Crown Castle
3530 Toringdon Way Suite 300
Charlotte NC 28277

Tel (704) 405-6600

February 25, 2015

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

RE: **T-Mobile-Exempt Modification - Crown Site BU: 842872**
T-Mobile Site ID: CT11427A
Located at: 52 New Britain Ave., Rocky Hill, CT 06067

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 Henry Vasel, Town Mayor for Town of Rocky Hill and Town of Rocky Hill, Property Owner.

T-Mobile plans to modify the existing wireless communications facility owned by Crown Castle and located at **52 New Britain Ave., Rocky Hill, CT 06067**. 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 replacement 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. The operation of the replacement 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.

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

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: Jerry Feathers.

Sincerely,

Jerry Feathers
Real Estate Specialist

Enclosure

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)

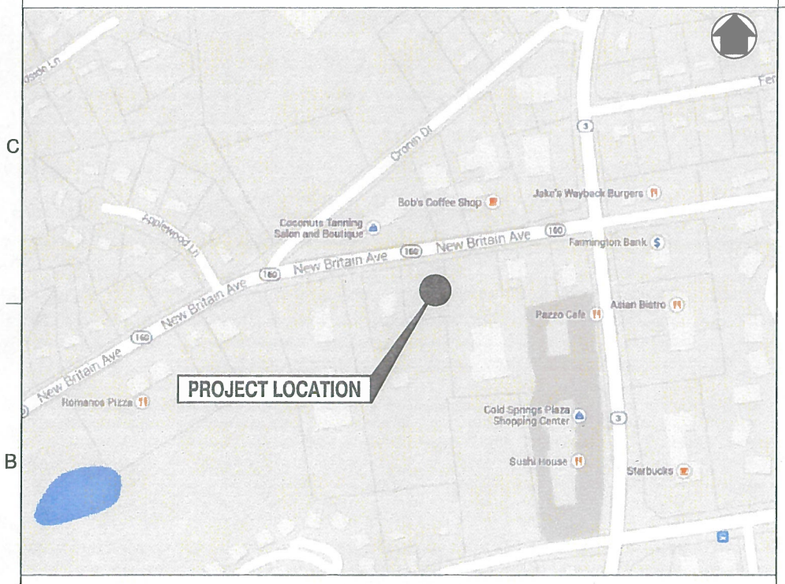
cc: The Honorable Henry Vasel Town Mayor
Town of Rocky Hill
761 Old Main Street
Rocky Hill, CT 06067

cc: Mr. John Mehr Acting Finance Director
Town of Rocky Hill
761 Old Main Street
Rocky Hill, CT 06067

T-MOBILE NORTHEAST LLC

T-MOBILE SITE #: CT11427A
CROWN CASTLE BU #: 842872
SITE NAME: ROCKY HILL
52 NEW BRITAIN AVENUE
ROCKY HILL, CT 06067
HARTFORD COUNTY

SITE INFORMATION



KEY MAP
N.T.S.

DIRECTIONS: (FROM PARSIPPANY):

TAKE HEAD NORTHWEST ON SYLVAN WAY. TURN RIGHT ONTO US-202 N. CONTINUE STRAIGHT ONTO LITTLETON RD. TAKE THE RAMP ONTO I-287 N. TAKE THE I-87 S/I-287/NEW YORK THRUWAY EXIT TOWARD TAPPAN ZEE BR/NEW YORK CITY. MERGE ONTO I-287 E/I-87 S. KEEP LEFT AT THE FORK TO CONTINUE ON I-287 E, FOLLOW SIGNS FOR WHITE PLAINS/RYE. TAKE EXIT 9N-9S FOR HUTCHINSON PKWY TOWARD WHITESTONE BRIDGE/MERRITT PKWY. MERGE ONTO WESTCHESTER AVE E. TAKE THE HUTCHINSON PKWY N RAMP TO MERRITT PKWY. MERGE ONTO HUTCHINSON RIVER PKWY N. KEEP RIGHT AT THE FORK TO STAY ON HUTCHINSON RIVER PKWY N. CONTINUE ONTO CT-15 N. KEEP LEFT TO STAY ON CT-15 N. TAKE EXIT 68 N-E TO MERGE ONTO I-91 N TOWARD CT-66 E/HARTFORD/MIDDLETOWN. TAKE EXIT 23 FOR WEST ST TOWARD STATE ROUTE 3/ROCKY HILL. TURN LEFT ONTO WEST ST. TURN RIGHT ONTO CT-3 N. TURN LEFT ONTO CT-160 W. SITE WILL BE ON THE LEFT.

PROJECT INFORMATION

T-MOBILE SITE #:	CT11427A
CROWN CASTLE BU #:	842872
SITE ADDRESS:	52 NEW BRITAIN AVENUE ROCKY HILL, CT 06067 HARTFORD COUNTY
LATITUDE:	N 41° 39' 36.89"
LONGITUDE:	W 72° 40' 50.58"
TOWER OWNER:	CROWN CASTLE 1200 MACARTHUR BLVD., SUITE 200 MAHWAH, NJ 07430
CONTACT:	WARREN KELLEHER (781) 970-0055
APPLICANT:	T-MOBILE NORTHEAST, LLC 4 SYLVAN WAY PARSIPPANY, NJ 07054
CONTACT:	PHONE #: (973) 397-4800 FAX #: (973) 292-8893
ENGINEER:	DEWBERRY ENGINEERS INC. 600 PARSIPPANY ROAD, SUITE 301 PARSIPPANY, NJ 07054
CONTACT:	GREG NAWROTZKI (973) 576-9653
SCOPE OF WORK:	(9) EXISTING ANTENNA, (3) TO REMAIN, (3) TO BE SWAPPED OUT WITH NEW ANTENNA & (3) TO BE REMOVED, ADD (3) NEW RRU'S.
PROPOSED DESIGN:	**702CC**

SHEET INDEX

SHEET NO.	SHEET DESCRIPTION
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G-1	GENERAL NOTES
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C-2	ANTENNA LAYOUTS & ELEVATIONS
C-3	CONSTRUCTION DETAILS
E-1	GROUNDING NOTES & DETAILS

APPROVALS

T-MOBILE — DATE

OWNER/ LANDLORD — DATE

RF ENGINEER — DATE

ZONING — DATE

CONSTRUCTION — DATE

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

T-MOBILE NORTHEAST LLC
4 SYLVAN WAY
PARSIPPANY, NJ 07054
PHONE: (973) 397-4800
FAX: (973) 292-8893

ROCKY HILL

CT11427A

52 NEW BRITAIN AVENUE
ROCKY HILL, CT 06067
HARTFORD COUNTY

SEAL

STATE OF CONNECTICUT ★ JIANG YU ★ No. 23222 ★ REGISTERED PROFESSIONAL ENGINEER
JIANG YU, P.E.
CONNECTICUT LICENSE NO. 23222

SCALE
AS SHOWN

REV.	DATE	BY	DESCRIPTION
2	02/24/15	FG	ISSUED AS FINAL
1	02/04/15	FG	ISSUED AS FINAL
0	12/03/14	FG	ISSUED AS FINAL
A	11/13/14	FG	ISSUED FOR REVIEW

REVISIONS

DRAWN BY FG
CHECKED BY BSH
APPROVED BY GHN
DATE 10/29/14

TITLE
TITLE SHEET

PROJECT NO. 50066258/50070373

T - 1

SHEET NO.

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.

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.

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ROCKY HILL

CT11427A

52 NEW BRITAIN AVENUE
ROCKY HILL, CT 06067
HARTFORD COUNTY

SEAL

SCALE
AS SHOWN

REV.	DATE	BY	DESCRIPTION
2	02/24/15	FG	ISSUED AS FINAL
1	02/04/15	FG	ISSUED AS FINAL
0	12/03/14	FG	ISSUED AS FINAL
A	11/13/14	FG	ISSUED FOR REVIEW

REVISIONS

DRAWN BY FG
CHECKED BY BSH
APPROVED BY GHN
DATE 10/29/14

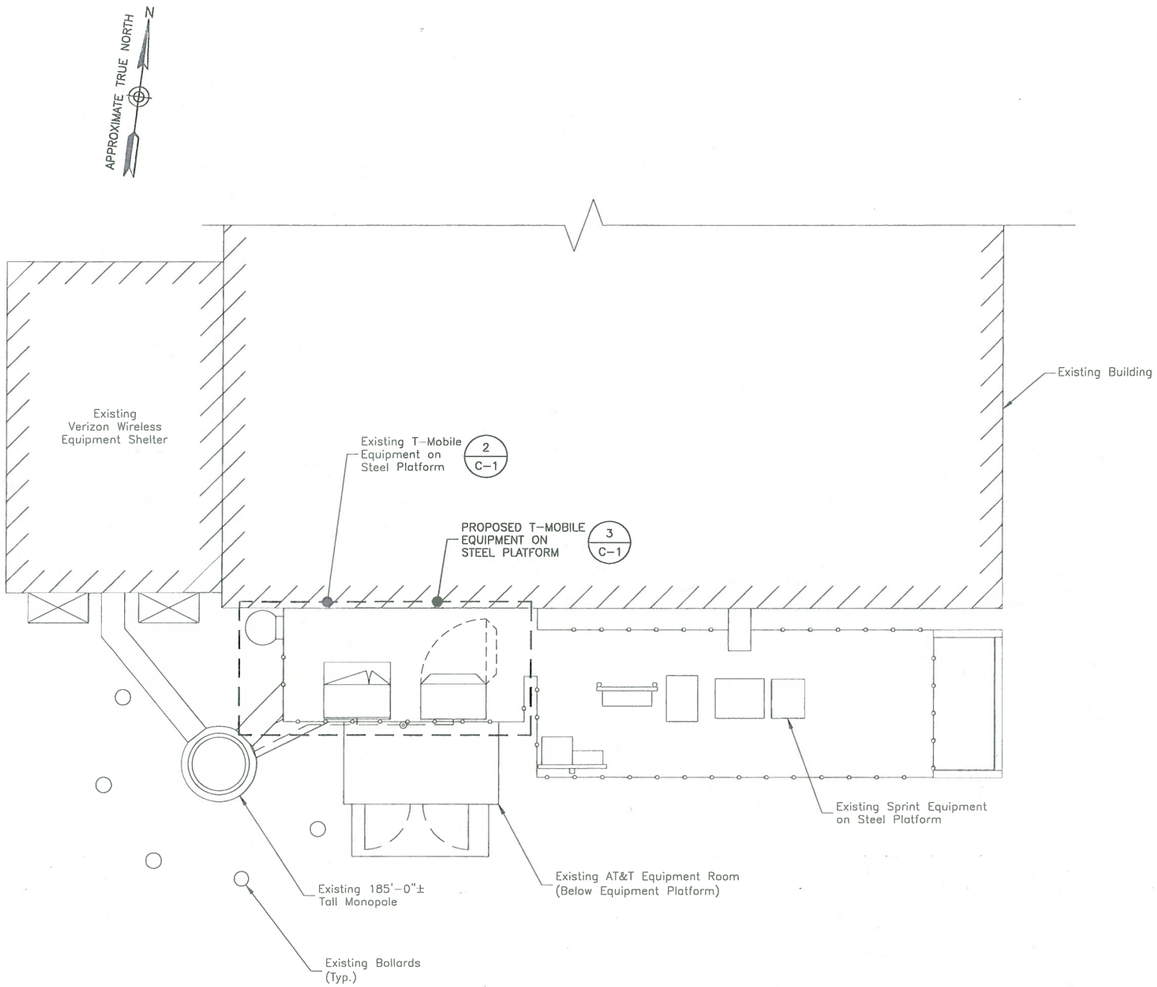
TITLE

GENERAL NOTES

PROJECT NO. 50066258/50070373

G - 1

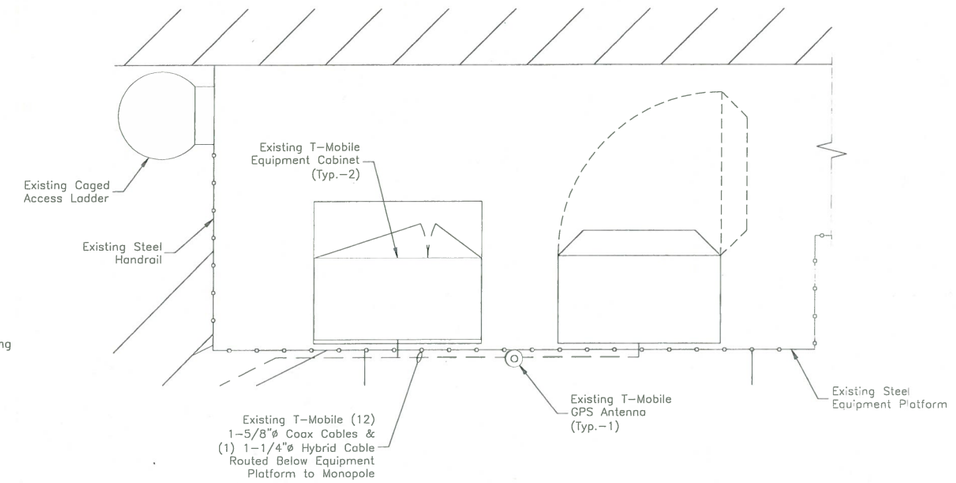
SHEET NO.



COMPOUND PLAN 1

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

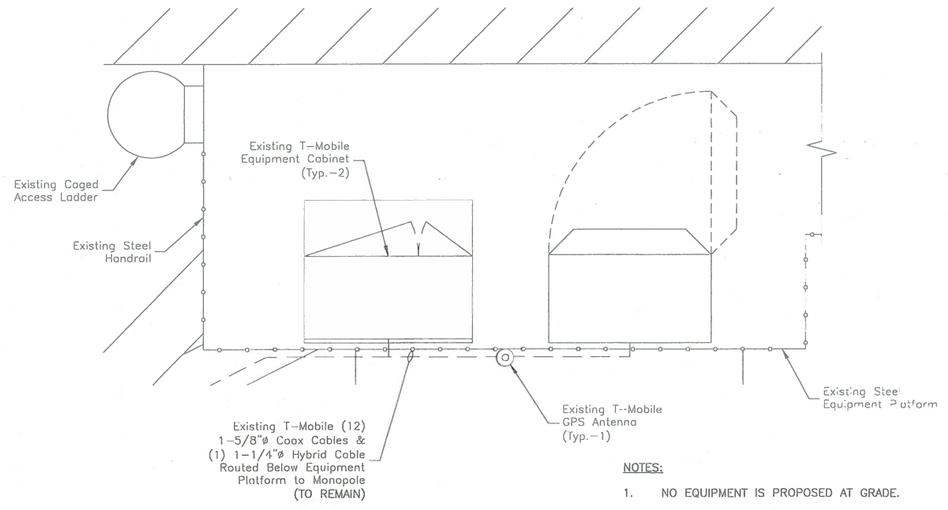
0' 5' 10'



EXISTING EQUIPMENT PLAN 2

SCALE: 1/4"=1' FOR 11"x17"
1/2"=1' FOR 22"x34"

0 2 4



NOTES:

1. NO EQUIPMENT IS PROPOSED AT GRADE.

PROPOSED EQUIPMENT PLAN 3

SCALE: 1/4"=1' FOR 11"x17"
1/2"=1' FOR 22"x34"

0 2 4

NOTES:

1. NORTH SHOWN AS APPROXIMATE.
2. NOT ALL INFORMATION IS SHOWN FOR CLARITY.
3. MOUNT ALL ANTENNAS, RRU'S, COAX, ETC. IN ACCORDANCE WITH STRUCTURAL ANALYSIS TO BE COMPLETED BY OTHERS.

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HARTFORD COUNTY

SEAL

STATE OF CONNECTICUT
JIANG YU
NO. 29222
REGISTERED PROFESSIONAL ENGINEER
JIANG YU, P.E.
CONNECTICUT LICENSE NO. 29222

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APPROVED BY GHN
DATE 10/29/14

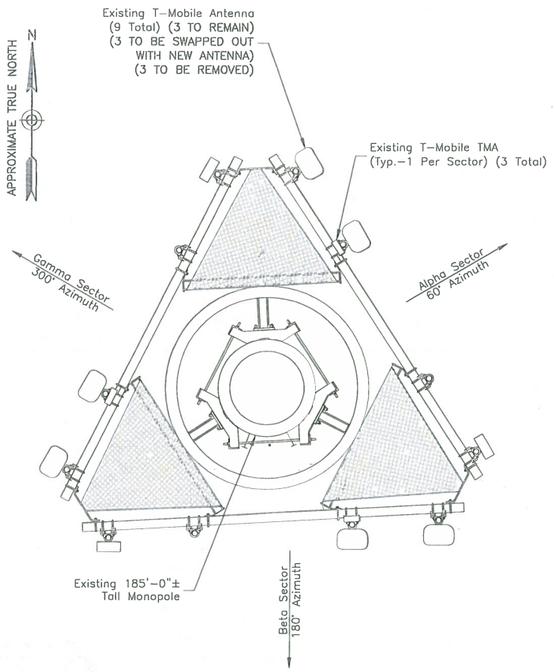
TITLE

COMPOUND PLAN & EQUIPMENT PLANS

PROJECT NO. 50066258/50070373

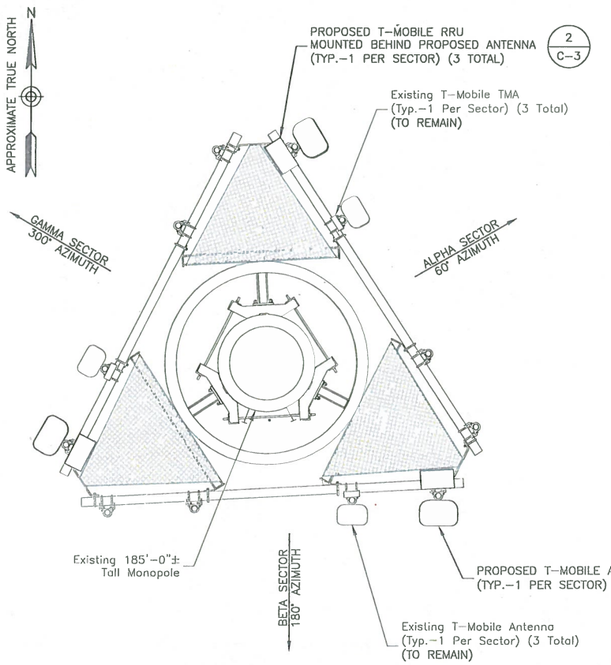
C - 1

SHEET NO.



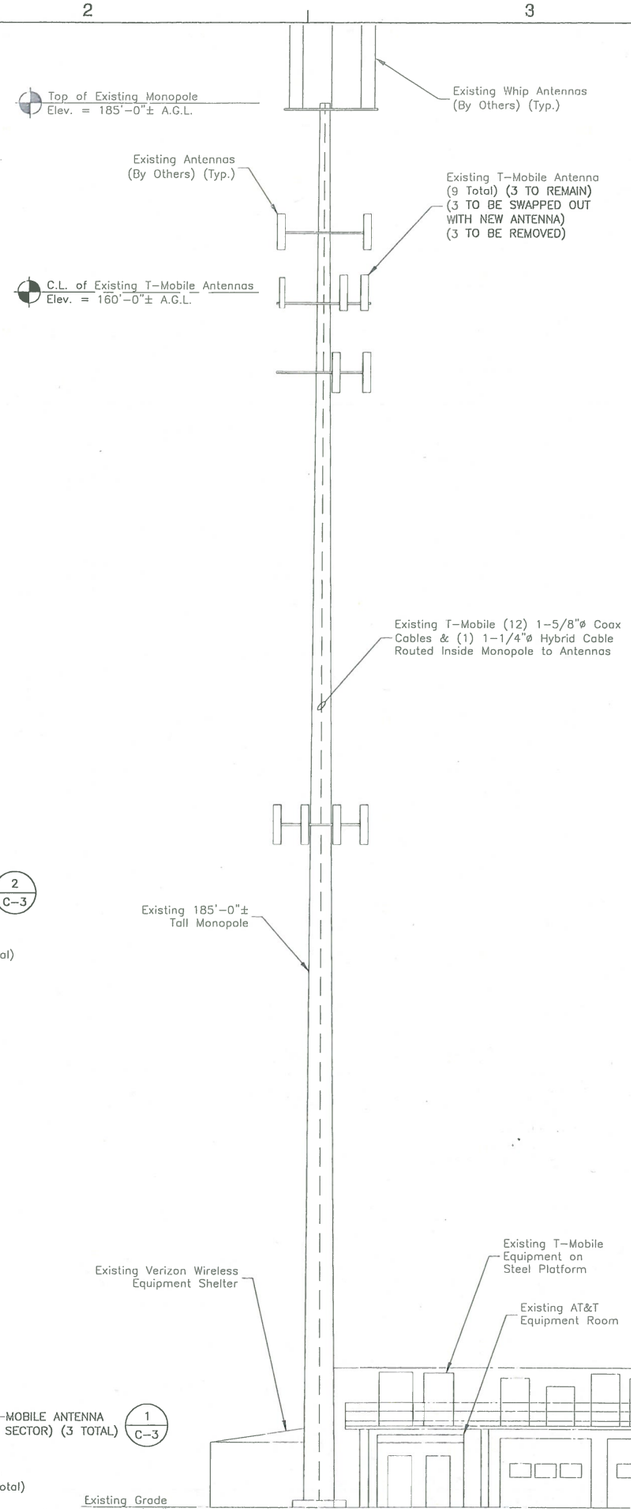
EXISTING ANTENNA LAYOUT (1)

SCALE: N.T.S.



PROPOSED ANTENNA LAYOUT (2)

SCALE: N.T.S.

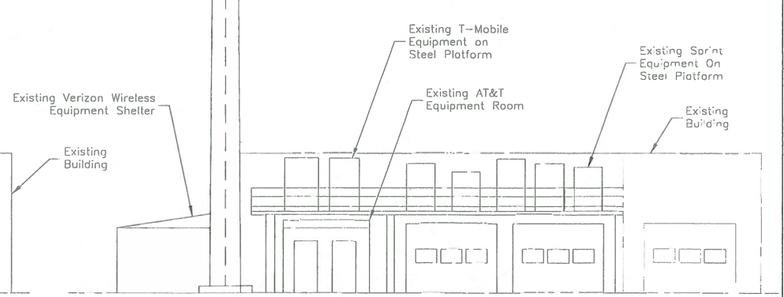


NOTES:

1. PRIOR TO START OF ANY WORK, A PASSING STRUCTURAL ANALYSIS SHALL BE PROVIDED BY A CONNECTICUT LICENSED P.E. CONTRACTOR TO OBTAIN A COPY BEFORE STARTING ANY WORK.
2. MOUNT ALL ANTENNAS, RRU'S, COAX, ETC. IN ACCORDANCE WITH STRUCTURAL ANALYSIS.
3. DEWBERRY HAS NOT BEEN CONTRACTED TO PERFORM A STRUCTURAL ANALYSIS ON THE EXISTING ANTENNA MOUNT AND THEREFORE ASSUMES NO RESPONSIBILITY FOR THE STRUCTURAL CAPACITY.

EXISTING ELEVATION (3)

SCALE: 1"=20' FOR 11"x17"
1"=10' FOR 22"x34"
0' 10' 20'



PROPOSED ELEVATION (4)

SCALE: 1"=20' FOR 11"x17"
1"=10' FOR 22"x34"
0' 10' 20'

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DATE 10/29/14

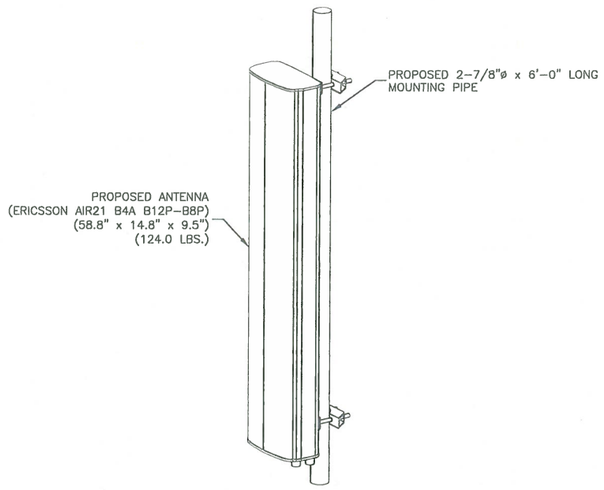
TITLE

ANTENNA LAYOUTS & ELEVATIONS

PROJECT NO. 50066258/50070373

C - 2

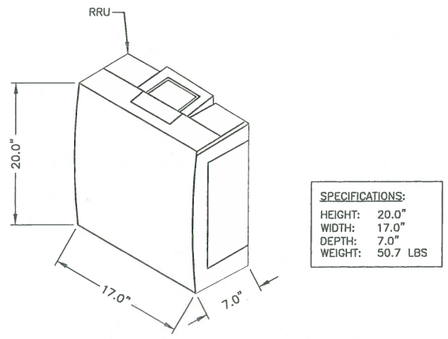
SHEET NO.



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.



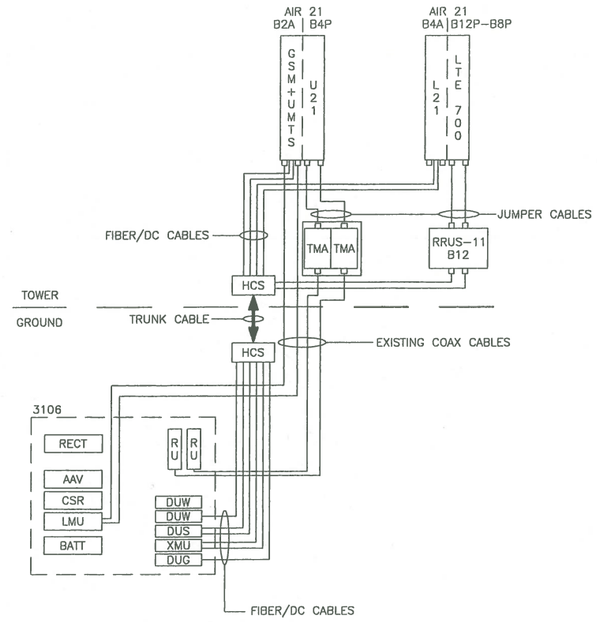
SPECIFICATIONS:
HEIGHT: 20.0"
WIDTH: 17.0"
DEPTH: 7.0"
WEIGHT: 50.7 LBS

ERICSSON RRUS–11 B12

RRU NOTES:

1. MOUNT EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS.
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 2C 3
SCALE: N.T.S.

DESIGN CONFIGURATION

	ANTENNAS		COAX		COAX LENGTH
	EXISTING	PROPOSED	EXISTING	PROPOSED	
ALPHA	ERICSSON AIR21 B4A B2P	ERICSSON AIR21 B4A B12P–B8P	(4) 1–5/8"	–	210'
	ERICSSON AIR21 B2A B4P	EXISTING TO REMAIN			
	EXISTING RFS ANTENNA	EXISTING TO BE REMOVED			
BETA	ERICSSON AIR21 B4A B2P	ERICSSON AIR21 B4A B12P–B8P	(4) 1–5/8"	–	210'
	ERICSSON AIR21 B2A B4P	EXISTING TO REMAIN			
	EXISTING RFS ANTENNA	EXISTING TO BE REMOVED			
GAMMA	ERICSSON AIR21 B4A B2P	ERICSSON AIR21 B4A B12P–B8P	(4) 1–5/8"	–	210'
	ERICSSON AIR21 B2A B4P	EXISTING TO REMAIN			
	EXISTING RFS ANTENNA	EXISTING TO BE REMOVED			

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HARTFORD COUNTY

SEAL

STATE OF CONNECTION
JIANG YU
No. 23232
PROFESSIONAL ENGINEER
JIANG YU, P.E.
CONNECTICUT LICENSE NO. 23232

SCALE
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TITLE

CONSTRUCTION DETAILS

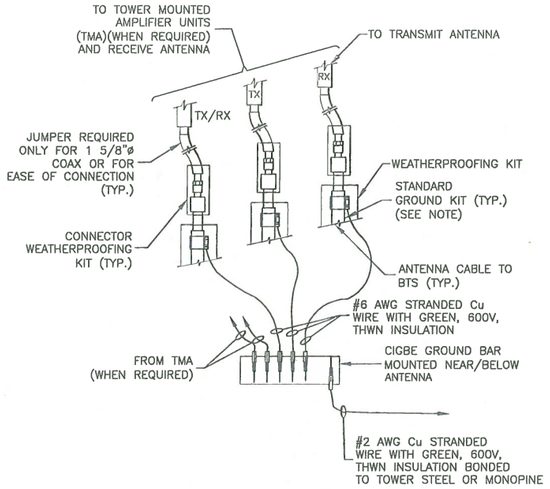
PROJECT NO. 50066258/50070373

C - 3

SHEET NO.

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 NOTED 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.

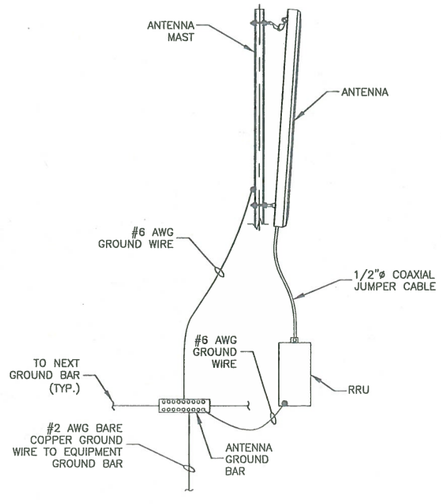


NOTE:

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

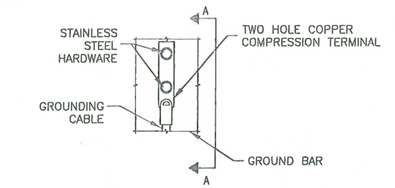
CONNECTION OF GROUND WIRES TO GROUNDING BAR (CIGBE) 1

SCALE: N.T.S.

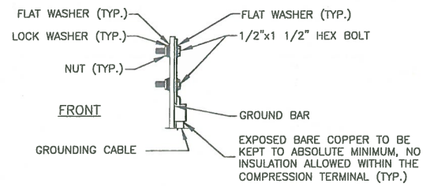


TYPICAL ANTENNA GROUNDING DETAIL 3

SCALE: N.T.S



ELEVATION



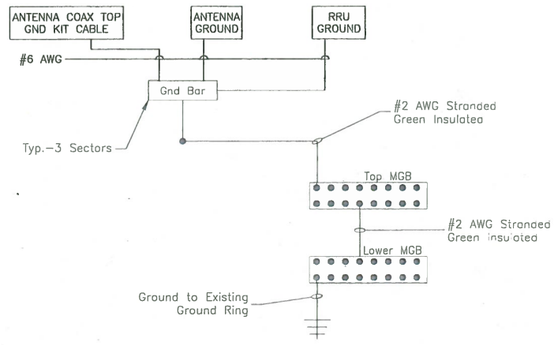
SECTION 'A-A'

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.



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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DATE 10/29/14

TITLE

GROUNDING NOTES & DETAILS

PROJECT NO. 50066258/50070373

E-1

SHEET NO.

January 30, 2015

Mitzi Parker
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Charlotte, NC 28277
(704) 405-6613

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

Subject:	**Structural Analysis Report**	
Carrier Designation:	***T-Mobile* Co-Locate**	
	Carrier Site Number:	CT11427A
	Carrier Site Name:	Rocky Hill/Rt 3/ Rt 160
Crown Castle Designation:	**Crown Castle BU Number:**	842872
	Crown Castle Site Name:	Rocky Hill
	Crown Castle JDE Job Number:	311750
	Crown Castle Work Order Number:	1001590
	Crown Castle Application Number:	269932 Rev. 5
Engineering Firm Designation:	**B+T Group Project Number:**	95171.004.01
Site Data:	**52 New Britain Avenue, Rocky Hill, Hartford County, CT** **Latitude *41° 39' 36.89"*, Longitude *-72° 40' 50.58"*** **182 Foot - Monopole Tower**	

Dear Mitzi Parker,

B+T Group is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 751283, in accordance with application 269932, revision 5.

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:

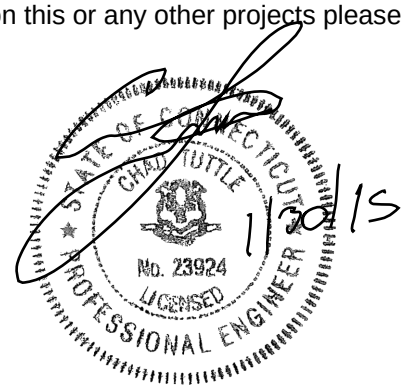
LC7: Existing + Reserved + Proposed Equipment **Sufficient Capacity**
Note: See Table 1 and Table 2 for the proposed and existing/reserved loading, respectively.

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 80 mph fastest mile.

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

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

Respectfully submitted by:
B+T Engineering, Inc.



Leena Kantheti, E.I.T.
Project Engineer

Chad E. Tuttle, P.E.
President

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 182 ft Monopole tower designed by Engineered Endeavors, Inc. in September of 1999. The tower was originally designed for a wind speed of 85 mph per TIA/EIA-222-F. This tower has been modified by B+T Group in June and May of 2013 and 2014 and those modifications are incorporated in this analysis.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a fastest mile wind speed of 80 mph with no ice, 37.6 mph with 1 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
160.0	160.0	3	Ericsson	Ericsson Air 21 B4A B12P-B8P 4FT	--	--	--
		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
180.0	191.0	1	Austin Antenna Company	APC-1362	11	7/8	1
		1	Austin Antenna Company	APC-2163			
		1	Austin Antenna Company	APC-301			
		1	Austin Antenna Company	APC-4065			
		2	Rfs Celwave	PD458-3			
	180.0	1	--	Side Arm Mount [SO 702-3]			
	178.0	2	Radiowaves	HPD2-4.7			
	175.0	1	Telewave	ANT450D6-9			
170.0	170.0	1	--	Platform Mount [LP 712-1]	12	1-5/8	1
	168.0	6	Ericsson	RRUS-11			
		3	Kmw Comm.	AM-X-CD-16-65-00T-RET			
		3	Powerwave Tech.	7770.00			
		6	Powerwave Tech.	LGP21401			
		1	Raycap	DC6-48-60-18-8CF			
160.0	160.0	**3**	**Ems Wireless**	**RR90-17-02DP**	**--**	**--**	**3**
		3	**Ericsson**	**Ericsson Air 21 B4A B2P**			
		3	Ericsson	Ericsson Air 21 B2A B4P	12 1	1-5/8 1-1/4	1
		3	Rfs Celwave	ATMAA1412D-1A20			
		1	--	Platform Mount [LP 305-1]			
140.0	144.0	2	Andrew	VHLP2.5-10W	3 4	1-1/4 1/2	1
		2	Dragonwave	Horizon Compact			
	140.0	3	Alcatel Lucent	1900MHz RRH (65MHz)			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
		3	Alcatel Lucent	800 External Notch Filter			
		3	Alcatel Lucent	800MHZ RRH			
		3	Kathrein	840 10054			
		3	Rfs Celwave	APXVSPP18-C-A20			
		3	Samsung Telecomm.	Uras-Flexible			
		1	--	Platform Mount [LP 1201-1]			
		3	Alcatel Lucent	TD-RRH8x20-25	1	1-1/4	2
		3	Rfs Celwave	APXVTM14-C-120			
88.0	90.0	3	Alcatel Lucent	RRH2X60-AWS	2	1-5/8	2
		3	Alcatel Lucent	RRH2X60-PCS			
		6	Andrew	HBXX-6517DS-A2M			
		3	Antel	BXA-70080-4BF-EDIN-0			
		2	Rfs Celwave	DB-T1-6Z-8AB-0Z			
		1	Andrew	LNX-6514DS-T6M	12	1-5/8	1
		2	Antel	BXA-70063-6CF-EDIN-4			
		6	Rfs	FD9R6004/2C-3L			
	88.0	1	--	Platform Mount [LP 1201-1]			
75.0	75.0	1	Gps	GPS_A	1	1/2	1
		1	--	Side Arm Mount [SO 701-1]			

Notes:
1) Existing Equipment
2) Reserved Equipment
3) Equipment To Be Removed

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)
180	180	6	Cellwave	Omni ANT.	--	--
		1	Generic	T-Mounts		
170	170	12	Allgon	7184.15	--	--
		1	Generic	STD. Platform		
160	160	12	Allgon	7184.15	--	--
		1	Generic	STD. Platform		
150	150	12	Allgon	7184.15	--	--
		1	Generic	STD. Platform		

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
Online Application	T-Mobile Co-Locate, Rev.5	269932	CCI Sites
Tower Manufacturer Drawing	EEI, Job No: 5554	4844402	CCI Sites
Tower Modification Drawing	B+T Group, Project No. 84502.004.01 Date: 05/17/2013	4904956	CCI Sites
Post Modification Inspection	B+T Group, Project No. 84502.007.01	4904967	CCI Sites
Tower Modification Drawing	B+T Group, Project No. 84446.002 Date: 06/27/2012	4740398	CCI Sites
Foundation Drawing	TEP, Job No. 131650	4713252	CCI Sites
Geotech Report	TEP, Project No. 131650.10	4713251	CCI Sites
Antenna Configuration	Crown CAD Package	Date: 01/29/2015	CCI Sites

3.1) Analysis Method

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

3.2) Assumptions

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

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

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	182 - 133.08	Pole	TP26.02x14.5x0.25	1	-9.667	1025.753	73.5	Pass
L2	133.08 - 87.46	Pole	TP36.15x24.616x0.375	2	-16.994	2140.225	81.8	Pass
L3	87.46 - 85	Pole	TP35.97x34.213x0.375	3	-22.081	2202.516	88.8	Pass
L4	85 - 74	Pole	TP38.529x35.97x0.534	4	-25.666	2690.460	83.1	Pass
L5	74 - 42.88	Pole	TP45.77x38.529x0.51	5	-33.746	2976.429	93.5	Pass
L6	42.88 - 0	Pole	TP55x43.566x0.438	6	-50.187	3938.895	94.8	Pass
							Summary	
						Pole (L6)	94.8	Pass
						RATING =	**94.8**	**Pass**

Table 6 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	Base	97.8	Pass
1	Base Plate	Base	81.8	Pass
1	Base Foundation	Base	98.6	Pass

Structure Rating (max from all components) =	98.6%

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

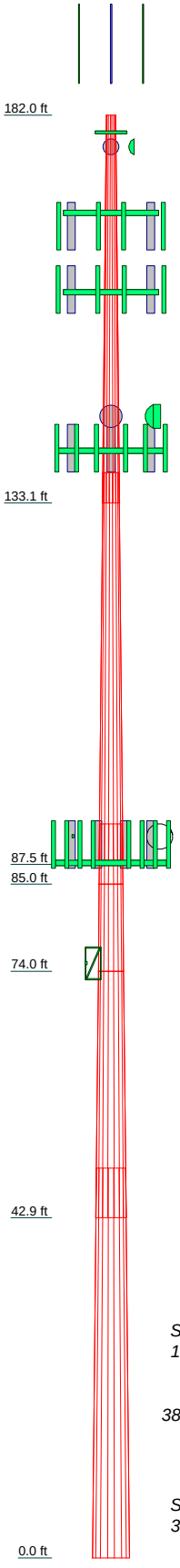
4.1) Recommendations

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	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	48.920	18	0.250	3.840	14.500	26.020		2.6
2	49.460	18	0.375	5.090	24.616	36.150	A572-65	6.0
3	7.550	18	0.375		34.213	35.970		1.1
4	11.000	18	0.534		35.970	38.529	52.282989ksi	2.3
5	31.120	18	0.510	6.250	38.529	45.770		7.0
6	49.130	18	0.438		43.566	55.000	A572-65	11.3
							52.468716ksi	30.3



AXIAL
77 K

SHEAR
11 K

MOMEI
1358 ki

TORQUE 1 kip-ft
38 mph WIND - 1.000 in ICE

AXIAL
50 K

SHEAR
35 K

MOMEI
4135 kip-ft

TORQUE 3 kip-ft
REACTIONS - 80 mph WIND

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
PD458-3 (E)	180	800 EXTERNAL NOTCH FILTER (E)	140
PD458-3 (E)	180	1900MHz RRH (65MHz) (E)	140
APC-301 (E)	180	1900MHz RRH (65MHz) (E)	140
APC-2163 (E)	180	1900MHz RRH (65MHz) (E)	140
APC-1362 (E)	180	APXVTM14-C-120 w/ Mount Pipe (R)	140
APC-4065 (E)	180	APXVTM14-C-120 w/ Mount Pipe (R)	140
ANT450D6-9 (E)	180	APXVTM14-C-120 w/ Mount Pipe (R)	140
(2) 6' x 2" Mount Pipe (E)	180	TD-RRH8x20-25 (R)	140
(2) 6' x 2" Mount Pipe (E)	180	TD-RRH8x20-25 (R)	140
(2) 6' x 2" Mount Pipe (E)	180	TD-RRH8x20-25 (R)	140
Side Arm Mount [SO 702-3] (E)	180	840 10054 w/ Mount Pipe (E-Clearwire)	140
HPD2-4.7 (E)	180		
HPD2-4.7 (E)	180	840 10054 w/ Mount Pipe (E-Clearwire)	140
7770.00 w/ Mount Pipe (E)	170		
AM-X-CD-16-65-00T-RET w/ Mount Pipe (E)	170	840 10054 w/ Mount Pipe (E-Clearwire)	140
AM-X-CD-16-65-00T-RET w/ Mount Pipe (E)	170	Horizon Compact (E-Clearwire)	140
		Horizon Compact (E-Clearwire)	140
AM-X-CD-16-65-00T-RET w/ Mount Pipe (E)	170	URAS-FLEXIBLE (E-Clearwire)	140
		URAS-FLEXIBLE (E-Clearwire)	140
(2) LGP21401 (E)	170	URAS-FLEXIBLE (E-Clearwire)	140
(2) LGP21401 (E)	170	Platform Mount [LP 1201-1] (E)	140
(2) LGP21401 (E)	170	APXVSPP18-C-A20 w/ Mount Pipe (E)	140
(2) RRUS-11 (E)	170	APXVSPP18-C-A20 w/ Mount Pipe (E)	140
(2) RRUS-11 (E)	170	VHLP2.5-10W (E-Clerwire)	140
(2) RRUS-11 (E)	170	VHLP2.5-10W (E-Clerwire)	140
DC6-48-60-18-8CF (E)	170	(2) FD9R6004/2C-3L (E)	88
6' x 2" Mount Pipe (E)	170	(2) FD9R6004/2C-3L (E)	88
6' x 2" Mount Pipe (E)	170	BXA-70080-4BF-EDIN-0 w/ Mount Pipe (R)	88
Yagi (E-Per Photo)	170		
Platform Mount [LP 712-1] (E)	170	BXA-70080-4BF-EDIN-0 w/ Mount Pipe (R)	88
7770.00 w/ Mount Pipe (E)	170		
7770.00 w/ Mount Pipe (E)	170	BXA-70080-4BF-EDIN-0 w/ Mount Pipe (R)	88
ERICSSON AIR 21 B2A B4P w/ Mount Pipe (E)	160	(2) HBXX-6517DS-A2M w/ Mount Pipe (R)	88
ATMAA1412D-1A20 (E)	160		
ATMAA1412D-1A20 (E)	160	(2) HBXX-6517DS-A2M w/ Mount Pipe (R)	88
ATMAA1412D-1A20 (E)	160		
Ericsson Air 21 B4A B12P-B8P 4FT w/ Mount Pipe (P)	160	(2) HBXX-6517DS-A2M w/ Mount Pipe (R)	88
Ericsson Air 21 B4A B12P-B8P 4FT w/ Mount Pipe (P)	160	RRH2X60-AWS (R)	88
		RRH2X60-AWS (R)	88
Ericsson Air 21 B4A B12P-B8P 4FT w/ Mount Pipe (P)	160	RRH2X60-AWS (R)	88
		RRH2X60-PCS (R)	88
RRUS 11 B12 (P)	160	RRH2X60-PCS (R)	88
RRUS 11 B12 (P)	160	RRH2X60-PCS (R)	88
RRUS 11 B12 (P)	160	DB-T1-6Z-8AB-0Z (R)	88
Platform Mount [LP 305-1] (E)	160	DB-T1-6Z-8AB-0Z (R)	88
ERICSSON AIR 21 B2A B4P w/ Mount Pipe (E)	160	GPS_A (E-Per Photo)	88
		Platform Mount [LP 1201-1] (E)	88
ERICSSON AIR 21 B2A B4P w/ Mount Pipe (E)	160	BXA-70063-6CF-EDIN-4 w/ Mount Pipe (E)	88
APXVSPP18-C-A20 w/ Mount Pipe (E)	140	BXA-70063-6CF-EDIN-4 w/ Mount Pipe (E)	88
800MHZ RRH (E)	140		
800MHZ RRH (E)	140	LNX-6514DS-T6M w/ Mount Pipe (E)	88
800MHZ RRH (E)	140	(2) FD9R6004/2C-3L (E)	88
800 EXTERNAL NOTCH FILTER (E)	140	GPS_A (E)	75
800 EXTERNAL NOTCH FILTER (E)	140	Side Arm Mount [SO 701-1] (E)	75

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi	52.468716ksi	52 ksi	67 ksi
52.282989ksi	52 ksi	67 ksi			

TOWER DESIGN NOTES

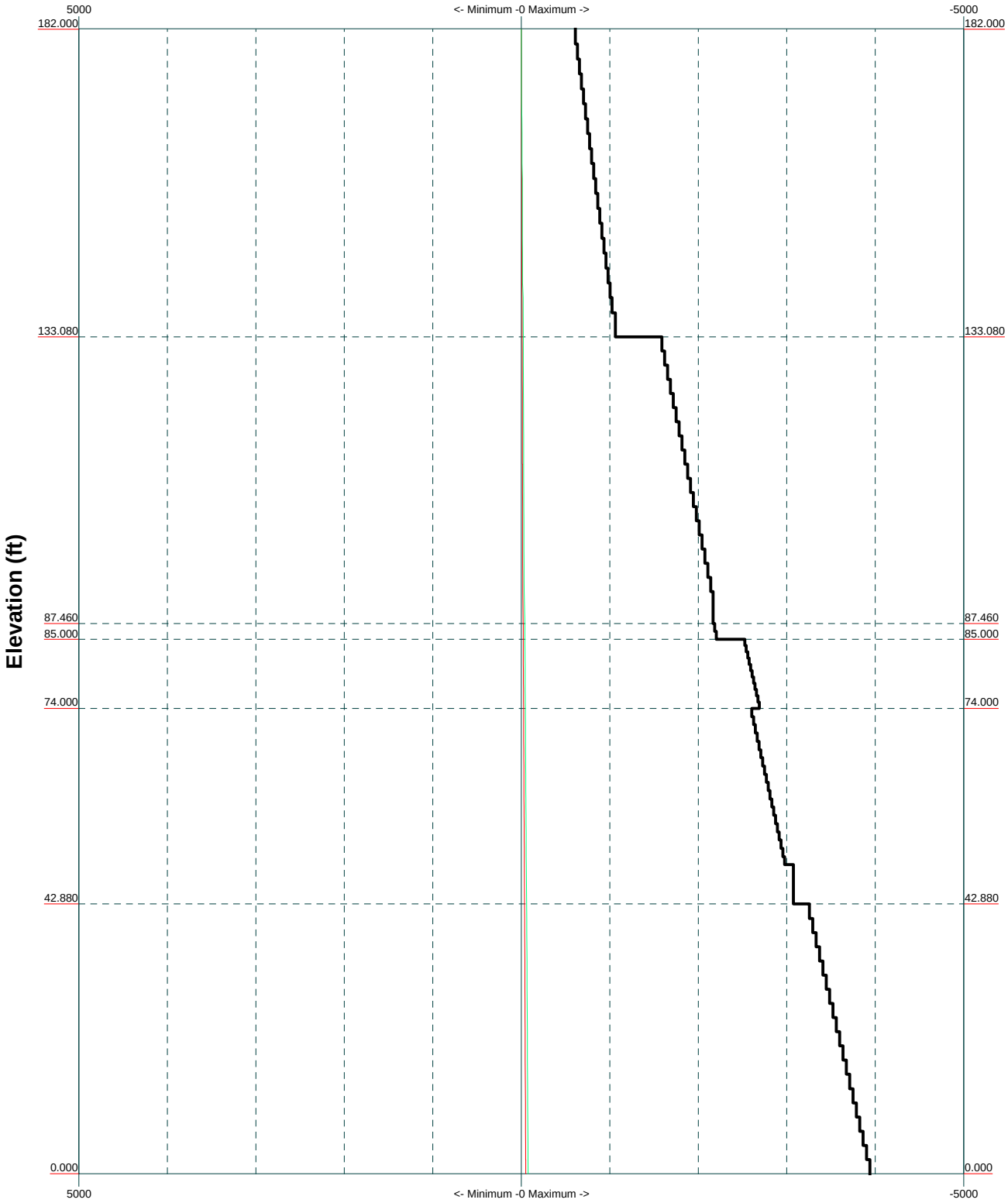
1. Tower is located in Hartford County, Connecticut.
2. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 94.8%

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

Job: 95171.004.01 - ROCKY HILLI, CT (BU# 842872)			
Project:			
Client: Crown Castle	Drawn by: Lkantheti	App'd:	
Code: TIA/EIA-222-F	Date: 01/30/15	Scale: NTS	
Path: S:\Projects\Crown Castle\95171_842872_Rocky Hill\Engineering\95171_004_01_Aero Calculations\Working RISA\842872 ROCKY HILL.eri		Dwg No. E-1	

TIA/EIA-222-F - 80 mph/38 mph 1.000 in Ice

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



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Code: TIA/EIA-222-F	Date: 01/30/15	Scale: NTS
Path: S:\Projects\Crown Castle\95171_842872_Rocky Hill\Engineering\95171_004_01_Aero Calculations\Working RISA\842872 ROCKY HILLI.eri		Dwg No. E-3

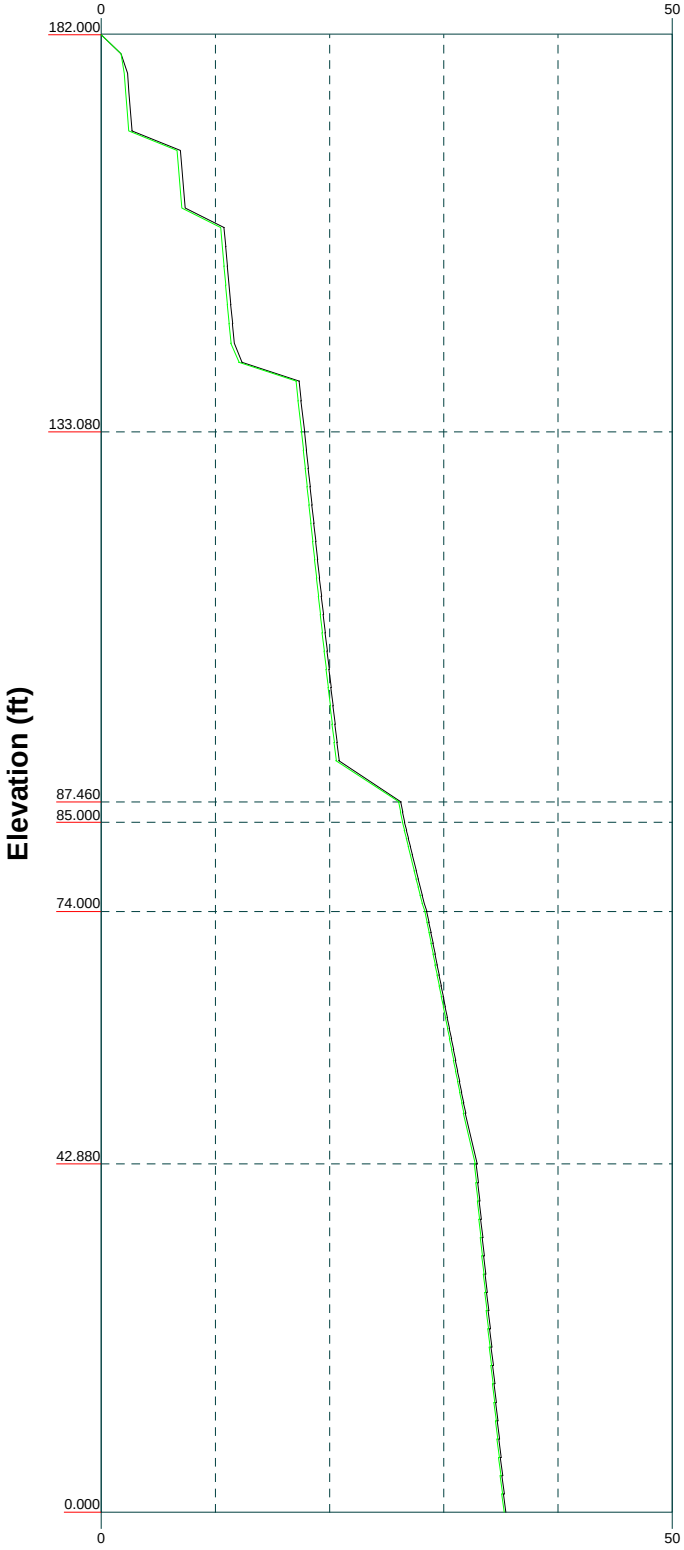
TIA/EIA-222-F - 80 mph/38 mph 1.000 in Ice

Vx Vz

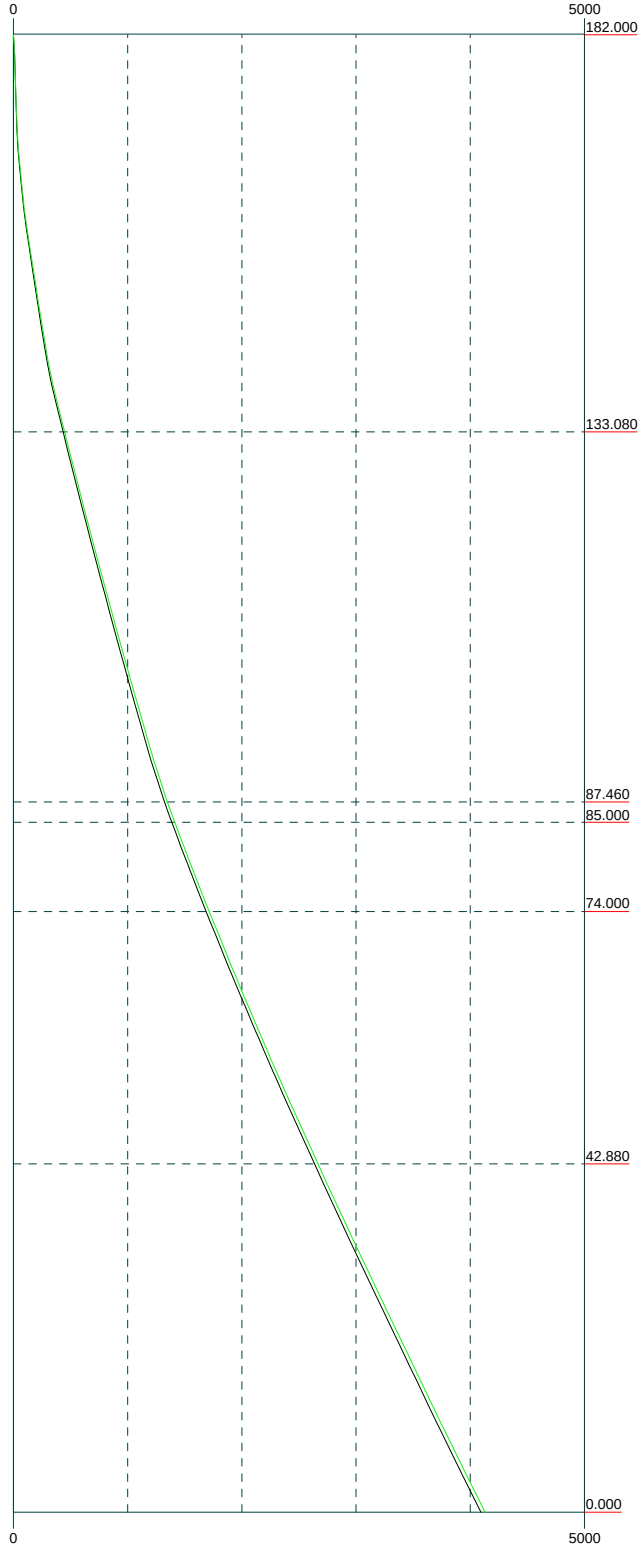
Maximum Values

Mx Mz

Global Mast Shear (K)



Global Mast Moment (kip-ft)



B+T GRP

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Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: ***95171.004.01 - ROCKY HILLI, CT (BU# 842872)***		
Project:		
Client: Crown Castle	Drawn by: Lkantheti	App'd:
Code: TIA/EIA-222-F	Date: 01/30/15	Scale: NTS
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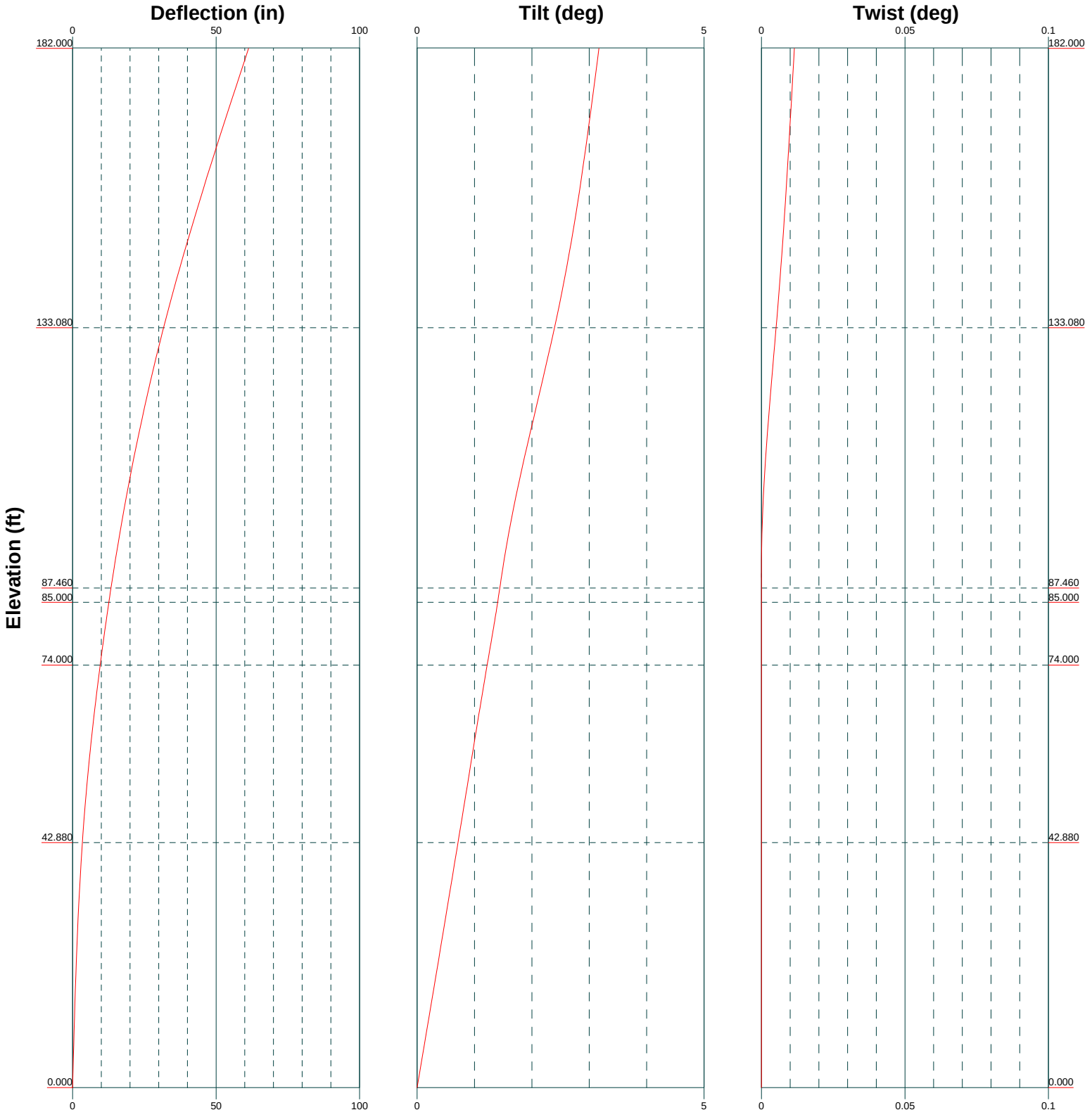
TIA/EIA-222-F - Service - 50 mph

Maximum Values



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Project:		
Client: Crown Castle	Drawn by: Lkantheti	App'd:
Code: TIA/EIA-222-F	Date: 01/30/15	Scale: NTS
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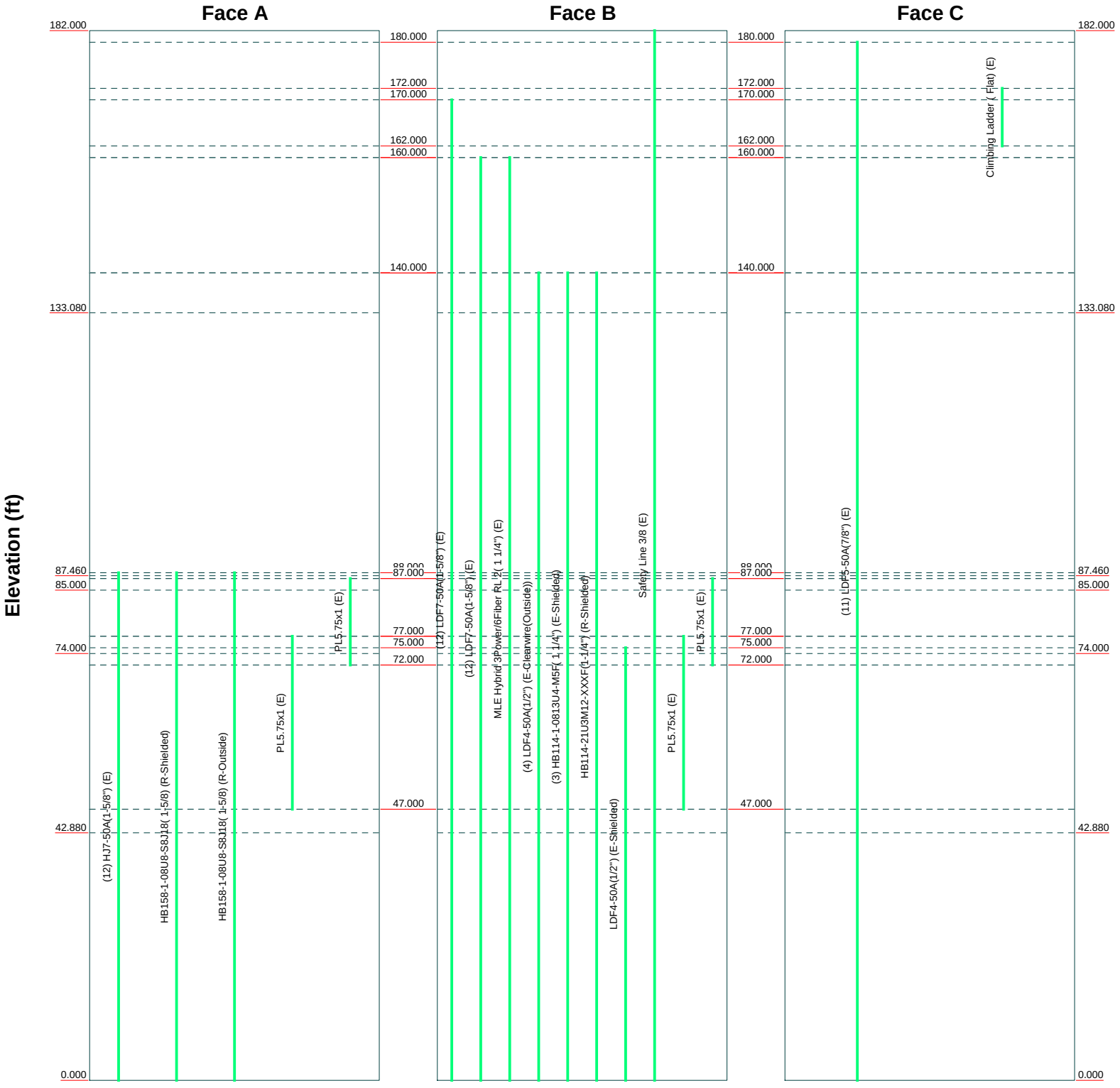
Feed Line Distribution Chart
0' - 182'

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



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Path: S:\Projects\Crown Castle\95171_842872_Rocky Hill\Engineering\95171_004_01_Aero Calculations\Working RISA\842872 ROCKY HILLI.eri		Dwg No. E-7

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 Hartford County, Connecticut.
Basic wind speed of 80 mph.
Nominal ice thickness of 1.000 in.
Ice thickness is considered to increase with height.
Ice density of 56.000 pcf.
A wind speed of 38 mph is used in combination with ice.
Temperature drop of 50.000 °F.
Deflections calculated using a wind speed of 50 mph.
TOWER RATING: 94.8%.
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	182.000-133.080	48.920	3.840	18	14.500	26.020	0.250	1.000	A572-65 (65 ksi)
L2	133.080-87.460	49.460	5.090	18	24.616	36.150	0.375	1.500	A572-65 (65 ksi)
L3	87.460-85.000	7.550	0.000	18	34.213	35.970	0.375	1.500	A572-65 (65 ksi)
L4	85.000-74.000	11.000	0.000	18	35.970	38.529	0.534	2.134	52.282989ksi (52 ksi)
L5	74.000-42.880	31.120	6.250	18	38.529	45.770	0.510	2.041	52.468716ksi (52 ksi)

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
L6	42.880-0.000	49.130		18	43.566	55.000	0.438	1.750	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	14.724	11.307	290.087	5.059	7.366	39.382	580.557	5.655	2.112	8.448
	26.421	20.448	1715.646	9.148	13.218	129.795	3433.549	10.226	4.140	16.558
L2	25.905	28.853	2141.967	8.605	12.505	171.292	4286.753	14.429	3.672	9.793
	36.708	42.581	6885.168	12.700	18.364	374.923	13779.397	21.295	5.702	15.206
L3	35.943	40.276	5826.254	12.012	17.380	335.224	11660.174	20.142	5.361	14.297
	36.525	42.367	6781.588	12.636	18.273	371.134	13572.100	21.187	5.671	15.122
L4	36.525	60.007	9519.850	12.580	18.273	520.990	19052.227	30.009	5.392	10.106
	39.124	64.341	11735.182	13.488	19.573	599.566	23485.805	32.176	5.842	10.95
L5	39.124	61.558	11241.492	13.497	19.573	574.343	22497.777	30.785	5.883	11.533
	46.476	73.282	18965.393	16.067	23.251	815.675	37955.742	36.648	7.158	14.031
L6	45.715	59.889	14073.714	15.311	22.131	635.916	28165.947	29.950	6.898	15.766
	55.848	75.767	28497.398	19.370	27.940	1019.950	57032.294	37.891	8.910	20.366

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 182.000-133.080				1	1	1		
L2 133.080-87.460				1	1	1		
L3 87.460-85.000				1	1	1		
L4 85.000-74.000				1	1	0.974492		
L5 74.000-42.880				1	1	0.981221		
L6 42.880-0.000				1	1	1		

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
LDF5-50A(7/8") (E)	C	No	Inside Pole	180.000 - 0.000	11	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
						2" Ice	0.000	0.000
						4" Ice	0.000	0.000
R LDF7-50A(1-5/8") (E)	B	No	Inside Pole	170.000 - 0.000	12	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001
Climbing Ladder (Flat)	C	No	CaAa (Out Of	172.000 - 162.000	1	No Ice	0.584	0.005

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
(E)			Face)			1/2" Ice	1.030	0.007
						1" Ice	1.476	0.010
						2" Ice	2.368	0.020
						4" Ice	4.151	0.049
R								
LDF7-50A(1-5/8")	B	No	Inside Pole	160.000 - 0.000	12	No Ice	0.000	0.001
(E)						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001
MLE Hybrid 3Power/6Fiber RL 2(1 1/4")	B	No	Inside Pole	160.000 - 0.000	1	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
(E)						2" Ice	0.000	0.001
						4" Ice	0.000	0.001
R								
LDF4-50A(1/2")	B	No	CaAa (Out Of	140.000 - 0.000	4	No Ice	0.063	0.000
(E-Clearwire(Outside))			Face)			1/2" Ice	0.163	0.001
						1" Ice	0.263	0.002
						2" Ice	0.463	0.007
						4" Ice	0.863	0.023
HB114-1-0813U4-M5F(1 1/4")	B	No	CaAa (Out Of	140.000 - 0.000	3	No Ice	0.000	0.001
			Face)			1/2" Ice	0.000	0.002
(E-Shielded)						1" Ice	0.000	0.004
						2" Ice	0.000	0.010
						4" Ice	0.000	0.028
HB114-21U3M12-XXX F(1-1/4")	B	No	CaAa (Out Of	140.000 - 0.000	1	No Ice	0.000	0.001
			Face)			1/2" Ice	0.000	0.002
(R-Shielded)						1" Ice	0.000	0.004
						2" Ice	0.000	0.010
						4" Ice	0.000	0.028
R								
HJ7-50A(1-5/8")	A	No	Inside Pole	88.000 - 0.000	12	No Ice	0.000	0.001
(E)						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001
HB158-1-08U8-S8J18(1-5/8)	A	No	CaAa (Out Of	88.000 - 0.000	1	No Ice	0.000	0.001
			Face)			1/2" Ice	0.000	0.003
(R-Shielded)						1" Ice	0.000	0.005
						2" Ice	0.000	0.011
						4" Ice	0.000	0.031
HB158-1-08U8-S8J18(1-5/8)	A	No	CaAa (Out Of	88.000 - 0.000	1	No Ice	0.198	0.001
			Face)			1/2" Ice	0.298	0.003
(R-Outside)						1" Ice	0.398	0.005
						2" Ice	0.598	0.011
						4" Ice	0.998	0.031
R								
LDF4-50A(1/2")	B	No	CaAa (Out Of	75.000 - 0.000	1	No Ice	0.000	0.000
(E-Shielded)			Face)			1/2" Ice	0.000	0.001
						1" Ice	0.000	0.002
						2" Ice	0.000	0.007
						4" Ice	0.000	0.023
R								
Safety Line 3/8	B	No	CaAa (Out Of	182.000 - 0.000	1	No Ice	0.037	0.000
(E)			Face)			1/2" Ice	0.137	0.001
						1" Ice	0.238	0.001
						2" Ice	0.437	0.002
						4" Ice	0.838	0.004
R								
PL5.75x1	A	No	CaAa (Out Of	77.000 - 47.000	1	No Ice	0.917	0.023

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
(E)			Face)			1/2" Ice	1.028	0.026
						1" Ice	1.139	0.029
						2" Ice	1.361	0.035
						4" Ice	1.806	0.053
PL5.75x1	B	No	CaAa (Out Of	77.000 - 47.000	1	No Ice	0.917	0.023
(E)			Face)			1/2" Ice	1.028	0.026
						1" Ice	1.139	0.029
						2" Ice	1.361	0.035
						4" Ice	1.806	0.053
R								
PL5.75x1	A	No	CaAa (Out Of	87.000 - 72.000	1	No Ice	0.917	0.023
(E)			Face)			1/2" Ice	1.028	0.026
						1" Ice	1.139	0.029
						2" Ice	1.361	0.035
						4" Ice	1.806	0.053
PL5.75x1	B	No	CaAa (Out Of	87.000 - 72.000	1	No Ice	0.917	0.023
(E)			Face)			1/2" Ice	1.028	0.026
						1" Ice	1.139	0.029
						2" Ice	1.361	0.035
						4" Ice	1.806	0.053
R								

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	182.000-133.080	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	3.578	0.695
		C	0.000	0.000	0.000	5.844	0.218
L2	133.080-87.460	A	0.000	0.000	0.000	0.107	0.008
		B	0.000	0.000	0.000	13.207	1.186
		C	0.000	0.000	0.000	0.000	0.166
L3	87.460-85.000	A	0.000	0.000	0.000	2.320	0.084
		B	0.000	0.000	0.000	2.546	0.111
		C	0.000	0.000	0.000	0.000	0.009
L4	85.000-74.000	A	0.000	0.000	0.000	15.011	0.493
		B	0.000	0.000	0.000	16.018	0.614
		C	0.000	0.000	0.000	0.000	0.040
L5	74.000-42.880	A	0.000	0.000	0.000	32.745	1.148
		B	0.000	0.000	0.000	35.593	1.492
		C	0.000	0.000	0.000	0.000	0.113
L6	42.880-0.000	A	0.000	0.000	0.000	8.490	0.647
		B	0.000	0.000	0.000	12.414	1.121
		C	0.000	0.000	0.000	0.000	0.156

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	182.000-133.080	A	1.204	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	22.030	0.955
		C		0.000	0.000	0.000	16.584	0.293
L2	133.080-87.460	A	1.155	0.000	0.000	0.000	0.237	0.013
		B		0.000	0.000	0.000	68.154	2.546
		C		0.000	0.000	0.000	0.000	0.166

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
L3	87.460-85.000	A	1.122	0.000	0.000	0.000	3.402	0.119
		B		0.000	0.000	0.000	5.899	0.192
		C		0.000	0.000	0.000	0.000	0.009
L4	85.000-74.000	A	1.111	0.000	0.000	0.000	20.913	0.673
		B		0.000	0.000	0.000	31.698	0.987
		C		0.000	0.000	0.000	0.000	0.040
L5	74.000-42.880	A	1.071	0.000	0.000	0.000	46.309	1.568
		B		0.000	0.000	0.000	75.812	2.488
		C		0.000	0.000	0.000	0.000	0.113
L6	42.880-0.000	A	1.000	0.000	0.000	0.000	17.672	0.996
		B		0.000	0.000	0.000	58.324	2.264
		C		0.000	0.000	0.000	0.000	0.156

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	182.000-133.080	-0.029	0.127	0.156	0.375
L2	133.080-87.460	0.338	0.191	1.168	0.669
L3	87.460-85.000	0.808	-0.384	1.334	-0.118
L4	85.000-74.000	0.995	-0.503	1.443	-0.268
L5	74.000-42.880	0.903	-0.437	1.449	-0.181
L6	42.880-0.000	0.337	-0.072	1.204	0.274

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
PD458-3 (E)	A	From Leg	4.000 0.000 11.000	0.000	180.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.492 4.794 6.112 8.499 11.687	3.492 4.794 6.112 8.499 11.687	0.021 0.047 0.080 0.173 0.463
PD458-3 (E)	B	From Leg	4.000 0.000 11.000	0.000	180.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.492 4.794 6.112 8.499 11.687	3.492 4.794 6.112 8.499 11.687	0.021 0.047 0.080 0.173 0.463
APC-301 (E)	C	From Leg	4.000 0.000 11.000	0.000	180.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.000 4.229 5.475 7.685 10.708	3.000 4.229 5.475 7.685 10.708	0.013 0.035 0.065 0.149 0.417
APC-2163 (E)	A	From Leg	4.000 0.000 11.000	0.000	180.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.375 4.754 6.150 8.992 12.448	3.375 4.754 6.150 8.992 12.448	0.014 0.039 0.073 0.167 0.465
APC-1362 (E)	B	From Leg	4.000 0.000 11.000	0.000	180.000	No Ice 1/2" Ice 1" Ice	3.500 4.929 6.375	3.500 4.929 6.375	0.015 0.041 0.076

Description	Face or Leg	Offset Type	Offsets: Horz Lateral (ft)	Offsets: Vert (ft)	Azimuth Adjustment (°)	Placement (ft)		C_AA_A Front (ft^2)	C_AA_A Side (ft^2)	Weight (K)
							2" Ice	9.317	9.317	0.173
							4" Ice	13.051	13.051	0.482
APC-4065	C	From Leg	4.000		0.000	180.000	No Ice	3.125	3.125	0.013
(E)			0.000				1/2" Ice	4.404	4.404	0.036
			11.000				1" Ice	5.700	5.700	0.067
							2" Ice	8.140	8.140	0.155
							4" Ice	11.277	11.277	0.433
ANT450D6-9	C	From Leg	4.000		0.000	180.000	No Ice	2.862	2.862	0.176
(E)			0.000				1/2" Ice	4.370	4.370	0.200
			-5.000				1" Ice	5.878	5.878	0.224
							2" Ice	8.893	8.893	0.272
							4" Ice	14.923	14.923	0.368
(2) 6' x 2" Mount Pipe	A	From Leg	4.000		0.000	180.000	No Ice	1.425	1.425	0.022
(E)			0.000				1/2" Ice	1.925	1.925	0.033
			0.000				1" Ice	2.294	2.294	0.048
							2" Ice	3.060	3.060	0.090
							4" Ice	4.702	4.702	0.231
(2) 6' x 2" Mount Pipe	B	From Leg	4.000		0.000	180.000	No Ice	1.425	1.425	0.022
(E)			0.000				1/2" Ice	1.925	1.925	0.033
			0.000				1" Ice	2.294	2.294	0.048
							2" Ice	3.060	3.060	0.090
							4" Ice	4.702	4.702	0.231
(2) 6' x 2" Mount Pipe	C	From Leg	4.000		0.000	180.000	No Ice	1.425	1.425	0.022
(E)			0.000				1/2" Ice	1.925	1.925	0.033
			0.000				1" Ice	2.294	2.294	0.048
							2" Ice	3.060	3.060	0.090
							4" Ice	4.702	4.702	0.231
Side Arm Mount [SO 702-3]	C	None			0.000	180.000	No Ice	3.220	3.220	0.081
(E)							1/2" Ice	4.150	4.150	0.114
							1" Ice	5.080	5.080	0.147
							2" Ice	6.940	6.940	0.213
							4" Ice	10.660	10.660	0.345
R										
7770.00 w/ Mount Pipe	A	From Leg	4.000		0.000	170.000	No Ice	6.119	4.254	0.055
(E)			0.000				1/2" Ice	6.626	5.014	0.103
			-2.000				1" Ice	7.128	5.711	0.157
							2" Ice	8.164	7.155	0.287
							4" Ice	10.360	10.412	0.665
7770.00 w/ Mount Pipe	B	From Leg	4.000		0.000	170.000	No Ice	6.119	4.254	0.055
(E)			0.000				1/2" Ice	6.626	5.014	0.103
			-2.000				1" Ice	7.128	5.711	0.157
							2" Ice	8.164	7.155	0.287
							4" Ice	10.360	10.412	0.665
7770.00 w/ Mount Pipe	C	From Leg	4.000		0.000	170.000	No Ice	6.119	4.254	0.055
(E)			0.000				1/2" Ice	6.626	5.014	0.103
			-2.000				1" Ice	7.128	5.711	0.157
							2" Ice	8.164	7.155	0.287
							4" Ice	10.360	10.412	0.665
AM-X-CD-16-65-00T-RET	A	From Leg	4.000		0.000	170.000	No Ice	8.498	6.304	0.074
w/ Mount Pipe			0.000				1/2" Ice	9.149	7.479	0.139
(E)			-2.000				1" Ice	9.767	8.368	0.212
							2" Ice	11.031	10.179	0.385
							4" Ice	13.679	14.024	0.874
AM-X-CD-16-65-00T-RET	B	From Leg	4.000		0.000	170.000	No Ice	8.498	6.304	0.074
w/ Mount Pipe			0.000				1/2" Ice	9.149	7.479	0.139
(E)			-2.000				1" Ice	9.767	8.368	0.212
							2" Ice	11.031	10.179	0.385

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						4" Ice	13.679	14.024	0.874
AM-X-CD-16-65-00T-RET w/ Mount Pipe (E)	C	From Leg	4.000 0.000 -2.000	0.000	170.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.498 9.149 9.767 11.031 13.679	6.304 7.479 8.368 10.179 14.024	0.074 0.139 0.212 0.385 0.874
(2) LGP21401 (E)	A	From Leg	4.000 0.000 -2.000	0.000	170.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.288 1.445 1.611 1.969 2.788	0.233 0.313 0.403 0.608 1.121	0.014 0.021 0.030 0.055 0.135
(2) LGP21401 (E)	B	From Leg	4.000 0.000 -2.000	0.000	170.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.288 1.445 1.611 1.969 2.788	0.233 0.313 0.403 0.608 1.121	0.014 0.021 0.030 0.055 0.135
(2) LGP21401 (E)	C	From Leg	4.000 0.000 -2.000	0.000	170.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.288 1.445 1.611 1.969 2.788	0.233 0.313 0.403 0.608 1.121	0.014 0.021 0.030 0.055 0.135
(2) RRUS-11 (E)	A	From Leg	4.000 0.000 -2.000	0.000	170.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.249 3.491 3.741 4.268 5.426	1.373 1.551 1.738 2.138 3.042	0.048 0.068 0.092 0.150 0.310
(2) RRUS-11 (E)	B	From Leg	4.000 0.000 -2.000	0.000	170.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.249 3.491 3.741 4.268 5.426	1.373 1.551 1.738 2.138 3.042	0.048 0.068 0.092 0.150 0.310
(2) RRUS-11 (E)	C	From Leg	4.000 0.000 -2.000	0.000	170.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.249 3.491 3.741 4.268 5.426	1.373 1.551 1.738 2.138 3.042	0.048 0.068 0.092 0.150 0.310
DC6-48-60-18-8CF (E)	A	From Leg	4.000 0.000 -2.000	0.000	170.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.342 3.620 3.907 4.507 5.809	3.342 3.620 3.907 4.507 5.809	0.034 0.061 0.093 0.168 0.370
6' x 2" Mount Pipe (E)	B	From Leg	4.000 0.000 0.000	0.000	170.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.425 1.925 2.294 3.060 4.702	1.425 1.925 2.294 3.060 4.702	0.022 0.033 0.048 0.090 0.231
6' x 2" Mount Pipe (E)	C	From Leg	4.000 0.000 0.000	0.000	170.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.425 1.925 2.294 3.060 4.702	1.425 1.925 2.294 3.060 4.702	0.022 0.033 0.048 0.090 0.231
Yagi (E-Per Photo)	B	From Leg	4.000 0.000 3.000	0.000	170.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.058 0.095 0.140 0.257 0.594	0.058 0.095 0.140 0.257 0.594	0.010 0.011 0.013 0.019 0.049
Platform Mount [LP 712-1]	C	None		0.000	170.000	No Ice	24.530	24.530	1.335

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(E)						1/2" Ice	29.940	29.940	1.646
						1" Ice	35.350	35.350	1.956
						2" Ice	46.170	46.170	2.577
						4" Ice	67.810	67.810	3.820
R									
ERICSSON AIR 21 B2A	A	From Leg	4.000	0.000	160.000	No Ice	6.825	5.642	0.112
B4P w/ Mount Pipe			0.000			1/2" Ice	7.347	6.480	0.169
(E)			0.000			1" Ice	7.863	7.257	0.233
						2" Ice	8.926	8.864	0.383
						4" Ice	11.175	12.293	0.807
ERICSSON AIR 21 B2A	B	From Leg	4.000	0.000	160.000	No Ice	6.825	5.642	0.112
B4P w/ Mount Pipe			0.000			1/2" Ice	7.347	6.480	0.169
(E)			0.000			1" Ice	7.863	7.257	0.233
						2" Ice	8.926	8.864	0.383
						4" Ice	11.175	12.293	0.807
ERICSSON AIR 21 B2A	C	From Leg	4.000	0.000	160.000	No Ice	6.825	5.642	0.112
B4P w/ Mount Pipe			0.000			1/2" Ice	7.347	6.480	0.169
(E)			0.000			1" Ice	7.863	7.257	0.233
						2" Ice	8.926	8.864	0.383
						4" Ice	11.175	12.293	0.807
ATMAA1412D-1A20	A	From Leg	4.000	0.000	160.000	No Ice	0.467	1.167	0.013
(E)			0.000			1/2" Ice	0.575	1.314	0.021
			0.000			1" Ice	0.691	1.469	0.030
						2" Ice	0.951	1.806	0.056
						4" Ice	1.573	2.584	0.137
ATMAA1412D-1A20	B	From Leg	4.000	0.000	160.000	No Ice	0.467	1.167	0.013
(E)			0.000			1/2" Ice	0.575	1.314	0.021
			0.000			1" Ice	0.691	1.469	0.030
						2" Ice	0.951	1.806	0.056
						4" Ice	1.573	2.584	0.137
ATMAA1412D-1A20	C	From Leg	4.000	0.000	160.000	No Ice	0.467	1.167	0.013
(E)			0.000			1/2" Ice	0.575	1.314	0.021
			0.000			1" Ice	0.691	1.469	0.030
						2" Ice	0.951	1.806	0.056
						4" Ice	1.573	2.584	0.137
Ericsson Air 21 B4A	A	From Leg	4.000	0.000	160.000	No Ice	8.643	6.777	0.145
B12P-B8P 4FT w/ Mount			0.000			1/2" Ice	9.182	7.655	0.213
Pipe			0.000			1" Ice	9.720	8.460	0.289
(P)						2" Ice	10.824	10.125	0.465
						4" Ice	13.152	13.669	0.946
Ericsson Air 21 B4A	B	From Leg	4.000	0.000	160.000	No Ice	8.643	6.777	0.145
B12P-B8P 4FT w/ Mount			0.000			1/2" Ice	9.182	7.655	0.213
Pipe			0.000			1" Ice	9.720	8.460	0.289
(P)						2" Ice	10.824	10.125	0.465
						4" Ice	13.152	13.669	0.946
Ericsson Air 21 B4A	C	From Leg	4.000	0.000	160.000	No Ice	8.643	6.777	0.145
B12P-B8P 4FT w/ Mount			0.000			1/2" Ice	9.182	7.655	0.213
Pipe			0.000			1" Ice	9.720	8.460	0.289
(P)						2" Ice	10.824	10.125	0.465
						4" Ice	13.152	13.669	0.946
RRUS 11 B12	A	From Leg	4.000	0.000	160.000	No Ice	3.306	1.361	0.051
(P)			0.000			1/2" Ice	3.550	1.540	0.072
			0.000			1" Ice	3.802	1.728	0.095
						2" Ice	4.334	2.130	0.153
						4" Ice	5.501	3.038	0.314
RRUS 11 B12	B	From Leg	4.000	0.000	160.000	No Ice	3.306	1.361	0.051
(P)			0.000			1/2" Ice	3.550	1.540	0.072

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.000			1" Ice	3.802	1.728	0.095
						2" Ice	4.334	2.130	0.153
						4" Ice	5.501	3.038	0.314
RRUS 11 B12	C	From Leg	4.000	0.000	160.000	No Ice	3.306	1.361	0.051
(P)			0.000			1/2" Ice	3.550	1.540	0.072
			0.000			1" Ice	3.802	1.728	0.095
						2" Ice	4.334	2.130	0.153
						4" Ice	5.501	3.038	0.314
Platform Mount [LP 305-1]	C	None		0.000	160.000	No Ice	18.010	18.010	1.121
(E)						1/2" Ice	23.330	23.330	1.352
						1" Ice	28.650	28.650	1.584
						2" Ice	39.290	39.290	2.046
						4" Ice	60.570	60.570	2.972
R									
APXVSPP18-C-A20 w/	A	From Leg	4.000	0.000	140.000	No Ice	8.498	6.946	0.083
Mount Pipe			0.000			1/2" Ice	9.149	8.127	0.151
(E)			0.000			1" Ice	9.767	9.021	0.227
						2" Ice	11.031	10.844	0.406
						4" Ice	13.679	14.851	0.909
APXVSPP18-C-A20 w/	B	From Leg	4.000	0.000	140.000	No Ice	8.498	6.946	0.083
Mount Pipe			0.000			1/2" Ice	9.149	8.127	0.151
(E)			0.000			1" Ice	9.767	9.021	0.227
						2" Ice	11.031	10.844	0.406
						4" Ice	13.679	14.851	0.909
APXVSPP18-C-A20 w/	C	From Leg	4.000	0.000	140.000	No Ice	8.498	6.946	0.083
Mount Pipe			0.000			1/2" Ice	9.149	8.127	0.151
(E)			0.000			1" Ice	9.767	9.021	0.227
						2" Ice	11.031	10.844	0.406
						4" Ice	13.679	14.851	0.909
800MHZ RRH	A	From Leg	4.000	0.000	140.000	No Ice	2.490	2.068	0.053
(E)			0.000			1/2" Ice	2.706	2.271	0.074
			0.000			1" Ice	2.931	2.481	0.098
						2" Ice	3.407	2.928	0.157
						4" Ice	4.462	3.927	0.318
800MHZ RRH	B	From Leg	4.000	0.000	140.000	No Ice	2.490	2.068	0.053
(E)			0.000			1/2" Ice	2.706	2.271	0.074
			0.000			1" Ice	2.931	2.481	0.098
						2" Ice	3.407	2.928	0.157
						4" Ice	4.462	3.927	0.318
800MHZ RRH	C	From Leg	4.000	0.000	140.000	No Ice	2.490	2.068	0.053
(E)			0.000			1/2" Ice	2.706	2.271	0.074
			0.000			1" Ice	2.931	2.481	0.098
						2" Ice	3.407	2.928	0.157
						4" Ice	4.462	3.927	0.318
800 EXTERNAL NOTCH	A	From Leg	4.000	0.000	140.000	No Ice	0.770	0.375	0.011
FILTER			0.000			1/2" Ice	0.890	0.465	0.017
(E)			0.000			1" Ice	1.018	0.563	0.024
						2" Ice	1.301	0.787	0.045
						4" Ice	1.970	1.337	0.114
800 EXTERNAL NOTCH	B	From Leg	4.000	0.000	140.000	No Ice	0.770	0.375	0.011
FILTER			0.000			1/2" Ice	0.890	0.465	0.017
(E)			0.000			1" Ice	1.018	0.563	0.024
						2" Ice	1.301	0.787	0.045
						4" Ice	1.970	1.337	0.114
800 EXTERNAL NOTCH	C	From Leg	4.000	0.000	140.000	No Ice	0.770	0.375	0.011
FILTER			0.000			1/2" Ice	0.890	0.465	0.017
(E)			0.000			1" Ice	1.018	0.563	0.024

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice	1.301	0.787	0.045
						4" Ice	1.970	1.337	0.114
1900MHz RRH (65MHz) (E)	A	From Leg	4.000 0.000 0.000	0.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.698 2.936 3.183 3.703 4.846	2.771 3.011 3.260 3.784 4.935	0.060 0.084 0.111 0.176 0.354
1900MHz RRH (65MHz) (E)	B	From Leg	4.000 0.000 0.000	0.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.698 2.936 3.183 3.703 4.846	2.771 3.011 3.260 3.784 4.935	0.060 0.084 0.111 0.176 0.354
1900MHz RRH (65MHz) (E)	C	From Leg	4.000 0.000 0.000	0.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.698 2.936 3.183 3.703 4.846	2.771 3.011 3.260 3.784 4.935	0.060 0.084 0.111 0.176 0.354
APXVTM14-C-120 w/ Mount Pipe (R)	A	From Leg	4.000 0.000 0.000	0.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.134 7.662 8.183 9.256 11.526	4.959 5.754 6.472 8.010 11.412	0.074 0.128 0.190 0.335 0.749
APXVTM14-C-120 w/ Mount Pipe (R)	B	From Leg	4.000 0.000 0.000	0.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.134 7.662 8.183 9.256 11.526	4.959 5.754 6.472 8.010 11.412	0.074 0.128 0.190 0.335 0.749
APXVTM14-C-120 w/ Mount Pipe (R)	C	From Leg	4.000 0.000 0.000	0.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.134 7.662 8.183 9.256 11.526	4.959 5.754 6.472 8.010 11.412	0.074 0.128 0.190 0.335 0.749
TD-RRH8x20-25 (R)	A	From Leg	4.000 0.000 0.000	0.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.720 5.014 5.316 5.948 7.314	1.703 1.920 2.145 2.622 3.680	0.070 0.097 0.128 0.201 0.397
TD-RRH8x20-25 (R)	B	From Leg	4.000 0.000 0.000	0.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.720 5.014 5.316 5.948 7.314	1.703 1.920 2.145 2.622 3.680	0.070 0.097 0.128 0.201 0.397
TD-RRH8x20-25 (R)	C	From Leg	4.000 0.000 0.000	0.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.720 5.014 5.316 5.948 7.314	1.703 1.920 2.145 2.622 3.680	0.070 0.097 0.128 0.201 0.397
840 10054 w/ Mount Pipe (E-Clearwire)	A	From Leg	4.000 0.000 0.000	0.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.413 5.833 6.263 7.156 9.093	2.385 2.917 3.466 4.614 7.316	0.051 0.088 0.129 0.230 0.533
840 10054 w/ Mount Pipe (E-Clearwire)	B	From Leg	4.000 0.000 0.000	0.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.413 5.833 6.263 7.156 9.093	2.385 2.917 3.466 4.614 7.316	0.051 0.088 0.129 0.230 0.533

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
840 10054 w/ Mount Pipe	C	From Leg	4.000	0.000	140.000	No Ice	5.413	2.385	0.051
(E-Clearwire)			0.000			1/2" Ice	5.833	2.917	0.088
			0.000			1" Ice	6.263	3.466	0.129
						2" Ice	7.156	4.614	0.230
						4" Ice	9.093	7.316	0.533
Horizon Compact	A	From Leg	4.000	0.000	140.000	No Ice	0.841	0.429	0.012
(E-Clearwire)			0.000			1/2" Ice	0.966	0.525	0.018
			4.000			1" Ice	1.099	0.629	0.026
						2" Ice	1.392	0.863	0.048
						4" Ice	2.082	1.435	0.122
Horizon Compact	B	From Leg	4.000	0.000	140.000	No Ice	0.841	0.429	0.012
(E-Clearwire)			0.000			1/2" Ice	0.966	0.525	0.018
			4.000			1" Ice	1.099	0.629	0.026
						2" Ice	1.392	0.863	0.048
						4" Ice	2.082	1.435	0.122
URAS-FLEXIBLE	A	From Leg	4.000	0.000	140.000	No Ice	1.804	0.778	0.033
(E-Clearwire)			0.000			1/2" Ice	1.988	0.918	0.045
			0.000			1" Ice	2.180	1.067	0.058
						2" Ice	2.589	1.391	0.094
						4" Ice	3.512	2.143	0.201
URAS-FLEXIBLE	B	From Leg	4.000	0.000	140.000	No Ice	1.804	0.778	0.033
(E-Clearwire)			0.000			1/2" Ice	1.988	0.918	0.045
			0.000			1" Ice	2.180	1.067	0.058
						2" Ice	2.589	1.391	0.094
						4" Ice	3.512	2.143	0.201
URAS-FLEXIBLE	C	From Leg	4.000	0.000	140.000	No Ice	1.804	0.778	0.033
(E-Clearwire)			0.000			1/2" Ice	1.988	0.918	0.045
			0.000			1" Ice	2.180	1.067	0.058
						2" Ice	2.589	1.391	0.094
						4" Ice	3.512	2.143	0.201
Platform Mount [LP 1201-1]	C	None		0.000	140.000	No Ice	23.100	23.100	2.100
(E)						1/2" Ice	26.800	26.800	2.500
						1" Ice	30.500	30.500	2.900
						2" Ice	37.900	37.900	3.700
						4" Ice	52.700	52.700	5.300
R									
BXA-70063-6CF-EDIN-4 w/	A	From Leg	4.000	0.000	88.000	No Ice	7.969	5.398	0.042
Mount Pipe			0.000			1/2" Ice	8.609	6.546	0.101
(E)			2.000			1" Ice	9.216	7.409	0.168
						2" Ice	10.459	9.184	0.327
						4" Ice	13.066	12.933	0.787
BXA-70063-6CF-EDIN-4 w/	B	From Leg	4.000	0.000	88.000	No Ice	7.969	5.398	0.042
Mount Pipe			0.000			1/2" Ice	8.609	6.546	0.101
(E)			2.000			1" Ice	9.216	7.409	0.168
						2" Ice	10.459	9.184	0.327
						4" Ice	13.066	12.933	0.787
LNX-6514DS-T6M w/	C	From Leg	4.000	0.000	88.000	No Ice	8.568	7.004	0.058
Mount Pipe			0.000			1/2" Ice	9.220	8.185	0.127
(E)			2.000			1" Ice	9.838	9.081	0.203
						2" Ice	11.104	10.904	0.384
						4" Ice	13.754	14.926	0.889
(2) FD9R6004/2C-3L	A	From Leg	4.000	0.000	88.000	No Ice	0.367	0.085	0.003
(E)			0.000			1/2" Ice	0.451	0.136	0.005
			2.000			1" Ice	0.543	0.196	0.009
						2" Ice	0.755	0.343	0.020
						4" Ice	1.281	0.740	0.063
(2) FD9R6004/2C-3L	B	From Leg	4.000	0.000	88.000	No Ice	0.367	0.085	0.003

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
(E)			0.000			1/2" Ice	0.451	0.136	0.005
			2.000			1" Ice	0.543	0.196	0.009
						2" Ice	0.755	0.343	0.020
						4" Ice	1.281	0.740	0.063
(2) FD9R6004/2C-3L	C	From Leg	4.000	0.000	88.000	No Ice	0.367	0.085	0.003
(E)			0.000			1/2" Ice	0.451	0.136	0.005
			2.000			1" Ice	0.543	0.196	0.009
						2" Ice	0.755	0.343	0.020
						4" Ice	1.281	0.740	0.063
BXA-70080-4BF-EDIN-0 w/	A	From Leg	4.000	0.000	88.000	No Ice	3.932	3.970	0.030
Mount Pipe			0.000			1/2" Ice	4.357	4.578	0.068
(R)			2.000			1" Ice	4.792	5.222	0.112
						2" Ice	5.693	6.612	0.219
						4" Ice	7.633	9.661	0.540
BXA-70080-4BF-EDIN-0 w/	B	From Leg	4.000	0.000	88.000	No Ice	3.932	3.970	0.030
Mount Pipe			0.000			1/2" Ice	4.357	4.578	0.068
(R)			2.000			1" Ice	4.792	5.222	0.112
						2" Ice	5.693	6.612	0.219
						4" Ice	7.633	9.661	0.540
BXA-70080-4BF-EDIN-0 w/	C	From Leg	4.000	0.000	88.000	No Ice	3.932	3.970	0.030
Mount Pipe			0.000			1/2" Ice	4.357	4.578	0.068
(R)			2.000			1" Ice	4.792	5.222	0.112
						2" Ice	5.693	6.612	0.219
						4" Ice	7.633	9.661	0.540
(2) HBXX-6517DS-A2M w/	A	From Leg	4.000	0.000	88.000	No Ice	8.976	6.963	0.067
Mount Pipe			0.000			1/2" Ice	9.647	8.182	0.137
(R)			2.000			1" Ice	10.291	9.144	0.215
						2" Ice	11.595	11.022	0.398
						4" Ice	14.321	15.027	0.914
(2) HBXX-6517DS-A2M w/	B	From Leg	4.000	0.000	88.000	No Ice	8.976	6.963	0.067
Mount Pipe			0.000			1/2" Ice	9.647	8.182	0.137
(R)			2.000			1" Ice	10.291	9.144	0.215
						2" Ice	11.595	11.022	0.398
						4" Ice	14.321	15.027	0.914
(2) HBXX-6517DS-A2M w/	C	From Leg	4.000	0.000	88.000	No Ice	8.976	6.963	0.067
Mount Pipe			0.000			1/2" Ice	9.647	8.182	0.137
(R)			2.000			1" Ice	10.291	9.144	0.215
						2" Ice	11.595	11.022	0.398
						4" Ice	14.321	15.027	0.914
RRH2X60-AWS	A	From Leg	4.000	0.000	88.000	No Ice	3.957	1.816	0.060
(R)			0.000			1/2" Ice	4.272	2.075	0.083
			2.000			1" Ice	4.596	2.360	0.109
						2" Ice	5.271	2.957	0.173
						4" Ice	6.722	4.253	0.354
RRH2X60-AWS	B	From Leg	4.000	0.000	88.000	No Ice	3.957	1.816	0.060
(R)			0.000			1/2" Ice	4.272	2.075	0.083
			2.000			1" Ice	4.596	2.360	0.109
						2" Ice	5.271	2.957	0.173
						4" Ice	6.722	4.253	0.354
RRH2X60-AWS	C	From Leg	4.000	0.000	88.000	No Ice	3.957	1.816	0.060
(R)			0.000			1/2" Ice	4.272	2.075	0.083
			2.000			1" Ice	4.596	2.360	0.109
						2" Ice	5.271	2.957	0.173
						4" Ice	6.722	4.253	0.354
RRH2X60-PCS	A	From Leg	4.000	0.000	88.000	No Ice	2.567	2.011	0.055
(R)			0.000			1/2" Ice	2.791	2.218	0.075
			2.000			1" Ice	3.025	2.435	0.099

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice	3.517	2.894	0.155
						4" Ice	4.606	3.915	0.313
RRH2X60-PCS	B	From Leg	4.000	0.000	88.000	No Ice	2.567	2.011	0.055
(R)			0.000			1/2" Ice	2.791	2.218	0.075
			2.000			1" Ice	3.025	2.435	0.099
						2" Ice	3.517	2.894	0.155
						4" Ice	4.606	3.915	0.313
RRH2X60-PCS	C	From Leg	4.000	0.000	88.000	No Ice	2.567	2.011	0.055
(R)			0.000			1/2" Ice	2.791	2.218	0.075
			2.000			1" Ice	3.025	2.435	0.099
						2" Ice	3.517	2.894	0.155
						4" Ice	4.606	3.915	0.313
DB-T1-6Z-8AB-0Z	A	From Leg	4.000	0.000	88.000	No Ice	5.600	2.333	0.044
(R)			0.000			1/2" Ice	5.915	2.558	0.080
			2.000			1" Ice	6.240	2.791	0.120
						2" Ice	6.914	3.284	0.213
						4" Ice	8.365	4.373	0.455
DB-T1-6Z-8AB-0Z	C	From Leg	4.000	0.000	88.000	No Ice	5.600	2.333	0.044
(R)			0.000			1/2" Ice	5.915	2.558	0.080
			2.000			1" Ice	6.240	2.791	0.120
						2" Ice	6.914	3.284	0.213
						4" Ice	8.365	4.373	0.455
GPS_A	C	From Leg	4.000	0.000	88.000	No Ice	0.297	0.297	0.001
(E-Per Photo)			0.000			1/2" Ice	0.374	0.374	0.005
			3.000			1" Ice	0.459	0.459	0.010
						2" Ice	0.655	0.655	0.025
						4" Ice	1.151	1.151	0.079
Platform Mount [LP 1201-1]	C	None		0.000	88.000	No Ice	23.100	23.100	2.100
(E)						1/2" Ice	26.800	26.800	2.500
						1" Ice	30.500	30.500	2.900
						2" Ice	37.900	37.900	3.700
						4" Ice	52.700	52.700	5.300
R									
GPS_A	C	From Leg	2.000	0.000	75.000	No Ice	0.297	0.297	0.001
(E)			0.000			1/2" Ice	0.374	0.374	0.005
			0.000			1" Ice	0.459	0.459	0.010
						2" Ice	0.655	0.655	0.025
						4" Ice	1.151	1.151	0.079
Side Arm Mount [SO 701-1]	C	From Leg	1.000	0.000	75.000	No Ice	0.850	1.670	0.065
(E)			0.000			1/2" Ice	1.140	2.340	0.079
			0.000			1" Ice	1.430	3.010	0.093
						2" Ice	2.010	4.350	0.121
						4" Ice	3.170	7.030	0.177
R									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
HPD2-4.7	A	Paraboloid w/o	From	2.000	75.000		180.000	2.042	No Ice	3.270	0.027
(E)		Radome	Leg	0.000					1/2" Ice	3.550	0.050
				-2.000					1" Ice	3.820	0.060

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 ft²	Weight K
									2" Ice	4.360	0.100
									4" Ice	5.460	0.170
HPD2-4.7	B	Paraboloid w/o	From	2.000	-24.000		180.000	2.042	No Ice	3.270	0.027
(E)		Radome	Leg	0.000					1/2" Ice	3.550	0.050
				-2.000					1" Ice	3.820	0.060
									2" Ice	4.360	0.100
									4" Ice	5.460	0.170
R											
VHLP2.5-10W	A	Paraboloid	From	4.000	60.000		140.000	2.917	No Ice	6.680	0.050
(E-Clerwire)		w/Shroud (HP)	Leg	0.000					1/2" Ice	7.070	0.090
				4.000					1" Ice	7.460	0.120
									2" Ice	8.230	0.200
									4" Ice	9.780	0.340
VHLP2.5-10W	B	Paraboloid	From	4.000	60.000		140.000	2.917	No Ice	6.680	0.050
(E-Clerwire)		w/Shroud (HP)	Leg	0.000					1/2" Ice	7.070	0.090
				4.000					1" Ice	7.460	0.120
									2" Ice	8.230	0.200
									4" Ice	9.780	0.340
R											

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

Comb. No.	Description
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	182 - 133.08	Pole	Max Tension	30	0.000	0.000	-0.000
			Max. Compression	14	-21.430	-0.344	0.013
			Max. Mx	11	-9.667	380.164	-3.031
			Max. My	8	-9.731	6.144	-368.155
			Max. Vy	11	-17.507	380.164	-3.031
			Max. Vx	2	-17.248	0.123	367.144
			Max. Torque	12			-2.613
L2	133.08 - 87.46	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-31.643	-2.137	-0.953
			Max. Mx	11	-16.994	1229.716	-11.307
			Max. My	2	-17.029	-4.356	1205.346
			Max. Vy	11	-20.850	1229.716	-11.307
			Max. Vx	2	-20.593	-4.356	1205.346
			Max. Torque	12			-2.606
L3	87.46 - 85	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-41.078	-1.687	-0.820
			Max. Mx	11	-22.081	1412.508	-12.789
			Max. My	2	-22.111	-5.125	1386.502
			Max. Vy	11	-26.577	1412.508	-12.789
			Max. Vx	2	-26.397	-5.125	1386.502
			Max. Torque	12			-2.281
L4	85 - 74	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-45.731	-2.517	-0.730
			Max. Mx	11	-25.670	1714.737	-15.042
			Max. My	2	-25.696	-6.948	1687.316
			Max. Vy	11	-28.522	1714.737	-15.042
			Max. Vx	2	-28.357	-6.948	1687.316
			Max. Torque	12			-2.412
L5	74 - 42.88	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-55.985	-4.766	-0.386
			Max. Mx	11	-33.749	2465.158	-19.764
			Max. My	2	-33.767	-10.944	2435.174
			Max. Vy	11	-31.925	2465.158	-19.764
			Max. Vx	2	-31.764	-10.944	2435.174
			Max. Torque	12			-2.498
L6	42.88 - 0	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-76.531	-7.837	-0.789
			Max. Mx	11	-50.187	4129.754	-29.683
			Max. My	2	-50.187	-17.390	4092.908
			Max. Vy	11	-35.434	4129.754	-29.683
			Max. Vx	2	-35.286	-17.390	4092.908
			Max. Torque	12			-2.631

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	18	76.531	-11.096	0.017
	Max. H_x	11	50.216	35.393	-0.198
	Max. H_z	2	50.216	-0.114	35.245
	Max. M_x	2	4092.908	-0.114	35.245
	Max. M_z	5	4093.379	-35.164	0.078
	Max. Torsion	6	2.058	-30.390	-17.574
	Min. Vert	1	50.216	0.000	0.000
	Min. H_x	5	50.216	-35.164	0.078
	Min. H_z	8	50.216	0.300	-35.215
	Min. M_x	8	-4088.444	0.300	-35.215
	Min. M_z	11	-4129.754	35.393	-0.198
	Min. Torsion	12	-2.631	30.669	17.446

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	50.216	0.000	0.000	-0.446	-1.904	-0.000
Dead+Wind 0 deg - No Ice	50.216	0.114	-35.245	-4092.908	-17.390	0.597
Dead+Wind 30 deg - No Ice	50.216	17.643	-30.588	-3554.744	-2055.379	0.182
Dead+Wind 60 deg - No Ice	50.216	30.414	-17.815	-2076.597	-3537.857	-0.373
Dead+Wind 90 deg - No Ice	50.216	35.164	-0.078	-11.082	-4093.379	-1.462
Dead+Wind 120 deg - No Ice	50.216	30.390	17.574	2040.948	-3534.942	-2.058
Dead+Wind 150 deg - No Ice	50.216	17.511	30.434	3530.967	-2037.821	-1.756
Dead+Wind 180 deg - No Ice	50.216	-0.300	35.215	4088.444	45.974	0.339
Dead+Wind 210 deg - No Ice	50.216	-18.000	30.526	3542.917	2117.204	0.858
Dead+Wind 240 deg - No Ice	50.216	-30.722	17.693	2053.799	3588.765	1.157
Dead+Wind 270 deg - No Ice	50.216	-35.393	0.198	29.684	4129.754	1.592
Dead+Wind 300 deg - No Ice	50.216	-30.669	-17.446	-2017.111	3582.456	2.631
Dead+Wind 330 deg - No Ice	50.216	-17.743	-30.488	-3538.018	2078.940	1.688
Dead+Ice+Temp	76.531	0.000	0.000	0.789	-7.837	-0.000
Dead+Wind 0 deg+Ice+Temp	76.531	0.025	-11.115	-1348.794	-11.791	0.356
Dead+Wind 30 deg+Ice+Temp	76.531	5.560	-9.641	-1170.600	-684.709	0.342
Dead+Wind 60 deg+Ice+Temp	76.531	9.597	-5.604	-681.783	-1174.872	0.210
Dead+Wind 90 deg+Ice+Temp	76.531	11.096	-0.017	-1.723	-1357.843	-0.141
Dead+Wind 120 deg+Ice+Temp	76.531	9.594	5.549	674.697	-1174.304	-0.429
Dead+Wind 150 deg+Ice+Temp	76.531	5.533	9.605	1166.372	-680.573	-0.513
Dead+Wind 180 deg+Ice+Temp	76.531	-0.074	11.108	1349.555	4.588	-0.114
Dead+Wind 210 deg+Ice+Temp	76.531	-5.655	9.625	1169.247	686.913	-0.073
Dead+Wind 240 deg+Ice+Temp	76.531	-9.678	5.572	677.378	1173.934	-0.005
Dead+Wind 270 deg+Ice+Temp	76.531	-11.156	0.047	8.563	1352.874	0.178
Dead+Wind 300 deg+Ice+Temp	76.531	-9.668	-5.514	-666.149	1172.547	0.579
Dead+Wind 330 deg+Ice+Temp	76.531	-5.595	-9.618	-1166.238	677.175	0.496
Dead+Wind 0 deg - Service	50.216	0.044	-13.768	-1601.829	-7.999	0.236
Dead+Wind 30 deg - Service	50.216	6.892	-11.948	-1391.278	-805.489	0.072
Dead+Wind 60 deg - Service	50.216	11.880	-6.959	-812.871	-1385.603	-0.148
Dead+Wind 90 deg - Service	50.216	13.736	-0.031	-4.614	-1602.970	-0.579
Dead+Wind 120 deg - Service	50.216	11.871	6.865	798.354	-1384.442	-0.816
Dead+Wind 150 deg - Service	50.216	6.840	11.888	1381.389	-798.605	-0.696
Dead+Wind 180 deg - Service	50.216	-0.117	13.756	1599.536	16.805	0.133
Dead+Wind 210 deg - Service	50.216	-7.031	11.924	1386.141	827.347	0.337
Dead+Wind 240 deg - Service	50.216	-12.001	6.911	803.426	1403.217	0.457
Dead+Wind 270 deg - Service	50.216	-13.826	0.077	11.340	1614.904	0.633

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 300 deg - Service	50.216	-11.980	-6.815	-789.605	1400.713	1.047
Dead+Wind 330 deg - Service	50.216	-6.931	-11.909	-1384.740	812.343	0.673

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.000	-50.216	0.000	0.000	50.216	0.000	0.000%
2	0.114	-50.216	-35.245	-0.114	50.216	35.245	0.000%
3	17.643	-50.216	-30.588	-17.643	50.216	30.588	0.000%
4	30.414	-50.216	-17.815	-30.414	50.216	17.815	0.000%
5	35.164	-50.216	-0.078	-35.164	50.216	0.078	0.000%
6	30.390	-50.216	17.574	-30.390	50.216	-17.574	0.000%
7	17.511	-50.216	30.434	-17.511	50.216	-30.434	0.000%
8	-0.300	-50.216	35.215	0.300	50.216	-35.215	0.000%
9	-18.000	-50.216	30.526	18.000	50.216	-30.526	0.000%
10	-30.722	-50.216	17.693	30.722	50.216	-17.693	0.000%
11	-35.393	-50.216	0.198	35.393	50.216	-0.198	0.000%
12	-30.669	-50.216	-17.446	30.669	50.216	17.446	0.000%
13	-17.743	-50.216	-30.488	17.743	50.216	30.488	0.000%
14	0.000	-76.531	0.000	-0.000	76.531	-0.000	0.000%
15	0.025	-76.531	-11.115	-0.025	76.531	11.115	0.000%
16	5.560	-76.531	-9.641	-5.560	76.531	9.641	0.000%
17	9.597	-76.531	-5.604	-9.597	76.531	5.604	0.000%
18	11.096	-76.531	-0.017	-11.096	76.531	0.017	0.000%
19	9.594	-76.531	5.549	-9.594	76.531	-5.549	0.000%
20	5.533	-76.531	9.605	-5.533	76.531	-9.605	0.000%
21	-0.074	-76.531	11.108	0.074	76.531	-11.108	0.000%
22	-5.655	-76.531	9.625	5.655	76.531	-9.625	0.000%
23	-9.678	-76.531	5.572	9.678	76.531	-5.572	0.000%
24	-11.156	-76.531	0.047	11.156	76.531	-0.047	0.000%
25	-9.668	-76.531	-5.514	9.668	76.531	5.514	0.000%
26	-5.595	-76.531	-9.618	5.595	76.531	9.618	0.000%
27	0.044	-50.216	-13.768	-0.044	50.216	13.768	0.000%
28	6.892	-50.216	-11.948	-6.892	50.216	11.948	0.000%
29	11.880	-50.216	-6.959	-11.880	50.216	6.959	0.000%
30	13.736	-50.216	-0.031	-13.736	50.216	0.031	0.000%
31	11.871	-50.216	6.865	-11.871	50.216	-6.865	0.000%
32	6.840	-50.216	11.888	-6.840	50.216	-11.888	0.000%
33	-0.117	-50.216	13.756	0.117	50.216	-13.756	0.000%
34	-7.031	-50.216	11.924	7.031	50.216	-11.924	0.000%
35	-12.001	-50.216	6.911	12.001	50.216	-6.911	0.000%
36	-13.826	-50.216	0.077	13.826	50.216	-0.077	0.000%
37	-11.980	-50.216	-6.815	11.980	50.216	6.815	0.000%
38	-6.931	-50.216	-11.909	6.931	50.216	11.909	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	5	0.00000001	0.00007183
3	Yes	6	0.00000001	0.00016051
4	Yes	6	0.00000001	0.00016187
5	Yes	5	0.00000001	0.00012304
6	Yes	6	0.00000001	0.00015483

7	Yes	6	0.00000001	0.00016179
8	Yes	5	0.00000001	0.00013536
9	Yes	6	0.00000001	0.00016521
10	Yes	6	0.00000001	0.00015909
11	Yes	5	0.00000001	0.00005613
12	Yes	6	0.00000001	0.00016516
13	Yes	6	0.00000001	0.00015792
14	Yes	4	0.00000001	0.00007649
15	Yes	6	0.00000001	0.00016542
16	Yes	6	0.00000001	0.00023050
17	Yes	6	0.00000001	0.00023024
18	Yes	6	0.00000001	0.00016677
19	Yes	6	0.00000001	0.00022821
20	Yes	6	0.00000001	0.00022937
21	Yes	6	0.00000001	0.00016562
22	Yes	6	0.00000001	0.00023181
23	Yes	6	0.00000001	0.00023008
24	Yes	6	0.00000001	0.00016687
25	Yes	6	0.00000001	0.00022858
26	Yes	6	0.00000001	0.00022800
27	Yes	4	0.00000001	0.00042436
28	Yes	5	0.00000001	0.00033442
29	Yes	5	0.00000001	0.00033914
30	Yes	4	0.00000001	0.00057731
31	Yes	5	0.00000001	0.00031432
32	Yes	5	0.00000001	0.00034028
33	Yes	4	0.00000001	0.00047832
34	Yes	5	0.00000001	0.00035279
35	Yes	5	0.00000001	0.00033062
36	Yes	4	0.00000001	0.00051896
37	Yes	5	0.00000001	0.00035518
38	Yes	5	0.00000001	0.00032567

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	182 - 133.08	61.320	35	3.171	0.011
L2	136.92 - 87.46	33.697	35	2.475	0.007
L3	92.55 - 85	14.957	35	1.518	0.002
L4	85 - 74	12.632	35	1.403	0.002
L5	74 - 42.88	9.610	35	1.222	0.001
L6	49.13 - 0	4.327	35	0.811	0.001

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
180.000	PD458-3	35	60.014	3.145	0.011	20119
178.000	HPD2-4.7	35	58.709	3.119	0.010	20119
170.000	7770.00 w/ Mount Pipe	35	53.516	3.014	0.010	8382
160.000	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	35	47.162	2.874	0.009	4571
144.000	VHLP2.5-10W	35	37.591	2.613	0.008	2644
140.000	APXVSPP18-C-A20 w/ Mount Pipe	35	35.360	2.537	0.007	2395
88.000	BXA-70063-6CF-EDIN-4 w/ Mount Pipe	35	13.530	1.448	0.002	3171

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
75.000	GPS_A	35	9.868	1.239	0.002	3766

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	182 - 133.08	156.165	11	8.064	0.031
L2	136.92 - 87.46	85.929	11	6.313	0.018
L3	92.55 - 85	38.202	10	3.876	0.006
L4	85 - 74	32.271	10	3.584	0.005
L5	74 - 42.88	24.555	10	3.122	0.004
L6	49.13 - 0	11.061	10	2.073	0.002

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
180.000	PD458-3	11	152.845	8.000	0.030	8184
178.000	HPD2-4.7	11	149.527	7.935	0.030	8184
170.000	7770.00 w/ Mount Pipe	11	136.329	7.672	0.028	3408
160.000	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	11	120.176	7.320	0.025	1856
144.000	VHLP2.5-10W	11	95.836	6.661	0.021	1070
140.000	APXVSPP18-C-A20 w/ Mount Pipe	11	90.161	6.469	0.019	968
88.000	BXA-70063-6CF-EDIN-4 w/ Mount Pipe	10	34.561	3.698	0.005	1252
75.000	GPS_A	10	25.214	3.166	0.004	1485

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	182 - 133.08 (1)	TP26.02x14.5x0.25	48.920	0.000	0.0	39.000	19.731	-9.667	769.507	0.013
L2	133.08 - 87.46 (2)	TP36.15x24.616x0.375	49.460	0.000	0.0	39.000	41.168	-16.994	1605.570	0.011
L3	87.46 - 85 (3)	TP35.97x34.213x0.375	7.550	0.000	0.0	39.000	42.367	-22.081	1652.300	0.013
L4	85 - 74 (4)	TP38.529x35.97x0.534	11.000	0.000	0.0	31.370	64.341	-25.666	2018.350	0.013
L5	74 - 42.88 (5)	TP45.77x38.529x0.51	31.120	0.000	0.0	31.481	70.927	-33.746	2232.880	0.015
L6	42.88 - 0 (6)	TP55x43.566x0.438	49.130	0.000	0.0	39.000	75.767	-50.187	2954.910	0.017

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	182 - 133.08 (1)	TP26.02x14.5x0.25	380.176	37.765	39.000	0.968	0.000	0.000	39.000	0.000
L2	133.08 - 87.46 (2)	TP36.15x24.616x0.375	1229.767	42.124	39.000	1.080	0.000	0.000	39.000	0.000
L3	87.46 - 85 (3)	TP35.97x34.213x0.375	1412.567	45.673	39.000	1.171	0.000	0.000	39.000	0.000
L4	85 - 74 (4)	TP38.529x35.97x0.534	1715.483	34.334	31.370	1.095	0.000	0.000	31.370	0.000
L5	74 - 42.88 (5)	TP45.77x38.529x0.51	2467.308	38.763	31.481	1.231	0.000	0.000	31.481	0.000
L6	42.88 - 0 (6)	TP55x43.566x0.438	4134.892	48.648	39.000	1.247	0.000	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	182 - 133.08 (1)	TP26.02x14.5x0.25	17.508	0.887	26.000	0.068	1.443	0.070	26.000	0.003
L2	133.08 - 87.46 (2)	TP36.15x24.616x0.375	20.851	0.506	26.000	0.039	1.385	0.023	26.000	0.001
L3	87.46 - 85 (3)	TP35.97x34.213x0.375	26.578	0.627	26.000	0.048	1.431	0.023	26.000	0.001
L4	85 - 74 (4)	TP38.529x35.97x0.534	28.583	0.444	20.913	0.042	1.222	0.012	20.913	0.001
L5	74 - 42.88 (5)	TP45.77x38.529x0.51	31.986	0.451	20.988	0.043	1.199	0.009	20.988	0.000
L6	42.88 - 0 (6)	TP55x43.566x0.438	35.494	0.468	26.000	0.036	1.159	0.007	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	182 - 133.08 (1)	0.013	0.968	0.000	0.068	0.003	0.982 ✔	1.333	H1-3+VT ✔
L2	133.08 - 87.46 (2)	0.011	1.080	0.000	0.039	0.001	1.091 ✔	1.333	H1-3+VT ✔
L3	87.46 - 85 (3)	0.013	1.171	0.000	0.048	0.001	1.185 ✔	1.333	H1-3+VT ✔
L4	85 - 74 (4)	0.013	1.095	0.000	0.042	0.001	1.108 ✔	1.333	H1-3+VT ✔
L5	74 - 42.88 (5)	0.015	1.231	0.000	0.043	0.000	1.247 ✔	1.333	H1-3+VT ✔
L6	42.88 - 0 (6)	0.017	1.247	0.000	0.036	0.000	1.265 ✔	1.333	H1-3+VT ✔

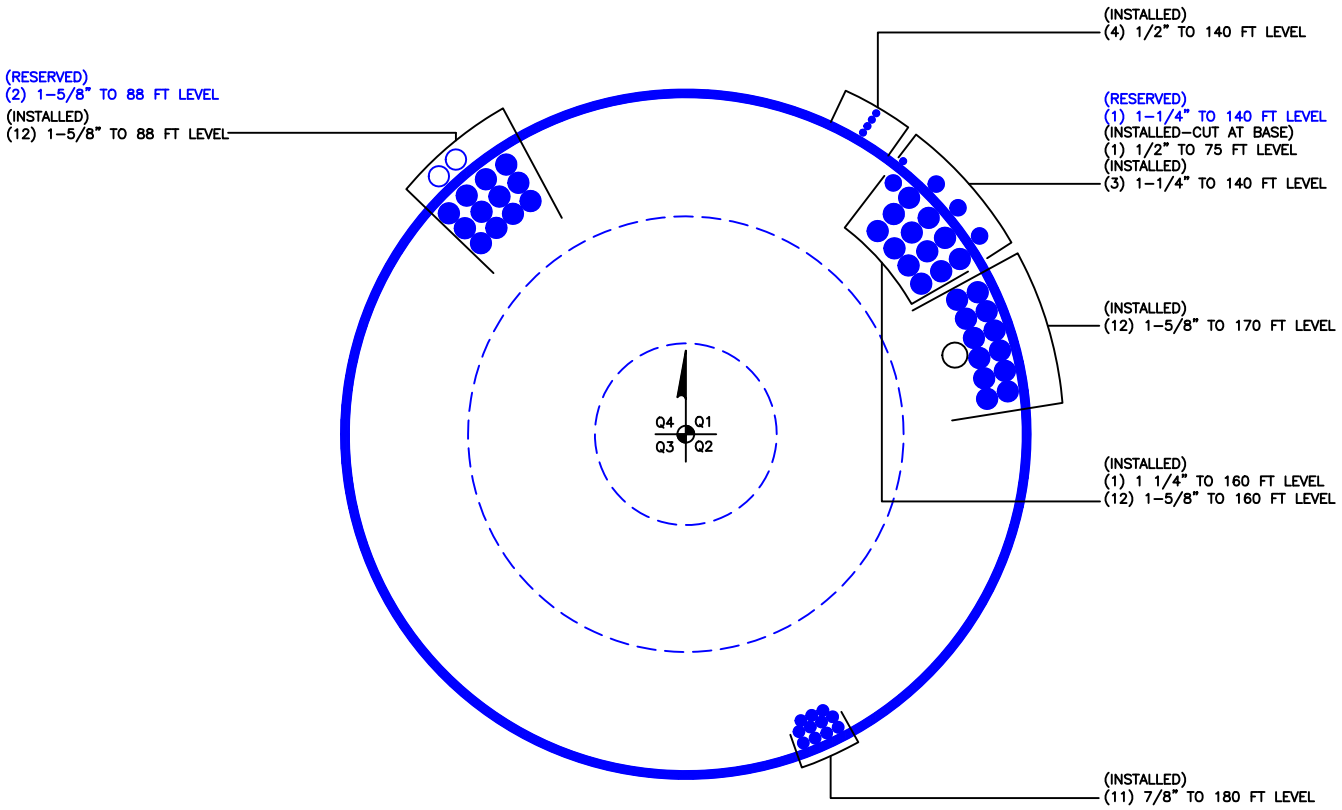
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	SF*P_{allow} K	% Capacity	Pass Fail
L1	182 - 133.08	Pole	TP26.02x14.5x0.25	1	-9.667	**	**	Pass
L2	133.08 - 87.46	Pole	TP36.15x24.616x0.375	2	-16.994	**	**	Pass
L3	87.46 - 85	Pole	TP35.97x34.213x0.375	3	-22.081	**	**	Pass
L4	85 - 74	Pole	TP38.529x35.97x0.534	4	-25.666	**	**	Pass
L5	74 - 42.88	Pole	TP45.77x38.529x0.51	5	-33.746	**	**	Pass
L6	42.88 - 0	Pole	TP55x43.566x0.438	6	-50.187	**	**	Pass
							Summary	
						Pole (L6)	**	Pass
						RATING =	**	**Pass**

** Please find the attached additional calculations

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 842872

APPENDIX C

ADDITIONAL CALCULATIONS

Reinforcement 1

Bottom	Top	QTY	Type	Position	Gap	Ten/Comp
49	74	3	PL1x5.75-14	F	0	T&C
74	85	3	PL1x5.75-14	F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C

Reinforcement 2

Bottom	Top	QTY	Type	Position	Gap	Ten/Comp
				F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C

Reinforcement 3

Bottom	Top	QTY	Type	Position	Gap	Ten/Comp
0				F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C

Bottom Elevation	Top Elevation	Original Thickness	Original Yield Stress	Original Ultimate Stress	Reinforced Shaft Capacity	Reinf. 1 QTY	Reinf. 1 Type	Rein. 1 Capacity	Reinf. 2 QTY	Reinf. 2 Type	Rein. 2 Capacity	Reinf. 3 QTY	Reinf. 3 Type	Rein. 3 Capacity	Control Stress Ratio	Top Height	Section Length	Lap Splice	# of Sides	Top Diameter	Bottom Diameter	Equivalent Shaft Thickness	Equivalent Shaft Fy	Equivalent Weight Mult.		Bottom Elevation Failure	Top Elevation Failure	Section Failure %
133.0800	182.0000	0.2500	65	80	73.5%										**73.5%**	182.0000	48.9200	3.8400	18	14.5000	26.0200	0.2500	65.0	1.00	1			
87.4600	136.9200	0.3750	65	80	81.8%										**81.8%**	136.9200	49.4600	5.0900	18	24.6157	36.1500	0.3750	65.0	1.00	2			
85.0000	92.5500	0.3750	65	80	88.8%										**88.8%**	92.5500	7.5500	0.0000	18	34.2130	35.9697	0.3750	65.0	1.00	3			
74.0000	85.0000	0.3750	65	80	66.1%	3	PL1x5.75-14	83.1%							**83.1%**	85.0000	11.0000	0.0000	18	35.9697	38.5291	0.5335	50.9	0.97	4			
42.8800	74.0000	0.3750	65	80	74.6%	3	PL1x5.75-14	93.5%							**93.5%**	74.0000	31.1200	6.2500	18	38.5291	45.7700	0.5101	51.0	0.98	5			
0.0000	49.1300	0.4375	65	80	94.8%										**94.8%**	49.1300	49.1300	0.0000	18	43.5658	55.0000	0.4375	65.0	1.00	6			
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Reinforced Pole Stress and Effective Thickness Check

AeroSolutions LLC
Optimizing Your Tower Infrastructure
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Boulder, CO 80301
720-304-6882

Section		Loads				Pole														Unreinforced Pole - Rev. F						Reinforced Pole						Rev. F	Reinforcement 1									Composite							
Section	Elevation (ft)	Moment (ft-kip)	Compression (kip)	Shear (kip)	Torsion (kip-ft)	Number of Sides	OD (in)	Thickness (in)	Yield Strength (ksi)	Flat Width (in)	Area (in^2)	Moment of Inertia (in^4)	Percent of Composite Moment of Inertia	Angle Offset to Pole Flat	Distance to Extreme Fiber (in)	Section Modulus (in^3)	Torsion Constant (in^4)	Polygonal Compact Criterion	Allowable Bending Stress (ksi)	Allowable Bending Moment Strength (ft-kip)	Allowable Axial Stress (ksi)	Allowable Shear Stress (ksi)	Bending Stress (ksi)	Axial Stress (ksi)	Shear Stress (ksi)	Torsion Shear Stress (ksi)	Stress Ratio	Moment in Pole when Reinforced	Bending Stress (ksi)	Axial Stress (ksi)	Shear Stress (ksi)	Torsion Shear Stress (ksi)	Reinforced Pole Stress Ratio	Qty	Model	Position (F-Flat, C-Corner)	Gap Between Pole and Back of Rein. (in)	Tension only or Tension & Compo.	Total Moment of Inertia (in^4)	Axial Force (kip)	Stress Ratio	Centroid Offset (in)	Area (in^2)	Moment of Inertia (in^4)	Controlling Stress Ratio	Thickness (in)	Weight Multiplier	Derated Yield Stress (ksi)	% Error in Derated Yield Stress
Section	*Elevation*	*Moment*	*Compressio*	*Shear*	*Torsion*	*PoleSides*	*PoleOD*	*PoleT*	*PoleFy*	*PoleW*	*PoleA*	*PoleI*	*PoleIPer*	*PoleCPoint*	*PoleC*	*PoleS*	*PoleJ*	*PoleWTJ*	*PoleFb*	*PoleMall*	*PoleFa*	*PoleFv*	*PoleFbAct*	*PoleFaAct*	*PoleFvAct*	*PoleFvtAct*	*PoleSR*	*PoleMomeR*	*RPoleFbAct*	*RPoleFaAct*	*RPoleFvAct*	*RPoleFvtAct*	*RPoleSR*	*Rein1Qty*	*Rein1Model*	*Rein1Pos*	*Rein1Gap*	*Rein1TC*	*Rein1TTotal*	*Rein1P*	*Rein1SR*	*CompTBar*	*CompA*	*CompI*	*CompSR*	*EPoleT*	*EPoleWM*	*EDPoleFy*	*EDPoleSRCheck*
1	182	0.0	0.0	0.0	0.0	18	14.5000	0.2500	65	2.12	11.3	290	100%	TRUE	7.34	39	575	68	52.0	170.8	52.0	34.7	0.0	0.00	0.00	0.00	**0.000**	0.0	0.0	0.00	0.00	0.00	**0.000**									0.000	11.3	290	**0.000**	**0.2500**	**1.00**	**65.0**	**20.6%**
2	136.92	380.2	9.7	17.5	1.4	18	25.1157	0.2500	65	3.99	19.7	1539	100%	TRUE	12.73	121	3052	129	52.0	523.8	52.0	34.7	37.7	0.49	0.00	0.07	**0.735**	380.2	37.7	0.49	0.00	0.01	**0.735**									0.000	19.7	1539	**0.735**	**0.2500**	**1.00**	**65.0**	**0.4%**
3	133.08	448.0	10.4	17.8	1.4	18	26.0200	0.6250	65	3.49	50.3	4094	100%	TRUE	13.16	311	8132	45	52.0	1347.5	52.0	34.7	17.3	0.21	0.00	0.03	**0.336**	448.0	17.3	0.21	0.00	0.00	**0.336**									0.000	50.3	4094	**0.336**	**0.6250**	**1.00**	**65.0**	**0.4%**
4	92.55	1229.8	17.0	20.9	1.4	18	34.9630	0.3750	65	5.50	41.1	6214	100%	TRUE	17.72	351	12322	118	52.0	1519.0	52.0	34.7	42.1	0.41	0.00	0.02	**0.818**	1229.8	42.1	0.41	0.00	0.00	**0.818**									0.000	41.1	6214	**0.818**	**0.3750**	**1.00**	**65.0**	**0.2%**
5	87.46	1347.7	21.5	26.2	1.4	18	36.1500	0.7500	65	5.05	84.1	13311	100%	TRUE	18.30	728	26432	54	52.0	3152.0	52.0	34.7	22.2	0.26	0.00	0.01	**0.432**	1347.7	22.2	0.26	0.00	0.00	**0.432**									0.000	84.1	13311	**0.432**	**0.7500**	**1.00**	**65.0**	**0.3%**
6	85	1412.6	22.1	26.6	1.4	18	35.9697	0.3750	65	5.68	42.3	6772	100%	TRUE	18.23	371	13429	122	52.0	1609.1	52.0	34.7	45.6	0.52	0.00	0.02	**0.888**	1412.6	45.6	0.52	0.00	0.00	**0.888**									0.000	42.3	6772	**0.888**	**0.3750**	**1.00**	**65.0**	**0.2%**
7	74	1715.5	25.7	28.6	1.2	18	38.5291	0.3750	65	6.13	45.4	8341	71%	0	19.26	433	16539	132	52.0	1875.8	52.0	34.7	47.5	0.57	0.00	0.02	**0.925**	1219.4	33.8	0.57	0.00	0.00	**0.661**	**3**	**PL1x5.75-14**	**F**	**0**	**T&C**	3394	199.4	**0.831**	0.000	62.6	11735	**0.831**	**0.5335**	**0.97**	**50.9**	**2.9%**
8	49.13	2467.3	33.7	32.0	1.2	18	44.3158	0.3750	65	7.15	52.3	12743	74%	0	22.16	575	25261	154	52.0	2491.5	52.0	34.7	51.5	0.65	0.00	0.01	**1.001**	1828.5	38.2	0.65	0.00	0.00	**0.746**	**3**	**PL1x5.75-14**	**F**	**0**	**T&C**	4452	224.4	**0.935**	0.000	69.5	17195	**0.935**	**0.5101**	**0.98**	**51.0**	**2.9%**
9	49	2471.5	33.8	32.0	1.2	18	44.3460	0.8125	65	6.39	112.1	26825	86%	TRUE	22.45	1195	53250	63	52.0	5176.0	52.0	34.7	24.8	0.30	0.00	0.01	**0.483**	2119.2	21.3	0.30	0.00	0.00	**0.415**	**3**	**PL1x5.75-14**	**F**	**0**	**T&C**	4458	116.2	**0.484**	0.000	129.3	31283	**0.484**	**0.9549**	**0.98**	**51.7**	**8.1%**
10	42.88	2669.8	37.2	32.9	1.2	18	45.7700	0.8125	65	6.64	115.7	29546	100%	TRUE	23.18	1275	58647	66	52.0	5523.2	52.0	34.7	25.1	0.32	0.00	0.01	**0.490**	2669.8	25.1	0.32	0.00	0.00	**0.490**									0.000	115.7	29546	**0.490**	**0.8125**	**1.00**	**65.0**	**0.2%**
11	0	4134.9	50.2	35.5	1.2	18	55.0000	0.4375	65	8.93	75.7	28466	100%	TRUE	27.89	1021	56424	164	52.0	4421.6	52.0	34.7	48.6	0.66	0.00	0.01	**0.948**	4134.9	48.6	0.66	0.00	0.00	**0.948**									0.000	75.7	28466	**0.948**	**0.4375**	**1.00**	**65.0**	**0.1%**
																				1.001						**0.948**						**0.948**							**0.935**				**0.948**				

Rein1

Bottom	Top	Qty	Model	Position	T or T&C
49	74	3	L1x5.75-14	F	T&C
74	85	3	L1x5.75-14	F	T&C
				F	T&C
				F	T&C
				F	T&C
				F	T&C
				F	T&C
				F	T&C
				F	T&C

Flats (Used for relative orientation only. Actual flat numbers may vary.)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
		1						1						1			
			1						1						1		

Rein2

Bottom	Top	Qty	Model	Position	T or T&C
				F	T&C
				F	T&C
				F	T&C
				F	T&C
				F	T&C
				F	T&C
				F	T&C
				F	T&C
				F	T&C

Rein3

Bottom	Top	Qty	Model	Position	T or T&C
0				F	T&C
				F	T&C
				F	T&C
				F	T&C
				F	T&C
				F	T&C
				F	T&C
				F	T&C
				F	T&C

Reinforcement Capacity

AeroSolutions LLC
Optimizing Your Tower Infrastructure
5500 Flatirons Parkway, Suite 100
Boulder, CO 80301
720-304-6882

Dimensions and Properties														Compression				Axial				
																		ASD-9			LRFD	
Model	Weight (lb/ft)	Area (in^2)	Moment of Inertia (in^4)	Moment of Inertia (in^4)	Centroid from Mating Edge (in)	Centroid from Bolt Hole Center (in)	Web Thickness (in)	Width (in)	Flange Width (in)	Flange Thickness (in)	Hole Diameter (in)	Yield Stress (ksi)	Ultimate Stress (ksi)	Slender. Ratio Coefficient	Unbraced Length (in)	Slender. Ratio Coefficient	Unbraced Length (in)	Allowable Axial (kip)	Allowable Axial w/ increase (kip)	Governing Axial	Design Axial Strength (kip)	Governing Axial
Model	*Wt*	*A*	*Ix*	*Iy*	*Y*	*X*	*Tw*	*W*	*Wf*	*Tf*	*Dh*	*Fy*	*Fu*	*Kx*	*Lx*	*Ky*	*Ly*	*PAll*	*Pall.inc*	*Ptype.ASD*	*phiPn*	*Ptype.LRFD*
CCI-XFP-040075	10.2	3.00	0.14	4.00	0.375	0	0.75	4	0	0	1.1875	65	80	0.80	16	1.00	16	82.5	110.0	Rupture	123.8	Rupture
CCI-XFP-045100	15.3	4.50	0.38	7.59	0.5	0	1	4.5	0	0	1.1875	65	80	0.80	20	1.00	20	129.7	172.9	Compress.	195.0	Rupture
CCI-XFP-060100	20.4	6.00	0.50	18.00	0.5	0	1	6	0	0	1.1875	65	80	0.80	16	1.00	16	189.3	252.3	Compress.	285.0	Rupture
CCI-XFP-065125	27.6	8.13	1.06	28.61	0.625	0	1.25	6.5	0	0	1.1875	65	80	0.80	19	1.00	19	260.4	347.2	Compress.	393.8	Rupture
CCI-XFP-085125	36.2	10.63	1.38	63.97	0.625	0	1.25	8.5	0	0	1.1875	65	80	0.80	17	1.00	17	350.9	467.9	Compress.	543.1	Compress.
PL1x5.75-14	19.6	5.75	0.48	15.84	0.5	0	1	5.75	0	0	1.1875	65	80	0.80	14	1.00	14	180.0	240.0	Rupture	270.0	Rupture

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

TIA Rev F

Site Data

BU#:	*842872*
Site Name:	*ROCKY HILL*
App #:	*269932 Revision # 5*
Pole Manufacturer:	*Other*

Reactions		
Moment:	4134.8907	ft-kips
Axial:	50.1866	kips
Shear:	35.493634	kips

Anchor Rod Data		
Qty:	16	
Diam:	2.25	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	64	in

Plate Data		
Diam:	70	in
Thick:	2	in
Grade:	60	ksi
Single-Rod B-eff:	10.91	in

Stiffener Data (Welding at both sides)		
Config:	1	*
Weld Type:	Both	
Groove Depth:	0.5	in **
Groove Angle:	45	degrees
Fillet H. Weld:	0.5	in
Fillet V. Weld:	0.375	in
Width:	6.5	in
Height:	36	in
Thick:	1.25	in
Notch:	0.75	in
Grade:	65	ksi
Weld str.:	80	ksi

Pole Data		
Diam:	55	in
Thick:	0.4375	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	

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

Anchor Rod Results

		Stiffened
Maximum Rod Tension:	190.7 Kips	Service, ASD
Allowable Tension:	195.0 Kips	Fty*ASIF
Anchor Rod Stress Ratio:	97.8% **Pass**	

Base Plate Results Flexural Check

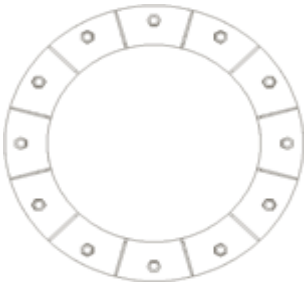
		Stiffened
Base Plate Stress:	49.1 ksi	Service, ASD
Allowable Plate Stress:	60.0 ksi	0.75*Fy*ASIF
Base Plate Stress Ratio:	81.8% **Pass**	Y.L. Length: N/A, Roark

Stiffener Results

Horizontal Weld :	69.2% **Pass**
Vertical Weld:	23.3% **Pass**
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	2.5% **Pass**
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	36.4% **Pass**
Plate Comp. (AISC Bracket):	30.6% **Pass**

Pole Results

Pole Punching Shear Check:	3.7% **Pass**



* 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

Anchor Rod Information for TIA/EIA-222-F and TIA-222-G-2

Site Information	
ID:	842872
Name:	ROCKY HILL
App. #:	269932 Rev. 1

AeroSolutions LLC
Optimizing Your Tower Infrastructure

Base Reactions		
Moment:	4457	ft-kip
Axial:	50	kip
Shear:	38	kip
Base Plate Type:	Circular	

Design Information	
TIA Code:	F
ASIF:	1.333
Failure:	95%
eta Factor:	0.50

Original Anchor Rod Data

Quantity:	16	
Diameter:	2.25	in
Material:	A615 GR 75	
Bolt Circle:	64.0	in
Bolt Spacing:		in
Bolt Group Area:	63.62	in^2
Bolt Group MOIx:	32572	in^4

Reactions Seen by Original AR Group

Moment:	3791.1	kip-ft
Axial:	50.2	kip
Shear:	37.8	kip

Original AR Capacity Check

Tension Load:	174.6	kip
Allowable load:	194.8	kip
AR Capacity:	89.6%	Pass

First Added Anchor Rod Data

Quantity:	4	
Diameter:	1.75	in
Material:	F1554 GR 105	
Bolt Circle:	69.0	in
Bolt Group Area:	9.62	in^2
Bolt Group MOIx:	5726	in^4

Reactions Seen by First Added AR Group

Moment:	666.4	kip-ft
Axial:	0.0	kip
Shear:	0.0	kip

First Added AR Capacity Check

Tension Load:	113.7	kip
Allowable load:	132.3	kip
AR Capacity:	85.9%	Pass

Second Added Anchor Rod Data

Quantity:		
Diameter:		in
Material:		
Bolt Circle:		in
Bolt Group Area:	0.00	in^2
Bolt Group MOIx:	0	in^4

Reactions Seen by Second Added AR Group

Moment:	0.0	kip-ft
Axial:	0.0	kip
Shear:	0.0	kip

Second Added AR Capacity Check

Tension Load:	0.0	kip
Allowable load:	0.0	kip
AR Capacity:	0.0%	

Third Added Anchor Rod Data

Quantity:		
Diameter:		in
Material:		
Bolt Circle:		in
Bolt Group Area:	0.00	in^2
Bolt Group MOIx:	0	in^4

Reactions Seen by Second Added AR Group

Moment:	0.0	kip-ft
Axial:	0.0	kip
Shear:	0.0	kip

Second Added AR Capacity Check

Tension Load:	0.0	kip
Allowable load:	0.0	kip
AR Capacity:	0.0%	

Rev.4.1

Moment Capacity of Drilled Concrete Shaft (Caisson) for TIA Rev F or G

Note: Shaft assumed to have ties, not spiral, transverse reinforcing

Site Data

BU#: *814822*
Site Name: *Gardendale, AL*
App #: *269932 Revision # 5*

Maximum Shaft Superimposed Forces		
TIA Revision:	F	
Max. Service Shaft M:	4135.039	ft-kips **(* Note)**
Max. Service Shaft P:	50	kips
Max Axial Force Type:	Comp.	

(*) Note: Max Shaft Superimposed Moment does not necessarily equal to the shaft top reaction moment

Enter Load Factors Below:		
For M (WL)	1.3	<---- Enter Factor
For P (DL)	1.3	<---- Enter Factor

Load Factor	Shaft Factored Loads		
1.30	Mu:	5375.551	ft-kips
1.30	Pu:	65	kips

Pier Properties

Concrete:

Pier Diameter =	7.0	ft
Concrete Area =	5541.8	in^2

Reinforcement:

Clear Cover to **Tie**=	3.00	in
Horiz. **Tie** Bar Size=	3	
Vert. Cage Diameter =	6.32	ft
Vert. Cage Diameter =	75.84	in
Vertical Bar Size =	11	
Bar Diameter =	1.41	in
Bar Area =	1.56	in^2
Number of Bars =	20	
As Total=	37.44	in^2
A s/ Aconc, Rho:	0.0068	0.68%

Material Properties		
Concrete Comp. strength, f'c =	3000	psi
Reinforcement yield strength, Fy =	60	ksi
Reinforcing Modulus of Elasticity, E =	29000	ksi
Reinforcement yield strain =	0.00207	
Limiting compressive strain =	0.003	
ACI 318 Code		
Select Analysis ACI Code=	2002	
Seismic Properties		
Seismic Design Category =	B	
Seismic Risk =	**Low**	

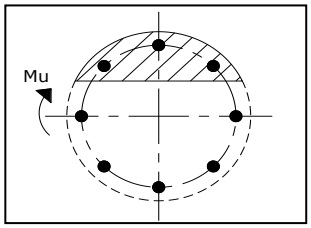
Solve (Run) <-- Press Upon Completing All Input

ACI 10.5 , ACI 21.10.4, and IBC 1810.
Min As for Flexural, Tension Controlled, Shafts:

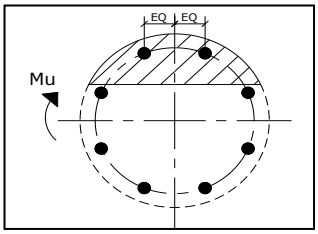
(3)*(Sqrt(f'c)/Fy:	0.0027
200 / Fy:	0.0033

Results:

Governing Orientation Case: **1**



Case 1



Case 2

Dist. From Edge to Neutral Axis: **13.41** in
Extreme Steel Strain, ϵt: **0.0149**
ϵt > 0.0050, Tension Controlled
Reduction Factor,φ: **0.900**

Minimum Rho Check:

Actual Req'd Min. Rho:	0.33%	Flexural
Provided Rho:	0.68%	**OK**

Ref. Shaft Max Axial Capacities, ϕ Max(Pn or Tn):		
Max Pu = (φ=0.65) Pn.		
Pn per ACI 318 (10-2)	8466.87	kips
at Mu=(ϕ=0.65)Mn=	5268.68	ft-kips
Max Tu, (φ=0.9) Tn =	2021.76	kips
at Mu=ϕ=(0.90)Mn=	0.00	ft-kips

Output Note: Negative Pu=Tension

For Axial Compression, φ Pn = Pu:	-139.89	kips
Drilled Shaft Moment Capacity, φMn:	**5453.60**	ft-kips
Drilled Shaft Superimposed Mu:	**5375.55**	ft-kips

(Mu/φMn, Drilled Shaft Flexure CSR:	**98.6%**

==========

Pile Plus for Windows, Version 2012-06.029

Analysis of Individual Piles and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method

==========

This copy of LPile is licensed to:

B+T Group
Tulsa

Serial Number of Security Device: 297187845
Company Name Stored in Security Device: B & T Engineering, Inc.

Files Used for Analysis

Path to file locations: C:\Users\Lkantheti\Desktop
Name of input data file: 95171.004.01_Test.lp6d
Name of output report file: 95171.004.01_Test.lp6o
Name of plot output file: 95171.004.01_Test.lp6p
Name of runtime messeage file: 95171.004.01_Test.lp6r

Date and Time of Analysis

Date: January 30, 2015 Time: 14:07:38

Problem Title

Project Name: Rock Hill 3, CT

Job Number: 95171.004.01

Client: Crown Castle

Engineer: LeenA

Description:Monopole 182'

Program Options

Engineering units are US Customary Units: pounds, inches, feet

Basic Program Options:

This analysis computes pile response to lateral loading and will compute nonlinear moment-curvature and nominal moment capacity for section types with nonlinear properties.

Computation Options:
- **Analysis does not use p-y multipliers (individual pile or shaft only)**
- **Analysis assumes no shear resistance at pile tip**
- **Analysis for fixed-length pile or shaft only**
- **No computation of foundation stiffness matrix elements**
- **Output pile response for full length of pile**
- **Analysis assumes no soil movements acting on pile**
- **No p-y curves to be computed and output for user-specified depths**

Solution Control Parameters:
- **Number of pile increments = 100**
- **Maximum number of iterations allowed = 100**
- **Deflection tolerance for convergence = 1.0000E-05 in**
- **Maximum allowable deflection = 100.0000 in**

Pile Response Output Options:
- **Values of pile-head deflection, bending moment, shear force, and soil reaction are printed for full length of pile.**
- **Printing Increment (nodal spacing of output points) = 1**

Pile Structural Properties and Geometry

Total Number of Sections = 1

Total Pile Length = 18.50 ft

Depth of ground surface below top of pile = 0.00 ft

Pile dimensions used for p-y curve computations defined using 2 points. p-y curves are computed using values of pile diameter interpolated over the length of the pile.

Point	Depth X ft	Pile Diameter in
1	0.00000	84.0000000
2	18.500000	84.0000000

Input Structural Properties:

Pile Section No. 1:

Section Type = Drilled Shaft (Bored Pile)
Section Length = 18.500 ft
Section Diameter = 84.000 in

Ground Slope and Pile Batter Angles

Ground Slope Angle = 0.000 degrees
= 0.000 radians

Pile Batter Angle = 0.000 degrees
= 0.000 radians

Soil and Rock Layering Information

The soil profile is modelled using 8 layers

Layer 1 is soft clay, p-y criteria by Matlock, 1970

Distance from top of pile to top of layer = 0.0000 ft
Distance from top of pile to bottom of layer = 1.00000 ft
Effective unit weight at top of layer = 130.00000 pcf
Effective unit weight at bottom of layer = 130.00000 pcf
Undrained cohesion at top of layer = 0.01000 psf
Undrained cohesion at bottom of layer = 0.01000 psf
Epsilon-50 at top of layer = 0.0000
Epsilon-50 at bottom of layer = 0.0000

NOTE: Internal default values for Epsilon-50 will be computed for the above soil layer.

Layer 2 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer = 1.00000 ft
Distance from top of pile to bottom of layer = 3.00000 ft
Effective unit weight at top of layer = 109.00000 pcf
Effective unit weight at bottom of layer = 109.00000 pcf
Friction angle at top of layer = 33.00000 deg.
Friction angle at bottom of layer = 33.00000 deg.
Subgrade k at top of layer = 0.0000 pci
Subgrade k at bottom of layer = 0.0000 pci

NOTE: Internal default values for subgrade k will be computed for the above soil layer.

Layer 3 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer = 3.00000 ft
Distance from top of pile to bottom of layer = 5.00000 ft
Effective unit weight at top of layer = 112.00000 pcf
Effective unit weight at bottom of layer = 112.00000 pcf
Friction angle at top of layer = 34.00000 deg.
Friction angle at bottom of layer = 34.00000 deg.
Subgrade k at top of layer = 0.0000 pci
Subgrade k at bottom of layer = 0.0000 pci

NOTE: Internal default values for subgrade k will be computed for the above soil layer.

Layer 4 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer = 5.00000 ft
Distance from top of pile to bottom of layer = 7.00000 ft
Effective unit weight at top of layer = 109.00000 pcf
Effective unit weight at bottom of layer = 109.00000 pcf
Friction angle at top of layer = 33.00000 deg.
Friction angle at bottom of layer = 33.00000 deg.
Subgrade k at top of layer = 0.0000 pci
Subgrade k at bottom of layer = 0.0000 pci

NOTE: Internal default values for subgrade k will be computed for the above soil layer.

Layer 5 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer = 7.00000 ft
Distance from top of pile to bottom of layer = 8.50000 ft
Effective unit weight at top of layer = 122.00000 pcf
Effective unit weight at bottom of layer = 122.00000 pcf
Friction angle at top of layer = 35.00000 deg.
Friction angle at bottom of layer = 35.00000 deg.
Subgrade k at top of layer = 0.0000 pci
Subgrade k at bottom of layer = 0.0000 pci

NOTE: Internal default values for subgrade k will be computed for the above soil layer.

Layer 6 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer = 8.50000 ft
Distance from top of pile to bottom of layer = 10.00000 ft
Effective unit weight at top of layer = 60.00000 pcf
Effective unit weight at bottom of layer = 60.00000 pcf
Friction angle at top of layer = 35.00000 deg.
Friction angle at bottom of layer = 35.00000 deg.
Subgrade k at top of layer = 0.0000 pci
Subgrade k at bottom of layer = 0.0000 pci

NOTE: Internal default values for subgrade k will be computed for the above soil layer.

Layer 7 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer = 10.00000 ft
Distance from top of pile to bottom of layer = 15.00000 ft
Effective unit weight at top of layer = 60.00000 pcf
Effective unit weight at bottom of layer = 60.00000 pcf
Friction angle at top of layer = 35.00000 deg.
Friction angle at bottom of layer = 35.00000 deg.
Subgrade k at top of layer = 0.0000 pci
Subgrade k at bottom of layer = 0.0000 pci

NOTE: Internal default values for subgrade k will be computed for the above soil layer.

Layer 8 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer = 15.00000 ft
Distance from top of pile to bottom of layer = 18.50000 ft
Effective unit weight at top of layer = 60.00000 pcf
Effective unit weight at bottom of layer = 60.00000 pcf
Friction angle at top of layer = 35.00000 deg.
Friction angle at bottom of layer = 35.00000 deg.
Subgrade k at top of layer = 0.0000 pci
Subgrade k at bottom of layer = 0.0000 pci

NOTE: Internal default values for subgrade k will be computed for the above soil layer.

(Depth of lowest soil layer extends 0.00 ft below pile tip)

Summary of Soil Properties

Layer	Layer	Effective	Undrained	Angle of	Uniaxial	RQD %
Strain	Rock Mass	In-situ	In-situ	Elastic		

Layer Num.	Soil Type (p-y Curve Criteria)	Depth ft	Unit Wt. pcf	Cohesion psf	Friction deg.	qu or Test psi	Test GSI	Subgrade Modulus Property	Subgrade Modulus pci
1	Soft Clay	0.00	130.000	0.01000	--	--	--	default	--
		1.000	130.000	0.01000	--	--	--	default	--
2	Sand (Reese, et al.)	1.000	109.000	--	33.000	--	--	--	--
	default	--	--	--	--	--			
		3.000	109.000	--	33.000	--	--	--	--
default	--	--	--	--	--				
3	Sand (Reese, et al.)	3.000	112.000	--	34.000	--	--	--	--
	default	--	--	--	--	--			
		5.000	112.000	--	34.000	--	--	--	--
default	--	--	--	--	--				
4	Sand (Reese, et al.)	5.000	109.000	--	33.000	--	--	--	--
	default	--	--	--	--	--			
		7.000	109.000	--	33.000	--	--	--	--
default	--	--	--	--	--				
5	Sand (Reese, et al.)	7.000	122.000	--	35.000	--	--	--	--
	default	--	--	--	--	--			
		8.500	122.000	--	35.000	--	--	--	--
default	--	--	--	--	--				
6	Sand (Reese, et al.)	8.500	60.000	--	35.000	--	--	--	--
	default	--	--	--	--	--			
		10.000	60.000	--	35.000	--	--	--	--
default	--	--	--	--	--				
7	Sand (Reese, et al.)	10.000	60.000	--	35.000	--	--	--	--
	default	--	--	--	--	--			
		15.000	60.000	--	35.000	--	--	--	--
default	--	--	--	--	--				
8	Sand (Reese, et al.)	15.000	60.000	--	35.000	--	--	--	--
	default	--	--	--	--	--			
		18.500	60.000	--	35.000	--	--	--	--
default	--	--	--	--	--				

Loading Type

Static loading criteria were used when computing p-y curves for all analyses.

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 1

Load No.	Load Type	Condition 1	Condition 2	Axial Thrust Force, lbs
1	1	V = 35.00000 lbs	M = 49620000. in-lbs	50.00000000

V = perpendicular shear force applied to pile head
M = bending moment applied to pile head
y = lateral deflection relative to pile axis
S = pile slope relative to original pile batter angle
R = rotational stiffness applie to pile head
Axial thrust is assumed to be acting axially for all pile batter angles.

Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

---

Axial thrust force values were determined from pile-head loading conditions

Number of Pile Sections Analyzed = 1

Pile Section No. 1:

Dimensions and Properties of Drilled Shaft:

Length of Section = 18.50000000 ft
Shaft Diameter = 84.00000000 in
Concrete Cover Thickness = 3.00000000 in
Number of Reinforcing Bars = 20 bars
Yield Stress of Reinforcing Bars = 60.00000000 ksi
Modulus of Elasticity of Reinforcing Bars = 29000. ksi
Gross Area of Shaft = 5541.76944093 sq. in.
Total Area of Reinforcing Steel = 31.20000000 sq. in.

Area Ratio of Steel Reinforcement = 0.56 percent
Edge-to-Edge Bar Spacing = 10.57131568 in
Rebar Offset = 0.0000000 in

Axial Structural Capacities:

Nom. Axial Structural Capacity = 0.85 Fc Ac + Fy As = 15923.952 kips
Tensile Load for Cracking of Concrete = -2099.867 kips
Nominal Axial Tensile Capacity = -1872.000 kips

Reinforcing Bar Dimensions and Positions Used in Computations:

Bar Number	Bar Diam. inches	Bar Area sq. in.	X inches	Y inches
1	1.41000	1.56000	38.29500	0.00000
2	1.41000	1.56000	36.42071	11.83381
3	1.41000	1.56000	30.98131	22.50924
4	1.41000	1.56000	22.50924	30.98131
5	1.41000	1.56000	11.83381	36.42071
6	1.41000	1.56000	0.00000	38.29500
7	1.41000	1.56000	-11.83381	36.42071
8	1.41000	1.56000	-22.50924	30.98131
9	1.41000	1.56000	-30.98131	22.50924
10	1.41000	1.56000	-36.42071	11.83381
11	1.41000	1.56000	-38.29500	0.00000
12	1.41000	1.56000	-36.42071	-11.83381
13	1.41000	1.56000	-30.98131	-22.50924
14	1.41000	1.56000	-22.50924	-30.98131
15	1.41000	1.56000	-11.83381	-36.42071
16	1.41000	1.56000	0.00000	-38.29500
17	1.41000	1.56000	11.83381	-36.42071
18	1.41000	1.56000	22.50924	-30.98131
19	1.41000	1.56000	30.98131	-22.50924
20	1.41000	1.56000	36.42071	-11.83381

Concrete Properties:

Compressive Strength of Concrete = 3.0000000 ksi
Modulus of Elasticity of Concrete = 3122.0185778 ksi

Modulus of Rupture of Concrete = -0.4107919 ksi
Compression Strain at Peak Stress = 0.0016336
Tensile Strain at Fracture of Concrete = -0.0001160
Maximum Coarse Aggregate Size = 0.7500000 in

Number of Axial Thrust Force Values Determined from Pile-head Loadings = 1

Number	Axial Thrust Force kips
1	0.050

Definitions of Run Messages and Notes:

C = concrete in section has cracked in tension.
Y = stress in reinforcing steel has reached yield stress.
T = ACI 318-08 criteria for tension-controlled section met, tensile strain in reinforcement exceeds 0.005 while simultaneously compressive strain in concrete more than than 0.003. See ACI 318-08, Section 10.3.4.
Z = depth of tensile zone in concrete section is less than 10 percent of section depth.

Bending Stiffness (EI) = Computed Bending Moment / Curvature.
Position of neutral axis is measured from edge of compression side of pile.
Compressive stresses and strains are positive in sign.
Tensile stresses and strains are negative in sign.

Axial Thrust Force = 0.050 kips

Bending Curvature rad/in.	Bending Moment in-kip	Bending Stiffness kip-in2	Depth to N Axis in	Max Comp Strain in/in	Max Tens Strain in/in	Max Concrete Stress ksi	Max Steel Stress ksi	Run Msg
0.000000313	2979.0864257	9533076562.	42.0075802	0.0000131	-0.0000131	0.0475444	0.3768874	
0.000000625	5943.0281956	9508845113.	42.0037968	0.0000263	-0.0000262	0.0947005	0.7537063	
0.000000938	8891.8253096	9484613664.	42.0025357	0.0000394	-0.0000394	0.1414769	1.1305252	
0.000001250	11825.	9460382214.	42.0019052	0.0000525	-0.0000525	0.1878737	1.5073441	

0.000001563	14744.	9436150765.	42.0015269	0.0000656	-0.0000656	0.2338910	1.8841629
0.000001875	17647.	9411919316.	42.0012747	0.0000788	-0.0000787	0.2795285	2.2609818
0.000002188	20536.	9387687866.	42.0010945	0.0000919	-0.0000919	0.3247865	2.6378007
0.000002500	23409.	9363456417.	42.0009595	0.0001050	-0.0001050	0.3696649	3.0146196
0.000002813	23409.	8323072371.	17.6797959	0.0000497	-0.0001865	0.1756481	-5.3749854 C
0.000003125	23409.	7490765134.	17.6848461	0.0000553	-0.0002072	0.1948936	-5.9717483 C
0.000003438	23409.	6809786485.	17.6899893	0.0000608	-0.0002279	0.2140855	-6.5684104 C
0.000003750	23409.	6242304278.	17.6952054	0.0000664	-0.0002486	0.2332239	-7.1649714 C
0.000004063	23409.	5762127026.	17.7004802	0.0000719	-0.0002693	0.2523086	-7.7614309 C
0.000004375	23409.	5350546524.	17.7058040	0.0000775	-0.0002900	0.2713396	-8.3577886 C
0.000004688	23409.	4993843422.	17.7111693	0.0000830	-0.0003107	0.2903167	-8.9540442 C
0.000005000	23409.	4681728209.	17.7165707	0.0000886	-0.0003314	0.3092399	-9.5501972 C
0.000005313	23409.	4406332432.	17.7220040	0.0000941	-0.0003521	0.3281091	-10.1462475 C
0.000005625	23409.	4161536185.	17.7274660	0.0000997	-0.0003728	0.3469242	-10.7421946 C
0.000005938	23409.	3942507965.	17.7329541	0.0001053	-0.0003935	0.3656851	-11.3380382 C
0.000006250	23409.	3745382567.	17.7384665	0.0001109	-0.0004141	0.3843917	-11.9337779 C
0.000006563	23409.	3567031016.	17.7440013	0.0001164	-0.0004348	0.4030439	-12.5294135 C
0.000006875	23409.	3404893243.	17.7495573	0.0001220	-0.0004555	0.4216416	-13.1249445 C
0.000007188	23409.	3256854406.	17.7551335	0.0001276	-0.0004761	0.4401848	-13.7203706 C
0.000007500	23409.	3121152139.	17.7607289	0.0001332	-0.0004968	0.4586734	-14.3156914 C
0.000007813	23409.	2996306053.	17.7663429	0.0001388	-0.0005175	0.4771071	-14.9109067 C
0.000008125	23409.	2881063513.	17.7719747	0.0001444	-0.0005381	0.4954861	-15.5060160 C
0.000008438	23409.	2774357457.	17.7776239	0.0001500	-0.0005588	0.5138101	

-16.1010189 C						
0.000008750	23409.	2675273262.	17.7832900	0.0001556	-0.0005794	0.5320791
-16.6959152 C						
0.000009063	23409.	2583022460.	17.7889727	0.0001612	-0.0006000	0.5502930
-17.2907043 C						
0.000009375	23409.	2496921711.	17.7946717	0.0001668	-0.0006207	0.5684517
-17.8853861 C						
0.000009688	23409.	2416375850.	17.8003868	0.0001724	-0.0006413	0.5865551
-18.4799601 C						
0.0000100	23409.	2340864104.	17.8061176	0.0001781	-0.0006619	0.6046030
-19.0744259 C						
0.0000103	23409.	2269928828.	17.8118640	0.0001837	-0.0006826	0.6225955
-19.6687832 C						
0.0000106	23409.	2203166216.	17.8176259	0.0001893	-0.0007032	0.6405324
-20.2630315 C						
0.0000109	23409.	2140218610.	17.8234031	0.0001949	-0.0007238	0.6584135
-20.8571706 C						
0.0000113	23409.	2080768093.	17.8291955	0.0002006	-0.0007444	0.6762389
-21.4512000 C						
0.0000116	23409.	2024531117.	17.8350031	0.0002062	-0.0007650	0.6940084
-22.0451193 C						
0.0000119	23409.	1971253983.	17.8408257	0.0002119	-0.0007856	0.7117220
-22.6389282 C						
0.0000122	23409.	1920709009.	17.8466633	0.0002175	-0.0008062	0.7293794
-23.2326262 C						
0.0000128	23409.	1827015886.	17.8583833	0.0002288	-0.0008474	0.7645256
-24.4196883 C						
0.0000134	23409.	1742038403.	17.8701629	0.0002401	-0.0008886	0.7994463
-25.6063023 C						
0.0000141	23409.	1664614474.	17.8820020	0.0002515	-0.0009298	0.8341407
-26.7924650 C						
0.0000147	23409.	1593779816.	17.8939005	0.0002628	-0.0009709	0.8686079
-27.9781732 C						
0.0000153	23409.	1528727578.	17.9058586	0.0002742	-0.0010121	0.9028471
-29.1634236 C						
0.0000159	23409.	1468777477.	17.9178765	0.0002856	-0.0010532	0.9368575
-30.3482129 C						
0.0000166	23409.	1413351912.	17.9299544	0.0002970	-0.0010943	0.9706382
-31.5325378 C						
0.0000172	24252.	1411039805.	17.9420926	0.0003084	-0.0011354	1.0041885
-32.7163947 C						
0.0000178	25124.	1410471106.	17.9542915	0.0003198	-0.0011764	1.0375074
-33.8997803 C						
0.0000184	25995.	1409900220.	17.9665514	0.0003313	-0.0012175	1.0705940
-35.0826911 C						

0.0000191	26865.	1409327107.	17.9788727	0.0003427	-0.0012585	1.1034475	-36.2651235 C
0.0000197	27735.	1408751731.	17.9912559	0.0003542	-0.0012995	1.1360671	-37.4470739 C
0.0000203	28604.	1408174057.	18.0037015	0.0003657	-0.0013405	1.1684517	-38.6285387 C
0.0000209	29472.	1407594052.	18.0162100	0.0003772	-0.0013815	1.2006005	-39.8095142 C
0.0000216	30339.	1407011681.	18.0287818	0.0003887	-0.0014225	1.2325126	-40.9899966 C
0.0000222	31205.	1406426914.	18.0414176	0.0004003	-0.0014635	1.2641871	-42.1699822 C
0.0000228	32071.	1405839719.	18.0541178	0.0004119	-0.0015044	1.2956230	-43.3494670 C
0.0000234	32936.	1405250823.	18.0665035	0.0004234	-0.0015453	1.3267950	-44.5287046 C
0.0000241	33800.	1404659966.	18.0786242	0.0004350	-0.0015862	1.3577039	-45.7076794 C
0.0000247	34663.	1404066822.	18.0908041	0.0004466	-0.0016271	1.3883694	-46.8861718 C
0.0000253	35525.	1403471283.	18.1030438	0.0004582	-0.0016680	1.4187906	-48.0641788 C
0.0000259	36387.	1402873415.	18.1153437	0.0004699	-0.0017089	1.4489665	-49.2416961 C
0.0000266	37248.	1402273008.	18.1277045	0.0004815	-0.0017497	1.4788961	-50.4187213 C
0.0000272	38108.	1401670125.	18.1401267	0.0004932	-0.0017906	1.5085784	-51.5952500 C
0.0000278	38967.	1401064738.	18.1526109	0.0005049	-0.0018314	1.5380125	-52.7712784 C
0.0000284	39825.	1400456820.	18.1651577	0.0005166	-0.0018722	1.5671974	-53.9468026 C
0.0000291	40683.	1399846345.	18.1777678	0.0005283	-0.0019130	1.5961321	-55.1218187 C
0.0000297	41540.	1399233284.	18.1904417	0.0005400	-0.0019537	1.6248155	-56.2963227 C
0.0000303	42396.	1398617610.	18.2031801	0.0005518	-0.0019945	1.6532467	-57.4703106 C
0.0000309	43251.	1397999296.	18.2159837	0.0005636	-0.0020352	1.6814245	-58.6437783 C
0.0000316	44105.	1397378312.	18.2288531	0.0005753	-0.0020759	1.7093481	-59.8167216 C
0.0000322	44958.	1396754631.	18.2417889	0.0005872	-0.0021166	1.7370162	-60.0000000 CY
0.0000328	45810.	1396128225.	18.2547919	0.0005990	-0.0021573	1.7644278	

-60.0000000 CY
0.0000334 46639. 1394824384. 18.2649202 0.0006107 -0.0021980 1.7913525
-60.0000000 CY
0.0000341 47384. 1391101263. 18.2644065 0.0006221 -0.0022391 1.8171739
-60.0000000 CY
0.0000347 48028. 1384586204. 18.2511821 0.0006331 -0.0022807 1.8417091
-60.0000000 CY
0.0000353 48569. 1375398614. 18.2255881 0.0006436 -0.0023227 1.8649631
-60.0000000 CY
0.0000359 49100. 1366267790. 18.2000890 0.0006541 -0.0023647 1.8879174
-60.0000000 CY
0.0000366 49631. 1357435233. 18.1758115 0.0006646 -0.0024067 1.9106655
-60.0000000 CY
0.0000372 50162. 1348885832. 18.1526962 0.0006751 -0.0024487 1.9332068
-60.0000000 CY
0.0000397 51696. 1302587281. 17.9920489 0.0007141 -0.0026197 2.0147208
-60.0000000 CY
0.0000422 53072. 1257998420. 17.8294710 0.0007522 -0.0027916 2.0912081
-60.0000000 CY
0.0000447 54326. 1215687329. 17.6721764 0.0007897 -0.0029640 2.1634870
-60.0000000 CY
0.0000472 55129. 1168291061. 17.4733567 0.0008245 -0.0031392 2.2276624
-60.0000000 CY
0.0000497 55927. 1125578237. 17.2970661 0.0008594 -0.0033143 2.2895009
-60.0000000 CY
0.0000522 56719. 1086831948. 17.1342333 0.0008942 -0.0034896 2.3484529
-60.0000000 CY
0.0000547 57505. 1051515444. 16.9835527 0.0009288 -0.0036650 2.4046074
-60.0000000 CY
0.0000572 58118. 1016267600. 16.8217918 0.0009620 -0.0038418 2.4560645
-60.0000000 CY
0.0000597 58525. 980526051. 16.6445767 0.0009935 -0.0040203 2.5026107
-60.0000000 CY
0.0000622 58930. 947622701. 16.4833656 0.0010251 -0.0041987 2.5472311
-60.0000000 CY
0.0000647 59331. 917192059. 16.3326437 0.0010565 -0.0043772 2.5895816
-60.0000000 CY
0.0000672 59724. 888916193. 16.1867628 0.0010875 -0.0045562 2.6293002
-60.0000000 CY
0.0000697 60115. 862638905. 16.0529393 0.0011187 -0.0047351 2.6671335
-60.0000000 CY
0.0000722 60504. 838152064. 15.9299438 0.0011499 -0.0049138 2.7030609
-60.0000000 CY
0.0000747 60891. 815275377. 15.8167123 0.0011813 -0.0050924 2.7370615
-60.0000000 CY

0.0000772	61275.	793851898.	15.7123195	0.0012128	-0.0052710	2.7691136
-60.0000000 CY						
0.0000797	61564.	772568372.	15.5992366	0.0012431	-0.0054507	2.7979271
-60.0000000 CY						
0.0000822	61737.	751177953.	15.4686468	0.0012713	-0.0056324	2.8230376
-60.0000000 CY						
0.0000847	61905.	730985940.	15.3414714	0.0012992	-0.0058145	2.8461802
-60.0000000 CY						
0.0000872	62072.	711937257.	15.2226743	0.0013272	-0.0059965	2.8677747
-60.0000000 CY						
0.0000897	62237.	693936044.	15.1115681	0.0013553	-0.0061784	2.8878047
-60.0000000 CY						
0.0000922	62401.	676896836.	15.0075400	0.0013835	-0.0063602	2.9062535
-60.0000000 CY						
0.0000947	62564.	660743190.	14.9100424	0.0014118	-0.0065420	2.9231040
-60.0000000 CY						
0.0000972	62725.	645406520.	14.8185848	0.0014402	-0.0067236	2.9383389
-60.0000000 CY						
0.0000997	62885.	630825119.	14.7327260	0.0014687	-0.0069051	2.9519405
-60.0000000 CY						
0.0001022	63040.	616909218.	14.6468139	0.0014967	-0.0070870	2.9636739
-60.0000000 CY						
0.0001047	63192.	603623659.	14.5625798	0.0015245	-0.0072692	2.9736806
-60.0000000 CY						
0.0001072	63342.	590945774.	14.4832314	0.0015524	-0.0074513	2.9821077
-60.0000000 CY						
0.0001097	63491.	578833856.	14.4084494	0.0015804	-0.0076333	2.9889368
-60.0000000 CY						
0.0001122	63638.	567249859.	14.3379433	0.0016085	-0.0078152	2.9941495
-60.0000000 CY						
0.0001147	63784.	556159049.	14.2714487	0.0016368	-0.0079970	2.9977264
-60.0000000 CY						
0.0001172	63929.	545529651.	14.2087242	0.0016651	-0.0081787	2.9996481
-60.0000000 CY						
0.0001197	64072.	535330894.	14.1496355	0.0016935	-0.0083602	2.9979837
-60.0000000 CY						
0.0001222	64214.	525535735.	14.0939968	0.0017221	-0.0085416	2.9951909
-60.0000000 CY						
0.0001247	64352.	516103540.	14.0408462	0.0017507	-0.0087230	2.9982060
-60.0000000 CY						
0.0001272	64454.	506762300.	13.9823452	0.0017784	-0.0089054	2.9997322
-60.0000000 CY						
0.0001297	64555.	497770389.	13.9270134	0.0018062	-0.0090876	2.9980901
-60.0000000 CY						
0.0001322	64616.	488817714.	13.8652632	0.0018328	-0.0092709	2.9932078

-60.0000000 CY
0.0001347 64663. 480095277. 13.7968639 0.0018583 -0.0094555 2.9962002
-60.0000000 CY
0.0001372 64709. 471683083. 13.7308102 0.0018837 -0.0096401 2.9983803
-60.0000000 CY
0.0001522 64972. 426922746. 13.3918053 0.0020381 -0.0107457 2.9979286
-60.0000000 CY
0.0001672 65216. 390076931. 13.1299589 0.0021952 -0.0118486 2.9944341
60.0000000 CY
0.0001822 65435. 359165198. 12.9077306 0.0023516 -0.0129521 2.9938932
60.0000000 CY
0.0001972 65635. 332854332. 12.7141984 0.0025071 -0.0140567 2.9984204
60.0000000 CY
0.0002122 65825. 310221871. 12.5568203 0.0026644 -0.0151593 2.9895031
60.0000000 CY
0.0002272 66003. 290522623. 12.4302508 0.0028240 -0.0162598 2.9971889
60.0000000 CY
0.0002422 66173. 273228665. 12.3267990 0.0029854 -0.0173584 2.9938736
60.0000000 CY
0.0002572 66311. 257832699. 12.2545454 0.0031517 -0.0184520 2.9882752
60.0000000 CYT
0.0002722 66445. 244116380. 12.1945934 0.0033192 -0.0195445 2.9990464
60.0000000 CYT
0.0002872 66504. 231570423. 12.1070097 0.0034770 -0.0206468 2.9929082
60.0000000 CYT
0.0003022 66548. 220221450. 12.0223497 0.0036330 -0.0217507 2.9801293
60.0000000 CYT
0.0003172 66558. 209839459. 11.9285087 0.0037836 -0.0228602 2.9852088
60.0000000 CYT
0.0003322 66558. 200364112. 12.0016341 0.0039868 -0.0239170 2.9996117
60.0000000 CYT

Summary of Results for Nominal (Unfactored) Moment Capacity for Section 1

Moment values interpolated at maximum compressive strain = 0.003
or maximum developed moment if pile fails at smaller strains.

Load No.	Axial Thrust kips	Nominal Mom. Cap. in-kip	Max. Comp. Strain
1	0.050	66184.753	0.00300000

Note note that the values of moment capacity in the table above are not factored by a strength reduction factor (phi-factor).

In ACI 318-08, the value of the strength reduction factor depends on whether the transverse reinforcing steel bars are spirals or tied hoops.

The above values should be multiplied by the appropriate strength reduction factor to compute ultimate moment capacity according to ACI 318-08, Section 9.3.2.2 or the value required by the design standard being followed.

ERROR 2 in computing i_BottomNodeInLayer
Num_Nodes_To_Assign = 101
ilayer = 8
klayer = 9
jlayer = 9
i_Number_of_Layers = 8

Computed Values of Pile Loading and Deflection for Lateral Loading for Load Case Number 1

Pile-head conditions are Shear and Moment (Loading Type 1)

Shear force at pile head = 35.000 lbs
Applied moment at pile head = 49620000.000 in-lbs
Axial thrust load on pile head = 50.000 lbs

Depth X inches	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness lb-in^2	Soil Res. p lb/in	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	2.8449	49620000.	35.0000	-0.0186	0.000	1.358E+12	-0.007685	0.002998	0.000
2.220	2.8038	49620080.	34.9674	-0.0185	0.000	1.358E+12	-0.0229	0.0182	0.000
4.440	2.7628	49620159.	34.9153	-0.0184	0.000	1.358E+12	-0.0228	0.0183	0.000
6.660	2.7220	49620239.	34.8648	-0.0183	0.000	1.358E+12	-0.0227	0.0185	0.000
8.880	2.6814	49620318.	34.8146	-0.0183	0.000	1.358E+12	-0.0226	0.0187	0.000
11.100	2.6410	49620397.	34.7647	-0.0182	0.000	1.358E+12	-0.0225	0.0189	0.000
13.320	2.6007	49620477.	-40.1596	-0.0181	0.000	1.358E+12	-67.4769	57.5989	0.000
15.540	2.5607	49620223.	-312.3650	-0.0180	0.000	1.358E+12	-177.7532	154.1062	0.000
17.760	2.5208	49619094.	-827.5025	-0.0179	0.000	1.358E+12	-286.3346	252.1711	0.000

19.980	2.4810	49616553.	-1582.7814	-0.0178	0.000	1.358E+12	-394.0967	352.6308	0.000
22.200	2.4415	49612070.	-2576.9075	-0.0178	0.000	1.358E+12	-501.5122	456.0099	0.000
24.420	2.4022	49605116.	-3809.3931	-0.0177	0.000	1.358E+12	-608.8350	562.6637	0.000
26.640	2.3630	49595160.	-5280.1726	-0.0176	0.000	1.358E+12	-716.1916	672.8504	0.000
28.860	2.3240	49581675.	-6989.3755	-0.0175	0.000	1.358E+12	-823.6308	786.7696	0.000
31.080	2.2852	49564131.	-8937.1842	-0.0174	0.000	1.359E+12	-931.1519	904.5849	0.000
33.300	2.2466	49541998.	-11124.	-0.0174	0.000	1.359E+12	-1038.7218	1026.4371	0.000
35.520	2.2081	49514746.	-13549.	-0.0173	0.000	1.359E+12	-1146.2851	1152.4529	0.000
37.740	2.1698	49481844.	-16268.	-0.0172	0.000	1.360E+12	-1302.9774	1333.0934	0.000
39.960	2.1318	49442521.	-19290.	-0.0171	0.000	1.361E+12	-1419.3572	1478.1114	0.000
42.180	2.0938	49396202.	-22570.	-0.0170	0.000	1.361E+12	-1535.6916	1628.2188	0.000
44.400	2.0561	49342315.	-26108.	-0.0170	0.000	1.362E+12	-1651.8612	1783.5294	0.000
46.620	2.0186	49280287.	-29904.	-0.0169	0.000	1.363E+12	-1767.7452	1944.1609	0.000
48.840	1.9812	49209547.	-33956.	-0.0168	0.000	1.364E+12	-1883.2217	2110.2364	0.000
51.060	1.9440	49129525.	-38265.	-0.0167	0.000	1.366E+12	-1998.1684	2281.8849	0.000
53.280	1.9070	49039656.	-42827.	-0.0166	0.000	1.367E+12	-2112.4627	2459.2428	0.000
55.500	1.8701	48939376.	-47643.	-0.0166	0.000	1.369E+12	-2226.2413	2642.7614	0.000
57.720	1.8334	48828123.	-52711.	-0.0165	0.000	1.371E+12	-2339.5416	2832.8055	0.000
59.940	1.7969	48705341.	-58030.	-0.0164	0.000	1.373E+12	-2452.0209	3029.2960	0.000
62.160	1.7606	48570474.	-63464.	-0.0163	0.000	1.375E+12	-2443.4050	3080.9214	0.000
64.380	1.7245	48423565.	-69000.	-0.0162	0.000	1.378E+12	-2543.9412	3274.9211	0.000
66.600	1.6885	48264118.	-74758.	-0.0162	0.000	1.381E+12	-2643.3347	3475.3683	0.000
68.820	1.6527	48091644.	-80735.	-0.0161	0.000	1.383E+12	-2741.5068	3682.5171	

0.000								
71.040	1.6171	47905659.	-86929.	-0.0160	0.000	1.386E+12	-2838.3800	3896.6424
0.000								
73.260	1.5816	47705685.	-93336.	-0.0159	0.000	1.388E+12	-2933.8776	4118.0410
0.000								
75.480	1.5463	47491252.	-99953.	-0.0159	0.000	1.390E+12	-3027.9245	4347.0348
0.000								
77.700	1.5112	47261896.	-106778.	-0.0158	0.000	1.392E+12	-3120.4466	4583.9731
0.000								
79.920	1.4763	47017161.	-113806.	-0.0157	0.000	1.393E+12	-3211.3711	4829.2357
0.000								
82.140	1.4415	46756599.	-121035.	-0.0156	0.000	1.394E+12	-3300.6266	5083.2362
0.000								
84.360	1.4069	46479770.	-128647.	-0.0156	0.000	1.395E+12	-3557.6029	5613.8309
0.000								
86.580	1.3724	46185408.	-136671.	-0.0155	0.000	1.396E+12	-3670.9500	5938.1261
0.000								
88.800	1.3381	45872954.	-144944.	-0.0154	0.000	1.396E+12	-3781.9705	6274.4990
0.000								
91.020	1.3040	45541861.	-153460.	-0.0153	0.000	1.396E+12	-3890.4797	6623.4681
0.000								
93.240	1.2700	45191594.	-162215.	-0.0153	0.000	1.397E+12	-3996.3009	6985.6133
0.000								
95.460	1.2362	44821632.	-171201.	-0.0152	0.000	1.397E+12	-4099.2562	7361.5672
0.000								
97.680	1.2025	44431467.	-180412.	-0.0151	0.000	1.397E+12	-4199.1657	7752.0219
0.000								
99.900	1.1690	44020607.	-189841.	-0.0151	0.000	1.397E+12	-4295.8477	8157.7360
0.000								
102.120	1.1357	43588575.	-199435.	-0.0150	0.000	1.398E+12	-4347.4426	8498.0784
0.000								
104.340	1.1025	43135117.	-209134.	-0.0149	0.000	1.398E+12	-4389.8482	8839.2700
0.000								
106.560	1.0695	42660025.	-218923.	-0.0148	0.000	1.398E+12	-4429.0000	9193.5773
0.000								
108.780	1.0366	42163104.	-228795.	-0.0148	0.000	1.399E+12	-4464.8149	9561.9367
0.000								
111.000	1.0039	41644179.	-238743.	-0.0147	0.000	1.399E+12	-4497.2051	9945.3863
0.000								
113.220	0.9713	41103090.	-248758.	-0.0146	0.000	1.400E+12	-4526.0766	10345.
0.000								
115.440	0.9388	40539695.	-258834.	-0.0146	0.000	1.400E+12	-4551.3301	10762.
0.000								
117.660	0.9065	39953869.	-268962.	-0.0145	0.000	1.400E+12	-4572.8593	11199.
0.000								

119.880	0.8744	39345506.	-279134.	-0.0145	0.000	1.401E+12	-4590.5512	11655.
0.000								
122.100	0.8423	38714519.	-289501.	-0.0144	0.000	1.401E+12	-4749.4225	12517.
0.000								
124.320	0.8105	38060124.	-300050.	-0.0143	0.000	1.402E+12	-4754.6232	13024.
0.000								
126.540	0.7787	37382298.	-310607.	-0.0143	0.000	1.402E+12	-4755.5618	13558.
0.000								
128.760	0.7471	36681033.	-321160.	-0.0142	0.000	1.403E+12	-4752.0862	14121.
0.000								
130.980	0.7156	35956349.	-331701.	-0.0142	0.000	1.403E+12	-4744.0315	14718.
0.000								
133.200	0.6842	35208284.	-342219.	-0.0141	0.000	1.404E+12	-4731.2177	15351.
0.000								
135.420	0.6530	34436902.	-352702.	-0.0140	0.000	1.404E+12	-4713.4478	16025.
0.000								
137.640	0.6219	33642290.	-363140.	-0.0140	0.000	1.405E+12	-4690.5044	16745.
0.000								
139.860	0.5908	32824561.	-373522.	-0.0139	0.000	1.405E+12	-4662.1463	17517.
0.000								
142.080	0.5600	31983856.	-383842.	-0.0139	0.000	1.406E+12	-4635.2809	18377.
0.000								
144.300	0.5292	31120306.	-394099.	-0.0138	0.000	1.406E+12	-4604.9162	19318.
0.000								
146.520	0.4985	30234061.	-404281.	-0.0138	0.000	1.407E+12	-4568.2413	20343.
0.000								
148.740	0.4680	29325302.	-414374.	-0.0137	0.000	1.408E+12	-4524.8194	21466.
0.000								
150.960	0.4375	28394242.	-424363.	-0.0137	0.000	1.408E+12	-4474.1451	22704.
0.000								
153.180	0.4071	27441133.	-434036.	-0.0137	0.000	1.409E+12	-4239.9362	23119.
0.000								
155.400	0.3769	26467127.	-443168.	-0.0136	0.000	1.410E+12	-3987.5545	23489.
0.000								
157.620	0.3467	25473469.	-451730.	-0.0136	0.000	1.410E+12	-3726.0822	23859.
0.000								
159.840	0.3166	24461448.	-459702.	-0.0135	0.000	1.411E+12	-3455.5272	24229.
0.000								
162.060	0.2866	23432396.	-467063.	-0.0135	0.000	8.922E+12	-3175.8945	24599.
0.000								
164.280	0.2566	22387692.	-473792.	-0.0135	0.000	9.371E+12	-2886.4112	24969.
0.000								
166.500	0.2267	21328763.	-479868.	-0.0135	0.000	9.380E+12	-2587.0704	25339.
0.000								
168.720	0.1967	20257083.	-485268.	-0.0135	0.000	9.390E+12	-2277.8716	25709.

0.000									
170.940	0.1667	19174177.	-489970.	-0.0135	0.000	9.398E+12	-1958.8135	26079.	
0.000									
173.160	0.1368	18081618.	-493954.	-0.0135	0.000	9.408E+12	-1629.8945	26448.	
0.000									
175.380	0.1069	16981026.	-497196.	-0.0135	0.000	9.417E+12	-1291.1128	26818.	
0.000									
177.600	0.0770	15874070.	-499675.	-0.0135	0.000	9.426E+12	-942.4657	27188.	
0.000									
179.820	0.0470	14762470.	-501370.	-0.0135	0.000	9.436E+12	-583.9506	27558.	
0.000									
182.040	0.0171	13647992.	-502969.	-0.0135	0.000	9.444E+12	-856.7593	111000.	
0.000									
184.260	-0.0128	12529291.	-503211.	-0.0135	0.000	9.453E+12	638.1885	111000.	
0.000									
186.480	-0.0427	11413736.	-500136.	-0.0135	0.000	9.463E+12	2132.8098	111000.	
0.000									
188.700	-0.0725	10308692.	-493742.	-0.0135	0.000	9.471E+12	3627.1338	111000.	
0.000									
190.920	-0.1024	9221524.	-484032.	-0.0135	0.000	9.481E+12	5121.1896	111000.	
0.000									
193.140	-0.1323	8159595.	-471004.	-0.0135	0.000	9.489E+12	6615.0057	111000.	
0.000									
195.360	-0.1622	7130268.	-454661.	-0.0135	0.000	9.497E+12	8108.6099	111000.	
0.000									
197.580	-0.1920	6140903.	-435002.	-0.0135	0.000	9.506E+12	9602.0291	111000.	
0.000									
199.800	-0.2219	5198860.	-412028.	-0.0135	0.000	9.512E+12	11095.	111000.	0.000
202.020	-0.2518	4311500.	-385739.	-0.0135	0.000	9.518E+12	12588.	111000.	0.000
204.240	-0.2816	3486180.	-356136.	-0.0135	0.000	9.526E+12	14081.	111000.	0.000
206.460	-0.3115	2730260.	-323218.	-0.0134	0.000	9.533E+12	15574.	111000.	0.000
208.680	-0.3413	2051096.	-286986.	-0.0134	0.000	9.533E+12	17067.	111000.	0.000
210.900	-0.3712	1456046.	-247440.	-0.0134	0.000	9.533E+12	18560.	111000.	0.000
213.120	-0.4011	952467.	-204579.	-0.0134	0.000	9.533E+12	20053.	111000.	0.000
215.340	-0.4309	547716.	-158405.	-0.0134	0.000	9.533E+12	21546.	111000.	0.000
217.560	-0.4608	249150.	-108917.	-0.0134	0.000	9.533E+12	23038.	111000.	0.000
219.780	-0.4906	64126.	-56116.	-0.0134	0.000	9.533E+12	24531.	111000.	0.000
222.000	-0.5205	0.000	0.000	-0.0134	0.000	9.533E+12	26024.	55500.	0.000

*** This analysis makes computations of pile response using nonlinear moment-curvature relationships.**

The above values of total stress are computed for combined axial and bending stress and do not equal the actual stresses in concrete and steel in the range of nonlinear bending.

Output Verification: Computed forces and moments are within specified convergence limits.

Output Summary for Load Case No. 1:

Pile-head deflection = 2.8449263 inches
Computed slope at pile head = -0.0185772 radians
Maximum bending moment = 49620477. inch-lbs
Maximum shear force = -503211. lbs
Depth of maximum bending moment = 13.3200000 inches below pile head
Depth of maximum shear force = 184.2600000 inches below pile head
Number of iterations = 52
Number of zero deflection points = 1

Summary of Pile Response(s)

Definitions of Pile-head Loading Conditions:

Load Type 1: Load 1 = Shear, lbs, and Load 2 = Moment, in-lbs
Load Type 2: Load 1 = Shear, lbs, and Load 2 = Slope, radians
Load Type 3: Load 1 = Shear, lbs, and Load 2 = Rotational Stiffness, in-lbs/radian
Load Type 4: Load 1 = Top Deflection, inches, and Load 2 = Moment, in-lbs
Load Type 5: Load 1 = Top Deflection, inches, and Load 2 = Moment, in-lbs

Load No.	Load Type	Pile-head Condition 1 V(lbs) or y(inches)	Pile-head Condition 2 in-lb, rad., or in-lb/rad.	Axial Loading lbs	Pile-head Deflection inches	Maximum Moment in-lbs	Maximum Shear lbs	Pile-head Rotation radians
1	1	V = 35.0000	M = 49620000.	50.00000000	2.84492633	49620477.	-503211.	-0.01857716

The analysis ended normally.

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

T-Mobile Existing Facility

Site ID: CT11427A

Rocky Hill / Rt3 / Rt160
52 New Britain Avenue
Rocky Hill, CT 06067

December 15, 2014

EBI Project Number: 62146614

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	59.75 %

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December 15, 2014

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

Emissions Analysis for Site: **CT11427A – Rocky Hill / Rt3 / Rt160**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **52 New Britain Avenue, Rocky Hill, 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 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 **52 New Britain Avenue, Rocky Hill, 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** 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** has a maximum gain of **15.9 dBd** at its 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 **160 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):	160	Height (AGL):	160	Height (AGL):	160
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	2	Channel Count	2	# PCS Channels:	2
Total TX Power:	120	Total TX Power:	120	# AWS Channels:	120
ERP (W):	1,906.06	ERP (W):	1,906.06	ERP (W):	1,906.06
Antenna A1 MPE%	0.71	Antenna B1 MPE%	0.71	Antenna C1 MPE%	0.71
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
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):	160	Height (AGL):	160	Height (AGL):	160
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):	1,906.06	ERP (W):	1,906.06	ERP (W):	1,906.06
Antenna A2 MPE%	0.71	Antenna B2 MPE%	0.71	Antenna C2 MPE%	0.71
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):	160	Height (AGL):	160	Height (AGL):	160
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):	445.37	ERP (W):	445.37	ERP (W):	445.37
Antenna A3 MPE%	0.28	Antenna B3 MPE%	0.28	Antenna C3 MPE%	0.28

Site Composite MPE%	
Carrier	**MPE%**
T-Mobile	**5.09**
Verizon Wireless	33.99 %
AT&T	11.39 %
Police	1.00 %
Fire	1.00 %
Sprint	6.35 %
Clearwire	0.93 %
Site Total MPE %:	**59.75 %**

T-Mobile Sector 1 Total:	1.70 %
T-Mobile Sector 2 Total:	1.70 %
T-Mobile Sector 3 Total:	1.70 %
Site Total:	59.75 %

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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:	1.70 %
Sector 2:	1.70 %
Sector 3 :	1.70 %
T-Mobile Total:	5.09 %
Site Total:	59.75 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **59.75%** 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.

Scott Heffernan
RF Engineering Director

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