■ Surveyors
Landscape Architects ■ Environmental Scientists

smartlink
1362 MELLON ROAD
SUITE 140
HANOVER, MD 21076
TEL: (410) 582-8043 FAX: (443) 221-2962

at&t
NEW CINGULAR WIRELESS PCS, LLC
550 COCHITUATE ROAD
FARMINGHAM, MA 01701

811 Know what's below. Call before you dig.
PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE
FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

SCALE:	JOB NUMBER:
AS SHOWN	15946028A

REV	DATE	DESCRIPTION	BY	CHKD
1	02/12/16	REVISED PER SMARTLINK3 COMMENTS	JRF	TSM
0	10/22/15	ISSUED FOR REVIEW	JRF	TSM

STATE OF CONNECTICUT
FRANK E. PAZDEN
No. 28130
LICENSED PROFESSIONAL ENGINEER
FRANK E. PAZDEN
PROFESSIONAL ENGINEER
CONNECTICUT LICENSE NUMBER: 28130
PEER • LICENSE NUMBER: PE.0018188

SITE NAME:
MILFORD
FA# 10071130
SITE # CTL05099
CROWN SITE # 842870

434 BOSTON POST ROAD
MILFORD, CT 06460

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:
MODIFICATION DETAILS

SHEET NUMBER:
S-1

February 12, 2016

Charles Trask
Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277
(980) 209-8228

B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630
btwo@btgrp.com

Subject:	**Structural Analysis Report**	
Carrier Designation:	***AT&T Mobility* Co-Locate**	
	Carrier Site Number:	CT05099
	Carrier Site Name:	Milford
Crown Castle Designation:	**Crown Castle BU Number:**	842870
	Crown Castle Site Name:	MILFORD
	Crown Castle JDE Job Number:	365729
	Crown Castle Work Order Number:	1192963
	Crown Castle Application Number:	333679 Rev. 0
Engineering Firm Designation:	**B+T Group Project Number:**	91292.005.01
Site Data:	**434 Boston Post Road, Milford, New Haven County, CT** **Latitude *41° 13' 42.69"*, Longitude *-73° 4' 12.47"*** **150 Foot - Self Support Tower**	

Dear Charles Trask,

B+T Group is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 872290, in accordance with application 333679, revision 0.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

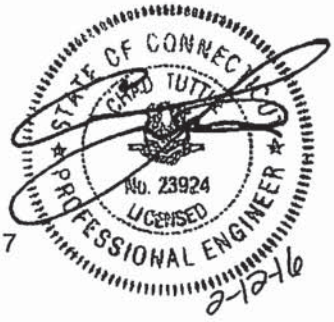
LC5: Existing + Proposed Equipment **Sufficient Capacity**
Note: See Table 1 and Table 2 for the proposed and existing loading, respectively.

The analysis has been performed in accordance with the TIA/EIA-222-F standard and 2005 CT State Building Code based upon a wind speed of 90 mph fastest mile.

All equipment proposed in this report shall be installed in accordance with the attached drawings for the determined available structural capacity to be effective.

We at *B+T Group* appreciate the opportunity of providing our continuing professional services to you and Crown Castle. If you have any questions or need further assistance on this or any other projects please give us a call.

Respectfully submitted by:
B+T Engineering, Inc.



Maurizio Benedetti, E.I.
Project Engineer

Chad E. Tuttle, P.E.
Engineer of Record
COA: PEC.0001564 Expires: 02/10/2017

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 150 ft. Self-Support tower designed by PiRod Inc. in March of 2000. The tower was originally designed for a wind speed of 85 mph per TIA/EIA-222-F. This tower has been modified by GPD Group in 2012 and those modifications were incorporated in this analysis.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a fastest mile wind speed of 90 mph with no ice, 37.6 mph with 0.75 inch ice thickness and 50 mph under service loads.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
141.0	141.0	3	Cci Antennas	OPA-65R-LCUU-H4	2 1	7/8 3/8	-
		3	Ericsson	RRUS 32 B30			
		1	Raycap	DC6-48-60-18-8F			
		3	Site Pro	STK-U Stiff Arm Kit			

Table 2 - Existing Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
150.0	160.0	2	Sinclair	SC226-SFXSNM	6 1	5/8 3/8	1
	151.0	2	Radiowaves	HPLPD1-18			
	150.0	1	--	Platform Mount [LP 405-1]			
141.0	141.0	3	Ericsson	RRUS 11 B12	12 2 1	1-5/8 5/8 3/8	1
		3	Ericsson	RRUS 11 B2			
		3	Kmw Comm.	AM-X-CD-14-65-00T-RET			
		3	Powerwave Tech.	7020.00			
		3	Powerwave Tech.	7770.00			
		3	Powerwave Tech.	LGP21401			
		1	Raycap	DC6-48-60-18-8F			
		1	--	Sector Mount [SM 410-3]			
		3	**Powerwave Tech.**	**7020.00**	**--**	**--**	**2**
		3	**Powerwave Tech.**	**7770.00**			
		3	**Powerwave Tech.**	**LGP21401**			
130.0	130.0	2	Terrawave	M5160160P10006	2	7/8	1
		2	--	Side Arm Mount [SO 301-1]			
118.0	128.0	1	Sinclair	SC229-SFXLDF	2	7/8	1
		1	Sinclair	SC320			
	118.0	2	--	Side Arm Mount [SO 306-1]			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
114.0	114.0	1	--	Sector Mount [SM 307-3]	13	1-5/8	1
	112.0	3	Commscope	LNX-6515DS-VTM			
		3	Ericsson	ERICSSON AIR 21 B2A B4P			
		3	Ericsson	ERICSSON AIR 21 B4A B2P			
		3	Ericsson	KRY 112 71			
		3	Ericsson	RRUS 11 B12			
103.0	103.0	3	Alcatel Lucent	800MHz 2X50W RRH W/FILTER	--	--	1
		3	Alcatel Lucent	PCS 1900MHz 2x40W			
		1	--	Pipe Mount [PM 601-3]			
100.0	100.0	3	Rfs Celwave	APXVSPP18-C-A20	3	1-1/4	1
		1	--	Sector Mount [SM 406-3]			
93.0	93.0	1	Til-Tek	TA-2335-DAB-H	1	1-5/8	1
		1	--	Side Arm Mount [SO 701-1]			
88.0	90.0	6	Antel	BXA-171063/8CF	12	1-5/8	1
		6	Antel	LPA-80063/4CF			
		6	Rfs Celwave	FD9R6004/2C-3L			
		3	Swedcom	SWCP 2x5514			
	88.0	1	--	Sector Mount [SM 408-3]			
65.0	65.0	3	Rfs Celwave	APXV18-206517S-C	6	1-5/8	1
50.0	50.0	1	Pctel	GPS-TMG-HR-26NCM	1	1/2	1
43.0	43.0	1	Til-Tek	TA-2324-LHCP	1	7/8	1
		1	--	Side Arm Mount [SO 301-1]			

Notes:
1) Existing Equipment
2) Equipment To Be Removed ;Not Considered in this analysis

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
150	150	4	Celwave	PD201	7	1 5/8
		3	Scala	PR950		
		1	Generic	LP Platform		
140	140	12	Allgon	7184	12	1 5/8
		3	Generic	T-Frames		
125	125	1	Celwave	PD201	1	1 5/8
		1	Generic	3' Stand off		
115	115	1	Celwave	PD201	2	1 5/8
		1	Celwave	PD220-DT		
		2	Generic	3' Stand off		
110	110	12	Allgon	7184	12	1 5/8

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
		3	Generic	T-Frames		
100	100	12	Allgon	7184	12	1 5/8
		3	Generic	T-Frames		
90	90	12	Allgon	7184	12	1 5/8
		3	Generic	T-Frames		
80	80	12	Allgon	7184	12	1 5/8
		3	Generic	T-Frames		

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
Online Application	AT&T Mobility Co-Locate, Rev# 0	333679	CCI Sites
Tower Manufacturer Drawing	PiRod Inc., Eng. File No. A-116849-Q-92250	4480661	CCI Sites
Tower Modification Drawing	GPD Group, Job No. 2012762.86, Date: 03/27/2012	4713244	CCI Sites
Post Modification Inspection	GPD Group, Job No. 2012858.01, Date: 10/23/2012	4713239	CCI Sites
Foundation Drawing	PiRod Inc., Eng. File No. A-116849-Q-92250	4480652	CCI Sites
Geotech Report	Clarence Welti Associates, Date: 01/17/2000	5359323	CCI Sites
Antenna Configuration	Crown CAD Package	Date: 02/10/2016	CCI Sites

3.1) Analysis Method

tnxTower (version 6.1.4.1), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

1) Tower and structures were built in accordance with the manufacturer's specifications.
2) The tower and structures have been maintained in accordance with the manufacturer's specification.
3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
4) When applicable, transmission cables are considered as structural components for calculating wind loads as allowed by TIA/EIA-222-F.
5) Mount areas and weights are assumed based on photographs provided.

This analysis may be affected if any assumptions are not valid or have been made in error. B+T Group should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T1	150 - 147.583	Leg	1 1/2	1	-1.976	34.527	5.7	Pass
T2	147.583 - 130	Leg	1 1/2	13	21.888	33.498	65.3	Pass
T3	130 - 110	Leg	2	70	-65.204	97.422	66.9	Pass
T4	110 - 100	Leg	Pirod 105244	134	-68.113	122.940	55.4	Pass
T5	100 - 80	Leg	Pirod 105216	148	-105.835	122.940	86.1	Pass
T6	80 - 60	Leg	Pirod 105217	169	-159.787	184.672	86.5	Pass
T7	60 - 40	Leg	Pirod 105218	187	-200.956	258.238	77.8	Pass
T8	40 - 20	Leg	Pirod 105218	202	-239.507	258.238	92.7	Pass
T9	20 - 0	Leg	Pirod 105219	217	-274.860	343.622	80.0	Pass
T1	150 - 147.583	Diagonal	3/4	7	-1.345	4.680	28.7	Pass
T2	147.583 - 130	Diagonal	3/4	22	-2.876	4.299	66.9	Pass
T3	130 - 110	Diagonal	7/8	79	-5.083	6.890	73.8	Pass
T4	110 - 100	Diagonal	L2 1/2x2 1/2x3/16	140	-8.272	12.228	67.6 69.2 (b)	Pass
T5	100 - 80	Diagonal	L2 1/2x2 1/2x3/8	155	-14.213	17.912	79.3	Pass
T6	80 - 60	Diagonal	L3x3x3/16	174	-8.355	13.368	62.5 74.7 (b)	Pass
T7	60 - 40	Diagonal	L3x3x3/16	193	-8.336	10.672	78.1	Pass
T8	40 - 20	Diagonal	L3x3x5/16	207	-8.980	13.740	65.4	Pass
T9	20 - 0	Diagonal	L3x3x5/16	223	-10.450	11.339	92.2	Pass
T2	147.583 - 130	Horizontal	7/8	35	-0.326	4.502	7.2	Pass
T3	130 - 110	Horizontal	3/4	127	-0.720	2.258	31.9	Pass
T5	100 - 80	Horizontal	L3x3x3/16	159	-8.858	15.576	56.9 95.8 (b)	Pass
T1	150 - 147.583	Top Girt	5x1/2	4	-0.916	4.795	19.1	Pass
T2	147.583 - 130	Top Girt	7/8	17	-0.111	5.214	2.1	Pass
T3	130 - 110	Top Girt	7/8	74	-1.287	4.298	29.9	Pass
T4	110 - 100	Top Girt	L3x3x3/16	137	0.842	25.486	3.3 7.5 (b)	Pass
T5	100 - 80	Top Girt	L3x3x3/16	150	-6.138	17.438	35.2 66.3 (b)	Pass
T6	80 - 60	Top Girt	L3x3x3/16	172	-6.552	12.349	53.1 69.8 (b)	Pass
T2	147.583 - 130	Bottom Girt	7/8	19	-1.221	4.257	28.7	Pass
T3	130 - 110	Bottom Girt	7/8	76	-1.557	3.496	44.5	Pass
							Summary	
						Leg (T8)	92.7	Pass
						Diagonal (T9)	92.2	Pass
						Horizontal (T5)	95.8	Pass
						Top Girt (T6)	69.8	Pass
						Bottom Girt (T3)	44.5	Pass
						Bolt Checks	95.8	Pass
						RATING =	95.8	Pass

Table 6 - Tower Component Stresses vs. Capacity – LC5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
--	Anchor Rods	Base	50.3	Pass
1	Base Foundation (Structure)	Base	18.9	Pass
1	Base Foundation (Soil Interaction)	Base	49.9	Pass

Structure Rating (max from all components) =	95.8%

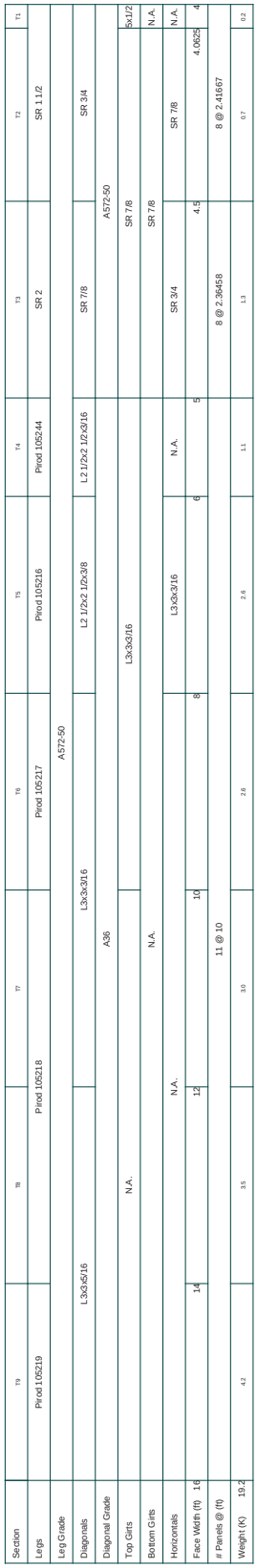
Notes:
1) See additional documentation in “Appendix C – Additional Calculations” for calculations supporting the % capacity consumed.

4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the existing and proposed loads. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
(3) 6' x 2" Mount Pipe (E)	150	LNX-6515DS-VTM (E)	114
(3) 6' x 2" Mount Pipe (E)	150	KRY 112 71 (E)	114
(3) 6' x 2" Mount Pipe (E)	150	KRY 112 71 (E)	114
SC226-SFXSNM (E-CL per TIA)	150	KRY 112 71 (E)	114
SC226-SFXSNM (E-CL per TIA)	150	RRUS 11 B12 (E)	114
1' x 6" x 3" (E-Camera)	150	RRUS 11 B12 (E)	114
Platform Mount [LP 405-1] (E)	150	RRUS 11 B12 (E)	114
HPLPD1-18 (E)	150	Sector Mount [SM 307-3] (4 M.P. / Sec. Inc.)	114
HPLPD1-18 (E)	150	ERICSSON AIR 21 B2A B4P (E)	114
7770.00 w/ Mount Pipe (E)	141	ERICSSON AIR 21 B2A B4P (E)	114
AM-X-CD-14-65-00T-RET w/ Mount Pipe (E)	141	800MHz 2X50W RRH W/FILTER (E)	103
AM-X-CD-14-65-00T-RET w/ Mount Pipe (E)	141	PCS 1900MHz 2x40W (E)	103
AM-X-CD-14-65-00T-RET w/ Mount Pipe (E)	141	PCS 1900MHz 2x40W (E)	103
LGP21401 (E)	141	PCS 1900MHz 2x40W (E)	103
LGP21401 (E)	141	(2) 4' x 2" Pipe Mount (E-As per photo)	103
LGP21401 (E)	141	(2) 4' x 2" Pipe Mount (E-As per photo)	103
7020.00 (E)	141	(2) 4' x 2" Pipe Mount (E-As per photo)	103
7020.00 (E)	141	Pipe Mount [PM 601-3] (E-For TME)	103
7020.00 (E)	141	800MHz 2X50W RRH W/FILTER (E)	103
RRUS 11 B12 (E)	141	800MHz 2X50W RRH W/FILTER (E)	103
RRUS 11 B12 (E)	141	APXVSPP18-C-A20 w/ Mount Pipe (E)	100
RRUS 11 B12 (E)	141	6' x 2" Mount Pipe (E-As per photo)	100
RRUS 11 B2 (E)	141	6' x 2" Mount Pipe (E-As per photo)	100
RRUS 11 B2 (E)	141	6' x 2" Mount Pipe (E-As per photo)	100
RRUS 11 B2 (E)	141	Sector Mount [SM 406-3] (E)	100
DC6-48-60-18-8F (E)	141	APXVSPP18-C-A20 w/ Mount Pipe (E)	100
OPA-65R-LCUU-H4 w/ Mount Pipe (P)	141	APXVSPP18-C-A20 w/ Mount Pipe (E)	100
OPA-65R-LCUU-H4 w/ Mount Pipe (P)	141	Side Arm Mount [SO 701-1] (E)	93
OPA-65R-LCUU-H4 w/ Mount Pipe (P)	141	TA-2335-DAB-H (E)	93
DC6-48-60-18-8F (P)	141	Pipe Mount [PM 601-1] (E)	93
RRUS 32 B30 (P)	141	(2) LPA-80063/4CF w/ Mount Pipe (E)	88
RRUS 32 B30 (P)	141	(2) BXA-171063/8CF w/ Mount Pipe (E)	88
RRUS 32 B30 (P)	141	(2) BXA-171063/8CF w/ Mount Pipe (E)	88
Sector Mount [SM 410-3] (1Existing Mount with Mount Mod)	141	(2) BXA-171063/8CF w/ Mount Pipe (E)	88
7770.00 w/ Mount Pipe (E)	141	SWCP 2x5514 w/ Mount Pipe (E)	88
7770.00 w/ Mount Pipe (E)	141	SWCP 2x5514 w/ Mount Pipe (E)	88
Side Arm Mount [SO 301-1] (E)	130	SWCP 2x5514 w/ Mount Pipe (E)	88
Side Arm Mount [SO 301-1] (E)	130	(2) FD9R6004/2C-3L (E)	88
M5160160P10006 (E)	130	(2) FD9R6004/2C-3L (E)	88
M5160160P10006 (E)	130	(2) FD9R6004/2C-3L (E)	88
Side Arm Mount [SO 306-1] (E)	118	Sector Mount [SM 408-3] (E)	88
Side Arm Mount [SO 306-1] (E)	118	Pipe Mount [PM 601-3] (E-Mount Attacment)	88
10' horizontal x 2" Pipe Mount (E-Tie Back as per photo)	118	(2) LPA-80063/4CF w/ Mount Pipe (E)	88
10' horizontal x 2" Pipe Mount (E-Tie Back as per photo)	118	(2) LPA-80063/4CF w/ Mount Pipe (E)	88
SC320 (E)	118	APXV18-206517S-C w/ Mount Pipe (E-Leg connected)	65
SC229-SFXLDF (E)	118	APXV18-206517S-C w/ Mount Pipe (E-Leg connected)	65
ERICSSON AIR 21 B2A B4P (E)	114	APXV18-206517S-C w/ Mount Pipe (E-Leg connected)	65
ERICSSON AIR 21 B4A B2P (E)	114	GPS-TMG-HR-26NCM (E)	50
ERICSSON AIR 21 B4A B2P (E)	114	4' x 2" Pipe Mount (E)	50
ERICSSON AIR 21 B4A B2P (E)	114	Side Arm Mount [SO 301-1] (E)	43
LNX-6515DS-VTM (E)	114	TA-2324-LHCP (E)	43
LNX-6515DS-VTM (E)	114		

MATERIAL STRENGTH

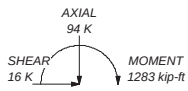
GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

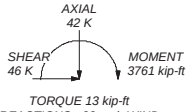
1. Tower is located in New Haven County, Connecticut.
2. Tower designed for a 90 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 95.8%

MAX. CORNER REACTIONS AT BASE:
DOWN: 285 K
SHEAR: 30 K

UPLIFT: -253 K
SHEAR: 27 K



TORQUE 2 kip-ft
38 mph WIND - 0.750 in ICE



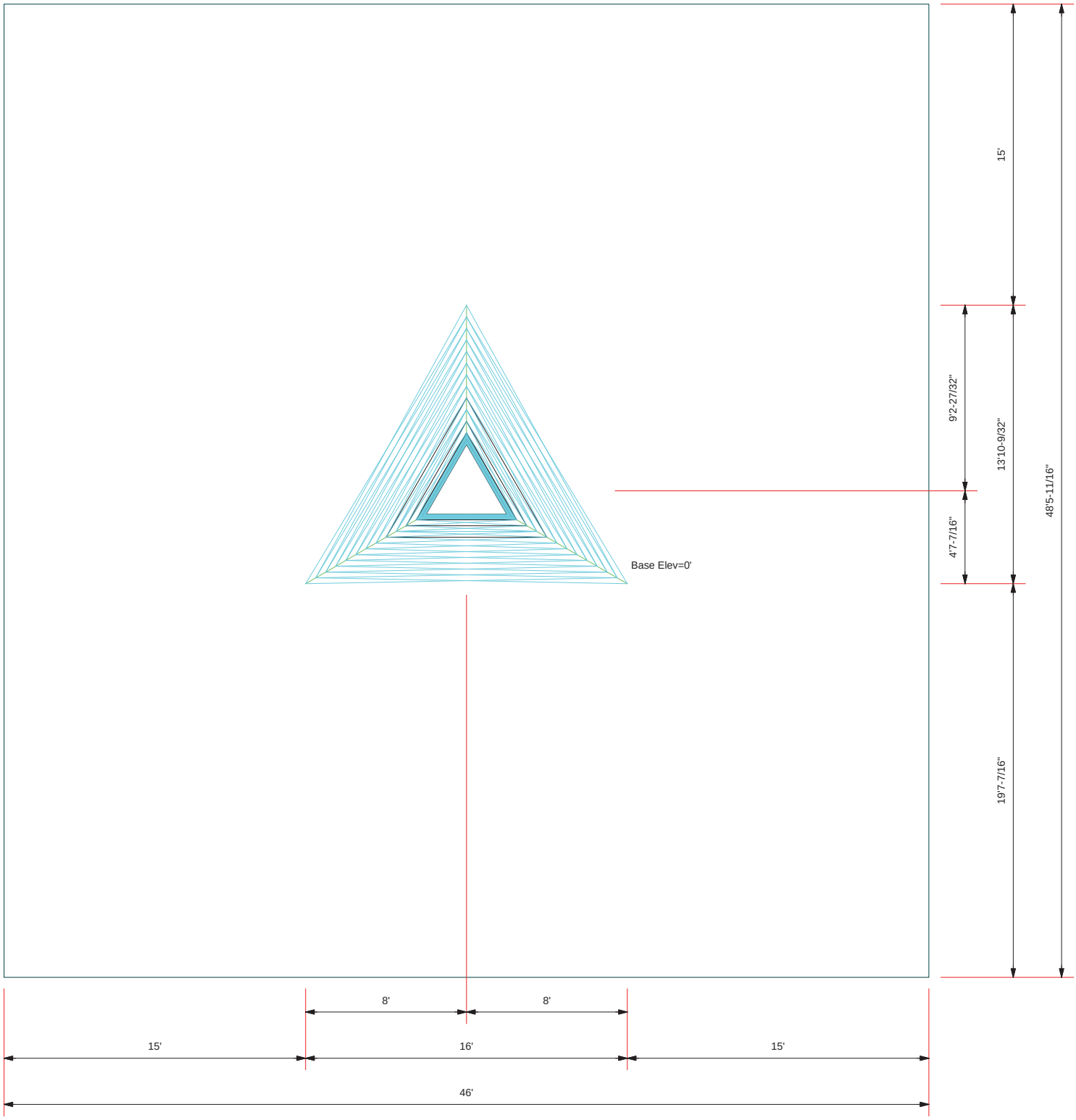
TORQUE 13 kip-ft
REACTIONS - 90 mph WIND

B+T Group
1717 S Boulder Ave, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: 91292.005.01 - MILFORD, CT (BU# 842870			
Project:			
Client: Crown Castle	Drawn by: mbenedetti	App'd:	
Code: TIA/EIA-222-F	Date: 02/12/16	Scale: NTS	
Path:		Dwg No. E-1	

Plot Plan

Total Area - 0.05 Acres



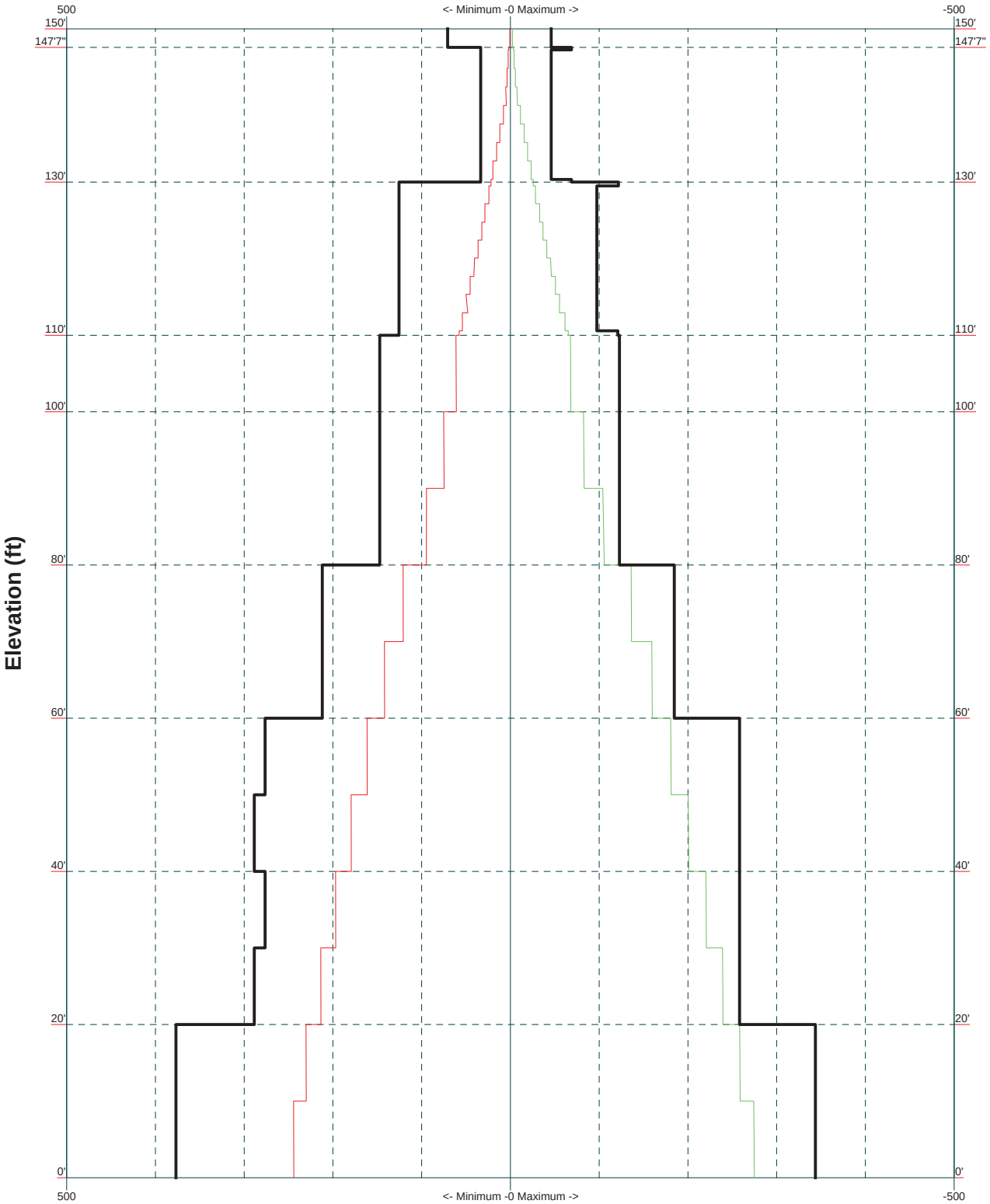
B+T GRP

B+T Group
1717 S Boulder Ave, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: ***91292.005.01 - MILFORD, CT (BU# 842870***		
Project:		
Client: Crown Castle	Drawn by: mbenedetti	App'd:
Code: TIA/EIA-222-F	Date: 02/12/16	Scale: NTS
Path: S:\Projects\Crown Castle\91000\91292_842870_Milford\Engineering\tnxTower\005\91292_005_01_MILFORD_CT.eri		Dwg No. E-2

TIA/EIA-222-F - 90 mph/38 mph 0.750 in Ice

Leg Capacity ——— **Leg Compression (K)**



B+T GRP

B+T Group
1717 S Boulder Ave, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: ***91292.005.01 - MILFORD, CT (BU# 842870***			
Project:			
Client: Crown Castle	Drawn by: mbenedetti	App'd:	
Code: TIA/EIA-222-F	Date: 02/12/16	Scale: NTS	
Path: S:\Projects\Crown Castle\91000\91292_842870_Milford\Engineering\tnxTower\005\91292_005_01_MILFORD_CT.eri		Dwg No. E-3	

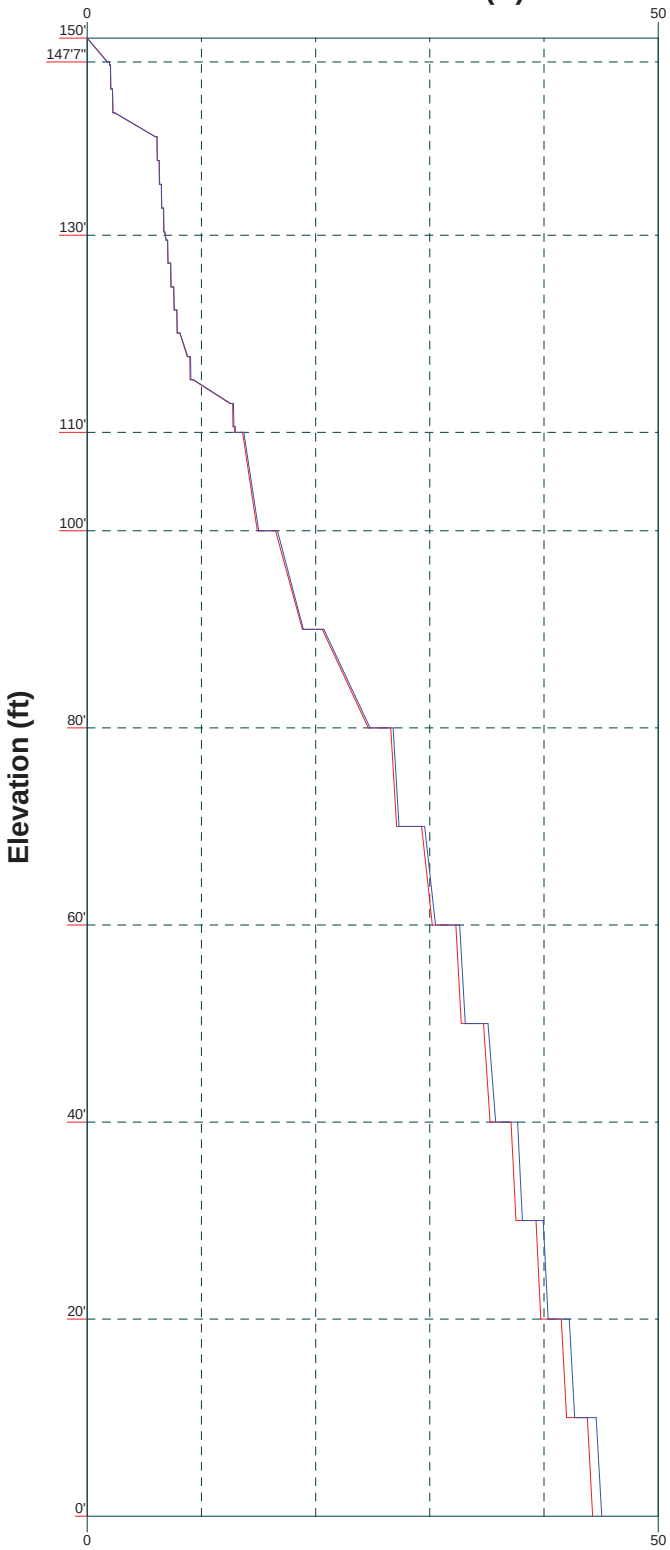
TIA/EIA-222-F - 90 mph/38 mph 0.750 in Ice

Vx Vz

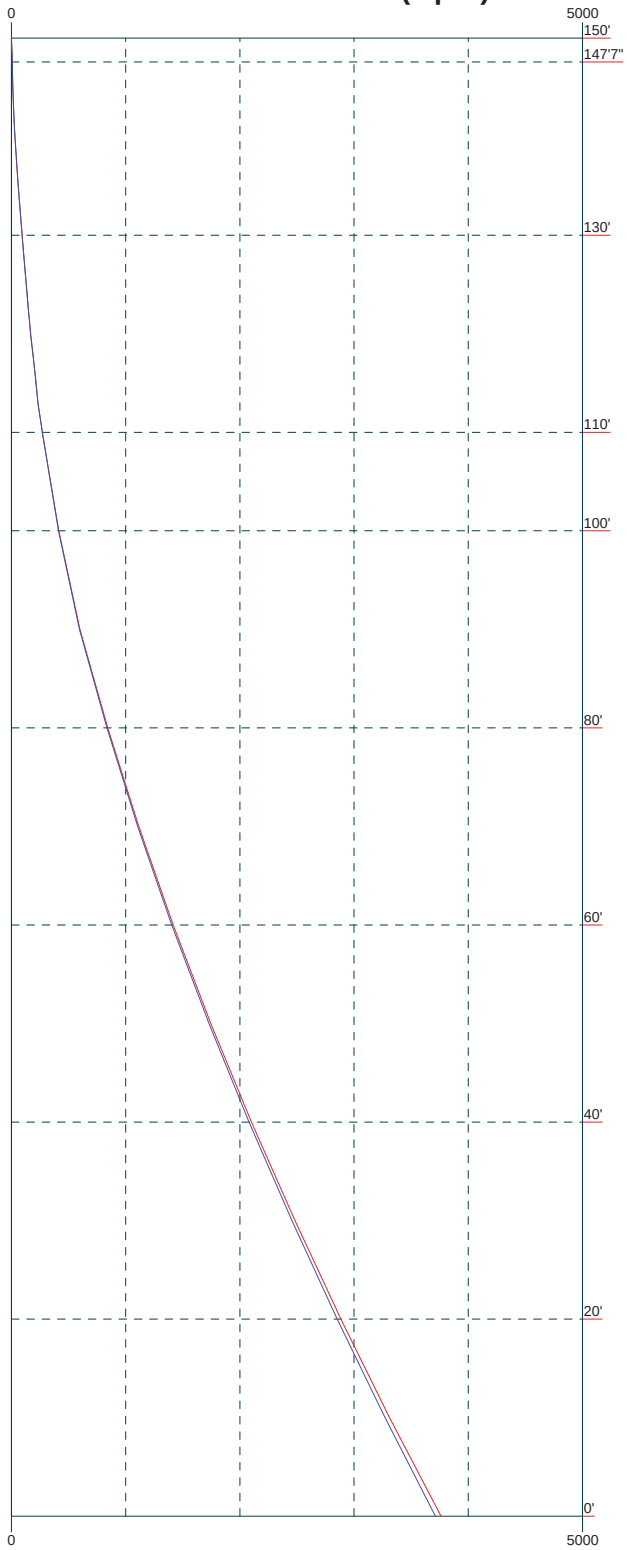
Maximum Values

Mx Mz

Global Mast Shear (K)



Global Mast Moment (kip-ft)



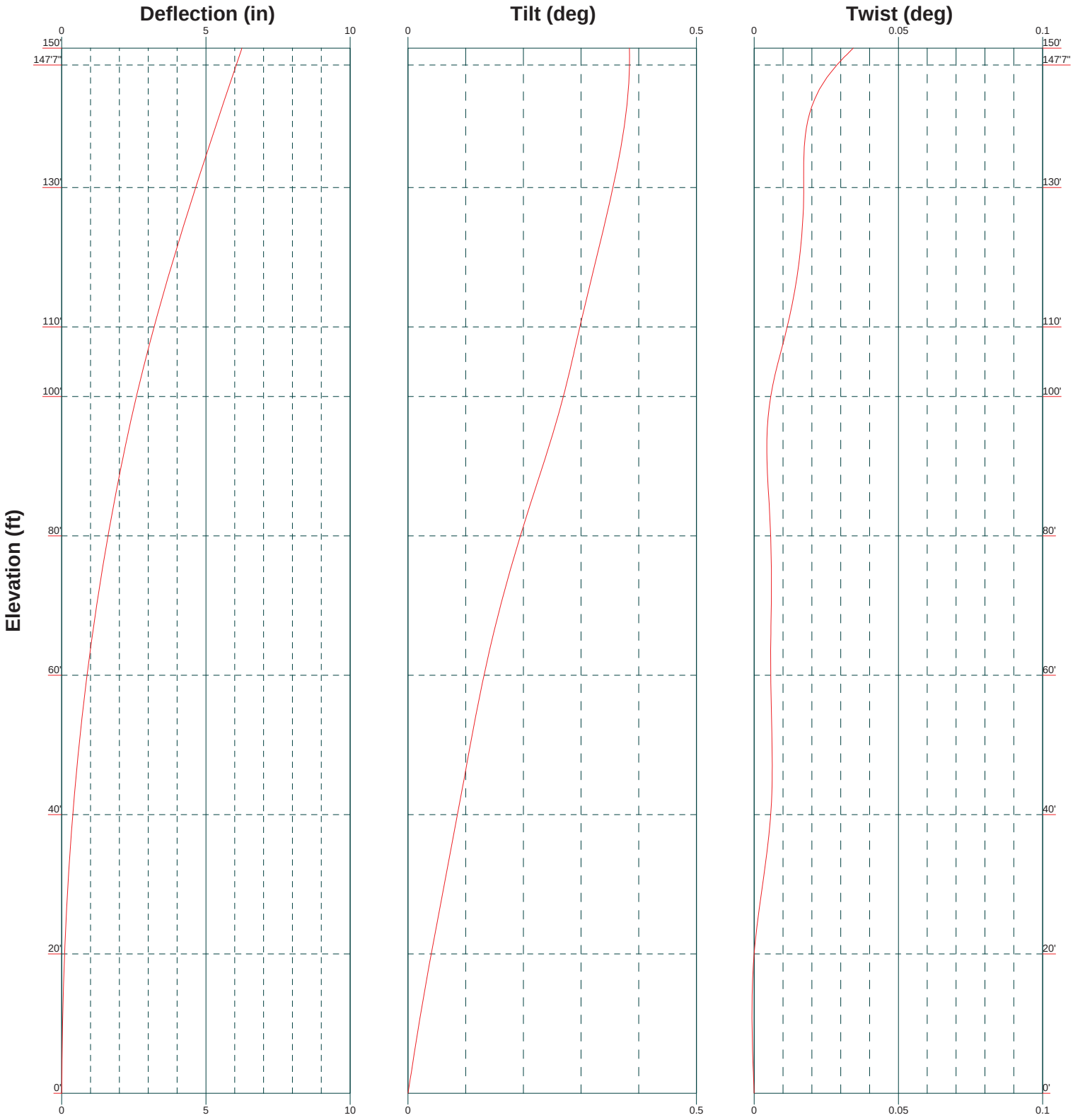
B+T GRP

B+T Group
1717 S Boulder Ave, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: *91292.005.01 - MILFORD, CT (BU# 842870*		
Project:		
Client: Crown Castle	Drawn by: mbenedetti	App'd:
Code: TIA/EIA-222-F	Date: 02/12/16	Scale: NTS
Path: S:\Projects\Crown Castle\91000\91292_842870_Milford\Engineering\tnxTower\005\91292_005_01_MILFORD_CT.eri		Dwg No. E-4

TIA/EIA-222-F - Service - 50 mph

Maximum Values



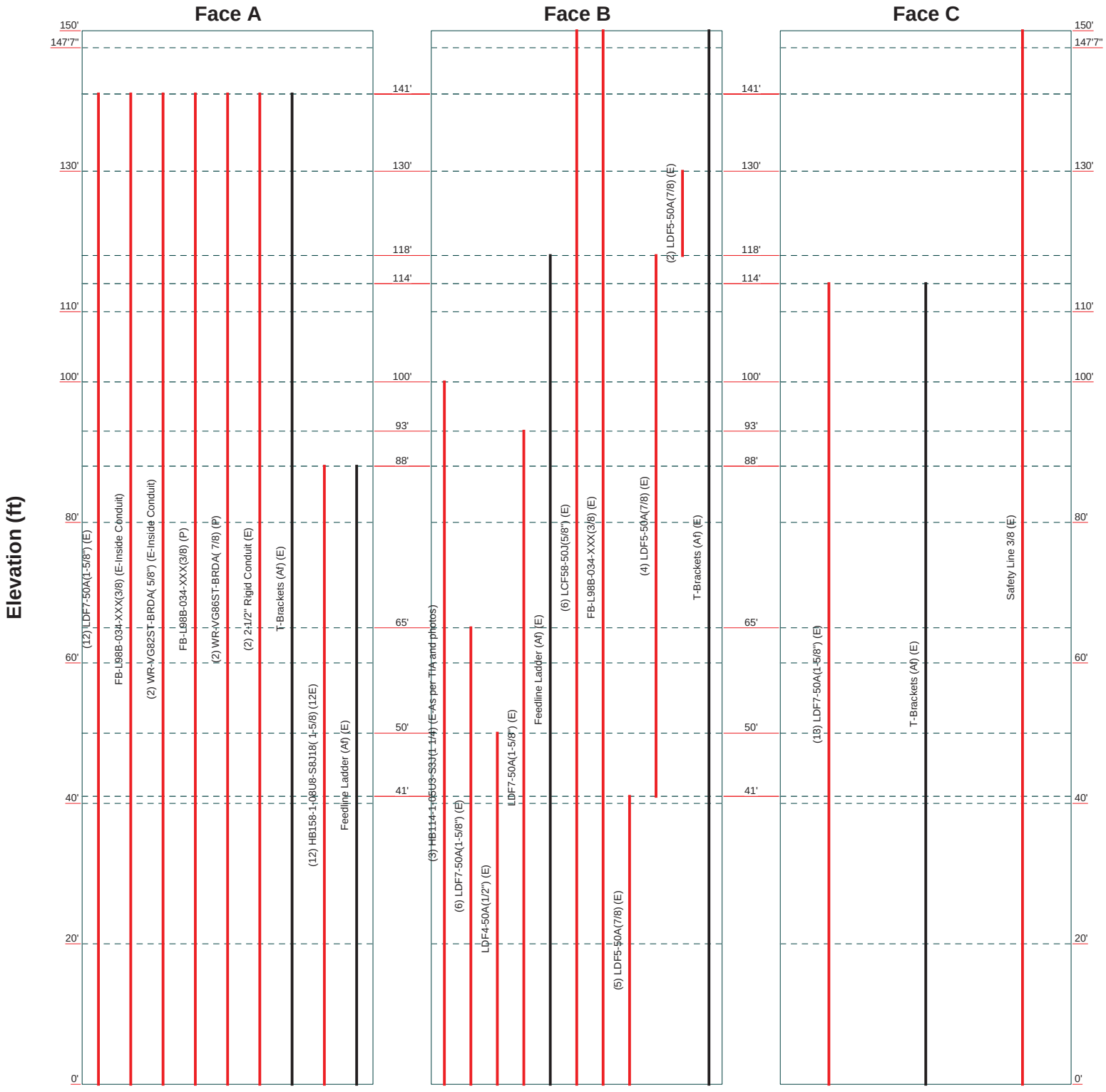
B+T GRP

B+T Group
1717 S Boulder Ave, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: ***91292.005.01 - MILFORD, CT (BU# 842870***		
Project:		
Client: Crown Castle	Drawn by: mbenedetti	App'd:
Code: TIA/EIA-222-F	Date: 02/12/16	Scale: NTS
Path: S:\Projects\Crown Castle\91000\91292_842870_Milford\Engineering\tnxTower\005\91292_005_01_MILFORD_CT.eri		Dwg No. E-5

Feed Line Distribution Chart
0' - 150'

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



B+T GRP

B+T Group
1717 S Boulder Ave, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job:	***91292.005.01 - MILFORD, CT (BU# 842870***		
Project:			
Client: Crown Castle	Drawn by: mbenedetti	App'd:	
Code: TIA/EIA-222-F	Date: 02/12/16	Scale: NTS	
Path: S:\Projects\Crown Castle\91000\91292_842870_Milford\Engineering\tnxTower\005\91292_005_01_MILFORD_CT.eri		Dwg No. E-7	

B+T Group
1717 S Boulder Ave, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

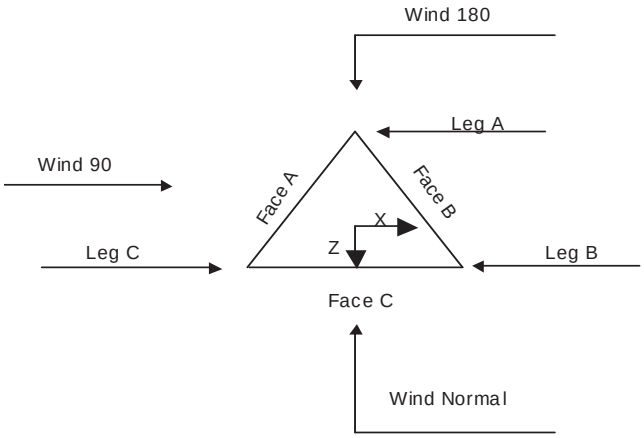
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 150' above the ground line.
The base of the tower is set at an elevation of 0' above the ground line.
The face width of the tower is 4' at the top and 16' at the base.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

Tower is located in New Haven County, Connecticut.
Basic wind speed of 90 mph.
Nominal ice thickness of 0.750 in.
Ice thickness is considered to increase with height.
Ice density of 56.000 pcf.
A wind speed of 38 mph is used in combination with ice.
Temperature drop of 50.000 °F.
Deflections calculated using a wind speed of 50 mph.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.333.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Treat Feedline Bundles As Cylinder
	Consider Moments - Horizontals		Assume Legs Pinned		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Diagonals	√	Assume Rigid Index Plate	√	Calculate Redundant Bracing Forces
	Use Moment Magnification	√	Use Clear Spans For Wind Area		Ignore Redundant Members in FEA
√	Use Code Stress Ratios	√	Use Clear Spans For KL/r	√	SR Leg Bolts Resist Compression
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		All Leg Panels Have Same Allowable
√	Escalate Ice	√	Bypass Mast Stability Checks	√	Offset Girt At Foundation
	Always Use Max Kz	√	Use Azimuth Dish Coefficients	√	Consider Feedline Torque
	Use Special Wind Profile	√	Project Wind Area of Appurt.	√	Include Angle Block Shear Check
√	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Poles
	Leg Bolts Are At Top Of Section		SR Members Have Cut Ends		Include Shear-Torsion Interaction
√	Secondary Horizontal Braces Leg	√	Sort Capacity Reports By Component		Always Use Sub-Critical Flow
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Use Top Mounted Sockets
	Add IBC .6D+W Combination		Use TIA-222-G Tension Splice Capacity Exemption		



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	150'-147'7"			4'	1	2'5"
T2	147'7"-130'			4'3/4"	1	17'7"
T3	130'-110'			4'6"	1	20'
T4	110'-100'			5'	1	10'
T5	100'-80'			6'	1	20'
T6	80'-60'			8'	1	20'
T7	60'-40'			10'	1	20'
T8	40'-20'			12'	1	20'
T9	20'-0'			14'	1	20'

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T1	150'-147'7"	2'5"	K Brace Down	No	Yes	0.000	0.000
T2	147'7"-130'	2'5"	X Brace	No	Steps	4.000	4.000
T3	130'-110'	2'4-3/8"	X Brace	No	Steps	6.000	7.000
T4	110'-100'	10'	X Brace	No	No	0.000	0.000
T5	100'-80'	10'	X Brace	No	Yes	0.000	0.000
T6	80'-60'	10'	X Brace	No	No	0.000	0.000
T7	60'-40'	10'	X Brace	No	No	0.000	0.000
T8	40'-20'	10'	X Brace	No	No	0.000	0.000
T9	20'-0'	10'	X Brace	No	No	0.000	0.000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 150'-147'7"	Solid Round	1 1/2	A572-50 (50 ksi)	Solid Round	3/4	A572-50 (50 ksi)
T2 147'7"-130'	Solid Round	1 1/2	A572-50 (50 ksi)	Solid Round	3/4	A572-50 (50 ksi)
T3 130'-110'	Solid Round	2	A572-50 (50 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T4 110'-100'	Truss Leg	Pirod 105244	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T5 100'-80'	Truss Leg	Pirod 105216	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x3/8	A36 (36 ksi)
T6 80'-60'	Truss Leg	Pirod 105217	A572-50 (50 ksi)	Equal Angle	L3x3x3/16	A36 (36 ksi)
T7 60'-40'	Truss Leg	Pirod 105218	A572-50 (50 ksi)	Equal Angle	L3x3x3/16	A36 (36 ksi)
T8 40'-20'	Truss Leg	Pirod 105218	A572-50 (50 ksi)	Equal Angle	L3x3x5/16	A36 (36 ksi)
T9 20'-0'	Truss Leg	Pirod 105219	A572-50 (50 ksi)	Equal Angle	L3x3x5/16	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T2 147'7"-130'	Solid Round	7/8	A572-50 (50 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T3 130'-110'	Solid Round	7/8	A572-50 (50 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T4 110'-100'	Equal Angle	L3x3x3/16	A36 (36 ksi)	Equal Angle		A36 (36 ksi)
T5 100'-80'	Equal Angle	L3x3x3/16	A36 (36 ksi)	Equal Angle		A36 (36 ksi)
T6 80'-60'	Equal Angle	L3x3x3/16	A36 (36 ksi)	Equal Angle		A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 150'-147'7"	None	Flat Bar		A36 (36 ksi)	Flat Bar	5x1/2	A36 (36 ksi)
T2 147'7"-130'	None	Flat Bar		A36 (36 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T3 130'-110'	None	Flat Bar		A36 (36 ksi)	Solid Round	3/4	A572-50 (50 ksi)
T5 100'-80'	None	Flat Bar		A36 (36 ksi)	Equal Angle	L3x3x3/16	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
T1 150'-147'7"	0.000	0.000	A36 (36 ksi)	1	1	1	0.000	0.000
T2 147'7"-130'	0.000	0.000	A36 (36 ksi)	1	1	1	0.000	0.000
T3 130'-110'	0.000	0.000	A36 (36 ksi)	1	1	1	0.000	0.000
T4 110'-100'	0.000	0.000	A36 (36 ksi)	1.03	1	1.05	0.000	0.000
T5 100'-80'	0.000	0.000	A36 (36 ksi)	1.03	1	1.05	0.000	0.000
T6 80'-60'	0.000	0.000	A36 (36 ksi)	1.03	1	1.05	0.000	0.000
T7 60'-40'	0.000	0.000	A36 (36 ksi)	1.03	1	1.05	0.000	0.000
T8 40'-20'	0.000	0.000	A36 (36 ksi)	1.03	1	1.05	0.000	0.000
T9 20'-0'	0.000	0.000	A36 (36 ksi)	1.03	1	1.05	0.000	0.000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1 150'-147'7"	No	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T2 147'7"-130'	No	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T3 130'-110'	No	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T4 110'-100'	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T5 100'-80'	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T6 80'-60'	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T7 60'-40'	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T8 40'-20'	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T9 20'-0'	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1

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

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Truss-Leg K Factors					
	Truss-Legs Used As Leg Members			Truss-Legs Used As Inner Members		
	Leg Panels	X Brace Diagonals	Z Brace Diagonals	Leg Panels	X Brace Diagonals	Z Brace Diagonals
T4 110'-100'	1	0.5	0.85	1	0.5	0.85
T5 100'-80'	1	0.5	0.85	1	0.5	0.85
T6 80'-60'	1	0.5	0.85	1	0.5	0.85
T7 60'-40'	1	0.5	0.85	1	0.5	0.85
T8 40'-20'	1	0.5	0.85	1	0.5	0.85
T9 20'-0'	1	0.5	0.85	1	0.5	0.85

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 150'-147'7"	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T2 147'7"-130'	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T3 130'-110'	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T4 110'-100'	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T5 100'-80'	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T6 80'-60'	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T7 60'-40'	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T8 40'-20'	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T9 20'-0'	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 150'-147'7"	Sleeve DS	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0
T2 147'7"-130'	Sleeve DS	0.625 A325N	5	0.625 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0
T3 130'-110'	Flange	1.000 A325N	6	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0
T4 110'-100'	Flange	1.000 A325N	6	1.000 A325N	1	1.000 A325N	1	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0
T5 100'-80'	Flange	1.000 A325N	6	1.000 A325N	1	1.000 A325N	1	0.625 A325N	0	0.625 A325N	0	1.000 A325N	1	0.625 A325N	0
T6 80'-60'	Flange	1.000 A325N	6	1.000 A325N	1	1.000 A325N	1	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0
T7 60'-40'	Flange	1.000 A325N	6	1.000 A325N	1	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0
T8 40'-20'	Flange	1.000 A325N	6	1.000 A325N	1	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0
T9 20'-0'	Flange	1.250 A687	6	1.250 A325N	1	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
Face A												
LDF7-50A(1-5/8") (E)	A	No	Ar (Leg)	141' - 0'	0.000	0.12	12	4	1.000 2.500	1.980		0.001
FB-L98B-034-XXX(3/8) (E-Inside Conduit)	A	Yes	Ar (CfAe)	141' - 0'	-3.000	0.38	1	1	0.500 0.394	0.000		0.000
WR-VG82ST-BRDA(5/8") (E-Inside Conduit)	A	Yes	Ar (CfAe)	141' - 0'	-3.000	0.37	2	2	0.500 0.645	0.000		0.000
FB-L98B-034-XXX(3/8) (P)	A	No	Ar (Leg)	141' - 0'	0.000	0.18	1	1	0.394	0.394		0.000
WR-VG86ST-BRDA(7/8) (P)	A	No	Ar (Leg)	141' - 0'	0.000	0.16	2	2	0.880	0.880		0.001
2-1/2" Rigid Conduit (E) *M*	A	Yes	Ar (CfAe)	141' - 0'	-2.000	0.38	2	2	1.000 0.750	2.500		0.003
T-Brackets (Af) (E) *M*	A	No	Af (Leg)	141' - 0'	0.000	0.1	1	1	1.000	1.000	4.000	0.008
HB158-1-08U8-S8J18(1-5/8) (12E)	A	Yes	Ar (CfAe)	88' - 0'	0.000	-0.08	12	12	1.000 0.750	1.980		0.001
Feedline Ladder (Af) (E) *M*	A	Yes	Af (CfAe)	88' - 0'	0.000	-0.08	1	1	3.000	3.000	12.000	0.008
Face B												
HB114-1-05U3-S3J(1 1/4) (E-As per TIA and photos) *M*	B	Yes	Ar (CfAe)	100' - 0'	-2.000	-0.28	3	3	0.850 0.750	1.540		0.001
LDF7-50A(1-5/8") (E) *M*	B	Yes	Ar (CfAe)	65' - 0'	-2.000	-0.35	6	6	0.850 0.750	1.980		0.001
LDF4-50A(1/2") (E) *M* *M*	B	Yes	Ar (CfAe)	50' - 0'	-2.000	-0.26	1	1	0.630	0.630		0.000
LDF7-50A(1-5/8") (E) *M*	B	No	Ar (Leg)	93' - 0'	0.000	0.06	1	1	1.980	1.980		0.001
Feedline Ladder (Af) (E) *M*	B	Yes	Af (CfAe)	118' - 0'	-2.000	-0.28	1	1	3.000	3.000	12.000	0.008
Face C												

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
LCF58-50J(5/8") (E)	B	No	Ar (Leg)	150' - 0'	0.000	0.08	6	4	1.000 3.000	0.840		0.000
FB-L98B-034-XXX(3/8) (E) *M*	B	No	Ar (Leg)	150' - 0'	0.000	0.15	1	1	0.394	0.394		0.000
LDF5-50A(7/8) (E)	B	No	Ar (Leg)	41' - 0'	0.000	0.12	5	4	1.000 3.000	1.090		0.000
LDF5-50A(7/8) (E)	B	No	Ar (Leg)	118' - 41'	0.000	0.12	4	4	1.000 3.000	1.090		0.000
LDF5-50A(7/8) (E) *M*	B	No	Ar (Leg)	130' - 118'	0.000	0.12	2	2	1.000 3.000	1.090		0.000
LDF7-50A(1-5/8") (E) *M* *M*	C	No	Ar (Leg)	114' - 0'	0.000	0.1	13	7	1.000 3.000	1.980		0.001
T-Brackets (Af) (E)	B	No	Af (Leg)	150' - 0'	0.000	0.08	1	1	1.000	1.000	4.000	0.008
T-Brackets (Af) (E)	C	No	Af (Leg)	114' - 0'	0.000	0.08	1	1	1.000	1.000	4.000	0.008
Safety Line 3/8 (E) *M*	C	No	Ar (Leg)	150' - 0'	0.000	0	1	1	0.375	0.375		0.000

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	C_AA_A ft^2/ft	Weight klf
M *M* *M*							

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	150'-147'7"	A	0.076	0.000	0.000	0.000	0.000
		B	0.756	0.201	0.000	0.000	0.024
		C	0.831	0.201	0.000	0.000	0.001
T2	147'7"-130'	A	14.367	0.917	0.000	0.000	0.290
		B	14.734	2.382	0.000	0.000	0.175
		C	6.050	1.465	0.000	0.000	0.004
T3	130'-110'	A	30.368	2.000	0.000	0.000	0.527

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B	28.132	5.333	0.000	0.000	0.285
		C	16.588	2.000	0.000	0.000	0.081
T4	110'-100'	A	24.424	1.667	0.000	0.000	0.263
		B	15.156	4.167	0.000	0.000	0.197
		C	18.624	1.667	0.000	0.000	0.193
T5	100'-80'	A	64.688	5.333	0.000	0.000	0.719
		B	40.157	8.333	0.000	0.000	0.458
		C	39.393	3.333	0.000	0.000	0.386
T6	80'-60'	A	88.448	8.333	0.000	0.000	1.007
		B	46.262	8.333	0.000	0.000	0.489
		C	40.548	3.333	0.000	0.000	0.386
T7	60'-40'	A	88.448	8.333	0.000	0.000	1.007
		B	61.637	8.333	0.000	0.000	0.564
		C	40.548	3.333	0.000	0.000	0.386
T8	40'-20'	A	88.448	8.333	0.000	0.000	1.007
		B	62.162	8.333	0.000	0.000	0.572
		C	40.548	3.333	0.000	0.000	0.386
T9	20'-0'	A	88.448	8.333	0.000	0.000	1.007
		B	62.162	8.333	0.000	0.000	0.572
		C	40.548	3.333	0.000	0.000	0.386

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	150'-147'7"	A	0.899	0.437	0.000	0.000	0.000	0.000
		B		0.972	1.554	0.000	0.000	0.057
		C		1.410	1.554	0.000	0.000	0.004
T2	147'7"-130'	A	0.891	18.237	15.481	0.000	0.000	0.897
		B		14.914	23.109	0.000	0.000	0.410
		C		10.191	11.295	0.000	0.000	0.028
T3	130'-110'	A	0.876	31.891	34.795	0.000	0.000	1.613
		B		26.809	43.307	0.000	0.000	0.700
		C		17.417	25.765	0.000	0.000	0.250
T4	110'-100'	A	0.862	18.247	30.732	0.000	0.000	0.798
		B		13.265	25.781	0.000	0.000	0.454
		C		11.080	28.307	0.000	0.000	0.558
T5	100'-80'	A	0.846	38.521	85.998	0.000	0.000	2.103
		B		35.579	59.423	0.000	0.000	1.141
		C		25.875	56.543	0.000	0.000	1.105
T6	80'-60'	A	0.821	41.439	122.739	0.000	0.000	2.842
		B		38.560	65.151	0.000	0.000	1.253
		C		27.514	56.431	0.000	0.000	1.086
T7	60'-40'	A	0.788	40.465	122.522	0.000	0.000	2.781
		B		43.952	82.622	0.000	0.000	1.557
		C		26.865	56.287	0.000	0.000	1.063
T8	40'-20'	A	0.750	39.315	122.267	0.000	0.000	2.710
		B		44.512	82.367	0.000	0.000	1.563
		C		26.098	56.117	0.000	0.000	1.035
T9	20'-0'	A	0.750	39.315	122.267	0.000	0.000	2.710
		B		44.512	82.367	0.000	0.000	1.563
		C		26.098	56.117	0.000	0.000	1.035

Feed Line Shielding

Section	Elevation	Face	A_R	A_R Ice	A_F	A_F Ice
	ft		ft^2	ft^2	ft^2	ft^2
T1	150'-147'7"	A	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000
T2	147'7"-130'	A	0.300	2.369	0.000	0.000
		B	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000
T3	130'-110'	A	0.604	4.261	0.000	0.000
		B	0.145	0.689	0.000	0.000
		C	0.000	0.000	0.000	0.000
T4	110'-100'	A	0.000	0.719	0.464	1.083
		B	0.000	0.291	0.278	0.438
		C	0.000	0.000	0.000	0.000
T5	100'-80'	A	0.000	2.964	2.563	4.574
		B	0.000	1.343	1.243	2.073
		C	0.000	0.000	0.000	0.000
T6	80'-60'	A	0.000	4.181	4.625	7.641
		B	0.000	1.358	1.542	2.482
		C	0.000	0.000	0.000	0.000
T7	60'-40'	A	0.000	3.090	3.581	5.879
		B	0.000	1.854	2.234	3.527
		C	0.000	0.000	0.000	0.000
T8	40'-20'	A	0.000	2.723	3.341	5.445
		B	0.000	1.687	2.118	3.375
		C	0.000	0.000	0.000	0.000
T9	20'-0'	A	0.000	2.593	3.182	5.186
		B	0.000	1.607	2.017	3.214
		C	0.000	0.000	0.000	0.000

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
T1	150'-147'7"	1.812	1.260	1.457	1.440
T2	147'7"-130'	1.984	-3.518	1.318	-0.953
T3	130'-110'	1.354	-3.586	0.972	-1.273
T4	110'-100'	-1.171	-0.990	-0.607	-0.062
T5	100'-80'	-2.517	-2.262	-1.415	-0.592
T6	80'-60'	-4.950	-3.864	-3.127	-1.582
T7	60'-40'	-5.419	-7.017	-3.562	-3.638
T8	40'-20'	-6.237	-8.291	-4.182	-4.532
T9	20'-0'	-6.925	-9.291	-4.660	-5.118

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
M									
(3) 6' x 2" Mount Pipe (E)	A	From Leg	4.000 0' 0'	0.000	150'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.425 1.925 2.294 3.060 4.702	1.425 1.925 2.294 3.060 4.702	0.022 0.033 0.048 0.090 0.231
(3) 6' x 2" Mount Pipe (E)	B	From Leg	4.000 0' 0'	0.000	150'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.425 1.925 2.294 3.060 4.702	1.425 1.925 2.294 3.060 4.702	0.022 0.033 0.048 0.090 0.231
(3) 6' x 2" Mount Pipe (E)	C	From Leg	4.000 0' 0'	0.000	150'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.425 1.925 2.294 3.060 4.702	1.425 1.925 2.294 3.060 4.702	0.022 0.033 0.048 0.090 0.231
SC226-SFXSNM (E-CL per TIA)	B	From Leg	4.000 0' 10'	0.000	150'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.748 7.776 9.804 13.860 21.972	5.748 7.776 9.804 13.860 21.972	0.032 0.340 0.661 1.340 2.858
SC226-SFXSNM (E-CL per TIA)	C	From Leg	4.000 0' 10'	0.000	150'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.748 7.776 9.804 13.860 21.972	5.748 7.776 9.804 13.860 21.972	0.032 0.340 0.661 1.340 2.858
1' x 6" x 3" (E-Camera)	C	From Leg	4.000 0' 0'	0.000	150'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.700 0.821 0.951 1.236 1.910	0.350 0.452 0.562 0.808 1.404	0.033 0.038 0.044 0.062 0.126
Platform Mount [LP 405-1] (E)	C	None		0.000	150'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	20.800 28.100 35.400 50.000 79.200	20.800 28.100 35.400 50.000 79.200	1.800 2.066 2.332 2.864 3.928
M									
M									
7770.00 w/ Mount Pipe (E)	A	From Leg	4.000 0' 0'	0.000	141'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.119 6.626 7.128 8.164 10.360	4.254 5.014 5.711 7.155 10.412	0.055 0.103 0.157 0.287 0.665
7770.00 w/ Mount Pipe (E)	B	From Leg	4.000 0' 0'	0.000	141'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.119 6.626 7.128 8.164 10.360	4.254 5.014 5.711 7.155 10.412	0.055 0.103 0.157 0.287 0.665
7770.00 w/ Mount Pipe (E)	C	From Leg	4.000 0' 0'	0.000	141'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.119 6.626 7.128 8.164 10.360	4.254 5.014 5.711 7.155 10.412	0.055 0.103 0.157 0.287 0.665
AM-X-CD-14-65-00T-RET	A	From Leg	4.000	0.000	141'	No Ice	5.744	4.015	0.035

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
w/ Mount Pipe			0'			1/2" Ice	6.198	4.633	0.080
(E)			0'			1" Ice	6.661	5.276	0.131
						2" Ice	7.618	6.678	0.254
						4" Ice	9.668	9.744	0.610
AM-X-CD-14-65-00T-RET	B	From Leg	4.000	0.000	141'	No Ice	5.744	4.015	0.035
w/ Mount Pipe			0'			1/2" Ice	6.198	4.633	0.080
(E)			0'			1" Ice	6.661	5.276	0.131
						2" Ice	7.618	6.678	0.254
						4" Ice	9.668	9.744	0.610
AM-X-CD-14-65-00T-RET	C	From Leg	4.000	0.000	141'	No Ice	5.744	4.015	0.035
w/ Mount Pipe			0'			1/2" Ice	6.198	4.633	0.080
(E)			0'			1" Ice	6.661	5.276	0.131
						2" Ice	7.618	6.678	0.254
						4" Ice	9.668	9.744	0.610
LGP21401	A	From Leg	4.000	0.000	141'	No Ice	1.288	0.233	0.014
(E)			0'			1/2" Ice	1.445	0.313	0.021
			0'			1" Ice	1.611	0.403	0.030
						2" Ice	1.969	0.608	0.055
						4" Ice	2.788	1.121	0.135
LGP21401	B	From Leg	4.000	0.000	141'	No Ice	1.288	0.233	0.014
(E)			0'			1/2" Ice	1.445	0.313	0.021
			0'			1" Ice	1.611	0.403	0.030
						2" Ice	1.969	0.608	0.055
						4" Ice	2.788	1.121	0.135
LGP21401	C	From Leg	4.000	0.000	141'	No Ice	1.288	0.233	0.014
(E)			0'			1/2" Ice	1.445	0.313	0.021
			0'			1" Ice	1.611	0.403	0.030
						2" Ice	1.969	0.608	0.055
						4" Ice	2.788	1.121	0.135
7020.00	A	From Leg	4.000	0.000	141'	No Ice	0.119	0.204	0.002
(E)			0'			1/2" Ice	0.171	0.279	0.005
			0'			1" Ice	0.232	0.363	0.009
						2" Ice	0.380	0.556	0.022
						4" Ice	0.779	1.046	0.071
7020.00	B	From Leg	4.000	0.000	141'	No Ice	0.119	0.204	0.002
(E)			0'			1/2" Ice	0.171	0.279	0.005
			0'			1" Ice	0.232	0.363	0.009
						2" Ice	0.380	0.556	0.022
						4" Ice	0.779	1.046	0.071
7020.00	C	From Leg	4.000	0.000	141'	No Ice	0.119	0.204	0.002
(E)			0'			1/2" Ice	0.171	0.279	0.005
			0'			1" Ice	0.232	0.363	0.009
						2" Ice	0.380	0.556	0.022
						4" Ice	0.779	1.046	0.071
RRUS 11 B12	A	From Leg	0.500	0.000	141'	No Ice	3.306	1.361	0.051
(E)			0'			1/2" Ice	3.550	1.540	0.072
			0'			1" Ice	3.802	1.728	0.095
						2" Ice	4.334	2.130	0.153
						4" Ice	5.501	3.038	0.314
RRUS 11 B12	B	From Leg	0.500	0.000	141'	No Ice	3.306	1.361	0.051
(E)			0'			1/2" Ice	3.550	1.540	0.072
			0'			1" Ice	3.802	1.728	0.095
						2" Ice	4.334	2.130	0.153
						4" Ice	5.501	3.038	0.314
RRUS 11 B12	C	From Leg	0.500	0.000	141'	No Ice	3.306	1.361	0.051
(E)			0'			1/2" Ice	3.550	1.540	0.072
			0'			1" Ice	3.802	1.728	0.095

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice	4.334	2.130	0.153
						4" Ice	5.501	3.038	0.314
RRUS 11 B2	A	From Leg	0.500	0.000	141'	No Ice	3.306	1.361	0.051
(E)			0'			1/2" Ice	3.550	1.540	0.072
			0'			1" Ice	3.802	1.728	0.095
						2" Ice	4.334	2.130	0.153
						4" Ice	5.501	3.038	0.314
RRUS 11 B2	B	From Leg	0.500	0.000	141'	No Ice	3.306	1.361	0.051
(E)			0'			1/2" Ice	3.550	1.540	0.072
			0'			1" Ice	3.802	1.728	0.095
						2" Ice	4.334	2.130	0.153
						4" Ice	5.501	3.038	0.314
RRUS 11 B2	C	From Leg	0.500	0.000	141'	No Ice	3.306	1.361	0.051
(E)			0'			1/2" Ice	3.550	1.540	0.072
			0'			1" Ice	3.802	1.728	0.095
						2" Ice	4.334	2.130	0.153
						4" Ice	5.501	3.038	0.314
DC6-48-60-18-8F	B	From Leg	0.500	0.000	141'	No Ice	1.467	1.467	0.019
(E)			0'			1/2" Ice	1.667	1.667	0.037
			0'			1" Ice	1.878	1.878	0.057
						2" Ice	2.333	2.333	0.105
						4" Ice	3.378	3.378	0.239
OPA-65R-LCUU-H4 w/ Mount Pipe	A	From Leg	4.000	0.000	141'	No Ice	6.957	4.594	0.075
(P)			0'			1/2" Ice	7.428	5.265	0.128
			0'			1" Ice	7.908	5.948	0.187
						2" Ice	8.899	7.368	0.326
						4" Ice	11.016	10.470	0.718
OPA-65R-LCUU-H4 w/ Mount Pipe	B	From Leg	4.000	0.000	141'	No Ice	6.957	4.594	0.075
(P)			0'			1/2" Ice	7.428	5.265	0.128
			0'			1" Ice	7.908	5.948	0.187
						2" Ice	8.899	7.368	0.326
						4" Ice	11.016	10.470	0.718
OPA-65R-LCUU-H4 w/ Mount Pipe	C	From Leg	4.000	0.000	141'	No Ice	6.957	4.594	0.075
(P)			0'			1/2" Ice	7.428	5.265	0.128
			0'			1" Ice	7.908	5.948	0.187
						2" Ice	8.899	7.368	0.326
						4" Ice	11.016	10.470	0.718
DC6-48-60-18-8F	A	From Leg	4.000	0.000	141'	No Ice	1.467	1.467	0.019
(P)			0'			1/2" Ice	1.667	1.667	0.037
			0'			1" Ice	1.878	1.878	0.057
						2" Ice	2.333	2.333	0.105
						4" Ice	3.378	3.378	0.239
RRUS 32 B30	A	From Leg	4.000	0.000	141'	No Ice	3.141	1.739	0.060
(P)			0'			1/2" Ice	3.397	1.960	0.080
			0'			1" Ice	3.661	2.189	0.104
						2" Ice	4.216	2.674	0.161
						4" Ice	5.429	3.748	0.322
RRUS 32 B30	B	From Leg	4.000	0.000	141'	No Ice	3.141	1.739	0.060
(P)			0'			1/2" Ice	3.397	1.960	0.080
			0'			1" Ice	3.661	2.189	0.104
						2" Ice	4.216	2.674	0.161
						4" Ice	5.429	3.748	0.322
RRUS 32 B30	C	From Leg	4.000	0.000	141'	No Ice	3.141	1.739	0.060
(P)			0'			1/2" Ice	3.397	1.960	0.080
			0'			1" Ice	3.661	2.189	0.104
						2" Ice	4.216	2.674	0.161
						4" Ice	5.429	3.748	0.322

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Sector Mount [SM 410-3] (1Existing Mount with Mount Mod)	C	None		0.000	141'	No Ice	23.960	23.960	1.100
						1/2" Ice	34.060	34.060	1.600
						1" Ice	44.160	44.160	2.099
						2" Ice	64.360	64.360	3.098
						4" Ice	104.760	104.760	5.095
M M5160160P10006 (E)	B	From Leg	2.000 0' 0'	0.000	130'	No Ice	1.050	0.294	0.002
						1/2" Ice	1.210	0.408	0.007
						1" Ice	1.378	0.533	0.014
						2" Ice	1.741	0.837	0.035
						4" Ice	2.571	1.550	0.108
M5160160P10006 (E)	C	From Leg	2.000 0' 0'	0.000	130'	No Ice	1.050	0.294	0.002
						1/2" Ice	1.210	0.408	0.007
						1" Ice	1.378	0.533	0.014
						2" Ice	1.741	0.837	0.035
						4" Ice	2.571	1.550	0.108
Side Arm Mount [SO 301-1] (E)	B	From Leg	1.000 0' 0'	0.000	130'	No Ice	1.000	0.900	0.023
						1/2" Ice	1.390	1.420	0.033
						1" Ice	1.780	1.940	0.042
						2" Ice	2.560	2.980	0.061
						4" Ice	4.120	5.060	0.100
Side Arm Mount [SO 301-1] (E)	C	From Leg	1.000 0' 0'	0.000	130'	No Ice	1.000	0.900	0.023
						1/2" Ice	1.390	1.420	0.033
						1" Ice	1.780	1.940	0.042
						2" Ice	2.560	2.980	0.061
						4" Ice	4.120	5.060	0.100
M SC320 (E)	B	From Leg	6.000 0' 10'	0.000	118'	No Ice	6.380	6.380	0.025
						1/2" Ice	8.613	8.613	0.071
						1" Ice	10.862	10.862	0.131
						2" Ice	15.410	15.410	0.293
						4" Ice	24.686	24.686	0.791
SC229-SFXLDF (E)	C	From Leg	6.000 0' 10'	0.000	118'	No Ice	5.950	5.950	0.032
						1/2" Ice	7.967	7.967	0.075
						1" Ice	10.000	10.000	0.130
						2" Ice	14.117	14.117	0.279
						4" Ice	21.449	21.449	0.735
Side Arm Mount [SO 306-1] (E)	B	From Leg	3.000 0' 0'	0.000	118'	No Ice	0.980	2.180	0.042
						1/2" Ice	1.700	3.800	0.062
						1" Ice	2.420	5.420	0.083
						2" Ice	3.860	8.660	0.123
						4" Ice	6.740	15.140	0.205
Side Arm Mount [SO 306-1] (E)	C	From Leg	3.000 0' 0'	0.000	118'	No Ice	0.980	2.180	0.042
						1/2" Ice	1.700	3.800	0.062
						1" Ice	2.420	5.420	0.083
						2" Ice	3.860	8.660	0.123
						4" Ice	6.740	15.140	0.205
10' horizontal x 2" Pipe Mount (E-Tie Back as per photo)	B	From Face	1.000 0' 0'	0.000	118'	No Ice	1.333	1.333	0.100
						1/2" Ice	2.017	2.017	0.485
						1" Ice	2.711	2.711	0.882
						2" Ice	4.133	4.133	1.715
						4" Ice	7.111	7.111	3.537
10' horizontal x 2" Pipe Mount (E-Tie Back as per photo)	C	From Face	1.000 0' 0'	0.000	118'	No Ice	1.333	1.333	0.100
						1/2" Ice	2.017	2.017	0.485
						1" Ice	2.711	2.711	0.882
						2" Ice	4.133	4.133	1.715
						4" Ice	7.111	7.111	3.537

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
M *##* *##* *##*									
ERICSSON AIR 21 B2A B4P (E)	A	From Leg	4.000 0' -2'	0.000	114'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.588 7.033 7.488 8.422 10.395	4.297 4.703 5.130 6.010 7.873	0.092 0.133 0.180 0.290 0.580
ERICSSON AIR 21 B2A B4P (E)	B	From Leg	4.000 0' -2'	0.000	114'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.588 7.033 7.488 8.422 10.395	4.297 4.703 5.130 6.010 7.873	0.092 0.133 0.180 0.290 0.580
ERICSSON AIR 21 B2A B4P (E)	C	From Leg	4.000 0' -2'	0.000	114'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.588 7.033 7.488 8.422 10.395	4.297 4.703 5.130 6.010 7.873	0.092 0.133 0.180 0.290 0.580
ERICSSON AIR 21 B4A B2P (E)	A	From Leg	4.000 0' -2'	0.000	114'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.588 7.033 7.488 8.422 10.395	4.297 4.703 5.130 6.010 7.873	0.092 0.133 0.180 0.290 0.580
ERICSSON AIR 21 B4A B2P (E)	B	From Leg	4.000 0' -2'	0.000	114'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.588 7.033 7.488 8.422 10.395	4.297 4.703 5.130 6.010 7.873	0.092 0.133 0.180 0.290 0.580
ERICSSON AIR 21 B4A B2P (E)	C	From Leg	4.000 0' -2'	0.000	114'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.588 7.033 7.488 8.422 10.395	4.297 4.703 5.130 6.010 7.873	0.092 0.133 0.180 0.290 0.580
LNX-6515DS-VTM (E)	A	From Leg	4.000 0' -2'	0.000	114'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	11.445 12.064 12.689 14.030 17.045	7.696 8.289 8.889 10.111 12.644	0.050 0.116 0.190 0.361 0.803
LNX-6515DS-VTM (E)	B	From Leg	4.000 0' -2'	0.000	114'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	11.445 12.064 12.689 14.030 17.045	7.696 8.289 8.889 10.111 12.644	0.050 0.116 0.190 0.361 0.803
LNX-6515DS-VTM (E)	C	From Leg	4.000 0' -2'	0.000	114'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	11.445 12.064 12.689 14.030 17.045	7.696 8.289 8.889 10.111 12.644	0.050 0.116 0.190 0.361 0.803
KRY 112 71 (E)	A	From Leg	4.000 0' -2'	0.000	114'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.681 0.802 0.932 1.219 1.896	0.450 0.559 0.677 0.939 1.566	0.013 0.018 0.025 0.044 0.111
KRY 112 71 (E)	B	From Leg	4.000 0' -2'	0.000	114'	No Ice 1/2" Ice 1" Ice	0.681 0.802 0.932	0.450 0.559 0.677	0.013 0.018 0.025

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice	1.219	0.939	0.044
						4" Ice	1.896	1.566	0.111
KRY 112 71	C	From Leg	4.000	0.000	114'	No Ice	0.681	0.450	0.013
(E)			0'			1/2" Ice	0.802	0.559	0.018
			-2'			1" Ice	0.932	0.677	0.025
						2" Ice	1.219	0.939	0.044
						4" Ice	1.896	1.566	0.111
RRUS 11 B12	A	From Leg	4.000	0.000	114'	No Ice	3.306	1.361	0.051
(E)			0'			1/2" Ice	3.550	1.540	0.072
			-2'			1" Ice	3.802	1.728	0.095
						2" Ice	4.334	2.130	0.153
						4" Ice	5.501	3.038	0.314
RRUS 11 B12	B	From Leg	4.000	0.000	114'	No Ice	3.306	1.361	0.051
(E)			0'			1/2" Ice	3.550	1.540	0.072
			-2'			1" Ice	3.802	1.728	0.095
						2" Ice	4.334	2.130	0.153
						4" Ice	5.501	3.038	0.314
RRUS 11 B12	C	From Leg	4.000	0.000	114'	No Ice	3.306	1.361	0.051
(E)			0'			1/2" Ice	3.550	1.540	0.072
			-2'			1" Ice	3.802	1.728	0.095
						2" Ice	4.334	2.130	0.153
						4" Ice	5.501	3.038	0.314
Sector Mount [SM 307-3]	C	None		0.000	114'	No Ice	26.220	26.220	1.620
(4 M.P. / Sec. Inc.)						1/2" Ice	36.280	36.280	2.148
						1" Ice	46.340	46.340	2.676
						2" Ice	66.460	66.460	3.733
						4" Ice	106.700	106.700	5.845
M									
800MHz 2X50W RRH	A	From Leg	1.000	0.000	103'	No Ice	2.401	2.254	0.064
W/FILTER			0'			1/2" Ice	2.613	2.460	0.086
(E)			0'			1" Ice	2.833	2.675	0.111
						2" Ice	3.300	3.132	0.172
						4" Ice	4.337	4.148	0.338
800MHz 2X50W RRH	B	From Leg	1.000	0.000	103'	No Ice	2.401	2.254	0.064
W/FILTER			0'			1/2" Ice	2.613	2.460	0.086
(E)			0'			1" Ice	2.833	2.675	0.111
						2" Ice	3.300	3.132	0.172
						4" Ice	4.337	4.148	0.338
800MHz 2X50W RRH	C	From Leg	1.000	0.000	103'	No Ice	2.401	2.254	0.064
W/FILTER			0'			1/2" Ice	2.613	2.460	0.086
(E)			0'			1" Ice	2.833	2.675	0.111
						2" Ice	3.300	3.132	0.172
						4" Ice	4.337	4.148	0.338
PCS 1900MHz 2x40W	A	From Leg	1.000	0.000	103'	No Ice	2.743	1.456	0.044
(E)			0'			1/2" Ice	2.972	1.645	0.062
			0'			1" Ice	3.210	1.844	0.084
						2" Ice	3.711	2.266	0.135
						4" Ice	4.818	3.215	0.282
PCS 1900MHz 2x40W	B	From Leg	1.000	0.000	103'	No Ice	2.743	1.456	0.044
(E)			0'			1/2" Ice	2.972	1.645	0.062
			0'			1" Ice	3.210	1.844	0.084
						2" Ice	3.711	2.266	0.135
						4" Ice	4.818	3.215	0.282
PCS 1900MHz 2x40W	C	From Leg	1.000	0.000	103'	No Ice	2.743	1.456	0.044
(E)			0'			1/2" Ice	2.972	1.645	0.062
			0'			1" Ice	3.210	1.844	0.084
						2" Ice	3.711	2.266	0.135

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						4" Ice	4.818	3.215	0.282
(2) 4' x 2" Pipe Mount (E-As per photo)	A	From Leg	1.000 0' 0'	0.000	103'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.785 1.028 1.281 1.814 3.111	0.785 1.028 1.281 1.814 3.111	0.029 0.035 0.044 0.072 0.167
(2) 4' x 2" Pipe Mount (E-As per photo)	B	From Leg	1.000 0' 0'	0.000	103'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.785 1.028 1.281 1.814 3.111	0.785 1.028 1.281 1.814 3.111	0.029 0.035 0.044 0.072 0.167
(2) 4' x 2" Pipe Mount (E-As per photo)	C	From Leg	1.000 0' 0'	0.000	103'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.785 1.028 1.281 1.814 3.111	0.785 1.028 1.281 1.814 3.111	0.029 0.035 0.044 0.072 0.167
Pipe Mount [PM 601-3] (E-For TME)	C	None		0.000	103'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.390 5.480 6.570 8.750 13.110	4.390 5.480 6.570 8.750 13.110	0.195 0.237 0.280 0.365 0.534
M APXVSPP18-C-A20 w/ Mount Pipe (E)	A	From Leg	4.000 0' 0'	0.000	100'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.498 9.149 9.767 11.031 13.679	6.946 8.127 9.021 10.844 14.851	0.083 0.151 0.227 0.406 0.909
APXVSPP18-C-A20 w/ Mount Pipe (E)	B	From Leg	4.000 0' 0'	0.000	100'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.498 9.149 9.767 11.031 13.679	6.946 8.127 9.021 10.844 14.851	0.083 0.151 0.227 0.406 0.909
APXVSPP18-C-A20 w/ Mount Pipe (E)	C	From Leg	4.000 0' 0'	0.000	100'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.498 9.149 9.767 11.031 13.679	6.946 8.127 9.021 10.844 14.851	0.083 0.151 0.227 0.406 0.909
6' x 2" Mount Pipe (E-As per photo)	A	From Leg	4.000 0' 0'	0.000	100'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.425 1.925 2.294 3.060 4.702	1.425 1.925 2.294 3.060 4.702	0.022 0.033 0.048 0.090 0.231
6' x 2" Mount Pipe (E-As per photo)	B	From Leg	4.000 0' 0'	0.000	100'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.425 1.925 2.294 3.060 4.702	1.425 1.925 2.294 3.060 4.702	0.022 0.033 0.048 0.090 0.231
6' x 2" Mount Pipe (E-As per photo)	C	From Leg	4.000 0' 0'	0.000	100'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.425 1.925 2.294 3.060 4.702	1.425 1.925 2.294 3.060 4.702	0.022 0.033 0.048 0.090 0.231
Sector Mount [SM 406-3] (E)	C	None		0.000	100'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	19.830 29.410 38.990 58.150 96.470	19.830 29.410 38.990 58.150 96.470	0.923 1.326 1.729 2.534 4.146

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
M									
TA-2335-DAB-H	B	From Leg	3.000	0.000	93'	No Ice	7.758	2.956	0.033
(E)			0'			1/2" Ice	8.145	3.258	0.076
			0'			1" Ice	8.540	3.569	0.124
						2" Ice	9.357	4.217	0.234
						4" Ice	11.094	5.617	0.518
Pipe Mount [PM 601-1]	B	From Leg	3.000	0.000	93'	No Ice	3.000	0.900	0.065
(E)			0'			1/2" Ice	3.740	1.120	0.079
			0'			1" Ice	4.480	1.340	0.093
						2" Ice	5.960	1.780	0.122
						4" Ice	8.920	2.660	0.178
Side Arm Mount [SO 701-1]	B	From Leg	1.500	0.000	93'	No Ice	0.850	1.670	0.065
(E)			0'			1/2" Ice	1.140	2.340	0.079
			0'			1" Ice	1.430	3.010	0.093
						2" Ice	2.010	4.350	0.121
						4" Ice	3.170	7.030	0.177
M									
(2) LPA-80063/4CF w/ Mount Pipe	A	From Leg	4.000	0.000	88'	No Ice	7.248	7.260	0.038
(E)			0'			1/2" Ice	7.719	7.957	0.104
			2'			1" Ice	8.200	8.672	0.176
						2" Ice	9.195	10.156	0.344
						4" Ice	11.320	13.391	0.796
(2) LPA-80063/4CF w/ Mount Pipe	B	From Leg	4.000	0.000	88'	No Ice	7.248	7.260	0.038
(E)			0'			1/2" Ice	7.719	7.957	0.104
			2'			1" Ice	8.200	8.672	0.176
						2" Ice	9.195	10.156	0.344
						4" Ice	11.320	13.391	0.796
(2) LPA-80063/4CF w/ Mount Pipe	C	From Leg	4.000	0.000	88'	No Ice	7.248	7.260	0.038
(E)			0'			1/2" Ice	7.719	7.957	0.104
			2'			1" Ice	8.200	8.672	0.176
						2" Ice	9.195	10.156	0.344
						4" Ice	11.320	13.391	0.796
(2) BXA-171063/8CF w/ Mount Pipe	A	From Leg	4.000	0.000	88'	No Ice	3.140	3.510	0.029
(E)			0'			1/2" Ice	3.515	4.130	0.062
			2'			1" Ice	3.915	4.757	0.100
						2" Ice	4.804	6.059	0.196
						4" Ice	6.715	9.095	0.492
(2) BXA-171063/8CF w/ Mount Pipe	B	From Leg	4.000	0.000	88'	No Ice	3.140	3.510	0.029
(E)			0'			1/2" Ice	3.515	4.130	0.062
			2'			1" Ice	3.915	4.757	0.100
						2" Ice	4.804	6.059	0.196
						4" Ice	6.715	9.095	0.492
(2) BXA-171063/8CF w/ Mount Pipe	C	From Leg	4.000	0.000	88'	No Ice	3.140	3.510	0.029
(E)			0'			1/2" Ice	3.515	4.130	0.062
			2'			1" Ice	3.915	4.757	0.100
						2" Ice	4.804	6.059	0.196
						4" Ice	6.715	9.095	0.492
SWCP 2x5514 w/ Mount Pipe	A	From Leg	4.000	0.000	88'	No Ice	7.251	6.966	0.039
(E)			0'			1/2" Ice	7.751	7.746	0.104
			2'			1" Ice	8.252	8.499	0.174
						2" Ice	9.286	10.058	0.339
						4" Ice	11.480	13.400	0.791
SWCP 2x5514 w/ Mount Pipe	B	From Leg	4.000	0.000	88'	No Ice	7.251	6.966	0.039
(E)			0'			1/2" Ice	7.751	7.746	0.104
			2'			1" Ice	8.252	8.499	0.174
						2" Ice	9.286	10.058	0.339
						4" Ice	11.480	13.400	0.791

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
SWCP 2x5514 w/ Mount Pipe (E)	C	From Leg	4.000 0' 2'	0.000	88'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.251 7.751 8.252 9.286 11.480	6.966 7.746 8.499 10.058 13.400	0.039 0.104 0.174 0.339 0.791
(2) FD9R6004/2C-3L (E)	A	From Leg	4.000 0' 2'	0.000	88'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.367 0.451 0.543 0.755 1.281	0.085 0.136 0.196 0.343 0.740	0.003 0.005 0.009 0.020 0.063
(2) FD9R6004/2C-3L (E)	B	From Leg	4.000 0' 2'	0.000	88'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.367 0.451 0.543 0.755 1.281	0.085 0.136 0.196 0.343 0.740	0.003 0.005 0.009 0.020 0.063
(2) FD9R6004/2C-3L (E)	C	From Leg	4.000 0' 2'	0.000	88'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.367 0.451 0.543 0.755 1.281	0.085 0.136 0.196 0.343 0.740	0.003 0.005 0.009 0.020 0.063
Sector Mount [SM 408-3] (E)	C	None		0.000	88'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	22.450 33.500 44.550 66.650 110.850	22.450 33.500 44.550 66.650 110.850	1.019 1.475 1.930 2.840 4.661
Pipe Mount [PM 601-3] (E-Mount Attacment) *M* *M*	C	None		0.000	88'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.390 5.480 6.570 8.750 13.110	4.390 5.480 6.570 8.750 13.110	0.195 0.237 0.280 0.365 0.534
APXV18-206517S-C w/ Mount Pipe (E-Leg connected)	A	From Leg	1.000 0' 0'	0.000	65'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.404 5.960 6.481 7.547 9.919	4.700 5.860 6.734 8.515 12.277	0.052 0.097 0.150 0.280 0.679
APXV18-206517S-C w/ Mount Pipe (E-Leg connected)	B	From Leg	1.000 0' 0'	0.000	65'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.404 5.960 6.481 7.547 9.919	4.700 5.860 6.734 8.515 12.277	0.052 0.097 0.150 0.280 0.679
APXV18-206517S-C w/ Mount Pipe (E-Leg connected)	C	From Leg	1.000 0' 0'	0.000	65'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.404 5.960 6.481 7.547 9.919	4.700 5.860 6.734 8.515 12.277	0.052 0.097 0.150 0.280 0.679
M GPS-TMG-HR-26NCM (E)	C	From Leg	1.000 0' 0'	0.000	50'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.156 0.213 0.279 0.437 0.857	0.156 0.213 0.279 0.437 0.857	0.001 0.002 0.005 0.014 0.052
4' x 2" Pipe Mount (E)	C	From Leg	0.500 0' 0'	0.000	50'	No Ice 1/2" Ice 1" Ice 2" Ice	0.785 1.028 1.281 1.814	0.785 1.028 1.281 1.814	0.029 0.035 0.044 0.072

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						4" Ice	3.111	3.111	0.167
M									
Side Arm Mount [SO 301-1]	C	From Leg	1.000	0.000	43'	No Ice	1.000	0.900	0.023
(E)			0'			1/2" Ice	1.390	1.420	0.033
			0'			1" Ice	1.780	1.940	0.042
						2" Ice	2.560	2.980	0.061
						4" Ice	4.120	5.060	0.100
M									
M									
M									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
HPLPD1-18	B	Paraboloid	From	4.000	-27.000		150'	1.140	No Ice	1.021	0.017
(E)		w/Shroud (HP)	Leg	0'					1/2" Ice	1.175	0.023
				1'					1" Ice	1.330	0.029
									2" Ice	1.639	0.041
									4" Ice	2.258	0.065
HPLPD1-18	C	Paraboloid	From	4.000	-11.000		150'	1.140	No Ice	1.021	0.017
(E)		w/Shroud (HP)	Leg	0'					1/2" Ice	1.175	0.023
				1'					1" Ice	1.330	0.029
									2" Ice	1.639	0.041
									4" Ice	2.258	0.065
M											
TA-2324-LHCP	C	Paraboloid w/o	From	2.000	-49.000		43'	2.104	No Ice	3.480	0.020
(E)		Radome	Leg	0'					1/2" Ice	3.756	0.039
				0'					1" Ice	4.033	0.059
									2" Ice	4.585	0.097
									4" Ice	5.691	0.174
M											
##											

Truss-Leg Properties

Section Designation	Area in^2	Area Ice in^2	Self Weight K	Ice Weight K	Equiv. Diameter in	Equiv. Diameter Ice in	Leg Area in^2
Pirod 105244	1026.861	2520.217	0.563	0.497	7.131	17.502	3.682
Pirod 105216	1998.089	4718.631	0.505	0.978	6.938	16.384	3.682
Pirod 105217	2130.748	4816.579	0.619	0.953	7.398	16.724	5.301
Pirod 105218	2263.469	4881.697	0.755	0.916	7.859	16.950	7.216
Pirod 105218	2263.469	4699.377	0.755	0.847	7.859	16.317	7.216
Pirod 105219	2441.869	5025.091	0.944	0.886	8.479	17.448	9.425

Load Combinations

Comb. No.	Description
1	Dead Only
2	Dead+Wind 0 deg - No Ice
3	Dead+Wind 30 deg - No Ice
4	Dead+Wind 60 deg - No Ice
5	Dead+Wind 90 deg - No Ice
6	Dead+Wind 120 deg - No Ice
7	Dead+Wind 150 deg - No Ice
8	Dead+Wind 180 deg - No Ice
9	Dead+Wind 210 deg - No Ice
10	Dead+Wind 240 deg - No Ice
11	Dead+Wind 270 deg - No Ice
12	Dead+Wind 300 deg - No Ice
13	Dead+Wind 330 deg - No Ice
14	Dead+Ice+Temp
15	Dead+Wind 0 deg+Ice+Temp
16	Dead+Wind 30 deg+Ice+Temp
17	Dead+Wind 60 deg+Ice+Temp
18	Dead+Wind 90 deg+Ice+Temp
19	Dead+Wind 120 deg+Ice+Temp
20	Dead+Wind 150 deg+Ice+Temp
21	Dead+Wind 180 deg+Ice+Temp
22	Dead+Wind 210 deg+Ice+Temp
23	Dead+Wind 240 deg+Ice+Temp
24	Dead+Wind 270 deg+Ice+Temp
25	Dead+Wind 300 deg+Ice+Temp
26	Dead+Wind 330 deg+Ice+Temp
27	Dead+Wind 0 deg - Service
28	Dead+Wind 30 deg - Service
29	Dead+Wind 60 deg - Service
30	Dead+Wind 90 deg - Service
31	Dead+Wind 120 deg - Service
32	Dead+Wind 150 deg - Service
33	Dead+Wind 180 deg - Service
34	Dead+Wind 210 deg - Service
35	Dead+Wind 240 deg - Service
36	Dead+Wind 270 deg - Service
37	Dead+Wind 300 deg - Service
38	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	150 - 147.583	Leg	Max Tension	8	0.680	0.000	0.000
			Max. Compression	23	-2.341	-0.043	-0.010
			Max. Mx	10	-2.110	-0.132	-0.031
			Max. My	12	-1.471	-0.068	-0.069
			Max. Vy	10	0.061	0.000	0.000
			Max. Vx	10	0.036	0.000	0.000
		Diagonal	Max Tension	11	1.300	0.000	0.000
			Max. Compression	11	-1.345	0.000	0.000
			Max. Mx	14	-0.018	0.003	0.000
			Max. Vy	14	-0.003	0.000	0.000
		Top Girt	Max Tension	12	0.909	-0.051	-0.000
			Max. Compression	10	-0.916	0.025	-0.000

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	2	0.330	-0.090	-0.000
			Max. My	15	0.080	-0.060	-0.000
			Max. Vy	2	-0.054	-0.090	-0.000
			Max. Vx	15	-0.000	0.000	0.000
T2	147.583 - 130	Leg	Max Tension	4	21.888	-0.240	-0.005
			Max. Compression	10	-25.799	-0.524	-0.035
			Max. Mx	10	-25.799	-0.524	-0.035
			Max. My	11	-1.532	-0.002	0.489
			Max. Vy	10	-2.305	0.244	0.003
			Max. Vx	3	1.994	0.010	-0.193
		Diagonal	Max Tension	11	2.752	0.000	0.000
			Max. Compression	11	-2.876	0.000	0.000
			Max. Mx	19	0.605	-0.003	0.000
			Max. My	11	-2.610	-0.001	-0.000
			Max. Vy	19	0.005	-0.003	0.000
			Max. Vx	11	0.000	-0.001	-0.000
		Horizontal	Max Tension	8	0.498	0.000	0.000
			Max. Compression	2	-0.326	0.000	0.000
			Max. Mx	14	0.216	0.010	0.000
			Max. Vy	14	-0.009	0.000	0.000
		Top Girt	Max Tension	6	0.153	0.000	0.000
			Max. Compression	4	-0.111	0.000	0.000
			Max. Mx	14	0.027	0.008	0.000
			Max. Vy	14	-0.008	0.000	0.000
		Bottom Girt	Max Tension	8	1.317	0.000	0.000
			Max. Compression	2	-1.221	0.000	0.000
			Max. Mx	14	0.029	0.010	0.000
			Max. Vy	14	-0.009	0.000	0.000
T3	130 - 110	Leg	Max Tension	4	57.687	0.584	0.046
			Max. Compression	10	-65.204	2.142	0.144
			Max. Mx	10	-65.204	2.142	0.144
			Max. My	3	-4.001	-0.006	-1.551
			Max. Vy	10	-4.669	2.142	0.144
			Max. Vx	3	3.305	-0.006	-1.551
		Diagonal	Max Tension	11	4.968	0.000	0.000
			Max. Compression	11	-5.083	0.000	0.000
			Max. Mx	19	1.112	-0.004	0.000
			Max. My	11	-3.404	-0.001	-0.001
			Max. Vy	19	0.006	-0.004	0.000
			Max. Vx	11	0.000	0.000	0.000
		Horizontal	Max Tension	8	0.827	0.000	0.000
			Max. Compression	2	-0.720	0.000	0.000
			Max. Mx	14	0.172	0.010	0.000
			Max. Vy	14	0.008	0.000	0.000
		Top Girt	Max Tension	10	1.313	0.000	0.000
			Max. Compression	4	-1.287	0.000	0.000
			Max. Mx	14	0.012	0.010	0.000
			Max. Vy	14	-0.009	0.000	0.000
		Bottom Girt	Max Tension	8	1.664	0.000	0.000
			Max. Compression	2	-1.557	0.000	0.000
			Max. Mx	14	0.094	0.012	0.000
			Max. Vy	14	-0.010	0.000	0.000
T4	110 - 100	Leg	Max Tension	4	61.395	-2.131	-0.139
			Max. Compression	10	-68.113	4.450	0.144
			Max. Mx	6	-68.021	4.462	-0.103
			Max. My	3	-3.691	0.011	-4.495
			Max. Vy	8	0.507	-4.395	0.052
			Max. Vx	5	-0.570	-0.004	4.303
		Diagonal	Max Tension	4	7.146	0.058	-0.006
			Max. Compression	10	-8.272	0.000	0.000
			Max. Mx	3	4.204	0.060	-0.001

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	11	-6.181	-0.047	0.010
			Max. Vy	20	0.017	0.033	-0.003
			Max. Vx	11	-0.002	0.000	0.000
		Top Girt	Max Tension	8	0.842	0.000	0.000
			Max. Compression	6	-0.550	0.000	0.000
			Max. Mx	14	0.295	-0.028	0.000
			Max. My	14	0.330	0.000	0.001
			Max. Vy	14	-0.023	0.000	0.000
			Max. Vx	14	0.001	0.000	0.000
T5	100 - 80	Leg	Max Tension	4	94.733	-4.498	0.070
			Max. Compression	2	-105.835	4.848	0.053
			Max. Mx	6	-105.784	4.849	0.015
			Max. My	5	-4.463	-0.114	5.092
			Max. Vy	8	-0.988	-4.135	0.039
			Max. Vx	5	1.331	-0.114	5.092
		Diagonal	Max Tension	9	12.196	0.000	0.000
			Max. Compression	3	-14.213	0.000	0.000
			Max. Mx	2	0.834	0.128	-0.005
			Max. My	11	-7.974	-0.082	0.010
			Max. Vy	2	-0.033	0.128	-0.005
			Max. Vx	11	-0.002	0.000	0.000
		Horizontal	Max Tension	4	10.762	0.000	0.000
			Max. Compression	10	-8.858	0.000	0.000
			Max. Mx	14	2.141	-0.055	0.000
			Max. My	14	2.124	0.000	0.002
			Max. Vy	14	0.031	0.000	0.000
			Max. Vx	14	0.001	0.000	0.000
		Top Girt	Max Tension	4	7.448	0.000	0.000
			Max. Compression	10	-6.138	0.000	0.000
			Max. Mx	14	1.449	-0.040	0.000
			Max. My	14	1.454	0.000	0.001
			Max. Vy	14	0.027	0.000	0.000
			Max. Vx	14	-0.001	0.000	0.000
T6	80 - 60	Leg	Max Tension	12	141.938	-4.039	0.009
			Max. Compression	2	-159.787	5.255	0.018
			Max. Mx	6	-159.554	5.267	-0.008
			Max. My	13	-8.182	-0.281	7.089
			Max. Vy	6	-0.328	5.267	-0.008
			Max. Vx	11	0.599	-0.283	-7.088
		Diagonal	Max Tension	5	8.392	0.000	0.000
			Max. Compression	5	-8.355	0.000	0.000
			Max. Mx	2	7.056	0.112	0.007
			Max. My	11	-8.111	-0.064	0.017
			Max. Vy	15	-0.031	0.076	0.007
			Max. Vx	11	-0.003	0.000	0.000
		Top Girt	Max Tension	4	7.838	0.000	0.000
			Max. Compression	6	-6.552	0.000	0.000
			Max. Mx	14	1.483	-0.070	0.000
			Max. My	14	1.461	0.000	0.002
			Max. Vy	14	0.035	0.000	0.000
			Max. Vx	14	-0.001	0.000	0.000
T7	60 - 40	Leg	Max Tension	12	179.463	-4.615	-0.012
			Max. Compression	2	-200.956	6.159	0.102
			Max. Mx	2	-200.956	6.159	0.102
			Max. My	13	-10.336	0.045	5.769
			Max. Vy	2	-0.264	6.159	0.102
			Max. Vx	13	-0.301	0.045	5.769
		Diagonal	Max Tension	9	8.314	0.000	0.000
			Max. Compression	9	-8.365	0.000	0.000
			Max. Mx	2	6.977	0.085	0.006
			Max. My	15	-2.598	0.040	0.008

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	25	0.033	0.063	0.007
			Max. Vx	15	-0.002	0.000	0.000
T8	40 - 20	Leg	Max Tension	12	213.710	-4.462	-0.034
			Max. Compression	2	-239.507	5.504	0.015
			Max. Mx	2	-220.263	6.159	0.102
			Max. My	13	-10.884	0.045	5.769
			Max. Vy	21	0.521	-4.713	-0.023
			Max. Vx	11	-0.343	-0.151	-5.636
		Diagonal	Max Tension	3	8.822	0.000	0.000
			Max. Compression	3	-8.980	0.000	0.000
			Max. Mx	2	6.620	0.137	0.010
			Max. My	15	2.861	0.082	0.012
			Max. Vy	25	0.048	0.093	0.012
			Max. Vx	15	-0.003	0.000	0.000
T9	20 - 0	Leg	Max Tension	12	244.351	-5.107	-0.031
			Max. Compression	2	-274.860	0.000	0.000
			Max. Mx	15	-120.782	6.435	-0.047
			Max. My	11	-13.859	-0.313	-8.621
			Max. Vy	21	-0.862	-4.713	-0.023
			Max. Vx	11	-0.972	-0.313	-8.621
		Diagonal	Max Tension	3	9.767	0.000	0.000
			Max. Compression	10	-10.450	0.000	0.000
			Max. Mx	2	6.363	0.127	0.017
			Max. My	5	8.809	0.111	0.018
			Max. Vy	25	0.054	0.125	-0.011
			Max. Vx	26	-0.003	0.000	0.000

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	10	284.577	25.998	-15.560
	Max. H_x	10	284.577	25.998	-15.560
	Max. H_z	4	-251.630	-23.393	14.020
	Min. Vert	4	-251.630	-23.393	14.020
	Min. H_x	4	-251.630	-23.393	14.020
	Min. H_z	10	284.577	25.998	-15.560
Leg B	Max. Vert	6	284.117	-26.215	-15.265
	Max. H_x	12	-253.356	23.658	13.736
	Max. H_z	12	-253.356	23.658	13.736
	Min. Vert	12	-253.356	23.658	13.736
	Min. H_x	6	284.117	-26.215	-15.265
	Min. H_z	6	284.117	-26.215	-15.265
Leg A	Max. Vert	2	285.386	-0.381	30.338
	Max. H_x	11	15.118	1.756	1.225
	Max. H_z	2	285.386	-0.381	30.338
	Min. Vert	8	-250.348	0.328	-27.216
	Min. H_x	5	14.783	-1.795	1.204
	Min. H_z	8	-250.348	0.328	-27.216

Tower Mast Reaction Summary

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead Only	41.799	0.000	-0.000	-12.982	8.542	0.000
Dead+Wind 0 deg - No Ice	41.799	-0.022	-45.992	-3761.365	10.466	-10.166
Dead+Wind 30 deg - No Ice	41.799	22.530	-39.070	-3210.926	-1839.960	-13.040
Dead+Wind 60 deg - No Ice	41.799	38.825	-22.437	-1849.819	-3181.010	-12.759
Dead+Wind 90 deg - No Ice	41.799	45.160	-0.007	-11.784	-3695.101	-8.906
Dead+Wind 120 deg - No Ice	41.799	39.877	23.020	1862.900	-3247.405	-2.628
Dead+Wind 150 deg - No Ice	41.799	22.645	39.059	3187.049	-1848.450	4.151
Dead+Wind 180 deg - No Ice	41.799	0.063	44.794	3661.992	3.478	9.546
Dead+Wind 210 deg - No Ice	41.799	-22.547	38.996	3180.681	1857.825	12.443
Dead+Wind 240 deg - No Ice	41.799	-39.831	22.896	1853.755	3260.041	12.448
Dead+Wind 270 deg - No Ice	41.799	-45.155	-0.033	-16.425	3712.183	8.626
Dead+Wind 300 deg - No Ice	41.799	-38.882	-22.529	-1857.754	3204.049	1.840
Dead+Wind 330 deg - No Ice	41.799	-22.600	-39.138	-3216.062	1864.614	-4.533
Dead+Ice+Temp	94.251	0.000	-0.000	-33.663	21.884	0.000
Dead+Wind 0 deg+Ice+Temp	94.251	-0.003	-15.808	-1282.576	22.105	-2.405
Dead+Wind 30 deg+Ice+Temp	94.251	7.626	-13.225	-1095.151	-590.876	-2.486
Dead+Wind 60 deg+Ice+Temp	94.251	13.043	-7.540	-641.292	-1031.005	-2.019
Dead+Wind 90 deg+Ice+Temp	94.251	15.269	-0.002	-33.564	-1204.690	-1.061
Dead+Wind 120 deg+Ice+Temp	94.251	13.690	7.908	590.984	-1060.509	0.198
Dead+Wind 150 deg+Ice+Temp	94.251	7.647	13.222	1028.137	-592.337	1.431
Dead+Wind 180 deg+Ice+Temp	94.251	0.012	15.064	1181.692	20.997	2.156
Dead+Wind 210 deg+Ice+Temp	94.251	-7.629	13.211	1026.946	634.797	2.369
Dead+Wind 240 deg+Ice+Temp	94.251	-13.682	7.885	589.382	1103.506	2.139
Dead+Wind 270 deg+Ice+Temp	94.251	-15.268	-0.006	-34.220	1248.465	1.006
Dead+Wind 300 deg+Ice+Temp	94.251	-13.054	-7.557	-642.663	1075.876	-0.408
Dead+Wind 330 deg+Ice+Temp	94.251	-7.638	-13.238	-1096.048	635.962	-1.507
Dead+Wind 0 deg - Service	41.799	-0.007	-14.195	-1169.891	9.136	-3.138
Dead+Wind 30 deg - Service	41.799	6.954	-12.059	-1000.002	-561.983	-4.025
Dead+Wind 60 deg - Service	41.799	11.983	-6.925	-579.907	-975.888	-3.938
Dead+Wind 90 deg - Service	41.799	13.938	-0.002	-12.613	-1134.558	-2.749
Dead+Wind 120 deg - Service	41.799	12.308	7.105	565.993	-996.380	-0.811
Dead+Wind 150 deg - Service	41.799	6.989	12.055	974.682	-564.604	1.281
Dead+Wind 180 deg - Service	41.799	0.020	13.825	1121.269	6.979	2.946
Dead+Wind 210 deg - Service	41.799	-6.959	12.036	972.716	579.308	3.840
Dead+Wind 240 deg - Service	41.799	-12.294	7.067	563.171	1012.091	3.842
Dead+Wind 270 deg - Service	41.799	-13.937	-0.010	-14.045	1151.641	2.662
Dead+Wind 300 deg - Service	41.799	-12.001	-6.953	-582.357	994.809	0.568
Dead+Wind 330 deg - Service	41.799	-6.975	-12.080	-1001.587	581.404	-1.399

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.000	-41.799	0.000	0.000	41.799	0.000	0.000%
2	-0.022	-41.799	-45.992	0.022	41.799	45.992	0.000%
3	22.530	-41.799	-39.070	-22.530	41.799	39.070	0.000%
4	38.825	-41.799	-22.437	-38.825	41.799	22.437	0.000%
5	45.160	-41.799	-0.007	-45.160	41.799	0.007	0.000%
6	39.877	-41.799	23.020	-39.877	41.799	-23.020	0.000%
7	22.645	-41.799	39.059	-22.645	41.799	-39.059	0.000%
8	0.063	-41.799	44.794	-0.063	41.799	-44.794	0.000%
9	-22.547	-41.799	38.996	22.547	41.799	-38.996	0.000%
10	-39.831	-41.799	22.896	39.831	41.799	-22.896	0.000%
11	-45.155	-41.799	-0.033	45.155	41.799	0.033	0.000%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
12	-38.882	-41.799	-22.529	38.882	41.799	22.529	0.000%
13	-22.600	-41.799	-39.138	22.600	41.799	39.138	0.000%
14	0.000	-94.251	0.000	0.000	94.251	0.000	0.000%
15	-0.003	-94.251	-15.808	0.003	94.251	15.808	0.000%
16	7.626	-94.251	-13.225	-7.626	94.251	13.225	0.000%
17	13.043	-94.251	-7.540	-13.043	94.251	7.540	0.000%
18	15.269	-94.251	-0.002	-15.269	94.251	0.002	0.000%
19	13.690	-94.251	7.908	-13.690	94.251	-7.908	0.000%
20	7.647	-94.251	13.222	-7.647	94.251	-13.222	0.000%
21	0.012	-94.251	15.064	-0.012	94.251	-15.064	0.000%
22	-7.629	-94.251	13.211	7.629	94.251	-13.211	0.000%
23	-13.682	-94.251	7.885	13.682	94.251	-7.885	0.000%
24	-15.268	-94.251	-0.006	15.268	94.251	0.006	0.000%
25	-13.054	-94.251	-7.557	13.054	94.251	7.557	0.000%
26	-7.638	-94.251	-13.238	7.638	94.251	13.238	0.000%
27	-0.007	-41.799	-14.195	0.007	41.799	14.195	0.000%
28	6.954	-41.799	-12.059	-6.954	41.799	12.059	0.000%
29	11.983	-41.799	-6.925	-11.983	41.799	6.925	0.000%
30	13.938	-41.799	-0.002	-13.938	41.799	0.002	0.000%
31	12.308	-41.799	7.105	-12.308	41.799	-7.105	0.000%
32	6.989	-41.799	12.055	-6.989	41.799	-12.055	0.000%
33	0.020	-41.799	13.825	-0.020	41.799	-13.825	0.000%
34	-6.959	-41.799	12.036	6.959	41.799	-12.036	0.000%
35	-12.294	-41.799	7.067	12.294	41.799	-7.067	0.000%
36	-13.937	-41.799	-0.010	13.937	41.799	0.010	0.000%
37	-12.001	-41.799	-6.953	12.001	41.799	6.953	0.000%
38	-6.975	-41.799	-12.080	6.975	41.799	12.080	0.000%

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	150 - 147.583	6.249	27	0.382	0.033
T2	147.583 - 130	6.054	27	0.382	0.030
T3	130 - 110	4.644	27	0.357	0.019
T4	110 - 100	3.203	27	0.300	0.009
T5	100 - 80	2.594	27	0.267	0.004
T6	80 - 60	1.606	27	0.194	0.005
T7	60 - 40	0.881	27	0.133	0.005
T8	40 - 20	0.384	27	0.086	0.003
T9	20 - 0	0.101	27	0.037	0.002

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
151'	HPLPD1-18	27	6.249	0.382	0.033	599322
150'	(3) 6' x 2" Mount Pipe	27	6.249	0.382	0.033	599322
141'	7770.00 w/ Mount Pipe	27	5.521	0.377	0.025	108259
130'	M5160160P10006	27	4.644	0.357	0.019	27210
118'	SC320	27	3.748	0.324	0.013	17479
114'	ERICSSON AIR 21 B2A B4P	27	3.470	0.312	0.011	15684

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
103'	800MHz 2X50W RRH W/FILTER	27	2.769	0.277	0.005	14916
100'	APXVSPP18-C-A20 w/ Mount Pipe	27	2.594	0.267	0.004	15220
93'	TA-2335-DAB-H	27	2.215	0.242	0.004	16209
88'	(2) LPA-80063/4CF w/ Mount Pipe	27	1.967	0.223	0.004	17033
65'	APXV18-206517S-C w/ Mount Pipe	27	1.040	0.147	0.005	20541
50'	GPS-TMG-HR-26NCM	27	0.605	0.109	0.004	22016
43'	TA-2324-LHCP	27	0.444	0.093	0.004	22535

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	150 - 147.583	20.145	2	1.236	0.106
T2	147.583 - 130	19.515	2	1.234	0.099
T3	130 - 110	14.968	2	1.151	0.061
T4	110 - 100	10.319	2	0.966	0.028
T5	100 - 80	8.357	2	0.860	0.015
T6	80 - 60	5.173	2	0.625	0.015
T7	60 - 40	2.836	2	0.429	0.015
T8	40 - 20	1.236	2	0.277	0.011
T9	20 - 0	0.326	2	0.120	0.006

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
151'	HPLPD1-18	2	20.145	1.236	0.106	113458
150'	(3) 6' x 2" Mount Pipe	2	20.145	1.236	0.106	113458
141'	7770.00 w/ Mount Pipe	2	17.795	1.217	0.082	34324
130'	M5160160P10006	2	14.968	1.151	0.061	8430
118'	SC320	2	12.077	1.046	0.042	5417
114'	ERICSSON AIR 21 B2A B4P	2	11.179	1.006	0.034	4861
103'	800MHz 2X50W RRH W/FILTER	2	8.918	0.893	0.017	4607
100'	APXVSPP18-C-A20 w/ Mount Pipe	2	8.357	0.860	0.015	4707
93'	TA-2335-DAB-H	2	7.136	0.779	0.014	5019
88'	(2) LPA-80063/4CF w/ Mount Pipe	2	6.336	0.719	0.015	5277
65'	APXV18-206517S-C w/ Mount Pipe	2	3.348	0.472	0.016	6377
50'	GPS-TMG-HR-26NCM	2	1.948	0.352	0.013	6836
43'	TA-2324-LHCP	2	1.431	0.300	0.011	6995

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load K	Ratio Load / Allowable	Allowable Ratio	Criteria
T2	147.583	Leg	A325N	0.625	5	5.160	12.885	0.400 ✔	1.333	Bolt DS
T3	130	Leg	A325N	1.000	6	9.614	34.519	0.279 ✔	1.333	Bolt Tension
T4	110	Leg	A325N	1.000	6	10.233	34.557	0.296 ✔	1.333	Bolt Tension
		Diagonal	A325N	1.000	1	7.146	7.748	0.922 ✔	1.333	Member Block Shear
		Top Girt	A325N	1.000	1	0.842	8.428	0.100 ✔	1.333	Member Block Shear
T5	100	Leg	A325N	1.000	6	15.789	34.556	0.457 ✔	1.333	Bolt Tension
		Diagonal	A325N	1.000	1	14.213	16.493	0.862 ✔	1.333	Bolt Shear
		Horizontal	A325N	1.000	1	10.762	8.428	1.277 ✔	1.333	Member Block Shear
		Top Girt	A325N	1.000	1	7.448	8.428	0.884 ✔	1.333	Member Block Shear
T6	80	Leg	A325N	1.000	6	23.656	34.557	0.685 ✔	1.333	Bolt Tension
		Diagonal	A325N	1.000	1	8.392	8.428	0.996 ✔	1.333	Member Block Shear
		Top Girt	A325N	1.000	1	7.838	8.428	0.930 ✔	1.333	Member Block Shear
T7	60	Leg	A325N	1.000	6	29.911	34.557	0.866 ✔	1.333	Bolt Tension
		Diagonal	A325N	1.000	1	8.314	8.428	0.986 ✔	1.333	Member Block Shear
T8	40	Leg	A325N	1.000	6	35.618	34.557	1.031 ✔	1.333	Bolt Tension
		Diagonal	A325N	1.000	1	8.822	14.047	0.628 ✔	1.333	Member Block Shear
T9	20	Leg	A687	1.250	6	40.725	60.746	0.670 ✔	1.333	Bolt Tension
		Diagonal	A325N	1.250	1	9.767	14.953	0.653 ✔	1.333	Member Block Shear

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio P / P_a
T1	150 - 147.583	1 1/2	2'5"	2'5"	77.3 K=1.00	19.538	1.767	-1.976	34.527	0.057* ✔
T2	147.583 - 130	1 1/2	17'7-1/32''	2'5"	77.3 K=1.00	19.539	1.767	-25.798	34.528	0.747 ✔
T3	130 - 110	2	20'1/32"	2'4-3/8"	56.8 K=1.00	23.264	3.142	-65.204	73.085	0.892 ✔
T4	110 - 100	Pirod 105244	10'7/32"	10'7/32"	45.4 K=1.00	25.051	3.682	-68.113	92.228	0.739 ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T5	100 - 80	Pirod 105216	20'13/32"	10'7/32"	45.4 K=1.00	25.051	3.682	-105.835	92.228	1.148 ✔
T6	80 - 60	Pirod 105217	20'13/32"	10'7/32"	37.8 K=1.00	26.132	5.301	-159.787	138.539	1.153 ✔
T7	60 - 40	Pirod 105218	20'13/32"	10'7/32"	32.4 K=1.00	26.848	7.216	-200.956	193.727	1.037 ✔
T8	40 - 20	Pirod 105218	20'13/32"	10'7/32"	32.4 K=1.00	26.848	7.216	-239.507	193.727	1.236 ✔
T9	20 - 0	Pirod 105219	20'13/32"	10'7/32"	28.4 K=1.00	27.351	9.425	-274.860	257.781	1.066 ✔

* DL controls

Truss-Leg Diagonal Data

Section No.	Elevation ft	Diagonal Size	L_d ft	Kl/r	F_a ksi	A in^2	Actual V K	Allow. V_a K	Stress Ratio
T4	110 - 100	0.5	1'5-25/32"	121.0	10.193	0.196	0.570	2.240	0.255 ✔
T5	100 - 80	0.5	1'5-25/32"	121.0	10.133	0.196	1.332	2.227	0.598 ✔
T6	80 - 60	0.5	1'5-21/32"	120.0	10.279	0.196	0.602	2.259	0.266 ✔
T7	60 - 40	0.5	1'5-1/2"	119.0	10.423	0.196	0.329	2.290	0.144 ✔
T8	40 - 20	0.5	1'5-1/2"	119.0	10.423	0.196	0.521	2.290	0.228 ✔
T9	20 - 0	0.625	1'5-11/32"	94.4	13.671	0.307	0.973	4.694	0.207 ✔

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	150 - 147.583	3/4	3'1-7/8"	3'23/32"	137.1 K=0.70	7.947	0.442	-1.345	3.511	0.383 ✔
T2	147.583 - 130	3/4	5'7/8"	2'5-25/32"	143.0 K=0.90	7.300	0.442	-2.876	3.225	0.892 ✔
T3	130 - 110	7/8	5'5-29/32"	2'8-1/32"	131.8 K=0.90	8.596	0.601	-5.083	5.169	0.983 ✔
T4	110 - 100	L2 1/2x2 1/2x3/16	11'5"	4'11-25/32"	120.8 K=1.00	10.170	0.902	-8.272	9.173	0.902 ✔
T5	100 - 80	L2 1/2x2 1/2x3/8	12'6-1/32"	5'7-17/32"	138.7 K=1.00	7.767	1.730	-14.213	13.437	1.058 ✔
T6	80 - 60	L3x3x3/16	13'9-9/16"	6'3-15/16"	127.4	9.200	1.090	-8.355	10.028	0.833

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
			'	'	K=1.00					✔
T7	60 - 40	L3x3x3/16	15'2-29/32"	7'31/32"	142.6 K=1.00	7.345	1.090	-8.336	8.006	1.041 ✔
T8	40 - 20	L3x3x5/16	16'9-5/8"	7'10-19/32"	160.6 K=1.00	5.791	1.780	-8.980	10.308	0.871 ✔
T9	20 - 0	L3x3x5/16	18'5-3/8"	8'8-1/8"	176.8 K=1.00	4.779	1.780	-10.450	8.506	1.229 ✔

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T2	147.583 - 130	7/8	4'4-7/16"	4'2-15/16"	163.1 K=0.70	5.616	0.601	-0.326	3.377	0.096 ✔
T3	130 - 110	3/4	4'6-7/8"	4'4-7/8"	197.3 K=0.70	3.835	0.442	-0.720	1.694	0.425 ✔
T5	100 - 80	L3x3x3/16	7'	5'7"	116.2 K=1.03	10.720	1.090	-8.858	11.685	0.758 ✔

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	150 - 147.583	5x1/2	4'	3'10-1/2"	322.2 K=1.00	1.439	2.500	-0.916	3.597	0.255 ✔
		KL/R > 200 (C) - 4								
T2	147.583 - 130	7/8	4'27/32"	3'11-11/32"	151.5 K=0.70	6.505	0.601	-0.111	3.911	0.028 ✔
T3	130 - 110	7/8	4'6-5/32"	4'4-5/32"	166.9 K=0.70	5.362	0.601	-1.287	3.224	0.399 ✔
T4	110 - 100	L3x3x3/16	5'	4'5"	104.5 K=1.17	12.208	1.090	-0.550	13.307	0.041 ✔
T5	100 - 80	L3x3x3/16	6'	4'7"	106.1 K=1.15	12.002	1.090	-6.138	13.082	0.469 ✔
T6	80 - 60	L3x3x3/16	8'	6'7"	132.6 K=1.00	8.499	1.090	-6.552	9.264	0.707 ✔

Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T2	147.583 - 130	7/8	4'5-29/32"	4'4-13/32"	167.7 K=0.70	5.311	0.601	-1.221	3.194	0.382 ✔
T3	130 - 110	7/8	4'11-13/16"	4'9-13/16"	185.0 K=0.70	4.361	0.601	-1.557	2.623	0.594 ✔

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	150 - 147.583	1 1/2	2'5"	2'5"	77.3	30.000	1.767	0.680	53.014	0.013 ✔
T2	147.583 - 130	1 1/2	17'7-1/32"	4"	10.7	32.500	0.773	21.888	25.130	0.871 ✔
T3	130 - 110	2	20'1/32"	7"	14.0	30.000	3.142	57.687	94.248	0.612 ✔
T4	110 - 100	Pirod 105244	10'7/32"	10'7/32"	45.4	30.000	3.682	61.395	110.447	0.556 ✔
T5	100 - 80	Pirod 105216	20'13/32"	10'7/32"	45.4	30.000	3.682	94.733	110.447	0.858 ✔
T6	80 - 60	Pirod 105217	20'13/32"	10'7/32"	37.8	30.000	5.301	141.938	159.043	0.892 ✔
T7	60 - 40	Pirod 105218	20'13/32"	10'7/32"	32.4	30.000	7.216	179.464	216.475	0.829 ✔
T8	40 - 20	Pirod 105218	20'13/32"	10'7/32"	32.4	30.000	7.216	213.710	216.475	0.987 ✔
T9	20 - 0	Pirod 105219	20'13/32"	10'7/32"	28.4	30.000	9.425	244.351	282.743	0.864 ✔

Truss-Leg Diagonal Data

Section No.	Elevation ft	Diagonal Size	L_d ft	Kl/r	F_a ksi	A in^2	Actual V K	Allow. V_a K	Stress Ratio
T4	110 - 100	0.5	1'5-25/32"	121.0	10.193	0.196	0.570	2.240	0.255 ✔
T5	100 - 80	0.5	1'5-25/32"	121.0	10.133	0.196	1.332	2.227	0.598 ✔
T6	80 - 60	0.5	1'5-21/32"	120.0	10.279	0.196	0.602	2.259	0.266 ✔
T7	60 - 40	0.5	1'5-1/2"	119.0	10.423	0.196	0.329	2.290	0.144

Section No.	Elevation ft	Diagonal Size	L_d ft	Kl/r	F_a ksi	A in^2	Actual V K	Allow. V_a K	Stress Ratio
T8	40 - 20	0.5	1'5-1/2"	119.0	10.423	0.196	0.521	2.290	0.228 ✔
T9	20 - 0	0.625	1'5-11/32"	94.4	13.671	0.307	0.973	4.694	0.207 ✔

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	150 - 147.583	3/4	3'1-7/8"	3'23/32"	195.8	30.000	0.442	1.300	13.254	0.098 ✔
T2	147.583 - 130	3/4	5'7/8"	2'5-25/32"	158.9	30.000	0.442	2.752	13.254	0.208 ✔
T3	130 - 110	7/8	5'5-29/32"	2'8-1/32"	146.4	30.000	0.601	4.968	18.040	0.275 ✔
T4	110 - 100	L2 1/2x2 1/2x3/16	11'5"	4'11-25/32"	80.1	29.000	0.518	7.146	15.031	0.475 ✔
T5	100 - 80	L2 1/2x2 1/2x3/8	12'6-1/32"	5'7-17/32"	93.0	29.000	0.981	12.196	28.452	0.429 ✔
T6	80 - 60	L3x3x3/16	13'9-9/16"	6'3-15/16"	83.5	29.000	0.659	8.392	19.120	0.439 ✔
T7	60 - 40	L3x3x3/16	14'6-1/32"	6'8-23/32"	88.6	29.000	0.659	8.314	19.120	0.435 ✔
T8	40 - 20	L3x3x5/16	16'1/8"	7'5-15/16"	100.3	29.000	1.071	8.822	31.069	0.284 ✔
T9	20 - 0	L3x3x5/16	18'5-3/8"	8'8-1/8"	116.2	29.000	1.013	9.767	29.369	0.333 ✔

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T2	147.583 - 130	7/8	4'4-7/16"	4'2-15/16"	232.9	30.000	0.601	0.498	18.040	0.028 ✔
T3	130 - 110	3/4	4'6-7/8"	4'4-7/8"	281.9	30.000	0.442	0.827	13.254	0.062 ✔
T5	100 - 80	L3x3x3/16	7'	5'7"	76.7	29.000	0.659	10.762	19.120	0.563 ✔

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	150 - 147.583	5x1/2	4'	3'10-1/2"	322.2	21.600	2.500	0.909	54.000	0.017 ✔
T2	147.583 - 130	7/8	4'27/32"	3'11-11/32"	216.5	30.000	0.601	0.153	18.040	0.008 ✔
T3	130 - 110	7/8	4'6-5/32"	4'4-5/32"	238.4	30.000	0.601	1.313	18.040	0.073 ✔
T4	110 - 100	L3x3x3/16	5'	4'5"	61.8	29.000	0.659	0.842	19.120	0.044 ✔
T5	100 - 80	L3x3x3/16	6'	4'7"	63.9	29.000	0.659	7.448	19.120	0.390 ✔
T6	80 - 60	L3x3x3/16	8'	6'7"	89.5	29.000	0.659	7.838	19.120	0.410 ✔

Bottom Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T2	147.583 - 130	7/8	4'5-29/32"	4'4-13/32"	239.5	30.000	0.601	1.317	18.040	0.073 ✔
T3	130 - 110	7/8	4'11-13/16"	4'9-13/16"	264.3	30.000	0.601	1.664	18.040	0.092 ✔

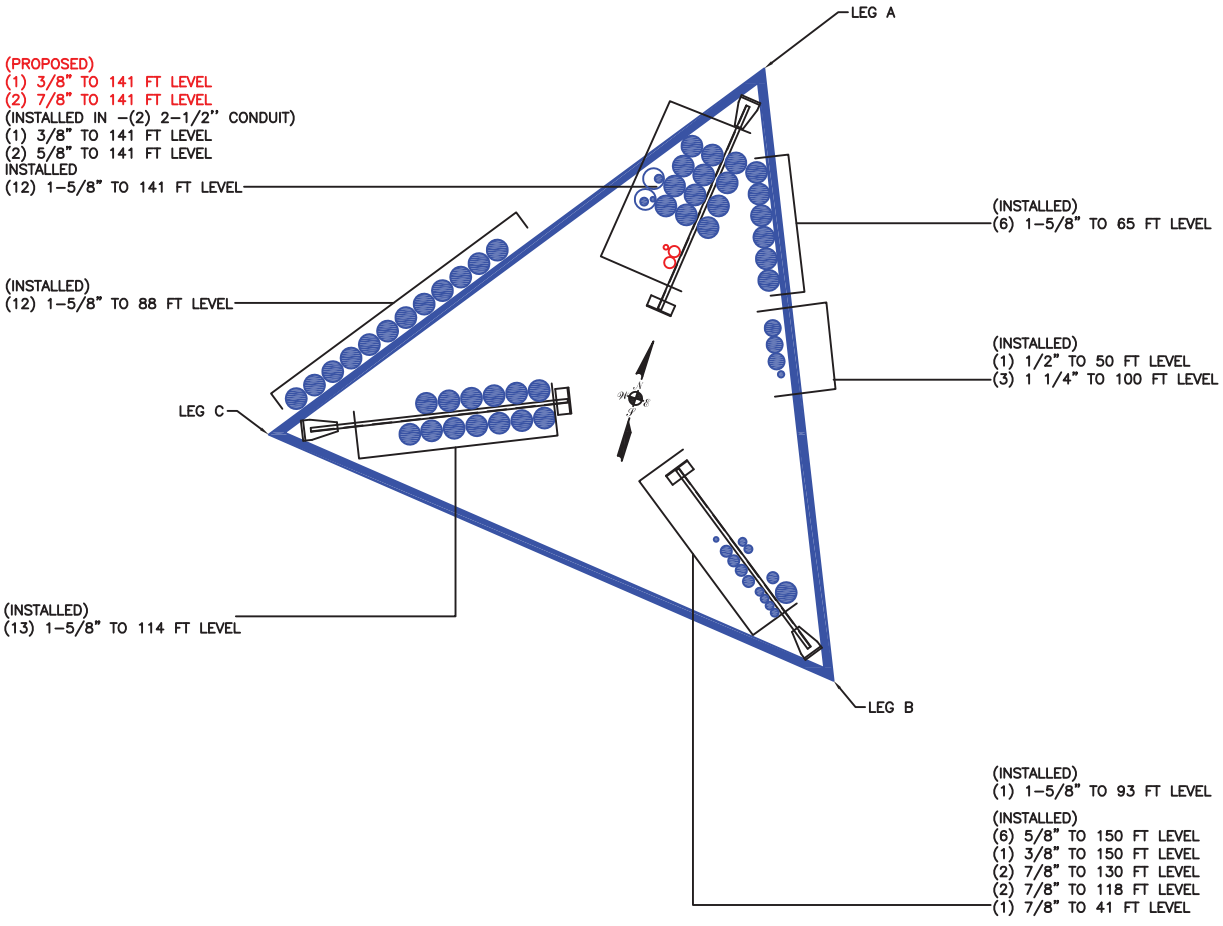
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
T1	150 - 147.583	Leg	1 1/2	1	-1.976	34.527	5.7	Pass
T2	147.583 - 130	Leg	1 1/2	13	21.888	33.498	65.3	Pass
T3	130 - 110	Leg	2	70	-65.204	97.422	66.9	Pass
T4	110 - 100	Leg	Pirod 105244	134	-68.113	122.940	55.4	Pass
T5	100 - 80	Leg	Pirod 105216	148	-105.835	122.940	86.1	Pass
T6	80 - 60	Leg	Pirod 105217	169	-159.787	184.672	86.5	Pass
T7	60 - 40	Leg	Pirod 105218	187	-200.956	258.238	77.8	Pass
T8	40 - 20	Leg	Pirod 105218	202	-239.507	258.238	92.7	Pass
T9	20 - 0	Leg	Pirod 105219	217	-274.860	343.622	80.0	Pass
T1	150 - 147.583	Diagonal	3/4	7	-1.345	4.680	28.7	Pass
T2	147.583 - 130	Diagonal	3/4	22	-2.876	4.299	66.9	Pass
T3	130 - 110	Diagonal	7/8	79	-5.083	6.890	73.8	Pass
T4	110 - 100	Diagonal	L2 1/2x2 1/2x3/16	140	-8.272	12.228	67.6 69.2 (b)	Pass
T5	100 - 80	Diagonal	L2 1/2x2 1/2x3/8	155	-14.213	17.912	79.3	Pass
T6	80 - 60	Diagonal	L3x3x3/16	174	-8.355	13.368	62.5 74.7 (b)	Pass
T7	60 - 40	Diagonal	L3x3x3/16	193	-8.336	10.672	78.1	Pass
T8	40 - 20	Diagonal	L3x3x5/16	207	-8.980	13.740	65.4	Pass
T9	20 - 0	Diagonal	L3x3x5/16	223	-10.450	11.339	92.2	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
T2	147.583 - 130	Horizontal	7/8	35	-0.326	4.502	7.2	Pass
T3	130 - 110	Horizontal	3/4	127	-0.720	2.258	31.9	Pass
T5	100 - 80	Horizontal	L3x3x3/16	159	-8.858	15.576	56.9	Pass
							95.8 (b)	
T1	150 - 147.583	Top Girt	5x1/2	4	-0.916	4.795	19.1	Pass
T2	147.583 - 130	Top Girt	7/8	17	-0.111	5.214	2.1	Pass
T3	130 - 110	Top Girt	7/8	74	-1.287	4.298	29.9	Pass
T4	110 - 100	Top Girt	L3x3x3/16	137	0.842	25.486	3.3	Pass
							7.5 (b)	
T5	100 - 80	Top Girt	L3x3x3/16	150	-6.138	17.438	35.2	Pass
							66.3 (b)	
T6	80 - 60	Top Girt	L3x3x3/16	172	-6.552	12.349	53.1	Pass
							69.8 (b)	
T2	147.583 - 130	Bottom Girt	7/8	19	-1.221	4.257	28.7	Pass
T3	130 - 110	Bottom Girt	7/8	76	-1.557	3.496	44.5	Pass
							Summary	
						Leg (T8)	92.7	Pass
						Diagonal (T9)	92.2	Pass
						Horizontal (T5)	95.8	Pass
						Top Girt (T6)	69.8	Pass
						Bottom Girt (T3)	44.5	Pass
						Bolt Checks	95.8	Pass
						RATING =	**95.8**	**Pass**

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 842870

APPENDIX C

ADDITIONAL CALCULATIONS

PROJECT	**842870 - Milford,CT**	**MB**
SUBJECT	**Pad Footing Analysis**	
DATE	**02/12/16**	

B+T GRP
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630

91292_005_01_SS Unit Base Unified (1 5)_Square_Rev F-G.xls

B&T Proj. No.: 91292.005.01

Combined Footing Foundation Analysis

Rev. Type: F

Design Loads:

Input unfactored loads

Compression per leg (P_C)	=	285.0	(k)
Tension per leg (P_T)	=	253.0	(k)
Overturning Moment (M_O)	=	3,761.0	(k)
Total Tower Horizontal Load	=	46.0	(k-ft)
Tower + Appurtenances	=	42.0	(k)

Saftey Factors

Uplift S.F. (Conc. Wt.)	=	1.25
Uplift S.F. (Soil Wt.)	=	2.00
Overturning S.F.	=	1.50
Bearinging S.F.	=	2.00

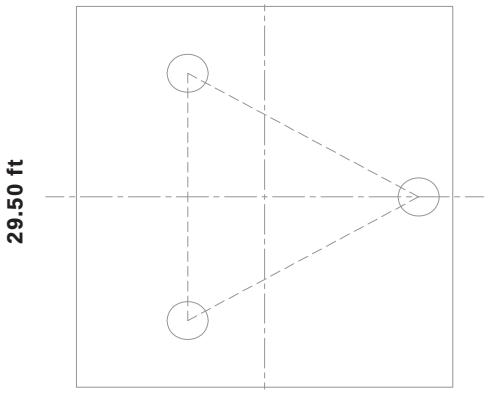
Tower Information

Tower base width	=	16.00	ft

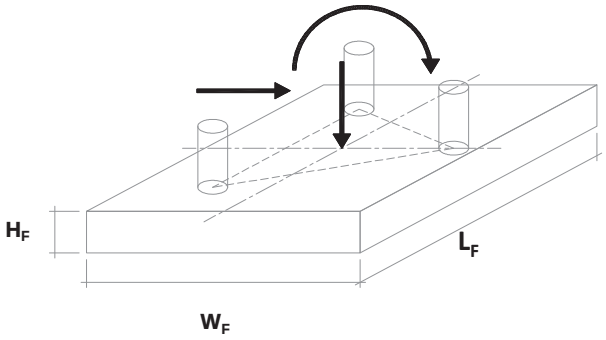
Pad & Pier Dimensions / Properties:

Tower Shape (triangle or square)	=	T	
Pier Shape (round or square)	=	R	
Pier Diameter (H_P)	=	4.50	(ft)
Pier height above grade (D_A)	=	0.50	(ft)
Footing Width (W_F)	=	29.50	(ft)
Footing Thickness (H_F)	=	3.75	(ft)
Depth to BOC (D)	=	6.50	(ft)
Concrete Strength (F'c)	=	3.00	(ksi)
Rebar Strength (Fy)	=	60.00	(ksi)
Ultimate Load Factor	=	1.30	
Min. Cover over Rebar	=	3.00	(in)
Qty of footing Rebar (1 layer)	=	58	
Size of footing Rebar	=	# 9	(bar)
Qty of Vertical Rebar per Pier	=	16	
Size of Pier Vertical Rebar	=	# 8	(bar)
Qty of Rebar Ties per Pier	=	11	
Size of Pier Rebar Ties	=	# 4	(bar)

Plan View for Triangle or Square Tower



Total Overview



Soil Data:

Allowable Values

Soil bearing	=	6000	(psf)
Soil bearing (ultimate)	=	12000	(psf)
Soil Cone for Uplift (θ)	=	34	(degrees)
Cohesion (C)	=	0.00	(ft)
Top Soil to Neglect (N)	=	3.33	(ft)
Base Sliding (μ)	=	0.60	(ksf)
Dry Soil Density (γ_{DRY})	=	125	(pcf)

Summary of Results

Overturing	49.94%
Soil Bearing	23.31%
Base Sliding	12.85%
One way Shear	2.37%
Punching Shear	18.88%
Pad Moment Capacity	9.77%
Pier Moment Capacity	14.00%

SITESAFE
RF COMPLIANCE EXPERTS
A BUSINESS OF FDH VELOCITEL

200 North Glebe Road, Suite 1000, Arlington, VA 22203-3728
703.276.1100 ● 703.276.1169 fax
info@sitesafe.com ● www.sitesafe.com

SmartLink, LLC on behalf of AT&T Mobility, LLC
Site FA – 10071130
Site ID – CT5099 (3C)
USID – 5798
Site Name – Milford
Site Compliance Report

434 Boston Post Road
Milford, CT 06460

Latitude: N41-13-42.73
Longitude: W73-4-12.51
Structure Type: Self-Support

Report generated date: February 11, 2016
Report by: Young Kim
Customer Contact: Kristen Smith

AT&T Mobility, LLC will be compliant when the remediation recommended in section 5.2 or other appropriate remediation is implemented.

Klaus Bender
Registered Professional Engineer (Electrical)
Expires December 31, 2018

Table of Contents

1 General Site Summary

1.1 Report Summary

AT&T Mobility, LLC	Summary
Access to Antennas Locked?	No
RF Sign(s) @ access point(s)	None
RF Sign(s) @ antennas	None
Barrier(s) @ sectors	None
Max cumulative simulated Radio Frequency Exposure (RFE) level on Ground Level	<5% of General Public limit
FCC & AT&T Compliant?	Will Be Compliant

Note: Data was unavailable for all other carriers on site and are not included.

The following documents were provided by the client and were utilized to create this report:

RFDS: NEW-ENGLAND_CONNECTICUT_CTU5099_2016-LTE-Next-Carrier_LTE-3C_om636a_2051A02J04_10071130_5798_06-25-2015_Preliminary-Approved_v1.00

CD's: 10071130_AE201_102215_CTL05099.Rev0.CD

RF Configuration Datasheet: CT_33 sites with power density form

2 Map of Site

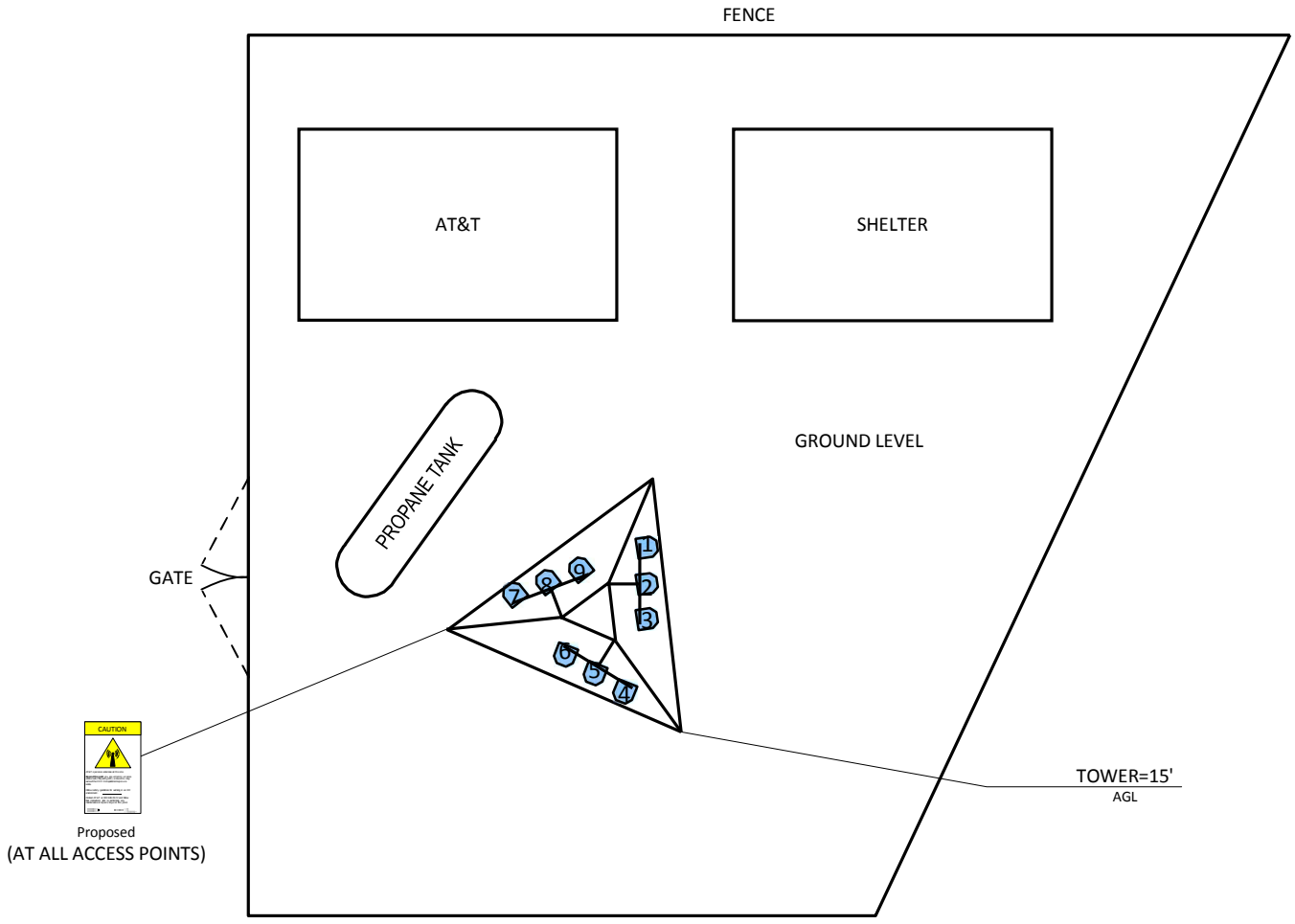
In the RF Emissions Simulations below all heights are reflected with respect to main site level. In most rooftop cases this is the height of the main rooftop and in other cases this can be ground level. Each different height area, rooftop, or platform level is labeled with its height relative to the main site level. Emissions are calculated appropriately based on the relative height and location of that area to all antennas.

The Antenna Inventory heights are referenced to the same level.

The following diagrams are included:

- Site Map
- RF Emissions Diagram
- Elevation View

Site Map For: Milford



(Feet)

0 5.7 11.3

www.sitesafe.com
Site Name:Milford

NICATIONS

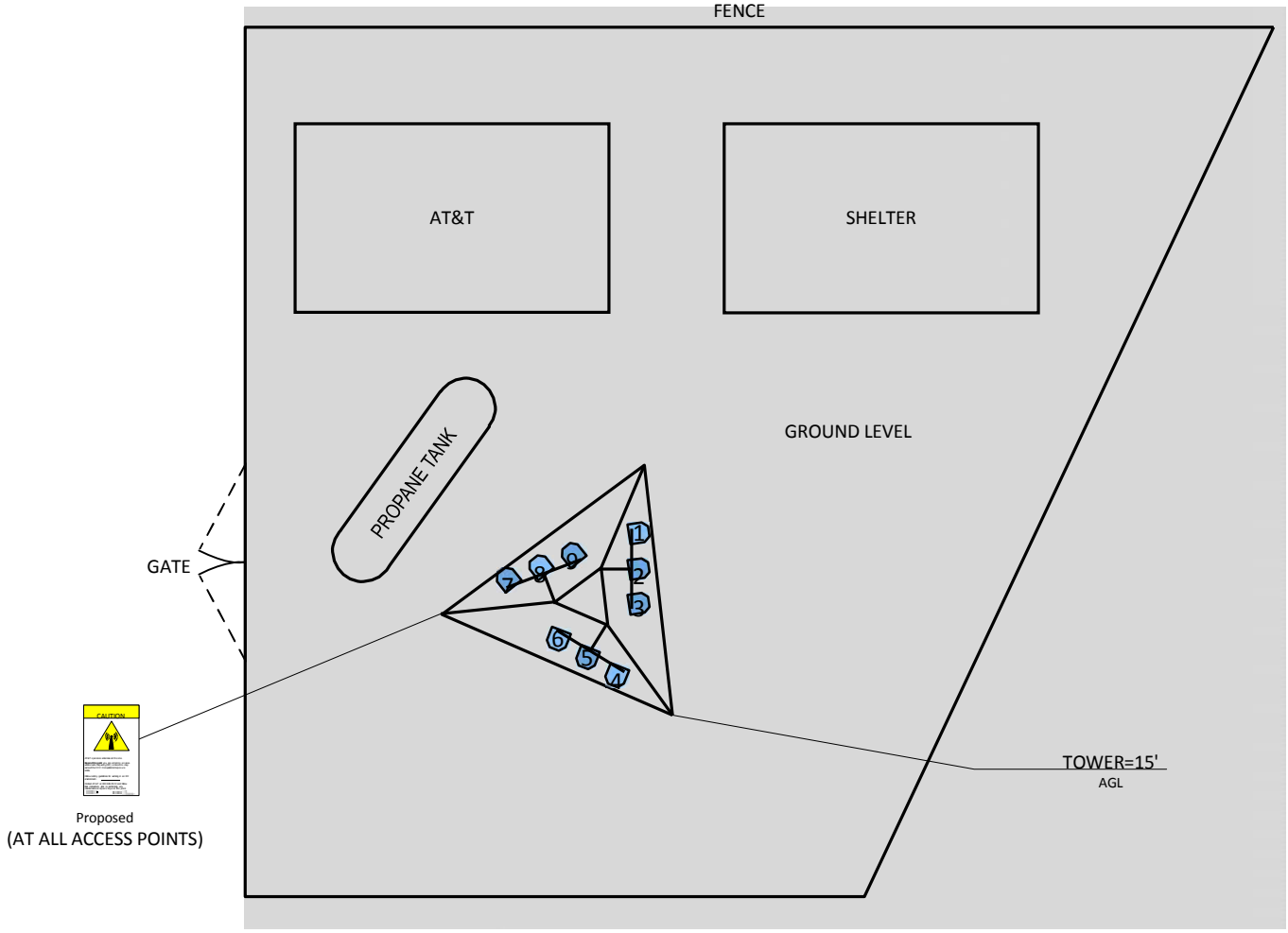
3 Antenna Inventory

The following antenna inventory was obtained by the customer and utilized to create the site model diagrams:

Ant ID	Operator	Antenna Make & Model	Type	TX Freq (MHz)	Az (Deg)	Hor BW (Deg)	Ant Len (ft)	Ant Gain (dBd)	2G GSM Radio(s)	3G UMTS Radio(s)	4G Radio(s)	Total ERP	X	Y	Z (AGL
1	AT&T MOBILITY LLC	Powerwave 7770	Panel	850	30	82	4.6	11.51	0	2	0	366.6	42.1'	59.8'	138.7'
1	AT&T MOBILITY LLC	Powerwave 7770	Panel	1900	30	86	4.6	13.41	0	1	0	209	42.1'	59.8'	138.7'
1	AT&T MOBILITY LLC	Powerwave 7770	Panel	1900	30	86	4.6	13.41	0	1	0	363.2	42.1'	59.8'	138.7'
2	AT&T MOBILITY LLC (Proposed)	CCI Antennas OPA-65R-LCUU-H4	Panel	2300	30	61.1	4	14.26	0	0	1	637	42.1'	57.5'	139'
3	AT&T MOBILITY LLC	KMW AM-X-CD-14-65-00T	Panel	737	30	67	4	11.66	0	0	1	483.2	42.1'	55.4'	139'
3	AT&T MOBILITY LLC	KMW AM-X-CD-14-65-00T	Panel	1900	30	65	4	13.86	0	0	1	1057.2	42.1'	55.4'	139'
4	AT&T MOBILITY LLC	Powerwave 7770	Panel	850	150	82	4.6	11.51	0	2	0	366.6	40.7'	50.8'	138.7'
4	AT&T MOBILITY LLC	Powerwave 7770	Panel	1900	150	86	4.6	13.41	0	1	0	240	40.7'	50.8'	138.7'
4	AT&T MOBILITY LLC	Powerwave 7770	Panel	1900	150	86	4.6	13.41	0	1	0	363.2	40.7'	50.8'	138.7'
5	AT&T MOBILITY LLC (Proposed)	CCI Antennas OPA-65R-LCUU-H4	Panel	2300	150	61.1	4	14.26	0	0	1	637	38.8'	52'	139'
6	AT&T MOBILITY LLC	KMW AM-X-CD-14-65-00T	Panel	737	150	67	4	11.66	0	0	1	483.2	37'	53.1'	139'
6	AT&T MOBILITY LLC	KMW AM-X-CD-14-65-00T	Panel	1900	150	65	4	13.86	0	0	1	1057.2	37'	53.1'	139'
7	AT&T MOBILITY LLC	Powerwave 7770	Panel	850	270	82	4.6	11.51	0	2	0	366.6	33.9'	56.9'	138.7'
7	AT&T MOBILITY LLC	Powerwave 7770	Panel	1900	270	86	4.6	13.41	0	1	0	209	33.9'	56.9'	138.7'
7	AT&T MOBILITY LLC	Powerwave 7770	Panel	1900	270	86	4.6	13.41	0	1	0	363.2	33.9'	56.9'	138.7'
8	AT&T MOBILITY LLC (Proposed)	CCI Antennas OPA-65R-LCUU-H4	Panel	2300	270	61.1	4	14.26	0	0	1	637	35.9'	57.7'	139'
9	AT&T MOBILITY LLC	KMW AM-X-CD-14-65-00T	Panel	737	270	67	4	11.66	0	0	1	483.2	37.9'	58.4'	139'
9	AT&T MOBILITY LLC	KMW AM-X-CD-14-65-00T	Panel	1900	270	65	4	13.86	0	0	1	1057.2	37.9'	58.4'	139'

NOTE: X, Y and Z indicate relative position of the bottom of the antenna to the origin location on the site, displayed in the model results diagram. Specifically, the Z reference indicates the bottom of the antenna height **above ground level (AGL)**. The distance to the bottom of the antenna is calculated by subtracting half of the length of the antenna from the antenna centerline**.** Effective Radiated Power (ERP) is provided by the operator or based on Sitesafe experience. The values used in the modeling may be greater than are currently deployed.

RF Emissions Simulation For: Milford



% of FCC Public Exposure Limit
Spatial average 0' - 6'

>= 5000	>= 500	>= 100	>= 5	< 5

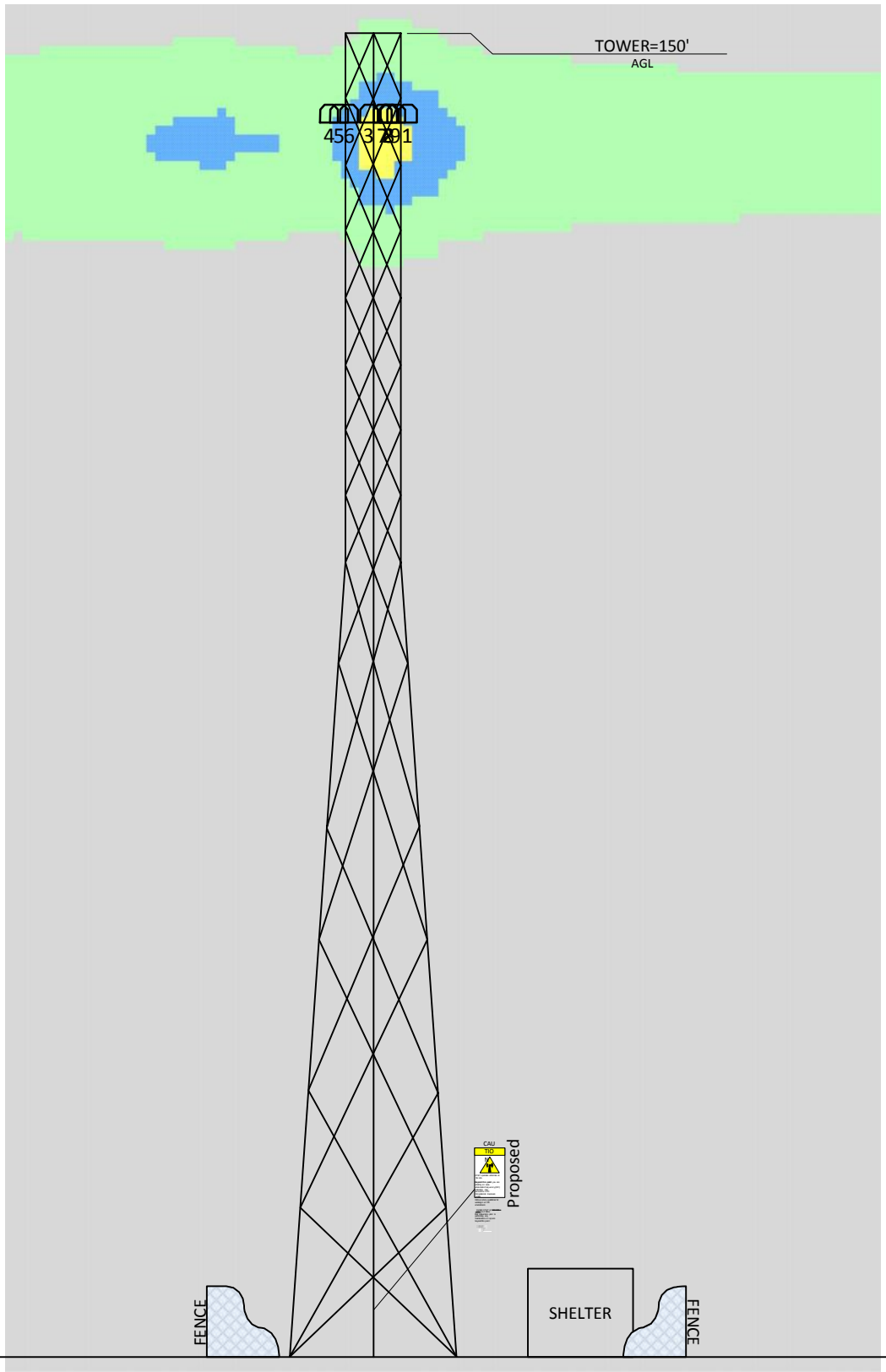
AT&T MOBILITY LLC	VERIZON WIRELESS	T-MOBILE	METROPCS	CRICKET COMMUNICATIONS	CLEARWIRE	SPRINT

(Feet)

0 5.7 11.3

www.sitesafe.com
Site Name:Milford

RF Emissions Simulation For: Milford
Elevation View – Northeast



% of FCC Public Exposure Limit
Spatial average 0' - 6'

(Feet)

0 9.2 18.4

www.sitesafe.com
Site Name:Milford

>= 5000	>= 500	>= 100	>= 5	< 5

AT&T MOBILITY LLC	VERIZONWIRELESS	T-MOBILE	METROPCS	CRICKET COMMUNICATIONS	CLEARWIRE	SPRINT

5 Site Compliance

5.1 Site Compliance Statement

Upon evaluation of the cumulative RF emission levels from all operators at this site, RF hazard signage and antenna locations, Sitesafe has determined that:

AT&T Mobility, LLC will be compliant when the remediation recommended in section 5.2 or other appropriate remediation is implemented.

The compliance determination is based on General Public RFE levels derived from theoretical modeling, RF signage placement, proposed antenna inventory and the level of restricted access to the antennas at the site. Any deviation from the AT&T Mobility, LLC's proposed deployment plan could result in the site being rendered non-compliant.

Modeling is used for determining compliance and the percentage of MPE contribution.

5.2 Actions for Site Compliance

Based on FCC regulations, common industry practice, and our understanding of AT&T Mobility, LLC RF Safety Policy requirements, this section provides a statement of recommendations for site compliance. Recommendations have been proposed based on our understanding of existing access restrictions, signage, and an analysis of predicted RFE levels.

The site will be made compliant if the following changes are implemented:

Site Access Location

Yellow caution 2 sign required (At all Accesses at the Tower Base).

6 Engineer Certification

The professional engineer whose seal appears on the cover of this document hereby certifies and affirms that:

I am registered as a Professional Engineer in the jurisdiction indicated in the professional engineering stamp on the cover of this document; and

That I am an employee of Sitesafe, Inc., in Arlington, Virginia, at which place the staff and I provide RF compliance services to clients in the wireless communications industry; and

That I am thoroughly familiar with the Rules and Regulations of the Federal Communications Commission (FCC) as well as the regulations of the Occupational Safety and Health Administration (OSHA), both in general and specifically as they apply to the FCC Guidelines for Human Exposure to Radio-frequency Radiation; and

That I have thoroughly reviewed this Site Compliance Report and believe it to be true and accurate to the best of my knowledge as assembled by and attested to by Young Kim.

February 11, 2016

Appendix A – Statement of Limiting Conditions

Sitesafe has provided computer generated model(s) in this Site Compliance Report to show approximate dimensions of the site, and the model is included to assist the reader of the compliance report to visualize the site area, and to provide supporting documentation for Sitesafe's recommendations.

Sitesafe may note in the Site Compliance Report any adverse physical conditions, such as needed repairs, that Sitesafe became aware of during the normal research involved in creating this report. Sitesafe will not be responsible for any such conditions that do exist or for any engineering or testing that might be required to discover whether such conditions exist. Because Sitesafe is not an expert in the field of mechanical engineering or building maintenance, the Site Compliance Report must not be considered a structural or physical engineering report.

Sitesafe obtained information used in this Site Compliance Report from sources that Sitesafe considers reliable and believes them to be true and correct. Sitesafe does not assume any responsibility for the accuracy of such items that were furnished by other parties. When conflicts in information occur between data collected by Sitesafe provided by a second party and data collected by Sitesafe, the data will be used.

Appendix B – Regulatory Background Information

FCC Rules and Regulations

In 1996, the Federal Communication Commission (FCC) adopted regulations for the evaluating of the effects of RF emissions in 47 CFR § 1.1307 and 1.1310. The guideline from the FCC Office of Engineering and Technology is Bulletin 65 ("OET Bulletin 65"), *Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields*, Edition 97-01, published August 1997. Since 1996 the FCC periodically reviews these rules and regulations as per their congressional mandate.

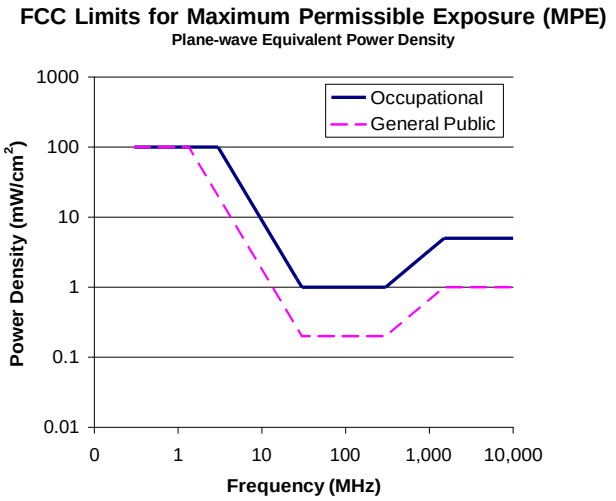
FCC regulations define two separate tiers of exposure limits: Occupational or "Controlled environment" and General Public or "Uncontrolled environment". The General Public limits are generally five times more conservative or restrictive than the Occupational limit. These limits apply to *accessible* areas where workers or the general public may be exposed to Radio Frequency (RF) electromagnetic fields.

Occupational or Controlled limits apply in situations in which persons are exposed as a consequence of their employment and where those persons exposed have been made fully aware of the potential for exposure and can exercise control over their exposure.

An area is considered a Controlled environment when access is limited to these aware personnel. Typical criteria are restricted access (i.e. locked or alarmed doors, barriers, etc.) to the areas where antennas are located coupled with proper RF warning signage. A site with Controlled environments is evaluated with Occupational limits.

All other areas are considered Uncontrolled environments. If a site has no access controls or no RF warning signage it is evaluated with General Public limits.

The theoretical modeling of the RF electromagnetic fields has been performed in accordance with OET Bulletin 65. The Maximum Permissible Exposure (MPE) limits utilized in this analysis are outlined in the following diagram:



Limits for Occupational/Controlled Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	($900/f^2$)*	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6

Limits for General Population/Uncontrolled Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

f = frequency in MHz *Plane-wave equivalent power density

OSHA Statement

The General Duty clause of the OSHA Act (Section 5) outlines the occupational safety and health responsibilities of the employer and employee. The General Duty clause in Section 5 states:

(a) Each employer –

(1) shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees;

(2) shall comply with occupational safety and health standards promulgated under this Act.

(b) Each employee shall comply with occupational safety and health standards and all rules, regulations, and orders issued pursuant to this Act which are applicable to his own actions and conduct.

OSHA has defined Radiofrequency and Microwave Radiation safety standards for workers who may enter hazardous RF areas. Regulation Standards 29 CFR § 1910.147 identify a generic Lock Out Tag Out procedure aimed to control the unexpected energization or start up of machines when maintenance or service is being performed.

Appendix C – Safety Plan and Procedures

The following items are general safety recommendations that should be administered on a site by site basis as needed by the carrier.

General Maintenance Work: Any maintenance personnel required to work immediately in front of antennas and / or in areas indicated as above 100% of the Occupational MPE limits should coordinate with the wireless operators to disable transmitters during their work activities.

Training and Qualification Verification: All personnel accessing areas indicated as exceeding the General Population MPE limits should have a basic understanding of EME awareness and RF Safety procedures when working around transmitting antennas. Awareness training increases a workers understanding to potential RF exposure scenarios. Awareness can be achieved in a number of ways (e.g. videos, formal classroom lecture or internet based courses).

Physical Access Control: Access restrictions to transmitting antennas locations is the primary element in a site safety plan. Examples of access restrictions are as follows:

- Locked door or gate
- Alarmed door
- Locked ladder access
- Restrictive Barrier at antenna (e.g. Chain link with posted RF Sign)

RF Signage: Everyone should obey all posted signs at all times. RF signs play an important role in properly warning a worker prior to entering into a potential RF Exposure area.

Assume all antennas are active: Due to the nature of telecommunications transmissions, an antenna transmits intermittently. Always assume an antenna is transmitting. Never stop in front of an antenna. If you have to pass by an antenna, move through as quickly and safely as possible thereby reducing any exposure to a minimum.

Maintain a 3 foot clearance from all antennas: There is a direct correlation between the strength of an EME field and the distance from the transmitting antenna. The further away from an antenna, the lower the corresponding EME field is.

Site RF Emissions Diagram: Section 4 of this report contains an RF Diagram that outlines various theoretical Maximum Permissible Exposure (MPE) areas at the site. The modeling is a worst case scenario assuming a duty cycle of 100% for each transmitting antenna at full power. This analysis is based on one of two access control criteria: General Public criteria means the access to the site is uncontrolled and anyone can gain access. Occupational criteria means the access is restricted and only properly trained individuals can gain access to the antenna locations.

Appendix D – RF Emissions

The RF Emissions Simulation(s) in this report display theoretical spatially averaged percentage of the Maximum Permissible Exposure for all systems at the site unless otherwise noted. These diagrams use modeling as prescribed in OET Bulletin 65 and assumptions detailed in Appendix E.

The key at the bottom of each RF Emissions Simulation indicates percentages displayed referenced to FCC General Public Maximum Permissible Exposure (MPE) limits. Color coding on the diagram is as follows:

- Areas indicated as Gray are predicted to be below 5% of the MPE limits. **Gray represents areas more than 20 times below the most conservative exposure limit**.
- Green represents areas are predicted to be between 5% and 100% of the MPE limits. **Green areas are accessible to anyone**.
- Blue represents areas predicted to exceed the General Public MPE limits but are less than Occupational limits. **Blue areas should be accessible only to RF trained workers**.
- Yellow represents areas predicted to exceed Occupational MPE limits. **Yellow areas should be accessible only to RF trained workers able to assess current exposure levels**.
- Red represents areas predicted to have exposure more than 10 times the Occupational MPE limits. **Red indicates that the RF levels must be reduced prior to access.** An RF Safety Plan is required which outlines how to reduce the RF energy in these areas prior to access.

Appendix E – Assumptions and Definitions

General Model Assumptions

In this site compliance report, it is assumed that all antennas are operating at **full power at all times**. Software modeling was performed for all transmitting antennas located on the site. Sitesafe has further assumed a 100% duty cycle and maximum radiated power.

The site has been modeled with these assumptions to show the maximum RF energy density. Sitesafe believes this to be a *worst-case* analysis, based on best available data. Areas modeled to predict emissions greater than 100% of the applicable MPE level may not actually occur, but are shown as a *worst-case* prediction that could be realized real time. Sitesafe believes these areas to be safe for entry by occupationally trained personnel utilizing appropriate personal protective equipment (in most cases, a personal monitor).

Thus, at any time, if power density measurements were made, we believe the real-time measurements would indicate levels below those depicted in the RF emission diagram(s) in this report. By modeling in this way, Sitesafe has conservatively shown exclusion areas – areas that should not be entered without the use of a personal monitor, carriers reducing power, or performing real-time measurements to indicate real-time exposure levels.

Use of Generic Antennas

For the purposes of this report, the use of "Generic" as an antenna model, or "Unknown" for an operator means the information about a carrier, their FCC license and/or antenna information was not provided and could not be obtained while on site. In the event of unknown information, Sitesafe will use our industry specific knowledge of equipment, antenna models, and transmit power to model the site. If more specific information can be obtained for the unknown measurement criteria, Sitesafe recommends remodeling of the site utilizing the more complete and accurate data. Information about similar facilities is used when the service is identified and associated with a particular antenna. If no information is available regarding the transmitting service associated with an unidentified antenna, using the antenna manufacturer's published data regarding the antenna's physical characteristics makes more conservative assumptions.

Where the frequency is unknown, Sitesafe uses the closest frequency in the antenna's range that corresponds to the highest Maximum Permissible Exposure (MPE), resulting in a conservative analysis.

Definitions

5% Rule – The rules adopted by the FCC specify that, in general, at multiple transmitter sites actions necessary to bring the area into compliance with the guidelines are the shared responsibility of all licensees whose transmitters produce field strengths or power density levels at the area in question in excess of 5% of the exposure limits. In other words, any wireless operator that contributes 5% or greater of the MPE limit in an area that is identified to be greater than 100% of the MPE limit is responsible taking corrective actions to bring the site into compliance.

Compliance – The determination of whether a site is safe or not with regards to Human Exposure to Radio Frequency Radiation from transmitting antennas.

Decibel (dB) – A unit for measuring power or strength of a signal.

Duty Cycle – The percent of pulse duration to the pulse period of a periodic pulse train. Also, may be a measure of the temporal transmission characteristic of an intermittently transmitting RF source such as a paging antenna by dividing average transmission duration by the average period for transmission. A duty cycle of 100% corresponds to continuous operation.

Effective (or Equivalent) Isotropic Radiated Power (EIRP) – The product of the power supplied to the antenna and the antenna gain in a given direction relative to an isotropic antenna.

Effective Radiated Power (ERP) – In a given direction, the relative gain of a transmitting antenna with respect to the maximum directivity of a half wave dipole multiplied by the net power accepted by the antenna from the connecting transmitter.

Gain (of an antenna) – The ratio of the maximum intensity in a given direction to the maximum radiation in the same direction from an isotropic radiator. Gain is a measure of the relative efficiency of a directional antennas as compared to an omni directional antenna.

General Population/Uncontrolled Environment – Defined by the FCC, as an area where exposure to RF energy may occur to persons who are **unaware** of the potential for exposure and who have no control of their exposure. General Population is also referenced as General Public.

Generic Antenna – For the purposes of this report, the use of "Generic" as an antenna model means the antenna information was not provided and could not be obtained while on site. In the event of unknown information, Sitesafe will use our industry specific knowledge of antenna models to select a worst case scenario antenna to model the site.

Isotropic Antenna – An antenna that is completely non-directional. In other words, an antenna that radiates energy equally in all directions.

Maximum Measurement – This measurement represents the single largest measurement recorded when performing a spatial average measurement.

Maximum Permissible Exposure (MPE) – The maximum levels of RF exposure a person may be exposed to without harmful effect and with acceptable safety factor.

Occupational/Controlled Environment – Defined by the FCC, as an area where Radio Frequency Radiation (RFR) exposure may occur to persons who are **aware** of the

potential for exposure as a condition of employment or specific activity and can exercise control over their exposure.

OET Bulletin 65 – Technical guideline developed by the FCC's Office of Engineering and Technology to determine the impact of Radio Frequency radiation on Humans. The guideline was published in August 1997.

OSHA (Occupational Safety and Health Administration) – Under the Occupational Safety and Health Act of 1970, employers are responsible for providing a safe and healthy workplace for their employees. OSHA's role is to promote the safety and health of America's working men and women by setting and enforcing standards; providing training, outreach and education; establishing partnerships; and encouraging continual process improvement in workplace safety and health. For more information, visit www.osha.gov.

Radio Frequency (RF) – The frequencies of electromagnetic waves which are used for radio communications. Approximately 3 kHz to 300 GHz.

Radio Frequency Exposure (RFE) – The amount of RF power density that a person is or might be exposed to.

Spatial Average Measurement – A technique used to average a minimum of ten (10) measurements taken in a ten (10) second interval from zero (0) to six (6) feet. This measurement is intended to model the average power density an average sized human will be exposed to at a location.

Transmitter Power Output (TPO) – The radio frequency output power of a transmitter's final radio frequency stage as measured at the output terminal while connected to a load.

Appendix F – References

The following references can be followed for further information about RF Health and Safety.

Sitesafe, Inc.
http://www.sitesafe.com
FCC Radio Frequency Safety
http://www.fcc.gov/encyclopedia/radio-frequency-safety
National Council on Radiation Protection and Measurements (NCRP)
http://www.ncrponline.org
Institute of Electrical and Electronics Engineers, Inc., (IEEE)
http://www.ieee.org
American National Standards Institute (ANSI)
http://www.ansi.org
Environmental Protection Agency (EPA)
http://www.epa.gov/radtown/wireless-tech.html
National Institutes of Health (NIH)
http://www.niehs.nih.gov/health/topics/agents/emf/
Occupational Safety and Health Agency (OSHA)
http://www.osha.gov/SLTC/radiofrequencyradiation/
International Commission on Non-Ionizing Radiation Protection (ICNIRP)
http://www.icnirp.org
World Health Organization (WHO)
http://www.who.int/peh-emf/en/
National Cancer Institute
http://www.cancer.gov/cancertopics/factsheet/Risk/cellphones
American Cancer Society (ACS)
http://www.cancer.org/docroot/PED/content/PED_1_3X_Cellular_Phone_Towers.asp?siteareа=PED
European Commission Scientific Committee on Emerging and Newly Identified Health Risks
http://ec.europa.eu/health/ph_risk/committees/04_scenihr/docs/scenihr_o_022.pdf
Fairfax County, Virginia Public School Survey
http://www.fcps.edu/fts/safety-security/RFEESurvey/
UK Health Protection Agency Advisory Group on Non-ionising Radiation
http://www.hpa.org.uk/webw/HPAweb&HPAwebStandard/HPAweb_C/1317133826368
Norwegian Institute of Public Health
http://www.fhi.no/dokumenter/545eea7147.pdf