Crown Castle
3530 Toringdon Way, Suite 300
Charlotte, NC 28277

October 16, 2015

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

RE: **T-Mobile - Exempt Modification - Crown Site BU: 806355**
T-Mobile Site ID: CT11078B
Located at: 281 Woodhouse Road, Fairfield, CT 06430

Dear Ms. Bachman:

This letter and exhibits are submitted on behalf of T-Mobile. T-Mobile is making modifications to certain existing sites in its Connecticut system in order to implement their 700MHz technology. Please accept this letter and exhibits as notification, pursuant to § 16-50j-73 of the Regulations of Connecticut State Agencies ("R.C.S.A."), of construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In compliance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to The Honorable Michael C. Tetreau, First Selectman of the Town of Fairfield, and Ghosh, Ranjan & Moitrayee, Property Owner.

T-Mobile plans to modify the existing wireless communications facility owned by Crown Castle and located at **281 Woodhouse Road, Fairfield, CT**. Attached are a compound plan and elevation depicting the planned changes (Exhibit-1), and documentation of the structural sufficiency of the structure to accommodate the revised antenna configuration (Exhibit-2). Also included is a power density table report reflecting the modification to T-Mobile's operations at the site (Exhibit-3).

The changes to the facility do not constitute a modification as defined in Connecticut General Statutes ("C.G.S.") § 16-50i(d) because the general physical characteristics of the facility will not be significantly changed. Rather, the planned changes to the facility fall squarely within those activities explicitly provided for in the R.C.S.A. § 16-50j-72(b)(2).

1. The proposed modifications will not result in an increase in the height of the existing tower. T-Mobile's additional antennas will be located at the same elevation on the existing tower.

2. There will be no proposed modifications to the ground and no extension of boundaries.

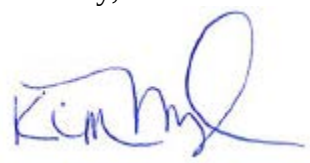
3. The proposed modifications will not increase noise levels at the facility by six decibels or more.

4. A Structural Modification Report confirming that the tower and foundation can support T-Mobile's proposed modifications is included as Exhibit-2.

5. The operation of the additional antennas will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) adopted safety standard. A cumulative General Power Density table report for T-Mobile's modified facility is included as Exhibit-3.

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

Sincerely,



Kimberly Myl
Real Estate Specialist

Enclosures

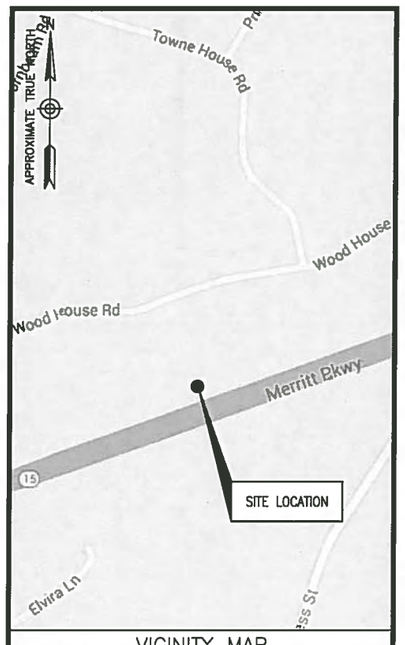
Tab 1: Exhibit-1: Compound plan and elevation depicting the planned changes
Tab 2: Exhibit-2: Structural Modification Report
Tab 3: Exhibit-3: General Power Density Table Report (RF Emissions Analysis Report)

cc: The Honorable Michael C. Tetreau
Sullivan Independence Hall
725 Old Post Road
Fairfield, CT 06824

Ghosh, Ranjan & Moitrayee
11 Peterson Road
Palmer, MA 01069

T-MOBILE NORTHEAST LLC

T-MOBILE SITE #: CT11078B
CROWN CASTLE BU #: 806355
SITE NAME: BRG 126 943086
281 WOODHOUSE ROAD
FAIRFIELD, CT 06430
FAIRFIELD COUNTY



VICINITY MAP

FROM PARSIPPANY, NJ:

DEPART SYLVAN WAY AND TAKE I-287 N TOWARD ALBANY. USE THE RIGHT 2 LANES TO MERGE ONTO I-287 E/I-87 S TOWARD TAPPAN ZEE BR. STAY ON I-287 E AND FOLLOW SIGNS FOR WHITE PLAINS. TAKE EXIT 9N-9S FOR HUTCHINSON PKWY TOWARD WHITE STONE BRIDGE/MERRITT PKWY. MERGE ONTO HUTCHINSON RIVER PKWY N. CONTINUE ONTO CT-15 N. USE THE MIDDLE LANE TO STAY ON CT-15 N. TAKE EXIT 44 TOWARD CT-58/FAIRFIELD/REDDING. USE THE LEFT LANE TO TURN ONTO CONGRESS ST. TURN LEFT AT THE 1ST STREET ONTO CT-58 N. TURN LEFT TO MERGE ONTO CT-15 S. SITE WILL BE ON THE RIGHT.

ENGINEER
DEWBERRY ENGINEERS INC.
600 PARSIPPANY ROAD
SUITE 301
PARSIPPANY, NJ 07054

CONTACT: BRYAN HUFF
PHONE #: (973) 576-0147

CONSTRUCTION
CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

CONTACT: PATRICIA PELON
PHONE #: (518) 373-3507

CONSULTANT TEAM

SITE NAME:
BRG 126 943086

SITE NUMBER:
CT11078B

TOWER OWNER:
CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

APPLICANT/DEVELOPER:
T-MOBILE NORTHEAST LLC
4 SYLVAN WAY
PARSIPPANY, NJ 07054

COORDINATES:
LATITUDE: 41°-14'-45.3" N (NAD83)
LONGITUDE: 73°-16'-52.9" W (NAD83)
(PER CROWN CASTLE)

CONFIGURATION
702Cu

PROJECT SUMMARY

SITE ADDRESS:
281 WOODHOUSE ROAD
FAIRFIELD, CT 06430
FAIRFIELD COUNTY

PROJECT DIRECTORY

- INSTALL (3) NEW ANTENNAS.
- INSTALL (3) NEW RRU'S.
- REMOVE (6) EXISTING LINES OF COAX.

SCOPE OF WORK

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

A.D.A. COMPLIANCE:
FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION.

SHT. NO.	DESCRIPTION
T-1	TITLE SHEET
G-1	GENERAL NOTES
C-1	COMPOUND PLAN & EQUIPMENT PLANS
C-2	ANTENNA LAYOUTS & ELEVATIONS
C-3	CONSTRUCTION DETAILS
E-1	GROUNDING NOTES & DETAILS

SHEET INDEX

T-MOBILE NORTHEAST LLC
4 SYLVAN WAY
PARSIPPANY, NJ 07054

CROWN CASTLE

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

CT11078B
BRG 126 943086

CONSTRUCTION DRAWINGS

0	10/15/15	ISSUED AS FINAL
A	10/08/15	ISSUED FOR REVIEW

Dewberry
Dewberry Engineers Inc.
600 PARSIPPANY ROAD
SUITE 301
PARSIPPANY, NJ 07054
PHONE: 973.739.9400
FAX: 973.739.9710

STATE OF CONNECTICUT
JIANG YU
No. 23222
REGISTERED
PROFESSIONAL ENGINEER

JIANG YU, P.E.
CONNECTICUT LICENSE NO. 0023222

DRAWN BY:	RA
REVIEWED BY:	BSH
CHECKED BY:	GHN
PROJECT NUMBER:	50066258
JOB NUMBER:	50074609
SITE ADDRESS:	

281 WOODHOUSE ROAD
FAIRFIELD, CT 06430
FAIRFIELD COUNTY

SHEET TITLE

TITLE SHEET

SHEET NUMBER

T-1

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
   PROJECT MANAGEMENT – CROWN CASTLE
   CONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – T–MOBILE
   OEM – ORIGINAL EQUIPMENT MANUFACTURER
2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF PROJECT MANAGEMENT.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK.
4. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
5. DRAWINGS PROVIDED HERE ARE NOT TO SCALE UNLESS OTHERWISE NOTED AND ARE INTENDED TO SHOW OUTLINE ONLY.
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 CONTRACTOR 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 CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY PROJECT MANAGEMENT.
9. CONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. CONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. CONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH PROJECT MANAGEMENT.
10. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
11. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
12. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
13. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
14. CONTRACTOR SHALL NOTIFY DEWBERRY 48 HOURS IN ADVANCE OF POURING CONCRETE, OR BACKFILLING TRENCHES, SEALING ROOF AND WALL PENETRATIONS & POST DOWNS, FINISHING NEW WALLS OR FINAL ELECTRICAL CONNECTIONS FOR ENGINEER REVIEW.
15. CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. CONTRACTOR SHALL NOTIFY PROJECT MANAGEMENT OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
16. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY CONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
17. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

SITE WORK GENERAL NOTES:

1. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
2. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO:
   A) FALL PROTECTION
   B) CONFINED SPACE
   C) ELECTRICAL SAFETY
   D) TRENCHING & EXCAVATION.
3. ALL SITE WORK SHALL BE AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.
4. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES, TOP SOIL AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
5. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF CONTRACTOR, OWNER AND/OR LOCAL UTILITIES.
6. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION.
7. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE T–MOBILE SPECIFICATION FOR SITE SIGNAGE.
8. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE TRANSMISSION EQUIPMENT AND TOWER AREAS.
9. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
10. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION, SEE SOIL COMPACTION NOTES.
11. THE AREAS OF THE OWNER'S PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION.
12. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL JURISDICTION'S GUIDELINES FOR EROSION AND SEDIMENT CONTROL.

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE LOCAL CODES.
2. CONTRACTOR SHALL MODIFY EXISTING CABLE TRAY SYSTEM AS REQUIRED TO SUPPORT RF AND TRANSPORT CABLING TO THE NEW BTS EQUIPMENT. CONTRACTOR SHALL SUBMIT MODIFICATIONS TO PROJECT MANAGEMENT FOR APPROVAL.
3. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.
4. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC AND TELCORDIA.
5. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC AND TELCORDIA.
6. CABLES SHALL NOT BE ROUTED THROUGH LADDER–STYLE CABLE TRAY RUNGS.
7. EACH END OF EVERY POWER, POWER PHASE CONDUCTOR (I.E., HOTS), GROUNDING, AND T1 CONDUCTOR AND CABLE SHALL BE LABELED WITH COLOR–CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2 INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC & OSHA, AND MATCH EXISTING INSTALLATION REQUIREMENTS.
8. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS. ALL EQUIPMENT SHALL BE LABELED WITH THEIR VOLTAGE RATING, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING, AND BRANCH CIRCUIT ID NUMBERS (I.E., PANELBOARD AND CIRCUIT ID'S).
9. PANELBOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS.
10. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
11. POWER, CONTROL, AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE CONDUCTOR (SIZE 14 AWG OR LARGER), 600V, OIL RESISTANT THHN OR THWN–2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.
12. POWER PHASE CONDUCTORS (I.E., HOTS) SHALL BE LABELED WITH COLOR–CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2 INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL) PHASE CONDUCTOR COLOR CODES SHALL CONFORM WITH THE NEC & OSHA AND MATCH EXISTING INSTALLATION REQUIREMENTS.
13. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE CONDUCTOR (SIZE 6 AWG OR LARGER), 600V, OIL RESISTANT THHN OR THWN–2 GREEN INSULATION, CLASS B STRANDED COPPER CABLE RATED FOR 90°C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.
14. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED OUTDOORS, OR BELOW GRADE, SHALL BE SINGLE CONDUCTOR #2 AWG SOLID TINNED COPPER CABLE, UNLESS OTHERWISE SPECIFIED.
15. POWER AND CONTROL WIRING, NOT IN TUBING OR CONDUIT, SHALL BE MULTI–CONDUCTOR, TYPE TC CABLE (SIZE 14 AWG OR LARGER), 600V, OIL RESISTANT THHN OR THWN–2, CLASS B STRANDED COPPER CABLE RATED FOR 90°C (WET AND DRY) OPERATION; WITH OUTER JACKET; LISTED OR LABELED FOR THE LOCATION USED, UNLESS OTHERWISE SPECIFIED.
16. ALL POWER AND POWER GROUNDING CONNECTIONS SHALL BE CRIMP–STYLE, COMPRESSION WIRE LUGS AND WIRENUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRENUTS SHALL BE RATED FOR OPERATION AT NO LESS THAN 75°C (90°C IF AVAILABLE).
17. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE, AND NEC.
18. NEW RACEWAY OR CABLE TRAY WILL MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.
19. ELECTRICAL METALLIC TUBING (EMT) OR RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40, OR RIGID PVC SCHEDULE 80 FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
20. ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NONMETALLIC TUBING (ENT), OR RIGID NONMETALLIC CONDUIT (RIGID PVC, SCHEDULE 40) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
21. GALVANIZED STEEL INTERMEDIATE METALLIC CONDUIT (IMC) SHALL BE USED FOR OUTDOOR LOCATIONS ABOVE GRADE.
22. RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80) SHALL BE USED UNDERGROUND; DIRECT BURIED, IN AREAS OF OCCASIONAL LIGHT VEHICLE TRAFFIC OR ENCASED IN REINFORCED CONCRETE IN AREAS OF HEAVY VEHICLE TRAFFIC.
23. LIQUID–TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID–TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
24. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION–TYPE AND APPROVED FOR THE LOCATION USED. SETSCREW FITTINGS ARE NOT ACCEPTABLE.
25. CABINETS, BOXES, AND WIREWAYS SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE, AND NEC.
26. CABINETS, BOXES, AND WIREWAYS TO MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.
27. WIREWAYS SHALL BE EPOXY–COATED (GRAY) AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARD; SHALL BE PANDUIT TYPE E (OR EQUAL); AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.
28. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES, AND PULL BOXES SHALL BE GALVANIZED OR EPOXY–COATED SHEET STEEL, SHALL MEET OR EXCEED UL 50, AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.
29. METAL RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY–COATED, OR NON–CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
30. NONMETALLIC RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
31. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM PROJECT MANAGEMENT BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
32. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD AGAINST LIFE AND PROPERTY.
33. THE APPLICANT, OR HIS REPRESENTATIVE, IS TO DESIGNATE AN INDIVIDUAL RESPONSIBLE FOR CONSTRUCTION SITE SAFETY DURING THE COURSE OF SITE IMPROVEMENTS PURSUANT TO N.J.A.C. 5:23–2.21 (E) OF THE N.J. UNIFORM CONSTRUCTION CODE AND CRT 1926.32 (F) (OSHA COMPETENT PERSON).

CONCRETE AND REINFORCING STEEL NOTES:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST–IN–PLACE CONCRETE.
2. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE. A HIGHER STRENGTH (4000 PSI) MAY BE USED. ALL CONCRETING WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.
3. REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE (UNO). SPLICES SHALL BE CLASS "B" AND ALL HOOKS SHALL BE STANDARD, UNO.
4. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:

   CONCRETE CAST AGAINST EARTH.....3 IN.
   CONCRETE EXPOSED TO EARTH OR WEATHER:
   #6 AND LARGER .....2 IN.
   #5 AND SMALLER & WWF.....1 1/2 IN.
   CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:
   SLAB AND WALL .....3/4 IN.
   BEAMS AND COLUMNS.....1 1/2 IN.

5. A CHAMFER 3/4" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNO, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.
6. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR, SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR CONTRACTOR APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS. ALL EXPANSION/WEDGE ANCHORS SHALL BE STAINLESS STEEL OR HOT DIPPED GALVANIZED. EXPANSION BOLTS SHALL BE PROVIDED BY RAMSET/REDHEAD OR APPROVED EQUAL.
7. CONCRETE CYLINDER TEST IS NOT REQUIRED FOR SLAB ON GRADE WHEN CONCRETE IS LESS THAN 50 CUBIC YARDS (IBC 1905.6.2.3) IN THAT EVENT THE FOLLOWING RECORDS SHALL BE PROVIDED BY THE CONCRETE SUPPLIER;
   (A) RESULTS OF CONCRETE CYLINDER TESTS PERFORMED AT THE SUPPLIER'S PLANT,
   (B) CERTIFICATION OF MINIMUM COMPRESSIVE STRENGTH FOR THE CONCRETE GRADE SUPPLIED.
   FOR GREATER THAN 50 CUBIC YARDS THE GC SHALL PERFORM THE CONCRETE CYLINDER TEST.
8. AS AN ALTERNATIVE TO ITEM 7, TEST CYLINDERS SHALL BE TAKEN INITIALLY AND THEREAFTER FOR EVERY 50 YARDS OF CONCRETE FROM EACH DIFFERENT BATCH PLANT.
9. EQUIPMENT SHALL NOT BE PLACED ON NEW PADS FOR SEVEN DAYS AFTER PAD IS POURED, UNLESS IT IS VERIFIED BY CYLINDER TESTS THAT COMPRESSIVE STRENGTH HAS BEEN ATTAINED.

STRUCTURAL STEEL NOTES:

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

CONSTRUCTION NOTES:

1. FIELD VERIFICATION:
   CONTRACTOR SHALL FIELD VERIFY SCOPE OF WORK, T–MOBILE ANTENNA PLATFORM LOCATION AND ANTENNAS TO BE REPLACED.
2. COORDINATION OF WORK:
   CONTRACTOR SHALL COORDINATE RF WORK AND PROCEDURES WITH PROJECT MANAGEMENT.
3. CABLE LADDER RACK:
   CONTRACTOR SHALL FURNISH AND INSTALL CABLE LADDER RACK, CABLE TRAY, AND CONDUIT AS REQUIRED TO SUPPORT CABLES TO THE NEW BTS LOCATION.
4. GROUNDING OF ALL EQUIPMENT AND ANTENNAS IS NOT CONSIDERED PART OF THE SCOPE OF THIS PROJECT AND IS THE RESPONSIBILITY OF THE OWNER AND CONTRACTOR AT THE TIME OF CONSTRUCTION. ALL EQUIPMENT AND ANTENNAS TO BE INSTALLED AND GROUNDED IN ACCORDANCE WITH GOVERNING BUILDING CODE, MANUFACTURER RECOMMENDATIONS AND OWNER SPECIFICATIONS.

T-Mobile

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CROWN CASTLE

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CT11078B
BRG 126 943086

CONSTRUCTION DRAWINGS

0	10/15/15	ISSUED AS FINAL
A	10/08/15	ISSUED FOR REVIEW

Dewberry

Dewberry Engineers Inc.
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PHONE: 973.739.9400
FAX: 973.739.9710

STATE OF CONNECTICUT
JIANG YU
PROFESSIONAL ENGINEER
JIANG YU
CONNECTICUT LICENSE NO. 0023222

DRAWN BY:	RA
REVIEWED BY:	BSH
CHECKED BY:	GHN
PROJECT NUMBER:	50066258
JOB NUMBER:	50074609
SITE ADDRESS:	

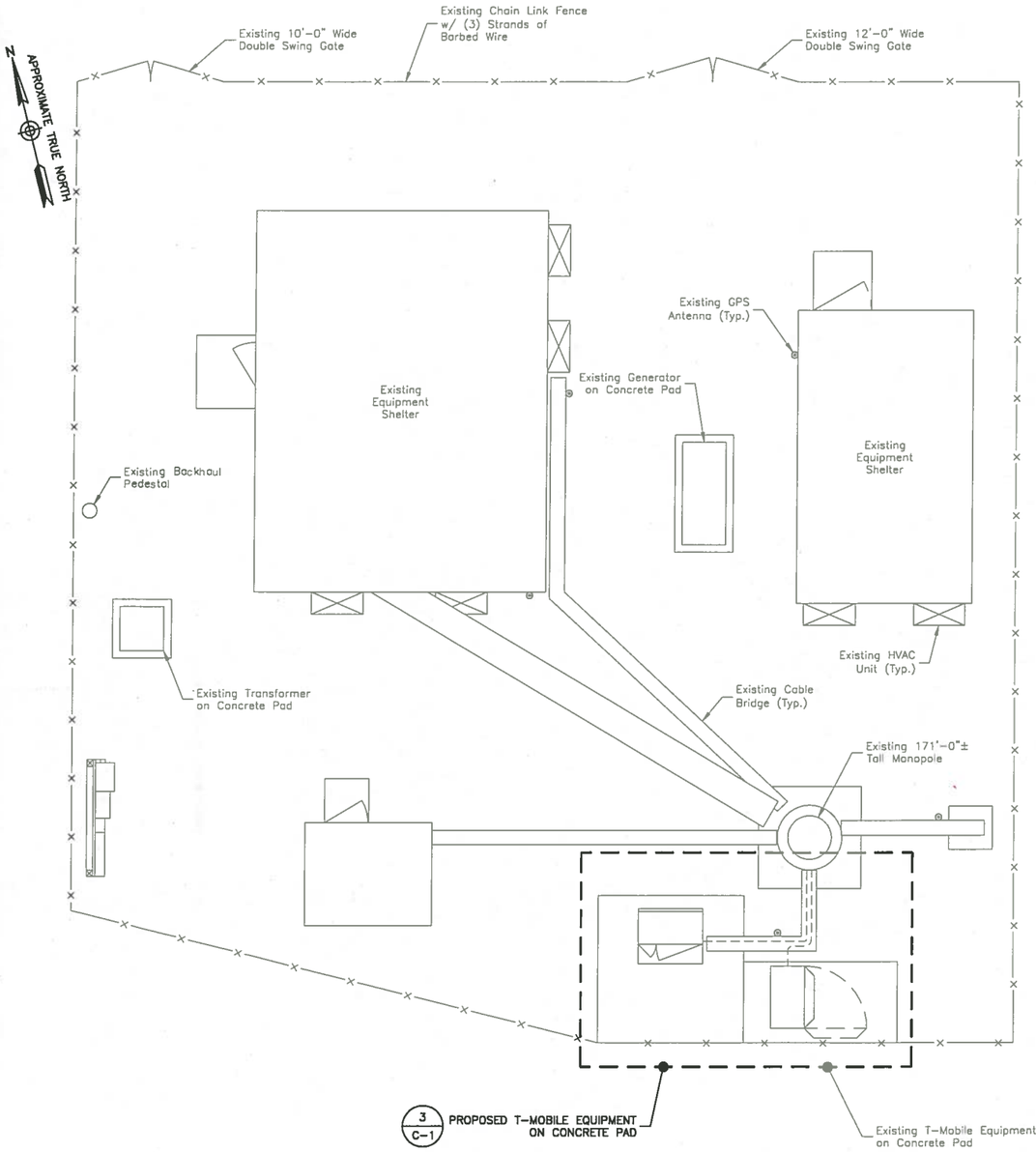
281 WOODHOUSE ROAD
FAIRFIELD, CT 06430
FAIRFIELD COUNTY

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

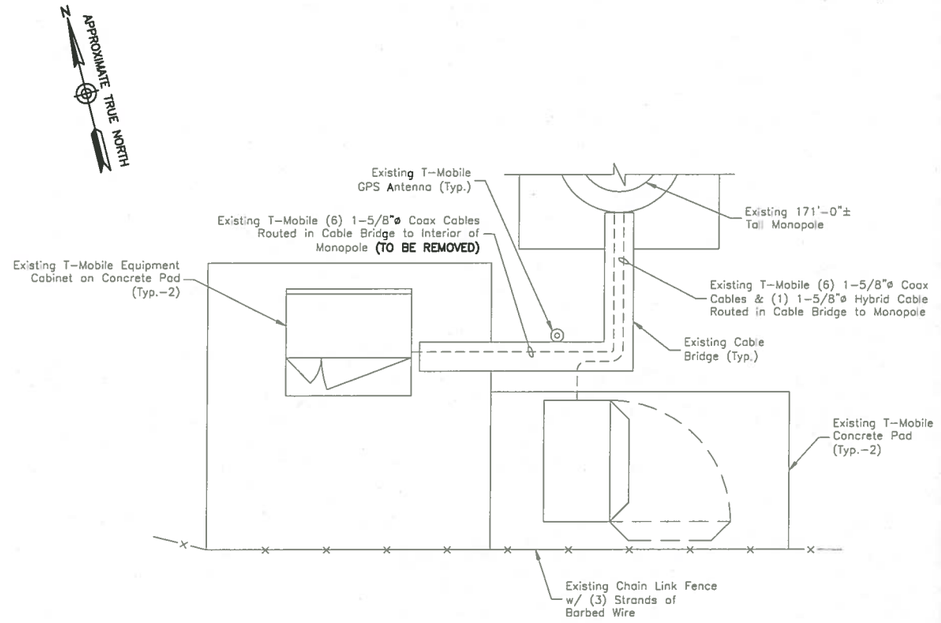
G–1



COMPOUND PLAN 1

SCALE: 1"=10' FOR 11"x17"
1"=5' FOR 22"x34"

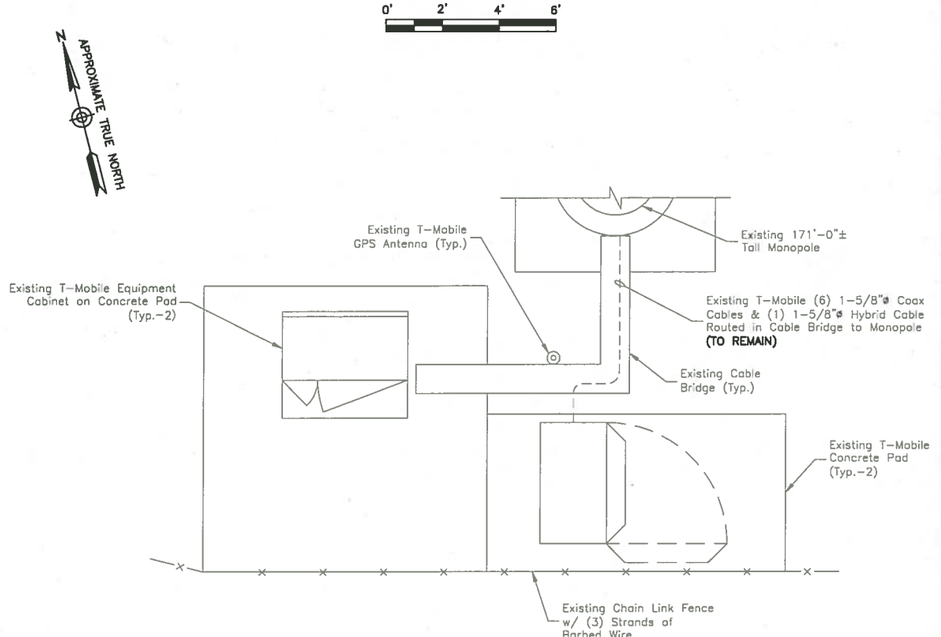
0' 5' 10'



EXISTING EQUIPMENT PLAN 2

SCALE: 3/16"=1' FOR 11"x17"
3/8"=1' FOR 22"x34"

0' 2' 4' 6'



PROPOSED EQUIPMENT PLAN 3

SCALE: 3/16"=1' FOR 11"x17"
3/8"=1' FOR 22"x34"

0' 2' 4' 6'

NOTES:

1. NORTH ARROW SHOWN AS APPROXIMATE.
2. NOT ALL INFORMATION IS SHOWN FOR CLARITY.
3. ALL PROPOSED EQUIPMENT, INCLUDING ANTENNAS, RRU'S, COAX, ETC., SHALL BE MOUNTED IN ACCORDANCE WITH THE TOWER STRUCTURAL ANALYSIS BY MORRISON HERSHFIELD DATED SEPTEMBER 18, 2015.

NOTE:

1. NO EQUIPMENT IS PROPOSED AT GRADE.

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CT11078B
BRG 126 943086

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STATE OF CONNECTICUT
JIANG YU
No. 23222
LICENSED PROFESSIONAL ENGINEER
JIANG YU, P.E.
CONNECTICUT LICENSE NO. 0023222

DRAWN BY:	RA
REVIEWED BY:	BSH
CHECKED BY:	GHN
PROJECT NUMBER:	50066258
JOB NUMBER:	50074609
SITE ADDRESS:	

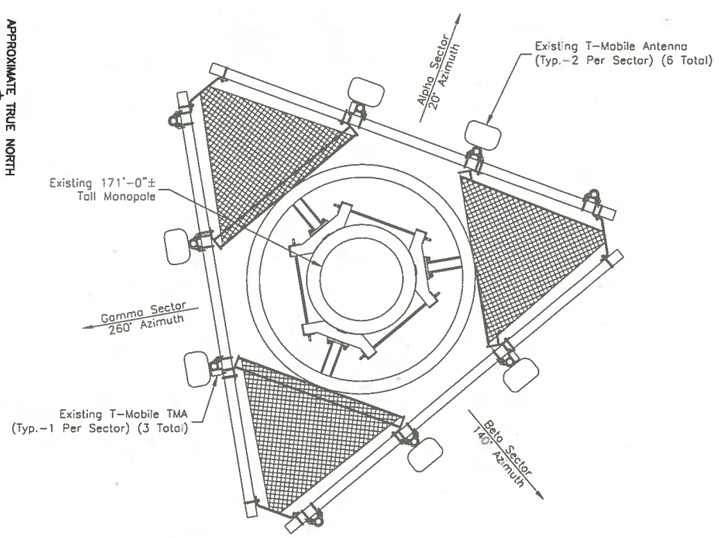
281 WOODHOUSE ROAD
FAIRFIELD, CT 06430
FAIRFIELD COUNTY

SHEET TITLE

COMPOUND PLAN & EQUIPMENT PLANS

SHEET NUMBER

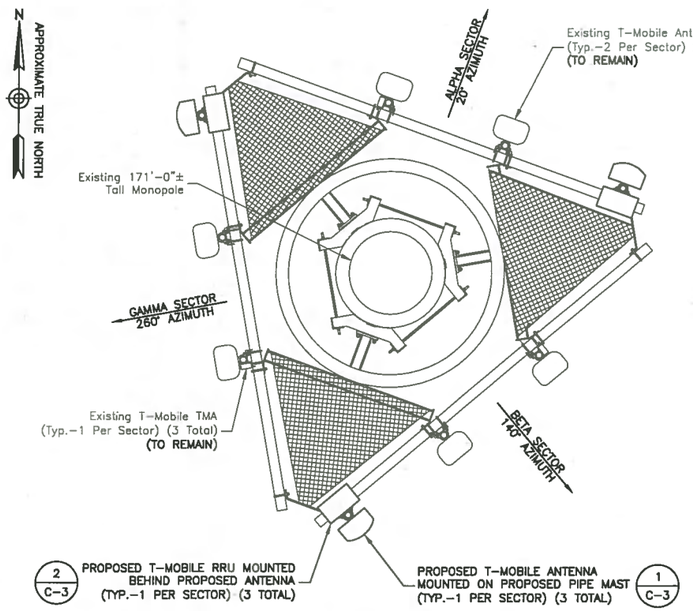
C-1



EXISTING ANTENNA LAYOUT

SCALE: N.T.S.

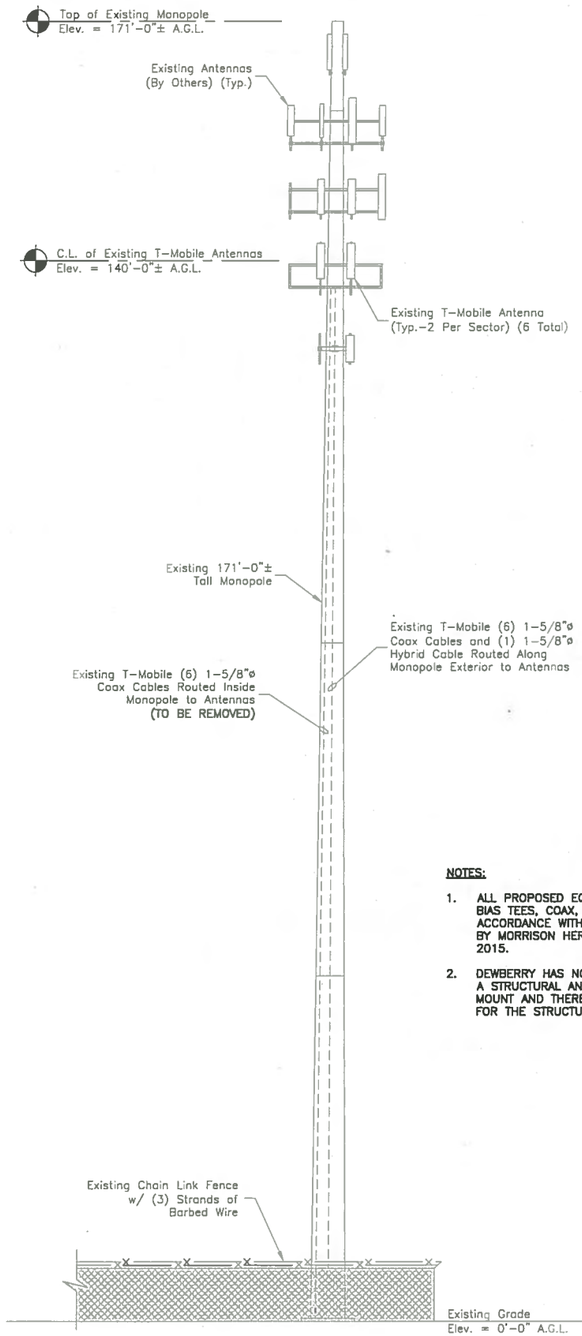
1



PROPOSED ANTENNA LAYOUT

SCALE: N.T.S.

2



EXISTING ELEVATION

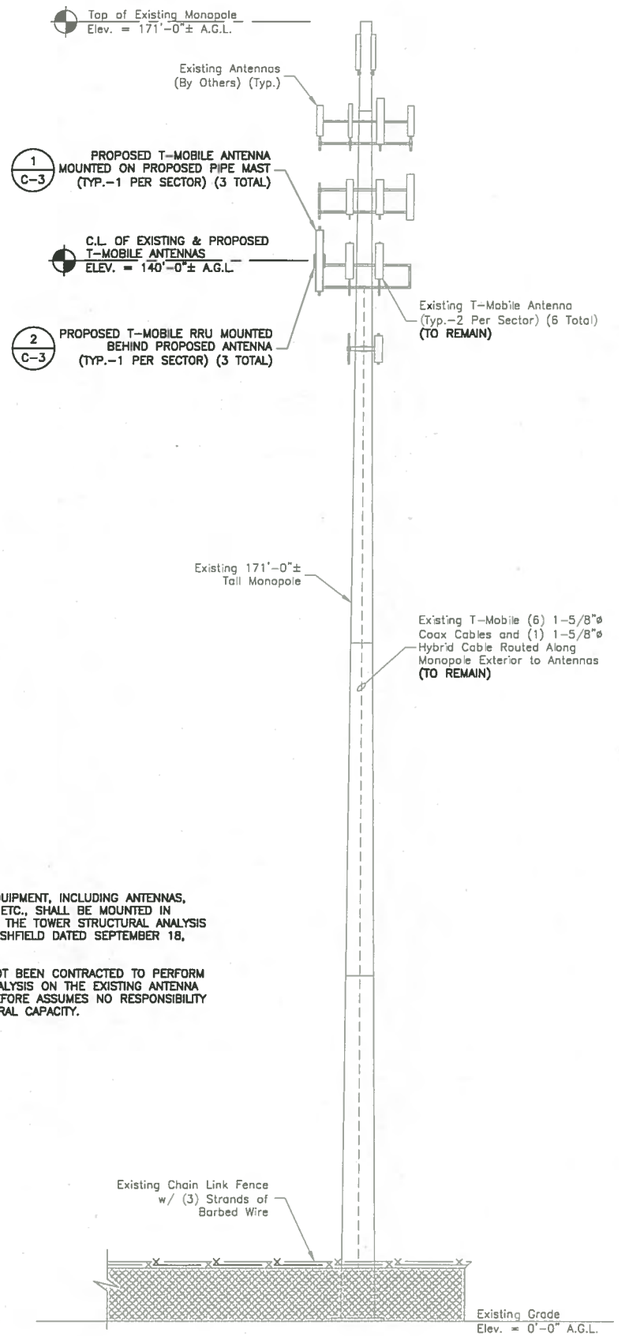
SCALE: 1"=20' FOR 11"x17"
1"=10' FOR 22"x34"

0' 10' 20'

3

NOTES:

1. ALL PROPOSED EQUIPMENT, INCLUDING ANTENNAS, BIAS TEES, COAX, ETC., SHALL BE MOUNTED IN ACCORDANCE WITH THE TOWER STRUCTURAL ANALYSIS BY MORRISON HERSHFIELD DATED SEPTEMBER 18, 2015.
2. DEWBERRY HAS NOT BEEN CONTRACTED TO PERFORM A STRUCTURAL ANALYSIS ON THE EXISTING ANTENNA MOUNT AND THEREFORE ASSUMES NO RESPONSIBILITY FOR THE STRUCTURAL CAPACITY.



PROPOSED ELEVATION

SCALE: 1"=20' FOR 11"x17"
1"=10' FOR 22"x34"

0' 10' 20'

4

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STATE OF CONNECTICUT
JIANG YU
PROFESSIONAL ENGINEER
LICENSED

JIANG YU, P.E.
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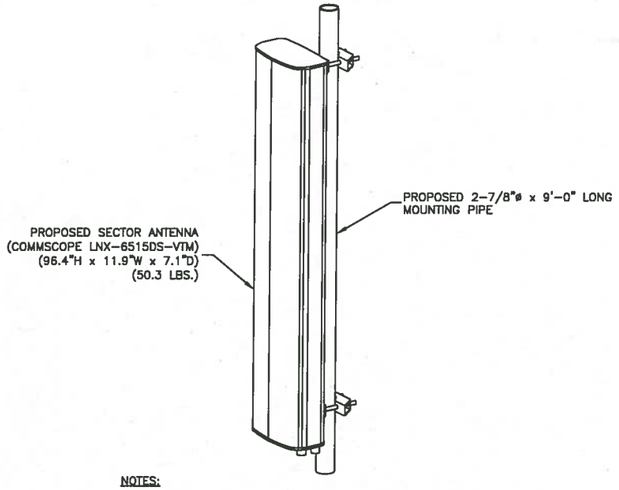
FAIRFIELD, CT 06430
FAIRFIELD COUNTY

SHEET TITLE

ANTENNA LAYOUTS & ELEVATIONS

SHEET NUMBER

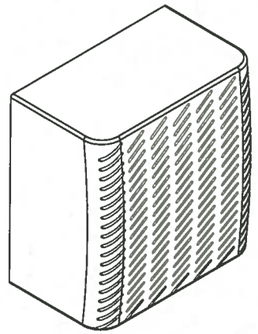
C-2



NOTES:

1. MOUNT ANTENNAS PER MANUFACTURER'S RECOMMENDATIONS.
2. GROUND ANTENNAS AND MOUNTS PER MANUFACTURER'S RECOMMENDATIONS AND T-MOBILE STANDARDS.
3. CONFIRM REQUIRED ANTENNAS WITH THE LATEST RFDS.

ISOMETRIC ANTENNA DETAIL (1)
SCALE: N.T.S.



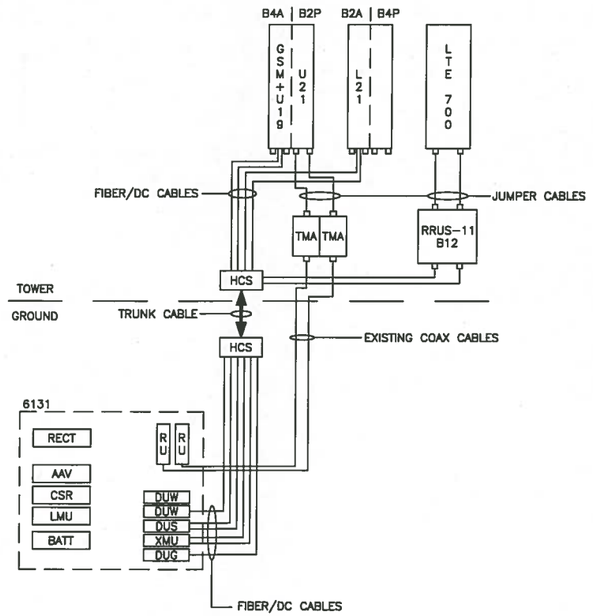
SPECIFICATIONS:	
HEIGHT:	20.0"
WIDTH:	17.0"
DEPTH:	7.0"
WEIGHT:	50.7 LBS

ERICSSON RRUS-11 B12

RRU NOTES:

1. MOUNT EQUIPMENT WITH MANUFACTURER PROVIDED MOUNTING BRACKETS.
2. GROUND EQUIPMENT AND MOUNTS PER MANUFACTURER'S RECOMMENDATIONS AND T-MOBILE STANDARDS.
3. CONFIRM REQUIRED EQUIPMENT WITH THE LATEST RFDS.

RRUS-11 - REMOTE RADIO UNIT (2)
SCALE: N.T.S.



SITE CONFIGURATION 702Cu (3)
SCALE: N.T.S.

DESIGN CONFIGURATION

	ANTENNAS		COAX		COAX LENGTH	EXISTING HYBRID	RRH	
	EXISTING	PROPOSED	EXISTING	PROPOSED			EXISTING	PROPOSED
ALPHA	ERICSSON AIR21 B4A B2P	EXISTING TO REMAIN	(4) 1-5/8"ø	(2) 1-5/8"ø TO BE REMOVED	190'-0"	(1) 1-5/8"ø @ 190'-0"	–	–
	ERICSSON AIR21 B2A B4P	EXISTING TO REMAIN					–	–
	–	COMMSCOPE LNX-6515DS-VTM					–	RRUS-11 B12
BETA	ERICSSON AIR21 B4A B2P	EXISTING TO REMAIN	(4) 1-5/8"ø	(2) 1-5/8"ø TO BE REMOVED	190'-0"		–	–
	ERICSSON AIR21 B2A B4P	EXISTING TO REMAIN					–	–
	–	COMMSCOPE LNX-6515DS-VTM					–	RRUS-11 B12
GAMMA	ERICSSON AIR21 B4A B2P	EXISTING TO REMAIN	(4) 1-5/8"ø	(2) 1-5/8"ø TO BE REMOVED	190'-0"		–	–
	ERICSSON AIR21 B2A B4P	EXISTING TO REMAIN					–	–
	–	COMMSCOPE LNX-6515DS-VTM					–	RRUS-11 B12

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STATE OF CONNECTICUT
JIANG YU
LICENSED PROFESSIONAL ENGINEER

JIANG YU, P.E.
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FAIRFIELD, CT 06430
FAIRFIELD COUNTY

SHEET TITLE

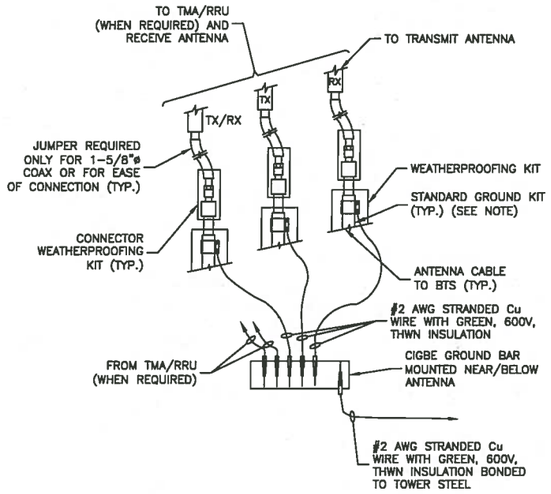
CONSTRUCTION DETAILS

SHEET NUMBER

C-3

GROUNDING NOTES:

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

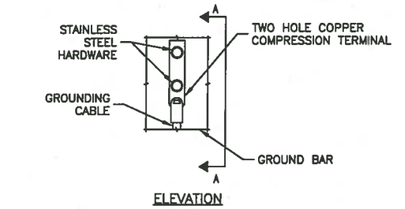


NOTE:

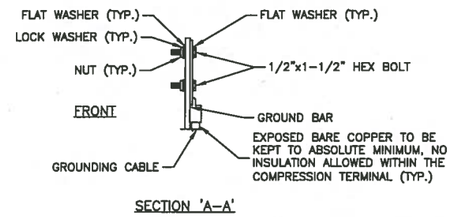
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE.

CONNECTION OF GROUND WIRES TO GROUNDING BAR (CIGBE) — 1

SCALE: N.T.S.



ELEVATION



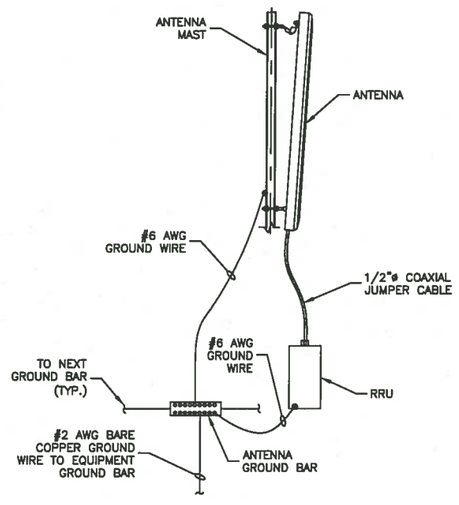
SECTION 'A-A'

NOTES:

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

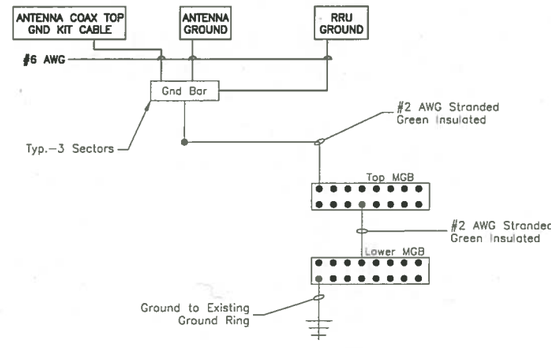
TYPICAL GROUND BAR MECHANICAL CONNECTION DETAIL — 2

SCALE: N.T.S.



TYPICAL ANTENNA GROUNDING DETAIL — 3

SCALE: N.T.S



NOTES:

1. BOND ANTENNA GROUNDING KIT CABLE TO TOP CIGBE
2. BOND ANTENNA GROUNDING KIT CABLE TO BOTTOM CIGBE.
3. SCHEMATIC GROUNDING DIAGRAM IS TYPICAL FOR EACH SECTOR.
4. VERIFY EXISTING GROUND SYSTEM IS INSTALLED PER T-MOBILE STANDARDS.

SCHEMATIC GROUNDING DIAGRAM — 4

SCALE: N.T.S.

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STATE OF CONNECTICUT — JIANG YU — PROFESSIONAL ENGINEER

JIANG YU, P.E.
CONNECTICUT LICENSE NO. 0023222

DRAWN BY:	RA
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FAIRFIELD, CT 06430
FAIRFIELD COUNTY

SHEET TITLE

GROUNDING NOTES & DETAILS

SHEET NUMBER

E-1

Date: **September 18, 2015**

MORRISON HERSHFIELD

Ms. Darcy Tarr
Crown Castle
3530 Toringdon Way, Suite 300
Charlotte, NC 28277

Morrison Hershfield
1455 Lincoln Parkway, Suite 500
Atlanta, GA
770-379-8500

Subject: Structural Analysis Report

Carrier Designation:	***T-Mobile* Co-Locate**	
	Carrier Site Number:	CT11078B
	Carrier Site Name:	Fairfield/ MP X43/ Burr S
Crown Castle Designation:	**Crown Castle BU Number:**	806355
	Crown Castle Site Name:	BRG 126 943086
	Crown Castle JDE Job Number:	347084
	Crown Castle Work Order Number:	1119957
	Crown Castle Application Number:	310141 Rev. 0
Engineering Firm Designation:	**Morrison Hershfield Project Number:**	CN4-485 / 6150003
Site Data:	**281 Woodhouse Road, Fairfield, Fairfield County, CT 06430** **Latitude *41° 11' 45.3"*, Longitude *-73° 16' 52.9"*** **170.667 Foot - Monopole Tower**	

Dear Ms. Tarr,

Morrison Hershfield 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 825629, in accordance with application 310141, 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:

LC7: Existing + Proposed for all applicants **Sufficient Capacity**
Note: See Table I and Table II for the proposed and existing/reserved 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 85 mph fastest mile.

We at *Morrison Hershfield* 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:

G. Lance Cooke, P.E. (CT License PEN.0028133)
Senior Engineer

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1) INTRODUCTION

This tower is a 170.667 ft Monopole tower designed by Engineered Endeavors, Inc., in May of 1998. The tower was originally designed for a wind speed of 85 mph per TIA/EIA-222-E.

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 85 mph with no ice, 38 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
138.0	140.0	3	Commscope	LNX-6515DS-VTM w/ pipe mount	-	-	-
		3	Ericsson	RRUS 11 B12			

Table 2 - Existing and Reserved 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
166.0	167.0	3	EMS Wireless	DR90-14-00DPL2 w/Mount Pipe	6	1-5/8	3
	166.0	3	-	Pipe Mount [PM 601-1]			
155.0	160.0	1	GPS	GPS_A	-	-	1
	159.0	3	Alcatel Lucent	RRH2x40-AWS			2
		1	RFS	DB-T1-6Z-8AB-0Z			
		3	Antel	BXA-171063/12CF w/ pipe mount	1	1-5/8	2
		3	Andrew	LNX-6514DS-T4M w/ pipe mount	12 1	1-5/8 1/2	1
		6	Decibel	DB844G65ZAXY w/Mount Pipe			
		3	Rymsa Wireless	MG D3-800Tv w/ pipe mount			
	155.0	1	-	Platform Mount [LP 602-1]			
		7	RFS	FD9R6004/2C-3L			
146.0	148.0	3	Ericsson	RRUS 11 B2	-	-	2
		12	Powerwave	7020.00			
		3	Ericsson	RRUS-11	12 2 1 1	1-5/8 3/8 5/8 2" Conduit	1
		6	Powerwave	7770.00 w/ pipe mount			
		12	Powerwave	LGP2140X			
		3	Powerwave	P65-16-XLH-RR w/ pipe mount			
		1	Raycap	DC6-48-60-18-8F			
	146.0	1	-	Platform Mount [LP 602-1]			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
138.0	140.0	3	Ericsson	AIR 21 B2A B4P w/ pipe mount	7	1-5/8	1
		3	Ericsson	AIR 21 B4A B2P w/ pipe mount			
	138.0	1	-	Platform Mount [LP 602-1]			
		3	Ericsson	KRY 112 144/1			
128.0	128.0	3	-	Side Arm Mount [SO 101-1]	3 3 1 2	5/16 1/4 1/2 2" Conduit	1
		1	Andrew	VHLP800-11			
		3	Kathrein	840-10054 w/ pipe mount			
118.0	118.0	1	-	Side Arm Mount [SO 301-1]	-	-	3
		2	-	Side Arm Mount [SO 702-1]			
		1	-	T-Arm Mount [TA 602-1]			

Notes:
1) Existing equipment that is to remain on the tower.
2) Reserved equipment that has been considered in this analysis.
3) Abandoned equipment that is installed and has been 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)
160	160	12	-	ALP 9212	-	-
		1	-	Standard AMPS Platform		
148	148	12	-	ALP 11011	-	-
		1	-	Standard AMPS Platform		
138	138	6	-	APN 199015	-	-
		1	-	Standard AMPS Platform		
128	128	12	-	ALP 9212	-	-
		1	-	Standard AMPS Platform		
118	118	12	-	ALP 9212	-	-
		1	-	Standard AMPS Platform		

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-TOWER MANUFACTURER DRAWINGS	Engineered Endeavors, Inc., Job No. 3761, Dated 05/01/1998	653293	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Engineered Endeavors, Inc., Job No. 3761, Dated 05/21/1998	1098364	CCISITES

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Dr. Clarence Welti, P.E.,P.C, Dated 05/15/1998	1099974	CCISITES
4-TOWER STRUCTURAL ANALYSIS REPORTS	B+T Group, Job # 80964.002.01, dated 04/13/2015	5635522	CCISITES

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) The tower and structures were built in accordance with the manufacturer's specifications and applicable ANSI/TIA/EIA standards.
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) The foundation was properly designed and constructed for the original design loads.

This analysis may be affected if any assumptions are not valid or have been made in error. Morrison Hershfield 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
L1	170.667 - 156.5	Pole	TP10.75x10.75x0.365	1	-0.74	333.35	17.2	Pass
L2	156.5 - 156	Pole	TP19.5x10.75x0.365	2	-0.74	333.35	17.2	Pass
L3	156 - 132.67	Pole	TP24.79x19.5x0.1875	3	-7.08	735.45	77.0	Pass
L4	132.67 - 87.0867	Pole	TP34.63x23.5836x0.375	4	-15.25	2052.54	97.0	Pass
L5	87.0867 - 43	Pole	TP43.75x32.7959x0.4375	5	-26.01	3029.76	99.2	Pass
L6	43 - 0	Pole	TP52.5x41.5315x0.5	6	-34.28	3830.42	91.9	Pass
							Summary	
						Pole (L5)	99.2	Pass
						Rating =	99.2	Pass

Table 6 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	82.5	Pass
1	Base Plate	0	99.7	Pass
1	Base Foundation	0	81.4	Pass
1	Flange Connection	156	31.8	Pass

Structure Rating (max from all components) =	99.7%

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

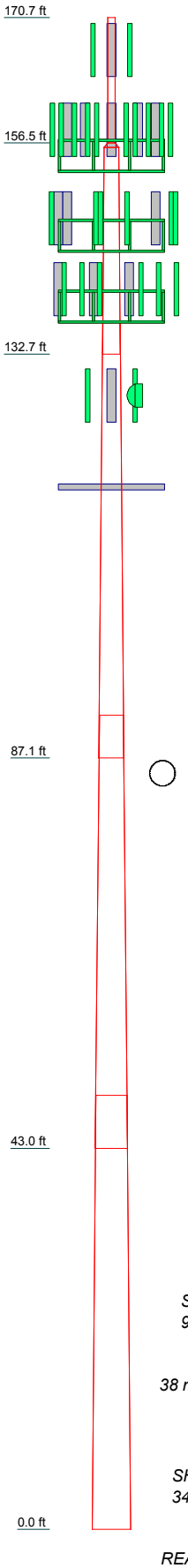
4.1) Recommendations

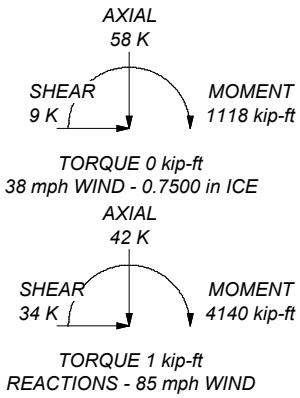
The tower and its foundation have sufficient capacity to carry the existing, reserved and proposed loads. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

Section	1	2	3	4	5	6
Length (ft)	14.17	0.50	23.33	49.25	48.92	49.00
Number of Sides	1	1	18	18	18	18
Thickness (in)	0.3650	0.3650	0.1875	0.3750	0.4375	0.5000
Socket Length (ft)			3.67	4.83	6.00	
Top Dia (in)	10.7500	10.7500	19.5000	23.5836	32.7959	41.5315
Bot Dia (in)	10.7500	19.5000	24.7900	34.6300	43.7500	52.5000
Grade	A53-B-35			A572-65		
Weight (K)	0.6	0.0	1.0	5.7	8.7	12.3





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
DR90-14-00DPL2 w/Mount Pipe	166	DC6-48-60-18-8F	146
DR90-14-00DPL2 w/Mount Pipe	166	Platform Mount [LP 602-1]	146
DR90-14-00DPL2 w/Mount Pipe	166	RRUS 11 B2	146
Pipe Mount [PM 601-1]	166	RRUS 11 B2	146
Pipe Mount [PM 601-1]	166	RRUS 11 B2	146
Pipe Mount [PM 601-1]	166	(4) 7020.00	146
(2) DB844G65ZAXY w/Mount Pipe	155	(4) 7020.00	146
(2) DB844G65ZAXY w/Mount Pipe	155	(4) 7020.00	146
(2) DB844G65ZAXY w/Mount Pipe	155	AIR 21 B2A B4P w/ pipe mount	138
LNX-6514DS-T4M w/ pipe mount	155	AIR 21 B2A B4P w/ pipe mount	138
LNX-6514DS-T4M w/ pipe mount	155	AIR 21 B2A B4P w/ pipe mount	138
LNX-6514DS-T4M w/ pipe mount	155	AIR 21 B4A B2P w/ pipe mount	138
MG D3-800Tv w/ pipe mount	155	AIR 21 B4A B2P w/ pipe mount	138
MG D3-800Tv w/ pipe mount	155	AIR 21 B4A B2P w/ pipe mount	138
MG D3-800Tv w/ pipe mount	155	KRY 112 144/1	138
(2) FD9R6004/2C-3L	155	KRY 112 144/1	138
(3) FD9R6004/2C-3L	155	KRY 112 144/1	138
(2) FD9R6004/2C-3L	155	Platform Mount [LP 602-1]	138
GPS_A	155	LNX-6515DS-VTM w/ pipe mount	138
Platform Mount [LP 602-1]	155	LNX-6515DS-VTM w/ pipe mount	138
BXA-171063/12CF w/ pipe mount	155	LNX-6515DS-VTM w/ pipe mount	138
BXA-171063/12CF w/ pipe mount	155	RRUS 11 B12	138
BXA-171063/12CF w/ pipe mount	155	RRUS 11 B12	138
RRH2x40-AWS	155	RRUS 11 B12	138
RRH2x40-AWS	155	840-10054 w/ pipe mount	128
RRH2x40-AWS	155	840-10054 w/ pipe mount	128
DB-T1-6Z-8AB-0Z	155	840-10054 w/ pipe mount	128
P65-16-XLH-RR w/ pipe mount	146	Side Arm Mount [SO 101-1]	128
P65-16-XLH-RR w/ pipe mount	146	Side Arm Mount [SO 101-1]	128
P65-16-XLH-RR w/ pipe mount	146	Side Arm Mount [SO 101-1]	128
(2) 7770.00 w/ pipe mount	146	VHLP800-11	128
(2) 7770.00 w/ pipe mount	146	Side Arm Mount [SO 301-1]	118
(2) 7770.00 w/ pipe mount	146	Side Arm Mount [SO 702-1]	118
RRUS-11	146	Side Arm Mount [SO 702-1]	118
RRUS-11	146	(3) 6' x 2" Mount Pipe	118
RRUS-11	146	6' x 2" Mount Pipe	118
(4) LGP2140X	146	6' x 2" Mount Pipe	118
(4) LGP2140X	146	T-Arm Mount [TA 602-1]	118
(4) LGP2140X	146		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-35	35 ksi	63 ksi	A572-65	65 ksi	80 ksi

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 99.2%

Morrison Hershfield Corp
Consulting Engineers
1455 Lincoln Parkway, Suite 500
Atlanta, GA
Phone: 770-379-8500
FAX: 770-379-8501

Job: CN4-485 / 6150003			
Project: 806355 / BRG 126 943086			
Client: Crown Castle	Drawn by: EMR	App'd:	
Code: TIA/EIA-222-F	Date: 09/18/15	Scale: NTS	
Path: P:\Projects\Tower Projects\Crown-Analyses-4\CN4-485 - 806355 - BRG 126 943086\CN4-485 SA\Analysis\CN4-485.eri		Dwg No. E-1	

Tower Input Data

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

Tower is located in Fairfield County, Connecticut.
Basic wind speed of 85 mph.
Nominal ice thickness of 0.7500 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 38 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 50 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole 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		

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	170.67-156.50	14.17	0.00	Round	10.7500	10.7500	0.3650		A53-B-35 (35 ksi)
L2	156.50-156.00	0.50	0.00	Round	10.7500	19.5000	0.3650		A53-B-35 (35 ksi)
L3	156.00-132.67	23.33	3.67	18	19.5000	24.7900	0.1875	0.7500	A572-65 (65 ksi)
L4	132.67-87.09	49.25	4.83	18	23.5836	34.6300	0.3750	1.5000	A572-65 (65 ksi)
L5	87.09-43.00	48.92	6.00	18	32.7959	43.7500	0.4375	1.7500	A572-65 (65 ksi)
L6	43.00-0.00	49.00		18	41.5315	52.5000	0.5000	2.0000	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	10.7500	11.9083	160.7342	3.6739	5.3750	29.9040	321.4685	5.9506	0.0000	0
	10.7500	11.9083	160.7342	3.6739	5.3750	29.9040	321.4685	5.9506	0.0000	0
L2	10.7500	11.9083	160.7342	3.6739	5.3750	29.9040	321.4685	5.9506	0.0000	0
	19.5000	21.9417	1004.6069	6.7665	9.7500	103.0366	2009.2137	10.9643	0.0000	0

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L3	19.8008	11.4934	541.5782	6.8559	9.9060	54.6717	1083.8689	5.7478	3.1020	16.544
	25.1724	14.6416	1119.6528	8.7339	12.5933	88.9085	2240.7788	7.3222	4.0330	21.51
L4	24.7825	27.6240	1879.8457	8.2391	11.9805	156.9092	3762.1650	13.8146	3.4907	9.309
	35.1642	40.7720	6044.3215	12.1605	17.5920	343.5828	12096.5963	20.3899	5.4349	14.493
L5	34.4008	44.9337	5944.0759	11.4872	16.6603	356.7803	11895.9731	22.4711	5.0021	11.433
	44.4249	60.1448	14254.8347	15.3759	22.2250	641.3874	28528.4263	30.0781	6.9300	15.84
L6	43.5360	65.1170	13850.5258	14.5662	21.0980	656.4853	27719.2764	32.5647	6.4295	12.859
	53.3099	82.5240	28191.9040	18.4600	26.6700	1057.0643	56420.9036	41.2698	8.3600	16.72

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
L1 170.67-156.50				1	1	1		
L2 156.50-156.00				1	1	1		
L3 156.00-132.67				1	1	1		
L4 132.67-87.09				1	1	1		
L5 87.09-43.00				1	1	1		
L6 43.00-0.00				1	1	1		

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
CR 50 1873(1-5/8")	A	Surface Ar (CaAa)	155.00 - 6.00	1	1	0.100 0.120	1.9800		0.83
*****									
LCF158-50JA-A0(1 5/8")	C	Surface Ar (CaAa)	138.00 - 6.00	1	1	0.100 0.130	1.9800		0.08
LCF158-50JA-A0(1 5/8")	C	Surface Ar (CaAa)	138.00 - 6.00	6	6	0.130 0.250	0.0000		0.08

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 plf
LDF7-50A(1-5/8")	B	No	Inside Pole	166.00 - 6.00	6	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
						2" Ice	0.00	0.82
						4" Ice	0.00	0.82
*****								
CR 50 1873(1-5/8")	A	No	Inside Pole	155.00 - 6.00	12	No Ice	0.00	0.83
						1/2" Ice	0.00	0.83
						1" Ice	0.00	0.83
						2" Ice	0.00	0.83
						4" Ice	0.00	0.83
LDF4-50A(1/2")	A	No	Inside Pole	155.00 - 6.00	1	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
						1" Ice	0.00	0.15
						2" Ice	0.00	0.15
						4" Ice	0.00	0.15

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft²/ft	Weight plf
*****								
CR 50 1873(1-5/8")	A	No	Inside Pole	146.00 - 6.00	12	No Ice	0.00	0.83
						1/2" Ice	0.00	0.83
						1" Ice	0.00	0.83
						2" Ice	0.00	0.83
						4" Ice	0.00	0.83
FB-L98B-002-75000(3/8")	A	No	Inside Pole	146.00 - 6.00	2	No Ice	0.00	0.06
						1/2" Ice	0.00	0.06
						1" Ice	0.00	0.06
						2" Ice	0.00	0.06
						4" Ice	0.00	0.06
WR-VG82ST-BRDA(5/8")	A	No	Inside Pole	146.00 - 6.00	1	No Ice	0.00	0.31
						1/2" Ice	0.00	0.31
						1" Ice	0.00	0.31
						2" Ice	0.00	0.31
						4" Ice	0.00	0.31
2" Rigid Conduit	A	No	Inside Pole	146.00 - 6.00	1	No Ice	0.00	2.80
						1/2" Ice	0.00	2.80
						1" Ice	0.00	2.80
						2" Ice	0.00	2.80
						4" Ice	0.00	2.80
****								
7983A(1/2")	B	No	Inside Pole	128.00 - 6.00	1	No Ice	0.00	0.08
						1/2" Ice	0.00	0.08
						1" Ice	0.00	0.08
						2" Ice	0.00	0.08
						4" Ice	0.00	0.08
9207(5/16")	B	No	Inside Pole	128.00 - 6.00	3	No Ice	0.00	0.60
						1/2" Ice	0.00	0.60
						1" Ice	0.00	0.60
						2" Ice	0.00	0.60
						4" Ice	0.00	0.60
9258(1/4)	B	No	Inside Pole	128.00 - 6.00	3	No Ice	0.00	0.04
						1/2" Ice	0.00	0.04
						1" Ice	0.00	0.04
						2" Ice	0.00	0.04
						4" Ice	0.00	0.04
2" Rigid Conduit	B	No	Inside Pole	128.00 - 6.00	2	No Ice	0.00	2.80
						1/2" Ice	0.00	2.80
						1" Ice	0.00	2.80
						2" Ice	0.00	2.80
						4" Ice	0.00	2.80

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft²	A_F ft²	C_AA_A In Face ft²	C_AA_A Out Face ft²	Weight K
L1	170.67-156.50	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.05
		C	0.000	0.000	0.000	0.000	0.00
L2	156.50-156.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L3	156.00-132.67	A	0.000	0.000	4.421	0.000	0.42
		B	0.000	0.000	0.000	0.000	0.11
		C	0.000	0.000	1.055	0.000	0.00
L4	132.67-87.09	A	0.000	0.000	9.025	0.000	1.10
		B	0.000	0.000	0.000	0.000	0.54
		C	0.000	0.000	9.025	0.000	0.03
L5	87.09-43.00	A	0.000	0.000	8.729	0.000	1.06
		B	0.000	0.000	0.000	0.000	0.55
		C	0.000	0.000	8.729	0.000	0.02
L6	43.00-0.00	A	0.000	0.000	7.326	0.000	0.89
		B	0.000	0.000	0.000	0.000	0.46
		C	0.000	0.000	7.326	0.000	0.02

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
L1	170.67-156.50	A	0.909	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.05
		C		0.000	0.000	0.000	0.000	0.00
L2	156.50-156.00	A	0.904	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
L3	156.00-132.67	A	0.895	0.000	0.000	8.418	0.000	0.49
		B		0.000	0.000	0.000	0.000	0.11
		C		0.000	0.000	4.553	0.000	0.02
L4	132.67-87.09	A	0.866	0.000	0.000	17.184	0.000	1.24
		B		0.000	0.000	0.000	0.000	0.54
		C		0.000	0.000	38.942	0.000	0.21
L5	87.09-43.00	A	0.813	0.000	0.000	16.361	0.000	1.20
		B		0.000	0.000	0.000	0.000	0.55
		C		0.000	0.000	36.712	0.000	0.20
L6	43.00-0.00	A	0.750	0.000	0.000	13.342	0.000	1.00
		B		0.000	0.000	0.000	0.000	0.46
		C		0.000	0.000	29.386	0.000	0.15

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	170.67-156.50	0.0000	0.0000	0.0000	0.0000
L2	156.50-156.00	0.0000	0.0000	0.0000	0.0000
L3	156.00-132.67	-0.2182	-0.1199	-0.3701	-0.1117
L4	132.67-87.09	-0.2641	0.0782	-0.4850	0.3750
L5	87.09-43.00	-0.2691	0.0797	-0.5179	0.3999
L6	43.00-0.00	-0.2340	0.0693	-0.4644	0.3543

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
DR90-14-00DPL2 w/Mount Pipe	A	From Leg	2.00 0.00 1.00	0.0000	166.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.91 5.57 6.14 7.32 9.81	3.64 4.70 5.48 7.08 10.47	0.04 0.08 0.13 0.25 0.61
DR90-14-00DPL2 w/Mount Pipe	B	From Leg	2.00 0.00 1.00	0.0000	166.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.91 5.57 6.14 7.32 9.81	3.64 4.70 5.48 7.08 10.47	0.04 0.08 0.13 0.25 0.61
DR90-14-00DPL2 w/Mount Pipe	C	From Leg	2.00 0.00 1.00	0.0000	166.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.91 5.57 6.14 7.32 9.81	3.64 4.70 5.48 7.08 10.47	0.04 0.08 0.13 0.25 0.61
Pipe Mount [PM 601-1]	A	From Leg	1.00 0.00 0.00	0.0000	166.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.00 3.74 4.48 5.96 8.92	0.90 1.12 1.34 1.78 2.66	0.07 0.08 0.09 0.12 0.18

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			
Pipe Mount [PM 601-1]	B	From Leg	1.00 0.00 0.00	0.0000	166.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.00 3.74 4.48 5.96 8.92	0.90 1.12 1.34 1.78 2.66	0.07 0.08 0.09 0.12 0.18
Pipe Mount [PM 601-1]	C	From Leg	1.00 0.00 0.00	0.0000	166.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.00 3.74 4.48 5.96 8.92	0.90 1.12 1.34 1.78 2.66	0.07 0.08 0.09 0.12 0.18
*****									
(2) DB844G65ZAXY w/Mount Pipe	A	From Leg	4.00 0.00 3.00	0.0000	155.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.38 6.07 6.65 7.83 10.34	5.40 6.49 7.30 8.96 12.49	0.04 0.09 0.15 0.29 0.69
(2) DB844G65ZAXY w/Mount Pipe	B	From Leg	4.00 0.00 3.00	0.0000	155.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.38 6.07 6.65 7.83 10.34	5.40 6.49 7.30 8.96 12.49	0.04 0.09 0.15 0.29 0.69
(2) DB844G65ZAXY w/Mount Pipe	C	From Leg	4.00 0.00 3.00	0.0000	155.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.38 6.07 6.65 7.83 10.34	5.40 6.49 7.30 8.96 12.49	0.04 0.09 0.15 0.29 0.69
LNX-6514DS-T4M w/ pipe mount	A	From Leg	4.00 -3.00 3.00	0.0000	155.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.41 8.96 9.52 10.67 13.07	7.13 7.95 8.79 10.51 14.31	0.07 0.14 0.22 0.40 0.90
LNX-6514DS-T4M w/ pipe mount	B	From Leg	4.00 -3.00 3.00	0.0000	155.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.41 8.96 9.52 10.67 13.07	7.13 7.95 8.79 10.51 14.31	0.07 0.14 0.22 0.40 0.90
LNX-6514DS-T4M w/ pipe mount	C	From Leg	4.00 -3.00 3.00	0.0000	155.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.41 8.96 9.52 10.67 13.07	7.13 7.95 8.79 10.51 14.31	0.07 0.14 0.22 0.40 0.90
MG D3-800Tv w/ pipe mount	A	From Leg	4.00 0.00 3.00	0.0000	155.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.71 4.19 4.63 5.65 7.82	3.56 4.39 5.09 6.54 9.69	0.05 0.08 0.12 0.23 0.55
MG D3-800Tv w/ pipe mount	B	From Leg	4.00 0.00 3.00	0.0000	155.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.71 4.19 4.63 5.65 7.82	3.56 4.39 5.09 6.54 9.69	0.05 0.08 0.12 0.23 0.55
MG D3-800Tv w/ pipe mount	C	From Leg	4.00 0.00 3.00	0.0000	155.00	No Ice 1/2" Ice	3.71 4.19 4.63	3.56 4.39 5.09	0.05 0.08 0.12

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
						1" Ice	5.65	6.54	0.23
						2" Ice	7.82	9.69	0.55
						4" Ice			
(2) FD9R6004/2C-3L	A	From Leg	4.00 0.00 0.00	0.0000	155.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.37 0.45 0.54 0.75 1.28	0.08 0.14 0.20 0.34 0.74	0.00 0.01 0.01 0.02 0.06
(3) FD9R6004/2C-3L	B	From Leg	4.00 0.00 0.00	0.0000	155.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.37 0.45 0.54 0.75 1.28	0.08 0.14 0.20 0.34 0.74	0.00 0.01 0.01 0.02 0.06
(2) FD9R6004/2C-3L	C	From Leg	4.00 0.00 0.00	0.0000	155.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.37 0.45 0.54 0.75 1.28	0.08 0.14 0.20 0.34 0.74	0.00 0.01 0.01 0.02 0.06
GPS_A	A	From Leg	4.00 0.00 5.00	0.0000	155.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.30 0.37 0.46 0.65 1.15	0.30 0.37 0.46 0.65 1.15	0.00 0.00 0.01 0.02 0.08
Platform Mount [LP 602-1]	C	None		0.0000	155.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	32.03 38.71 45.39 58.75 85.47	32.03 38.71 45.39 58.75 85.47	1.34 1.80 2.26 3.17 5.00
BXA-171063/12CF w/ pipe mount	A	From Leg	4.00 3.00 3.00	0.0000	155.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.26 5.91 6.54 7.72 10.24	5.52 6.79 7.91 9.82 13.84	0.05 0.10 0.16 0.30 0.72
BXA-171063/12CF w/ pipe mount	B	From Leg	4.00 3.00 3.00	0.0000	155.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.26 5.91 6.54 7.72 10.24	5.52 6.79 7.91 9.82 13.84	0.05 0.10 0.16 0.30 0.72
BXA-171063/12CF w/ pipe mount	C	From Leg	4.00 3.00 3.00	0.0000	155.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.26 5.91 6.54 7.72 10.24	5.52 6.79 7.91 9.82 13.84	0.05 0.10 0.16 0.30 0.72
RRH2x40-AWS	A	From Leg	4.00 0.00 4.00	0.0000	155.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.52 2.75 2.99 3.50 4.61	1.59 1.80 2.01 2.46 3.48	0.05 0.07 0.09 0.14 0.28
RRH2x40-AWS	B	From Leg	4.00 0.00 4.00	0.0000	155.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.52 2.75 2.99 3.50 4.61	1.59 1.80 2.01 2.46 3.48	0.05 0.07 0.09 0.14 0.28
RRH2x40-AWS	C	From Leg	4.00 0.00	0.0000	155.00	No Ice	2.52 2.75	1.59 1.80	0.05 0.07

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*
			4.00			1/2" Ice	2.99	2.01	0.09
						1" Ice	3.50	2.46	0.14
						2" Ice	4.61	3.48	0.28
						4" Ice			
DB-T1-6Z-8AB-0Z	B	From Leg	4.00	0.0000	155.00	No Ice	5.60	2.33	0.04
			0.00			1/2" Ice	5.92	2.56	0.08
			4.00			1" Ice	6.24	2.79	0.12
						2" Ice	6.91	3.28	0.21
						4" Ice	8.37	4.37	0.45
*****									
P65-16-XLH-RR w/ pipe mount	A	From Leg	4.00	0.0000	146.00	No Ice	8.64	6.36	0.09
			-6.00			1/2" Ice	9.29	7.54	0.16
			2.00			1" Ice	9.91	8.43	0.23
						2" Ice	11.18	10.24	0.40
						4" Ice	13.83	14.10	0.90
P65-16-XLH-RR w/ pipe mount	B	From Leg	4.00	0.0000	146.00	No Ice	8.64	6.36	0.09
			-6.00			1/2" Ice	9.29	7.54	0.16
			2.00			1" Ice	9.91	8.43	0.23
						2" Ice	11.18	10.24	0.40
						4" Ice	13.83	14.10	0.90
P65-16-XLH-RR w/ pipe mount	C	From Leg	4.00	0.0000	146.00	No Ice	8.64	6.36	0.09
			-6.00			1/2" Ice	9.29	7.54	0.16
			2.00			1" Ice	9.91	8.43	0.23
						2" Ice	11.18	10.24	0.40
						4" Ice	13.83	14.10	0.90
(2) 7770.00 w/ pipe mount	A	From Leg	4.00	0.0000	146.00	No Ice	6.22	4.35	0.06
			0.00			1/2" Ice	6.77	5.20	0.11
			2.00			1" Ice	7.30	5.92	0.16
						2" Ice	8.38	7.41	0.30
						4" Ice	10.69	10.76	0.68
(2) 7770.00 w/ pipe mount	B	From Leg	4.00	0.0000	146.00	No Ice	6.22	4.35	0.06
			0.00			1/2" Ice	6.77	5.20	0.11
			2.00			1" Ice	7.30	5.92	0.16
						2" Ice	8.38	7.41	0.30
						4" Ice	10.69	10.76	0.68
(2) 7770.00 w/ pipe mount	C	From Leg	4.00	0.0000	146.00	No Ice	6.22	4.35	0.06
			0.00			1/2" Ice	6.77	5.20	0.11
			2.00			1" Ice	7.30	5.92	0.16
						2" Ice	8.38	7.41	0.30
						4" Ice	10.69	10.76	0.68
RRUS-11	A	From Leg	4.00	0.0000	146.00	No Ice	2.94	1.25	0.06
			0.00			1/2" Ice	3.17	1.41	0.07
			2.00			1" Ice	3.41	1.59	0.10
						2" Ice	3.91	1.96	0.15
						4" Ice	5.02	2.82	0.30
RRUS-11	B	From Leg	4.00	0.0000	146.00	No Ice	2.94	1.25	0.06
			0.00			1/2" Ice	3.17	1.41	0.07
			2.00			1" Ice	3.41	1.59	0.10
						2" Ice	3.91	1.96	0.15
						4" Ice	5.02	2.82	0.30
RRUS-11	C	From Leg	4.00	0.0000	146.00	No Ice	2.94	1.25	0.06
			0.00			1/2" Ice	3.17	1.41	0.07
			2.00			1" Ice	3.41	1.59	0.10
						2" Ice	3.91	1.96	0.15
						4" Ice	5.02	2.82	0.30

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) LGP2140X	A	From Leg	4.00 0.00 2.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.26 1.42 1.58 1.94 2.75	0.38 0.49 0.62 0.89 1.54	0.01 0.02 0.03 0.05 0.13
(4) LGP2140X	B	From Leg	4.00 0.00 2.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.26 1.42 1.58 1.94 2.75	0.38 0.49 0.62 0.89 1.54	0.01 0.02 0.03 0.05 0.13
(4) LGP2140X	C	From Leg	4.00 0.00 2.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.26 1.42 1.58 1.94 2.75	0.38 0.49 0.62 0.89 1.54	0.01 0.02 0.03 0.05 0.13
DC6-48-60-18-8F	C	From Leg	1.00 0.00 2.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.60 1.81 2.02 2.49 3.56	1.60 1.81 2.02 2.49 3.56	0.03 0.05 0.07 0.13 0.27
Platform Mount [LP 602-1]	C	None		0.0000	146.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	32.03 38.71 45.39 58.75 85.47	32.03 38.71 45.39 58.75 85.47	1.34 1.80 2.26 3.17 5.00
RRUS 11 B2	A	From Leg	4.00 0.00 2.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.31 3.55 3.80 4.33 5.50	1.36 1.54 1.73 2.13 3.04	0.05 0.07 0.10 0.15 0.31
RRUS 11 B2	B	From Leg	4.00 0.00 2.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.31 3.55 3.80 4.33 5.50	1.36 1.54 1.73 2.13 3.04	0.05 0.07 0.10 0.15 0.31
RRUS 11 B2	C	From Leg	4.00 0.00 2.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.31 3.55 3.80 4.33 5.50	1.36 1.54 1.73 2.13 3.04	0.05 0.07 0.10 0.15 0.31
(4) 7020.00	A	From Leg	4.00 0.00 2.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.40 0.49 0.59 0.81 1.37	0.20 0.27 0.36 0.55 1.04	0.00 0.01 0.01 0.02 0.07
(4) 7020.00	B	From Leg	4.00 0.00 2.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.40 0.49 0.59 0.81 1.37	0.20 0.27 0.36 0.55 1.04	0.00 0.01 0.01 0.02 0.07
(4) 7020.00	C	From Leg	4.00 0.00 2.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice	0.40 0.49 0.59 0.81	0.20 0.27 0.36 0.55	0.00 0.01 0.01 0.02

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 4" Ice	1.37	1.04	0.07
*****									
AIR 21 B2A B4P w/ pipe mount	A	From Leg	4.00 2.00 2.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.90 7.46 8.00 9.10 11.44	5.74 6.64 7.44 9.09 12.59	0.12 0.18 0.24 0.40 0.83
AIR 21 B2A B4P w/ pipe mount	B	From Leg	4.00 2.00 2.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.90 7.46 8.00 9.10 11.44	5.74 6.64 7.44 9.09 12.59	0.12 0.18 0.24 0.40 0.83
AIR 21 B2A B4P w/ pipe mount	C	From Leg	4.00 2.00 2.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.90 7.46 8.00 9.10 11.44	5.74 6.64 7.44 9.09 12.59	0.12 0.18 0.24 0.40 0.83
AIR 21 B4A B2P w/ pipe mount	A	From Leg	4.00 -6.00 2.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.90 7.46 8.00 9.10 11.44	5.74 6.64 7.44 9.09 12.59	0.12 0.18 0.24 0.40 0.83
AIR 21 B4A B2P w/ pipe mount	B	From Leg	4.00 -6.00 2.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.90 7.46 8.00 9.10 11.44	5.74 6.64 7.44 9.09 12.59	0.12 0.18 0.24 0.40 0.83
AIR 21 B4A B2P w/ pipe mount	C	From Leg	4.00 -6.00 2.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.90 7.46 8.00 9.10 11.44	5.74 6.64 7.44 9.09 12.59	0.12 0.18 0.24 0.40 0.83
KRY 112 144/1	A	From Leg	4.00 0.00 0.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.41 0.50 0.60 0.82 1.36	0.19 0.26 0.33 0.51 0.97	0.01 0.01 0.02 0.03 0.08
KRY 112 144/1	B	From Leg	4.00 0.00 0.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.41 0.50 0.60 0.82 1.36	0.19 0.26 0.33 0.51 0.97	0.01 0.01 0.02 0.03 0.08
KRY 112 144/1	C	From Leg	4.00 0.00 0.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.41 0.50 0.60 0.82 1.36	0.19 0.26 0.33 0.51 0.97	0.01 0.01 0.02 0.03 0.08
Platform Mount [LP 602-1]	C	None		0.0000	138.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	32.03 38.71 45.39 58.75 85.47	32.03 38.71 45.39 58.75 85.47	1.34 1.80 2.26 3.17 5.00
LNX-6515DS-VTM w/ pipe mount	A	From Leg	4.00 -2.00	0.0000	138.00	No Ice 1/2" Ice	11.72 12.44	10.28 11.81	0.11 0.20

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
			2.00			1/2" Ice	13.15	13.16	0.31
						1" Ice	14.61	15.49	0.55
						2" Ice	17.87	20.37	1.20
						4" Ice			
LNX-6515DS-VTM w/ pipe mount	B	From Leg	4.00 -2.00 2.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	11.72 12.44 13.15 14.61 17.87	10.28 11.81 13.16 15.49 20.37	0.11 0.20 0.31 0.55 1.20
LNX-6515DS-VTM w/ pipe mount	C	From Leg	4.00 -2.00 2.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	11.72 12.44 13.15 14.61 17.87	10.28 11.81 13.16 15.49 20.37	0.11 0.20 0.31 0.55 1.20
RRUS 11 B12	A	From Leg	4.00 0.00 2.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.31 3.55 3.80 4.33 5.50	1.36 1.54 1.73 2.13 3.04	0.06 0.08 0.10 0.16 0.32
RRUS 11 B12	B	From Leg	4.00 0.00 2.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.31 3.55 3.80 4.33 5.50	1.36 1.54 1.73 2.13 3.04	0.06 0.08 0.10 0.16 0.32
RRUS 11 B12	C	From Leg	4.00 0.00 2.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.31 3.55 3.80 4.33 5.50	1.36 1.54 1.73 2.13 3.04	0.06 0.08 0.10 0.16 0.32
*****									
840-10054 w/ pipe mount	A	From Leg	2.00 0.00 0.00	0.0000	128.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.54 5.99 6.45 7.41 9.47	2.55 3.12 3.69 4.90 7.66	0.05 0.09 0.13 0.24 0.55
840-10054 w/ pipe mount	B	From Leg	2.00 0.00 0.00	0.0000	128.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.54 5.99 6.45 7.41 9.47	2.55 3.12 3.69 4.90 7.66	0.05 0.09 0.13 0.24 0.55
840-10054 w/ pipe mount	C	From Leg	2.00 0.00 0.00	0.0000	128.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.54 5.99 6.45 7.41 9.47	2.55 3.12 3.69 4.90 7.66	0.05 0.09 0.13 0.24 0.55
Side Arm Mount [SO 101-1]	A	From Leg	1.00 0.00 0.00	0.0000	128.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.75 4.45 5.15 6.55 9.35	1.28 1.39 1.50 1.72 2.16	0.08 0.11 0.14 0.19 0.30
Side Arm Mount [SO 101-1]	B	From Leg	1.00 0.00 0.00	0.0000	128.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.75 4.45 5.15 6.55 9.35	1.28 1.39 1.50 1.72 2.16	0.08 0.11 0.14 0.19 0.30

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			
Side Arm Mount [SO 101-1]	C	From Leg	1.00 0.00 0.00	0.0000	128.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.75 4.45 5.15 6.55 9.35	1.28 1.39 1.50 1.72 2.16	0.08 0.11 0.14 0.19 0.30
*****									
T-Arm Mount [TA 602-1]	A	From Leg	2.00 0.00 0.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.28 9.52 11.76 16.24 25.20	3.02 4.20 5.38 7.74 12.46	0.26 0.33 0.40 0.55 0.83
Side Arm Mount [SO 301-1]	B	From Leg	4.00 0.00 0.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.00 1.39 1.78 2.56 4.12	0.90 1.42 1.94 2.98 5.06	0.02 0.03 0.04 0.06 0.10
Side Arm Mount [SO 702-1]	B	From Leg	2.00 0.00 0.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.00 1.00 1.00 1.00 1.00	1.43 2.05 2.67 3.91 6.39	0.03 0.04 0.05 0.07 0.12
Side Arm Mount [SO 702-1]	C	From Leg	2.00 0.00 0.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.00 1.00 1.00 1.00 1.00	1.43 2.05 2.67 3.91 6.39	0.03 0.04 0.05 0.07 0.12
(3) 6' x 2" Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.43 1.92 2.29 3.06 4.70	1.43 1.92 2.29 3.06 4.70	0.02 0.03 0.05 0.09 0.23
6' x 2" Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.43 1.92 2.29 3.06 4.70	1.43 1.92 2.29 3.06 4.70	0.02 0.03 0.05 0.09 0.23
6' x 2" Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.43 1.92 2.29 3.06 4.70	1.43 1.92 2.29 3.06 4.70	0.02 0.03 0.05 0.09 0.23

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
VHLP800-11	B	Paraboloid w/Shroud (HP)	From Leg	1.00 0.00 0.00	-36.0000		128.00	2.60	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.31 5.66 6.00 6.69 8.08	0.05 0.03 0.00 0.00 0.00

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
L1	170.667 - 156.5	Pole	Max Tension	11	0.00	-0.00	-0.00
			Max. Compression	14	-1.45	0.00	0.00
			Max. Mx	11	-0.74	12.99	0.00
			Max. My	2	-0.74	0.00	12.99
			Max. Vy	11	-1.42	12.99	0.00
			Max. Vx	2	-1.42	0.00	12.99
			Max. Torque	13			0.00
L2	156.5 - 156	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-1.49	0.00	0.00
			Max. Mx	11	-0.77	13.70	0.00
			Max. My	2	-0.77	0.00	13.70
			Max. Vy	11	-1.44	13.70	0.00
			Max. Vx	2	-1.44	0.00	13.70
			Max. Torque	13			0.00
L3	156 - 132.67	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-17.72	-0.33	-0.29
			Max. Mx	5	-7.09	-271.58	-1.81
			Max. My	8	-7.11	-1.82	-269.62
			Max. Vy	11	-20.66	271.35	1.64

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	2	-20.57	1.62	269.39
			Max. Torque	9			0.56
L4	132.67 - 87.0867	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-27.89	-0.28	1.04
			Max. Mx	11	-15.26	1338.24	5.38
			Max. My	2	-15.27	3.36	1333.16
			Max. Vy	11	-26.53	1338.24	5.38
			Max. Vx	2	-26.50	3.36	1333.16
			Max. Torque	3			-0.89
L5	87.0867 - 43	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-39.85	0.01	0.93
			Max. Mx	11	-26.02	2559.16	8.09
			Max. My	2	-26.02	4.87	2552.56
			Max. Vy	11	-30.25	2559.16	8.09
			Max. Vx	2	-30.22	4.87	2552.56
			Max. Torque	2			-0.80
L6	43 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-57.68	0.34	0.80
			Max. Mx	11	-42.25	4130.37	11.08
			Max. My	2	-42.25	6.56	4122.10
			Max. Vy	11	-33.78	4130.37	11.08
			Max. Vx	2	-33.75	6.56	4122.10
			Max. Torque	8			0.71

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	15	57.68	0.01	8.88
	Max. H_x	11	42.28	33.75	0.06
	Max. H_z	2	42.28	0.03	33.72
	Max. M_x	2	4122.10	0.03	33.72
	Max. M_z	5	4122.40	-33.68	-0.07
	Max. Torsion	8	0.63	-0.06	-33.71
	Min. Vert	1	42.28	0.00	0.00
	Min. H_x	5	42.28	-33.68	-0.07
	Min. H_z	8	42.28	-0.06	-33.71
	Min. M_x	8	-4119.77	-0.06	-33.71
	Min. M_z	11	-4130.37	33.75	0.06
	Min. Torsion	2	-0.63	0.03	33.72

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	42.28	0.00	0.00	-0.72	-0.14	0.00
Dead+Wind 0 deg - No Ice	42.28	-0.03	-33.72	-4122.10	6.56	0.63
Dead+Wind 30 deg - No Ice	42.28	16.84	-29.13	-3560.25	-2058.61	0.49
Dead+Wind 60 deg - No Ice	42.28	29.15	-16.78	-2048.59	-3566.26	0.23
Dead+Wind 90 deg - No Ice	42.28	33.68	0.07	10.43	-4122.40	-0.08
Dead+Wind 120 deg - No Ice	42.28	29.23	16.87	2064.12	-3579.34	-0.31
Dead+Wind 150 deg - No Ice	42.28	16.95	29.21	3570.78	-2077.25	-0.54
Dead+Wind 180 deg - No Ice	42.28	0.06	33.71	4119.77	-11.00	-0.63
Dead+Wind 210 deg - No Ice	42.28	-16.89	29.13	3558.43	2065.83	-0.48
Dead+Wind 240 deg - No Ice	42.28	-29.22	16.79	2049.24	3574.44	-0.20
Dead+Wind 270 deg - No Ice	42.28	-33.75	-0.06	-11.08	4130.37	0.04
Dead+Wind 300 deg - No Ice	42.28	-29.29	-16.88	-2066.56	3586.77	0.19
Dead+Wind 330 deg - No Ice	42.28	-16.99	-29.19	-3569.73	2082.34	0.35
Dead+Ice+Temp	57.68	0.00	0.00	-0.80	0.34	0.00
Dead+Wind 0 deg+Ice+Temp	57.68	-0.01	-8.88	-1116.32	1.62	0.11

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+Wind 30 deg+Ice+Temp	57.68	4.43	-7.68	-964.77	-555.60	0.10
Dead+Wind 60 deg+Ice+Temp	57.68	7.66	-4.42	-555.87	-962.51	0.07
Dead+Wind 90 deg+Ice+Temp	57.68	8.85	0.01	1.42	-1112.36	0.02
Dead+Wind 120 deg+Ice+Temp	57.68	7.68	4.44	557.57	-965.30	-0.02
Dead+Wind 150 deg+Ice+Temp	57.68	4.45	7.69	965.50	-559.48	-0.07
Dead+Wind 180 deg+Ice+Temp	57.68	0.01	8.88	1114.31	-1.93	-0.10
Dead+Wind 210 deg+Ice+Temp	57.68	-4.44	7.68	962.89	557.96	-0.10
Dead+Wind 240 deg+Ice+Temp	57.68	-7.67	4.43	554.55	965.09	-0.07
Dead+Wind 270 deg+Ice+Temp	57.68	-8.86	-0.01	-3.04	1114.90	-0.04
Dead+Wind 300 deg+Ice+Temp	57.68	-7.69	-4.44	-559.60	967.71	-0.01
Dead+Wind 330 deg+Ice+Temp	57.68	-4.46	-7.69	-966.74	561.35	0.03
Dead+Wind 0 deg - Service	42.28	-0.01	-11.69	-1433.95	2.17	0.23
Dead+Wind 30 deg - Service	42.28	5.84	-10.10	-1238.56	-715.97	0.18
Dead+Wind 60 deg - Service	42.28	10.11	-5.82	-712.90	-1240.26	0.07
Dead+Wind 90 deg - Service	42.28	11.68	0.02	3.11	-1433.67	-0.03
Dead+Wind 120 deg - Service	42.28	10.13	5.85	717.30	-1244.83	-0.11
Dead+Wind 150 deg - Service	42.28	5.87	10.13	1241.24	-722.46	-0.18
Dead+Wind 180 deg - Service	42.28	0.02	11.69	1432.12	-3.92	-0.22
Dead+Wind 210 deg - Service	42.28	-5.86	10.10	1236.93	718.27	-0.17
Dead+Wind 240 deg - Service	42.28	-10.13	5.82	712.12	1242.89	-0.08
Dead+Wind 270 deg - Service	42.28	-11.70	-0.02	-4.35	1436.24	0.01
Dead+Wind 300 deg - Service	42.28	-10.15	-5.85	-719.16	1247.21	0.07
Dead+Wind 330 deg - Service	42.28	-5.89	-10.12	-1241.89	724.02	0.13

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	0.00	-42.28	0.00	0.00	42.28	0.00	0.000%
2	-0.03	-42.28	-33.72	0.03	42.28	33.72	0.000%
3	16.84	-42.28	-29.13	-16.84	42.28	29.13	0.000%
4	29.15	-42.28	-16.78	-29.15	42.28	16.78	0.000%
5	33.68	-42.28	0.07	-33.68	42.28	-0.07	0.000%
6	29.23	-42.28	16.87	-29.23	42.28	-16.87	0.000%
7	16.95	-42.28	29.21	-16.95	42.28	-29.21	0.000%
8	0.06	-42.28	33.71	-0.06	42.28	-33.71	0.000%
9	-16.89	-42.28	29.13	16.89	42.28	-29.13	0.000%
10	-29.22	-42.28	16.79	29.22	42.28	-16.79	0.000%
11	-33.75	-42.28	-0.06	33.75	42.28	0.06	0.000%
12	-29.29	-42.28	-16.88	29.29	42.28	16.88	0.000%
13	-16.99	-42.28	-29.19	16.99	42.28	29.19	0.000%
14	0.00	-57.68	0.00	0.00	57.68	0.00	0.000%
15	-0.01	-57.68	-8.88	0.01	57.68	8.88	0.000%
16	4.43	-57.68	-7.68	-4.43	57.68	7.68	0.000%
17	7.66	-57.68	-4.42	-7.66	57.68	4.42	0.000%
18	8.85	-57.68	0.01	-8.85	57.68	-0.01	0.000%
19	7.68	-57.68	4.44	-7.68	57.68	-4.44	0.000%
20	4.45	-57.68	7.69	-4.45	57.68	-7.69	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
21	0.01	-57.68	8.88	-0.01	57.68	-8.88	0.000%
22	-4.44	-57.68	7.68	4.44	57.68	-7.68	0.000%
23	-7.67	-57.68	4.43	7.67	57.68	-4.43	0.000%
24	-8.86	-57.68	-0.01	8.86	57.68	0.01	0.000%
25	-7.69	-57.68	-4.44	7.69	57.68	4.44	0.000%
26	-4.46	-57.68	-7.69	4.46	57.68	7.69	0.000%
27	-0.01	-42.28	-11.69	0.01	42.28	11.69	0.000%
28	5.84	-42.28	-10.10	-5.84	42.28	10.10	0.000%
29	10.11	-42.28	-5.82	-10.11	42.28	5.82	0.000%
30	11.68	-42.28	0.02	-11.68	42.28	-0.02	0.000%
31	10.13	-42.28	5.85	-10.13	42.28	-5.85	0.000%
32	5.87	-42.28	10.13	-5.87	42.28	-10.13	0.000%
33	0.02	-42.28	11.69	-0.02	42.28	-11.69	0.000%
34	-5.86	-42.28	10.10	5.86	42.28	-10.10	0.000%
35	-10.13	-42.28	5.82	10.13	42.28	-5.82	0.000%
36	-11.70	-42.28	-0.02	11.70	42.28	0.02	0.000%
37	-10.15	-42.28	-5.85	10.15	42.28	5.85	0.000%
38	-5.89	-42.28	-10.12	5.89	42.28	10.12	0.000%

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	170.667 - 156.5	54.491	37	2.8889	0.0033
L2	156.5 - 156	45.955	37	2.8477	0.0033
L3	156 - 132.67	45.658	37	2.8470	0.0033
L4	136.337 - 87.0867	34.390	37	2.5536	0.0019
L5	91.92 - 43	14.641	37	1.6088	0.0007
L6	49 - 0	3.926	37	0.7501	0.0002

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
166.00	DR90-14-00DPL2 w/Mount Pipe	37	51.666	2.8719	0.0033	25622
155.00	(2) DB844G65ZAXY w/Mount Pipe	37	45.063	2.8443	0.0033	7861
146.00	P65-16-XLH-RR w/ pipe mount	37	39.792	2.7462	0.0028	4254
138.00	AIR 21 B2A B4P w/ pipe mount	37	35.295	2.5892	0.0021	3028
128.00	VHLP800-11	37	30.028	2.3749	0.0013	2796
118.00	T-Arm Mount [TA 602-1]	37	25.191	2.1616	0.0009	2759

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	170.667 - 156.5	155.762	12	8.2706	0.0098
L2	156.5 - 156	131.450	12	8.1562	0.0099
L3	156 - 132.67	130.601	12	8.1543	0.0099
L4	136.337 - 87.0867	98.474	12	7.3183	0.0056
L5	91.92 - 43	42.013	12	4.6172	0.0019
L6	49 - 0	11.280	12	2.1551	0.0006

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
166.00	DR90-14-00DPL2 w/Mount Pipe	12	147.717	8.2234	0.0099	9569
155.00	(2) DB844G65ZAXY w/Mount Pipe	12	128.906	8.1468	0.0099	2924
146.00	P65-16-XLH-RR w/ pipe mount	12	113.884	7.8675	0.0084	1556
138.00	AIR 21 B2A B4P w/ pipe mount	12	101.057	7.4201	0.0061	1099
128.00	VHLP800-11	12	86.024	6.8083	0.0039	1008
118.00	T-Arm Mount [TA 602-1]	12	72.203	6.1989	0.0027	989

Compression Checks

Pole Design Data

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 $\frac{P}{P_a}$
L1	170.667 - 156.5 (1)	TP10.75x10.75x0.365	14.17	0.00	0.0	21.000	11.9083	-0.74	250.07	0.003
L2	156.5 - 156 (2)	TP19.5x10.75x0.365	0.50	0.00	0.0	21.000	11.9083	-0.74	250.07	0.003
L3	156 - 132.67 (3)	TP24.79x19.5x0.1875	23.33	0.00	0.0	39.000	14.1468	-7.08	551.72	0.013
L4	132.67 - 87.0867 (4)	TP34.63x23.5836x0.375	49.25	0.00	0.0	39.000	39.4817	-15.25	1539.79	0.010
L5	87.0867 - 43 (5)	TP43.75x32.7959x0.4375	48.92	0.00	0.0	39.000	58.2792	-26.01	2272.89	0.011
L6	43 - 0 (6)	TP52.5x41.5315x0.5	49.00	0.00	0.0	39.000	73.6803	-34.28	2873.53	0.012

Pole Bending Design Data

Section No.	Elevation ft	Size	Actual M_x kip-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y kip-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
L1	170.667 - 156.5 (1)	TP10.75x10.75x0.365	12.99	5.214	23.100	0.226	0.00	0.000	23.100	0.000
L2	156.5 - 156 (2)	TP19.5x10.75x0.365	12.99	5.214	23.100	0.226	0.00	0.000	23.100	0.000
L3	156 - 132.67 (3)	TP24.79x19.5x0.1875	272.61	39.424	39.000	1.011	0.00	0.000	39.000	0.000
L4	132.67 - 87.0867 (4)	TP34.63x23.5836x0.375	1341.72	49.992	39.000	1.282	0.00	0.000	39.000	0.000
L5	87.0867 - 43 (5)	TP43.75x32.7959x0.4375	2565.32	51.134	39.000	1.311	0.00	0.000	39.000	0.000
L6	43 - 0 (6)	TP52.5x41.5315x0.5	3319.22	47.323	39.000	1.213	0.00	0.000	39.000	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V K	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
L1	170.667 - 156.5 (1)	TP10.75x10.75x0.365	1.42	0.119	14.000	0.017	0.00	0.000	14.000	0.000
L2	156.5 - 156 (2)	TP19.5x10.75x0.365	1.44	0.121	14.000	0.009	0.00	0.000	14.000	0.000
L3	156 - 132.67 (3)	TP24.79x19.5x0.1875	20.71	1.464	26.000	0.113	0.06	0.005	26.000	0.000
L4	132.67 - 87.0867 (4)	TP34.63x23.5836x0.375	26.59	0.674	26.000	0.052	0.33	0.006	26.000	0.000

Section No.	Elevation ft	Size	Actual V K	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
L5	87.0867 - 43 (5)	TP43.75x32.7959x0.4375	30.31	0.520	26.000	0.040	0.26	0.003	26.000	0.000
L6	43 - 0 (6)	TP52.5x41.5315x0.5	32.29	0.438	26.000	0.033	0.22	0.002	26.000	0.000

Pole Interaction Design Data

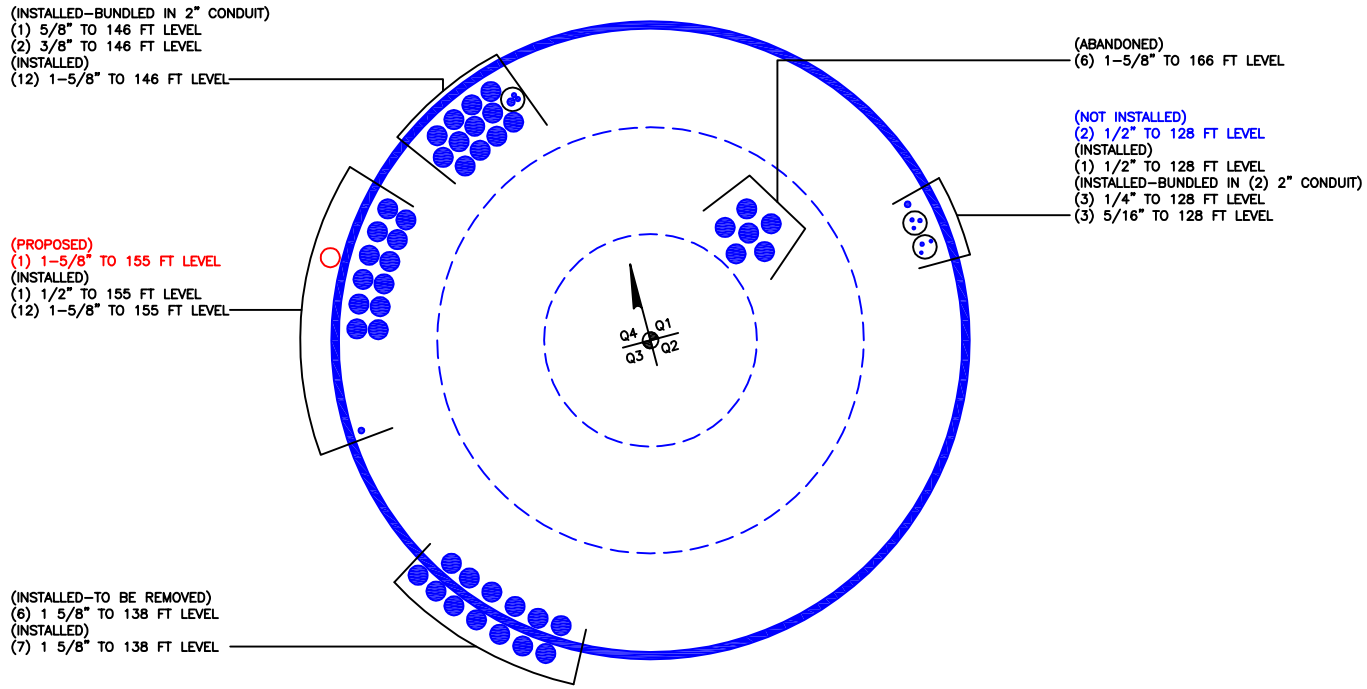
Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	170.667 - 156.5 (1)	0.003	0.226	0.000	0.017	0.000	0.229 ✔	1.333	H1-3+VT ✔
L2	156.5 - 156 (2)	0.003	0.226	0.000	0.009	0.000	0.229 ✔	1.333	H1-3+VT ✔
L3	156 - 132.67 (3)	0.013	1.011	0.000	0.113	0.000	1.027 ✔	1.333	H1-3+VT ✔
L4	132.67 - 87.0867 (4)	0.010	1.282	0.000	0.052	0.000	1.292 ✔	1.333	H1-3+VT ✔
L5	87.0867 - 43 (5)	0.011	1.311	0.000	0.040	0.000	1.323 ✔	1.333	H1-3+VT ✔
L6	43 - 0 (6)	0.012	1.213	0.000	0.033	0.000	1.226 ✔	1.333	H1-3+VT ✔

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
L1	170.667 - 156.5	Pole	TP10.75x10.75x0.365	1	-0.74	333.35	17.2	Pass
L2	156.5 - 156	Pole	TP19.5x10.75x0.365	2	-0.74	333.35	17.2	Pass
L3	156 - 132.67	Pole	TP24.79x19.5x0.1875	3	-7.08	735.45	77.0	Pass
L4	132.67 - 87.0867	Pole	TP34.63x23.5836x0.375	4	-15.25	2052.54	97.0	Pass
L5	87.0867 - 43	Pole	TP43.75x32.7959x0.4375	5	-26.01	3029.76	99.2	Pass
L6	43 - 0	Pole	TP52.5x41.5315x0.5	6	-34.28	3830.42	91.9	Pass
							Summary	
						Pole (L5)	99.2	Pass
						RATING =	**99.2**	**Pass**

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 806355 TOWER ID: C_BASELEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

Stiffened or Unstiffened, Exterior Flange Plate - Any Bolt Material TIA Rev F

Site Data

BU#: *806355*
Site Name: *BRG 126 943086*
App #: *310141 Rev. 0*

Pole Manufacturer:	Other

Reactions		
Moment:	12.99	ft-kips
Axial:	0.74	kips
Shear:	1.44	kips
Elevation:	156	feet

If No stiffeners, Criteria: AISC ASD <-Only Applcable to Unstiffened Cases

Bolt Data			
Qty:	15		
Diameter (in.):	1	Bolt Fu:	120
Bolt Material:	A325	Bolt Fy:	92
N/A:	75	<-- Disregard	Bolt Fty:
N/A:	55	<-- Disregard	44.00
Circle (in.):	25.75		

Plate Data		
Diam:	28.5	in
Thick, t:	1	in
Grade (Fy):	60	ksi
Strength, Fu:	75	ksi
Single-Rod B-eff:	2.27	in

Stiffener Data (Welding at Both Sides)		
Config:	0	*
Weld Type:	Fillet	
Groove Depth:	0.25	<-- Disregard
Groove Angle:	45	<-- Disregard
Fillet H. Weld:	0.25	in
Fillet V. Weld:	0.25	in
Width:	6	in
Height:	12	in
Thick:	0.75	in
Notch:	0.5	in
Grade:	50	ksi
Weld str.:	70	ksi

Pole Data		
Diam:	10.75	in
Thick:	0.365	in
Grade:	35	ksi
# of Sides:	18	"0" IF Round
Fu	63	ksi
Reinf. Fillet Weld	0	"0" if None

Stress Increase Factor		
ASIF:	1.333	

Flange Bolt Results

			Non-Rigid
Bolt Tension Capacity, **B**:	46.07	kips	Service, ASD
Max Bolt directly applied T:	1.56	Kips	Fty*ASIF
Min. PL "tc" for **B** cap. **w/o** Pry:	3.785	in	
Min PL "treq" for actual **T w/ Pry**:	0.564	in	
Min PL "t1" for actual **T w/o Pry**:	0.698	in	
T allowable with Prying:	4.91	kips	α'>1 case
Prying Force, Q:	0.00	kips	
Total Bolt Tension=T+Q:	1.56	kips	
Prying Bolt Stress Ratio=(T+Q)/(B):	3.4%	**Pass**	

Exterior Flange Plate Results Flexural Check

			Non-Rigid
Compression Side Plate Stress:	10.1	ksi	Service ASD
Allowable Plate Stress:	60.0	ksi	0.75*Fy*ASIF
Compression Plate Stress Ratio:	16.8%	**Pass**	Comp. Y.L. Length:
No Prying			23.40
Tension Side Stress Ratio, (treq/t)^2:	31.8%	**Pass**	

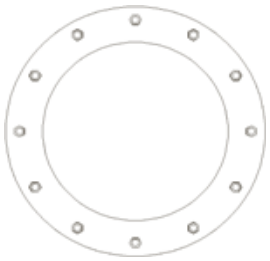
n/a

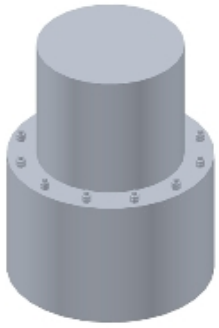
Stiffener Results

Horizontal Weld :	n/a
Vertical Weld:	n/a
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	n/a
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	n/a
Plate Comp. (AISC Bracket):	n/a

Pole Results

Pole Punching Shear Check: n/a





* 0 = none, 1 = every bolt, 2 = every 2 bolts, 3 = 2 per bolt

** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

Stiffened or Unstiffened, Ungrouted, Circular Base Plate - Any Rod Material

TIA Rev F

Site Data

BU#: *806355*
Site Name: *BRG 126 943086*
App #: *310141 Rev. 0*
Pole Manufacturer: *Other*

Reactions		
Moment:	4140	ft-kips
Axial:	42	kips
Shear:	34	kips

Anchor Rod Data		
Qty:	20	
Diam:	2.25	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	61	in

If No stiffeners, Criteria: AISC ASD <-Only Applcable to Unstiffened Cases

Anchor Rod Results

		Rigid
Maximum Rod Tension:	160.8 Kips	Service, ASD
Allowable Tension:	195.0 Kips	Fty*ASIF
Anchor Rod Stress Ratio:	82.5% **Pass**	

Plate Data		
Diam:	67	in
Thick:	2.25	in
Grade:	60	ksi
Single-Rod B-eff:	8.33	in

Base Plate Results Flexural Check

		Rigid
Base Plate Stress:	59.8 ksi	Service ASD
Allowable Plate Stress:	60.0 ksi	0.75*Fy*ASIF
Base Plate Stress Ratio:	99.7% **Pass**	Y.L. Length: 31.06

Stiffener Data (Welding at both sides)		
Config:	0	*
Weld Type:		
Groove Depth:		<-- Disregard
Groove Angle:		<-- Disregard
Fillet H. Weld:		in
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

n/a

Stiffener Results

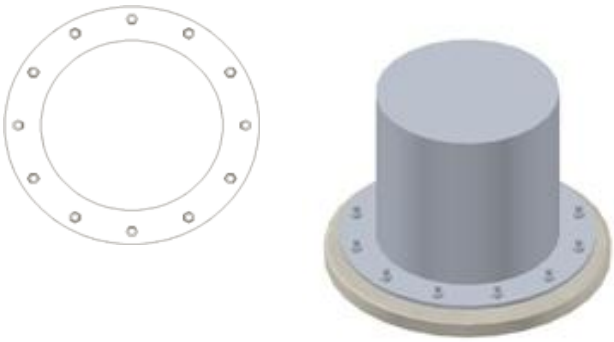
Horizontal Weld :	n/a
Vertical Weld:	n/a
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	n/a
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	n/a
Plate Comp. (AISC Bracket):	n/a

Pole Results

Pole Punching Shear Check: n/a

Pole Data		
Diam:	52.5	in
Thick:	0.5	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0	"0" if None

Stress Increase Factor		
ASIF:	1.333	



* 0 = none, 1 = every bolt, 2 = every 2 bolts, 3 = 2 per bolt

** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

(Bearing and Stability Checks) Tool for TIA Rev F or G - Application (MP, SST with unitbase)

Site Data

BU#: *806355*
Site Name: *BRG 126 943086*
App #: *310141 Rev. 0*

Enter Load Factors Below:		
For P (DL)	1.2	<---- Enter Factor
For P,V, and M (WL)	1.35	<---- Enter Factor

Pad & Pier Data		
Base PL Dist. Above Pier:	0	in
Pier Dist. Above Grade:	12	in
Pad Bearing Depth, D:	9	ft
Pad Thickness, T:	3	ft
Pad Width=Length, L:	22	ft
Pier Cross Section Shape:	Square	<--Pull Down
Enter Pier Side Width:	7	ft
Concrete Density:	150.0	pcf
Pier Cross Section Area:	49.00	ft^2
Pier Height:	7.00	ft
Soil (above pad) Height:	6.00	ft

Soil Parameters		
Unit Weight, γ:	125.0	pcf
Ultimate Bearing Capacity, qn:	24.00	ksf
Strength Reduct. factor, ϕ:	0.6	
Angle of Friction, Φ:	36.0	degrees
Undrained Shear Strength, Cu:	0.00	ksf
Allowable Bearing: ϕ*qn:	14.40	ksf
Passive Pres. Coeff., Kp	3.85	

Forces/Moments due to Wind and Lateral Soil		
Minimum of (φ*Ultimate Pad Passive Force, Vu):	45.9	kips
Pad Force Location Above D:	1.40	ft
ϕ(Passive Pressure Moment):	64.26	ft-kips
Factored O.T. M(WL), "1.6W":	6048.0	ft-kips
Factored OT (MW-Msoil), M1	5983.74	ft-kips

Resistance due to Foundation Gravity		
Soil Wedge Projection grade, a:	4.36	ft
Sum of Soil Wedges Wt:	98.14	kips
Soil Wedges ecc, K1:	7.37	ft
Ftg+Soil above Pad wt:	595.5	kips
Unfactored (Total ftg-soil Wt):	693.64	kips
1.2D. **No Soil Wedges**.	765.00	kips
0.9D. **With Soil Wedges**	662.07	kips

Resistance due to Cohesion (Vertical)		
ϕ*(1/2*Cu)(Total Vert. Planes)	0.00	kips
Cohesion Force Eccentricity, K2	0.00	ft

Monopole Base Reaction Forces		
TIA Revision:	F	<--Pull Down
Unfactored DL Axial, PD:	42	kips
Unfactored WL Axial, PW:	0	kips
Unfactored WL Shear, V:	34	kips
Unfactored WL Moment, M:	4140	ft-kips

Load Factor	Shaft Factored Loads		
1.20	1.2D+1.6W, Pu:	50.4	kips
0.90	0.9D+1.6W, Pu:	37.8	kips
1.35	Vu:	45.9	kips
	Mu:	5589	ft-kips

1.2D+1.6W Load Combination, Bearing Results:

(**No Soil Wedges**) [Reaction+Conc+Soil]	765.00	P1="1.2D+1.6W" (Kips)
Factored "1.6W" Overturning Moment (MW-Msoil), M1	5983.74	ft-kips

Orthogonal Direction:

ecc1 = M1/P1 =	7.82	ft
Orthogonal qu=	5.47	ksf
qu/ϕ*qn Ratio=	**37.99%**	**Pass**

Diagonal Direction:

ecc2 = (0.707M1)/P1 =	5.53	ft
Diagonal qu=	6.39	ksf
qu/ϕ*qn Ratio=	**44.39%**	**Pass**

Run <-- Press Upon Completing All Input

Overturning Stability Check

0.9D+1.6W Load Combination, Bearing Results:

(**w/ Soil Wedges**) [Reaction+Conc+Soil]	662.07	P2="0.9D+1.6W" (Kips)
Factored "1.6W" Overturning Moment (MW-Msoil) - 0.9(M of Wedge + M of Cohesion), M2	5333.03	ft-kips

Orthogonal ecc3 = M2/P2 =	8.06	ft
Ortho Non Bearing Length,NBL=	16.11	ft
Orthogonal qu=	5.11	ksf
Diagonal qu=	5.88	ksf

Max Reaction Moment (ft-kips) so that qu=ϕ*qn = 100% Capacity Rating			
Actual M:	4140.00		
M Orthogonal:	5087.41	**81.38%**	**Pass**
M Diagonal:	5087.41	**81.38%**	**Pass**

EBI Consulting
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RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

T-Mobile Existing Facility

Site ID: CT11078B

Fairfield/ MP X43/ Burr S
281 Wood House Road
Fairfield, CT 06430

September 22, 2015

EBI Project Number: 6215004839

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	7.84 %

21 B Street · Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

EBI Consulting
environmental | engineering | due diligence

September 22, 2015

T-Mobile USA
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, CT 06002

Emissions Analysis for Site: **CT11078B – Fairfield/ MP X43/ Burr S**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **281 Wood House Road, Fairfield, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at **281 Wood House Road, Fairfield, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6 foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

1) 2 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel

2) 2 UMTS channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

3) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

4) 1 LTE channel (700 MHz Band) was considered for each sector of the proposed installation. This channel has a transmit power of 30 Watts.

5) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

6) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

7) The antennas used in this modeling are the **Ericsson AIR21 (B4A/B2P** & **B2A/B4P)** for 1900 MHz (PCS) and 2100 MHz (AWS) channels and the **Commscope LNX-6515DS-VTM** for 700 MHz channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The **Ericsson AIR21 (B4A/B2P** & **B2A/B4P)** have a maximum gain of **15.9 dBd** at their main lobe. The **Commscope LNX-6515DS-VTM** has a maximum gain of **14.6 dBd** at its main lobe. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

8) The antenna mounting height centerline of the proposed antennas is **140 feet** above ground level (AGL).

9) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

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

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T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	Ericsson AIR21 B4A/B2P	Make / Model:	Ericsson AIR21 B4A/B2P	Make / Model:	Ericsson AIR21 B4A/B2P
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	140	Height (AGL):	140	Height (AGL):	140
Frequency Bands	2100 MHz (AWS)	Frequency Bands	2100 MHz (AWS)	Frequency Bands	2100 MHz (AWS)
Channel Count	2	Channel Count	2	# PCS Channels:	2
Total TX Power:	120	Total TX Power:	120	# AWS Channels:	120
ERP (W):	4,668.54	ERP (W):	4,668.54	ERP (W):	4,668.54
Antenna A1 MPE%	0.93	Antenna B1 MPE%	0.93	Antenna C1 MPE%	0.93
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Ericsson AIR21 B2A/B4P	Make / Model:	Ericsson AIR21 B2A/B4P	Make / Model:	Ericsson AIR21 B2A/B4P
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	140	Height (AGL):	140	Height (AGL):	140
Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power:	120	Total TX Power:	120	Total TX Power:	120
ERP (W):	4,668.54	ERP (W):	4,668.54	ERP (W):	4,668.54
Antenna A2 MPE%	0.93	Antenna B2 MPE%	0.93	Antenna C2 MPE%	0.93
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM
Gain:	14.6 dBd	Gain:	14.6 dBd	Gain:	14.6 dBd
Height (AGL):	140	Height (AGL):	140	Height (AGL):	140
Frequency Bands	700 MHz	Frequency Bands	700 MHz	Frequency Bands	700 MHz
Channel Count	1	Channel Count	1	Channel Count	1
Total TX Power:	30	Total TX Power:	30	Total TX Power:	30
ERP (W):	865.21	ERP (W):	865.21	ERP (W):	865.21
Antenna A3 MPE%	0.37	Antenna B3 MPE%	0.37	Antenna C3 MPE%	0.37

Site Composite MPE%	
Carrier	**MPE%**
T-Mobile (Per Sector Max)	**2.24 %**
AT&T	1.47 %
Clearwire	0.11 %
PageNet	0.19 %
Verizon Wireless	1.99 %
XM Satellite Radio	1.84 %
Metricom	0.00 %
Site Total MPE %:	**7.84 %**

T-Mobile Sector 1 Total:	2.24 %
T-Mobile Sector 2 Total:	2.24 %
T-Mobile Sector 3 Total:	2.24 %
Site Total:	7.84 %

T-Mobile _per sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
T-Mobile 2100 MHz (AWS) LTE	**2**	**2334.27**	**140**	**9.35**	**2100**	**1000**	**0.93 %**
T-Mobile 700 MHz LTE	**1**	**865.21**	**140**	**1.73**	**700**	**467**	**0.37%**
T-Mobile 1900 MHz (PCS) UMTS	**2**	**1167.14**	**140**	**4.67**	**1900**	**1000**	**0.47 %**
T-Mobile 2100 MHz (AWS) UMTS	**2**	**1167.14**	**140**	**4.67**	**2100**	**1000**	**0.47 %**
						Total:	**2.24%**

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Summary

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

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

T-Mobile Sector	Power Density Value (%)
Sector 1:	2.24 %
Sector 2:	2.24 %
Sector 3 :	2.24 %
T-Mobile Per Sector Maximum:	2.24 %
Site Total:	7.84 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **7.84%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

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