Crown Castle
3530 Toringdon Way Suite 300
Charlotte NC 28277

Tel (704) 405-6600

May 5, 2015

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

RE: **T-Mobile-Exempt Modification - Crown Site BU: 842873**
T-Mobile Site ID: CTFF531A
Located at: 30 Oliver Terrace, Shelton, CT 06484

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 Mark A. Lauretti, Mayor for the City of Shelton and Brennan Realty LLC, Property Owner.

T-Mobile plans to modify the existing wireless communications facility owned by Crown Castle and located at **30 Oliver Terrace, Shelton, CT 06484.** 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).

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)

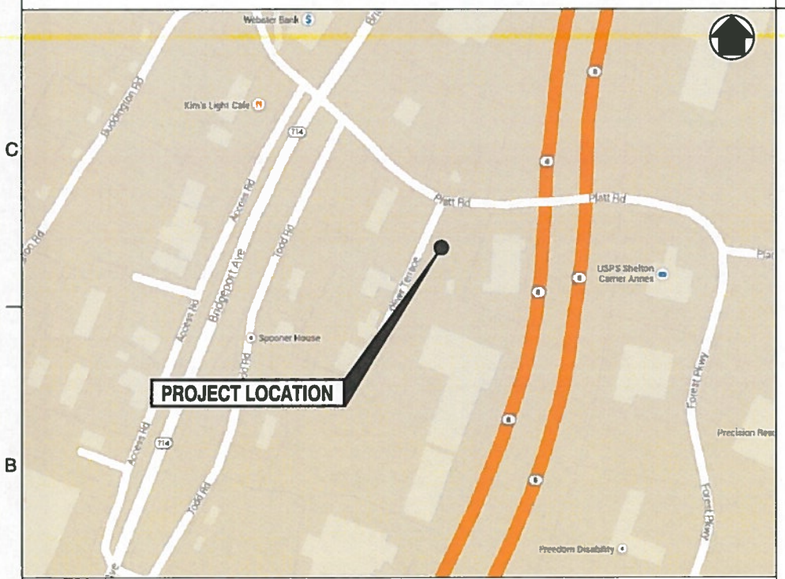
cc: The Honorable Mark A. Lauretti, Mayor
City Hall, Room 202
54 Hill Street
Shelton CT, 06484

cc: Brennan Realty LLC
70 Platt Rd
P.O. Box 788
Shelton, CT 06484

T-MOBILE NORTHEAST LLC

T-MOBILE SITE #: CTFF531A
CROWN CASTLE BU #: 842873
SITE NAME: SHELTON NE
30 OLIVER TERRACE
SHELTON, CT 06484
FAIRFIELD COUNTY

SITE INFORMATION



KEY MAP
N.T.S.

DIRECTIONS: (FROM PARSIPPANY):

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. TAKE EXIT 52 FOR STATE ROUTE 8 N TOWARD WATERBURY. MERGE ONTO CT-8 N. TAKE EXIT 12 FOR OLD STRATFORD RD. TURN LEFT ONTO OLD STRATFORD RD. TURN RIGHT ONTO BRIDGEPORT AVE. TURN RIGHT ONTO PLATT RD. TAKE THE 2ND RIGHT ONTO OLIVER TERRACE.

PROJECT INFORMATION

T-MOBILE SITE #:	CTFF531A
CROWN CASTLE BU #:	842873
SITE ADDRESS:	30 OLIVER TERRACE SHELTON, CT 06484 FAIRFIELD COUNTY
LATITUDE:	41°-17'-38.21" N
LONGITUDE:	73°-06'-25.83" W
TOWER OWNER:	CROWN CASTLE 12 GILL STREET, SUITE 5800 WOBURN, MA 01801
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:	BRYAN HUFF (973) 576-0147
SCOPE OF WORK:	REMOVE AND REPLACE (3) EXISTING ANTENNAS WITH (3) NEW ANTENNAS, INSTALL (3) NEW BIAS TEES, INSTALL (3) NEW RRU'S ON A UNISTRUT RACK AT GRADE, INSTALL (1) NEW BBU CABINET AT GRADE

CONFIGURATION
704G

SHEET INDEX

SHEET NO.	SHEET DESCRIPTION
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G-1	GENERAL NOTES
C-1	COMPOUND PLAN & EQUIPMENT PLANS
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

SHELTON NE

CTFF531A

30 OLIVER TERRACE
SHELTON, CT 06484
FAIRFIELD COUNTY

SEAL

SCALE
AS SHOWN

REV.	DATE	BY	DESCRIPTION
0	05/01/15	RA	ISSUED AS FINAL
C	04/24/15	RA	REVISED PER COMMENTS
B	04/13/15	RA	ISSUED FOR REVIEW
A	11/13/14	FG	ISSUED FOR REVIEW

REVISIONS

DRAWN BY FG
CHECKED BY BSH
APPROVED BY GHN
DATE 11/03/14

TITLE

TITLE SHEET

PROJECT NO. 50066258/50070376

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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SEAL

SCALE
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0	05/01/15	RA	ISSUED AS FINAL
C	04/24/15	RA	REVISED PER COMMENTS
B	04/13/15	RA	ISSUED FOR REVIEW
A	11/13/14	FG	ISSUED FOR REVIEW

REVISIONS

DRAWN BY FG
CHECKED BY BSH
APPROVED BY GHN
DATE 11/03/14

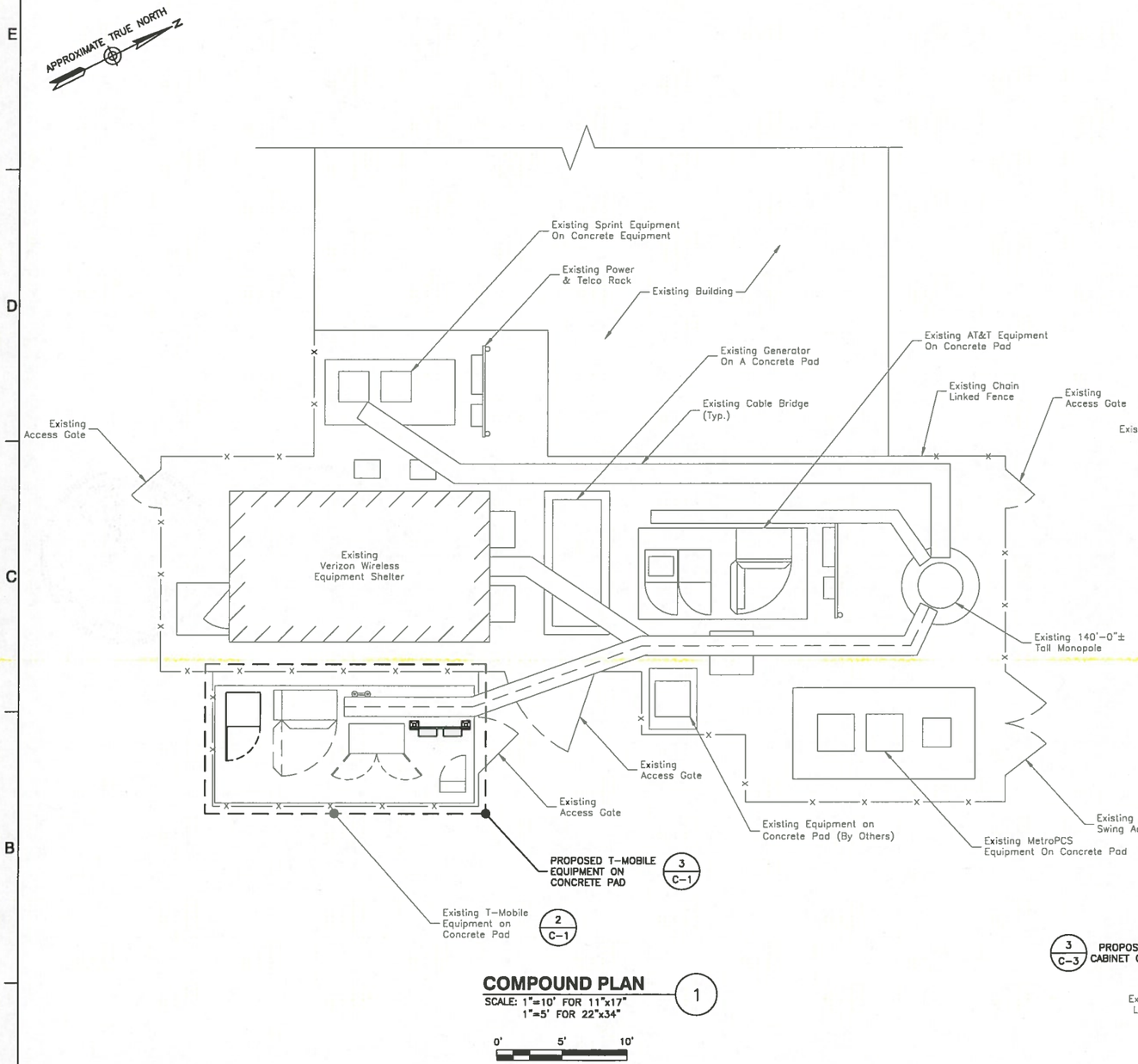
TITLE

GENERAL NOTES

PROJECT NO. 50066258/50070376

G - 1

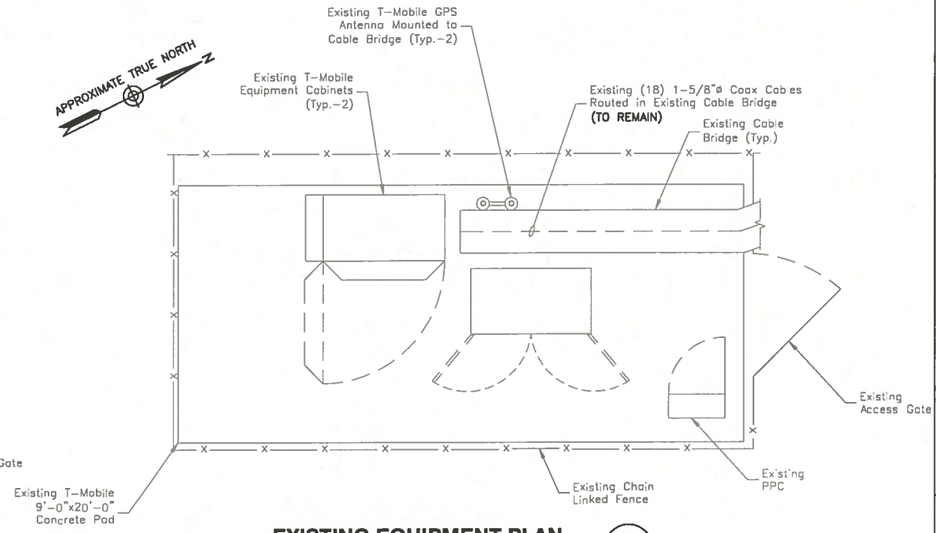
SHEET NO.



COMPOUND PLAN 1

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

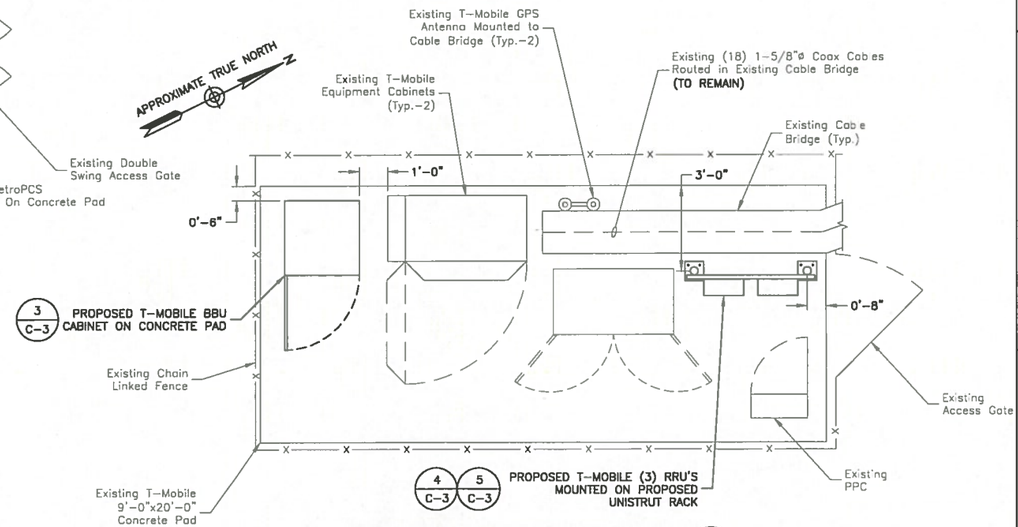
0' 5' 10'



EXISTING EQUIPMENT PLAN 2

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

0' 2' 4' 6'



PROPOSED EQUIPMENT PLAN 3

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

0' 2' 4' 6'

NOTES:

1. NORTH SHOWN AS APPROXIMATE.
2. NOT ALL INFORMATION IS SHOWN FOR CLARITY.
3. ALL PROPOSED EQUIPMENT, INCLUDING ANTENNAS, BIAS TEES, COAX, ETC., SHALL BE MOUNTED IN ACCORDANCE WITH THE TOWER STRUCTURAL ANALYSIS AND MODIFICATION DRAWINGS BY FDH ENGINEERING, INC DATED MARCH 24, 2015.

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SEAL

STATE OF CONNECTICUT
JIANG FU
PROFESSIONAL ENGINEER
JIANG FU, 28222
CERTIFICATE / LICENSE NO. 0023228

SCALE
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REV.	DATE	BY	DESCRIPTION
0	05/01/15	RA	ISSUED AS FINAL
C	04/24/15	RA	REVISED PER COMMENTS
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REVISIONS

DRAWN BY FG
CHECKED BY BSH
APPROVED BY GHN
DATE 11/03/14

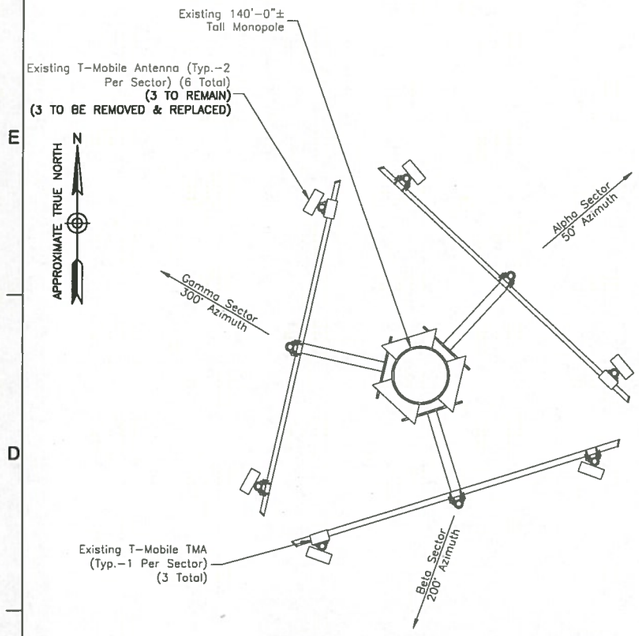
TITLE

COMPOUND PLAN & EQUIPMENT PLANS

PROJECT NO. 50066258/50070376

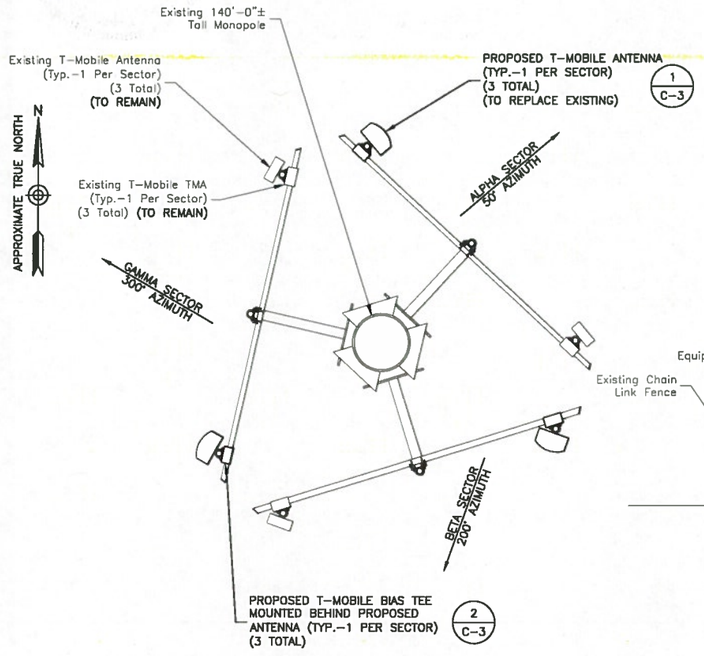
C - 1

SHEET NO.



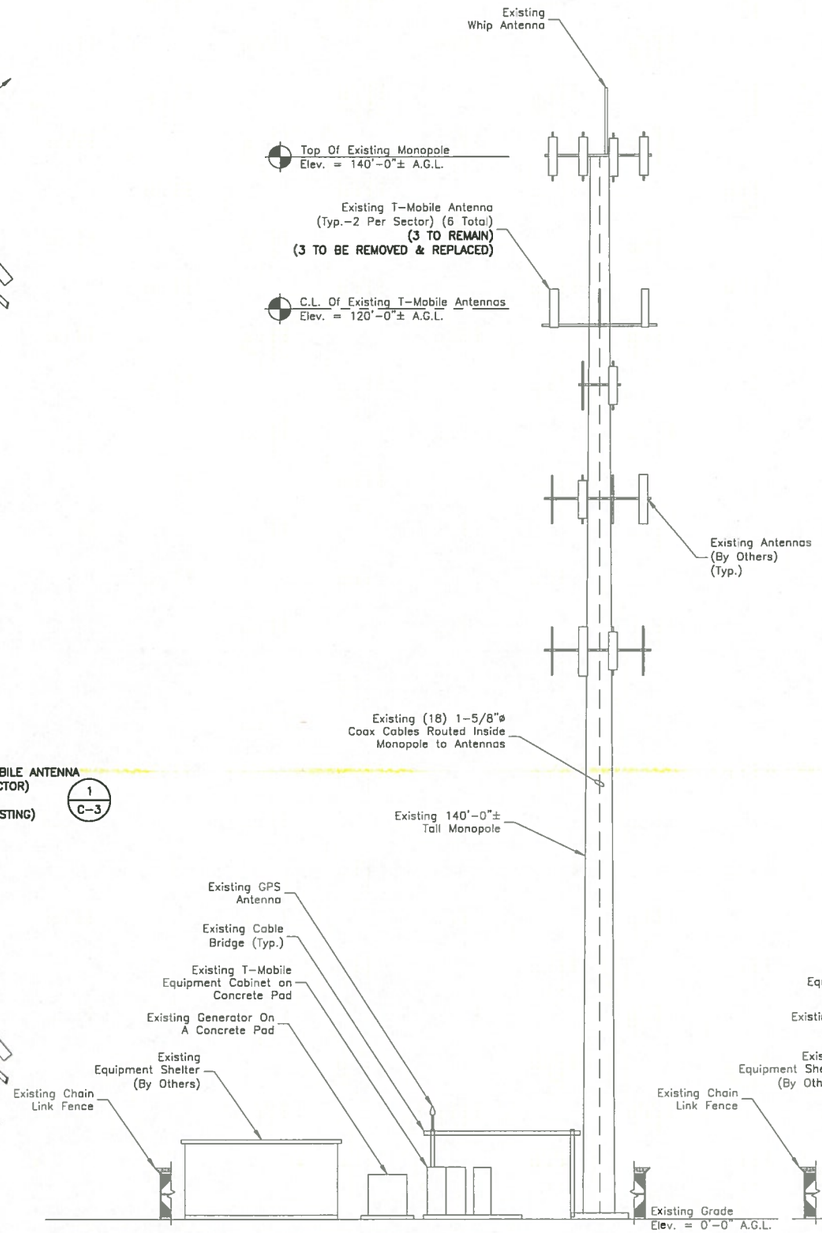
EXISTING ANTENNA LAYOUT (1)

SCALE: N.T.S.



PROPOSED ANTENNA LAYOUT (2)

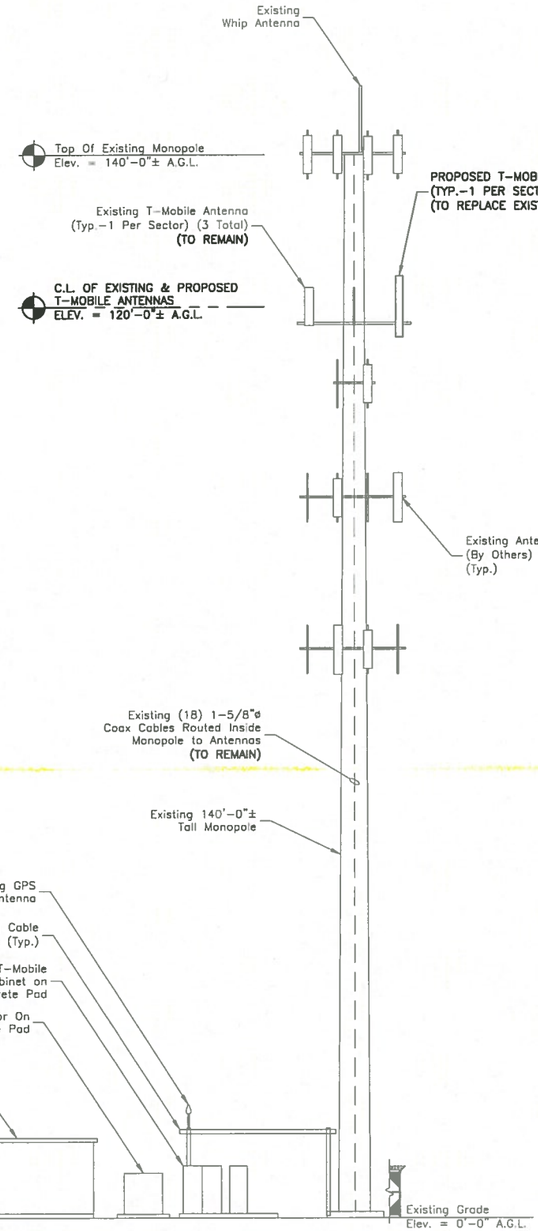
SCALE: N.T.S.



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'

NOTES:

1. ALL PROPOSED EQUIPMENT, INCLUDING ANTENNAS, BIAS TEES, COAX, ETC., SHALL BE MOUNTED IN ACCORDANCE WITH THE TOWER STRUCTURAL ANALYSIS AND MODIFICATION DRAWINGS BY FDH ENGINEERING, INC DATED MARCH 24, 2015.
2. ALL PROPOSED EQUIPMENT, INCLUDING ANTENNAS, BIAS TEES, COAX, ETC., SHALL BE MOUNTED IN ACCORDANCE WITH THE TOWER STRUCTURAL ANALYSIS AND MODIFICATION DRAWINGS BY FDH ENGINEERING , INC DATED MARCH 24, 2015.

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STATE OF CONNECTICUT
JIANG YU LEE
No. 25122
REGISTERED PROFESSIONAL ENGINEER

SCALE

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REV.	DATE	BY	DESCRIPTION
D	05/01/15	RA	ISSUED AS FINAL
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REVISIONS

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DATE 11/03/14

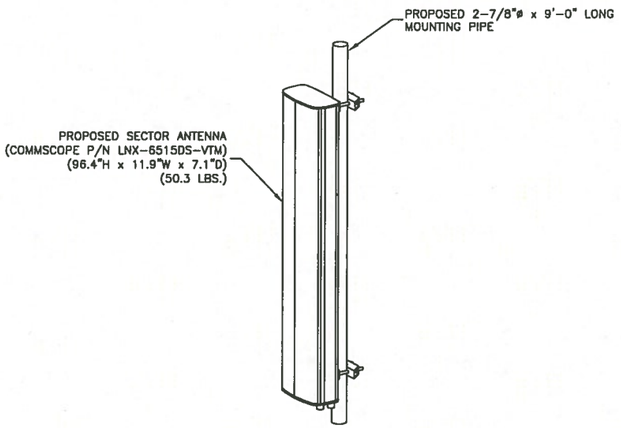
TITLE

ANTENNA LAYOUTS & ELEVATIONS

PROJECT NO. 50066258/50070376

C - 2

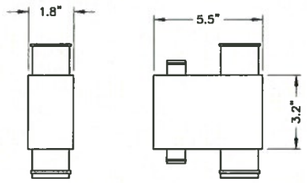
SHEET NO.



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.

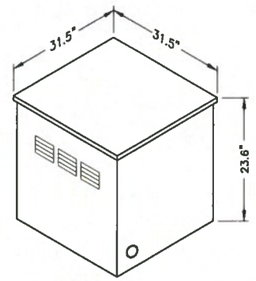


KATHREIN 78211066

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.

BIAS TEE DETAIL (2)
SCALE: N.T.S.



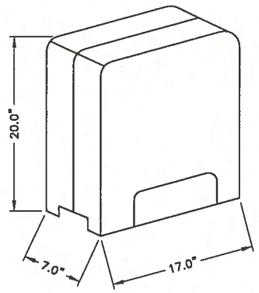
ALCATEL-LUCENT EZBFo BATTERY BACKUP SYSTEM

MATERIAL:	ANCHOR:
CONCRETE	3/8"ø HILTI KWIK BOLT 3 W/2-1/2" MIN. EMBED.
STRUCTURAL STEEL	1/2"ø STRUCTURAL BOLTS

NOTE:

1. CONTRACTOR SHALL ANCHOR CABINET IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.

BBU CABINET DETAIL (3)
SCALE: N.T.S.



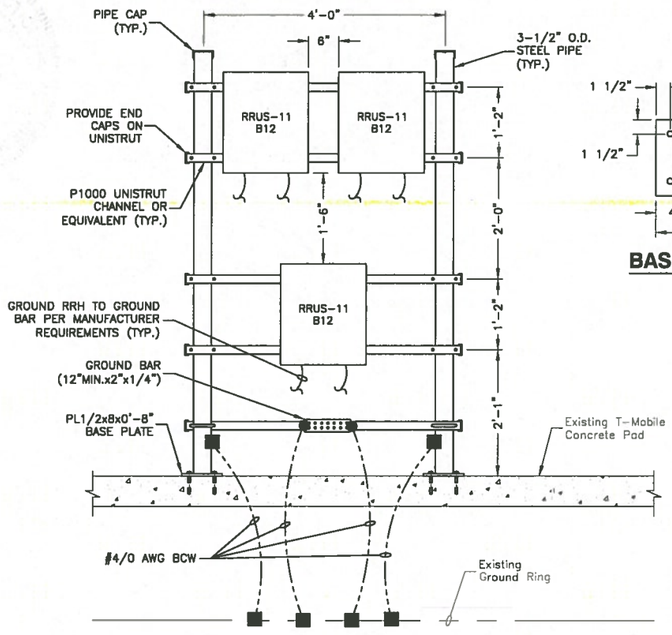
SPECIFICATIONS:	
HEIGHT:	20.0"
WIDTH:	17.0"
DEPTH:	7.0"
WEIGHT:	50.7 LBS

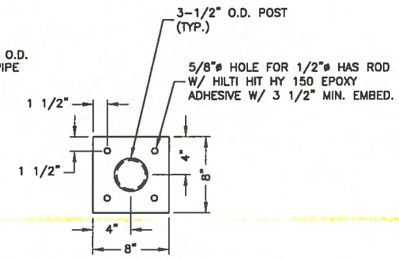
ERICSSON RRUS-11 B12

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 (4)
SCALE: N.T.S.





BASE PLATE

NOTES:

1. CONTRACTOR SHALL SUPPLY AND INSTALL UNISTRUT (OR EQUIVALENT) MOUNTING CHANNELS.
2. CONTRACTOR SHALL SUPPLY (BUT NOT INSTALL) 3/8"ø UNISTRUT BOLTING HARDWARE AND SPRING NUTS. TYPICAL FOUR PER RRU. CONTRACTOR SHALL BAG THE BOLTING HARDWARE AND HANG FROM INSTALLED UNISTRUT FRAME.
3. SPACING MAY VARY BASED ON SELECTED EQUIPMENT. ADJUSTMENTS TO SPACING WILL BE MADE BY RRU INSTALLER.
4. NO PAINTING OF THE RRU OR SOLAR SHIELD IS ALLOWED.

RRU RACK DETAIL (5)
SCALE: N.T.S

DESIGN CONFIGURATION

	ANTENNAS		COAX		COAX LENGTH
	EXISTING	PROPOSED	EXISTING	PROPOSED	
ALPHA	RFS APX16PV-16PVL-E	COMMSCOPE LNX-6515DS-VTM	(6) 1-5/8"ø	—	170'-0
	RFS APX16PV-16PVL-E	EXISTING TO REMAIN			
BETA	RFS APX16PV-16PVL-E	COMMSCOPE LNX-6514DS-VTM	(6) 1-5/8"ø	—	170'-0
	RFS APX16PV-16PVL-E	EXISTING TO REMAIN			
GAMMA	RFS APX16PV-16PVL-E	COMMSCOPE LNX-6515DS-VTM	(6) 1-5/8"ø	—	170'-0
	RFS APX16PV-16PVL-E	EXISTING TO REMAIN			

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FAIRFIELD COUNTY

SEAL

STATE OF CONNECTICUT
JIANG YU
No. 23522
JIANG YU LEE
CONNECTICUT LICENSE NO. 0023522
PROFESSIONAL ENGINEER

SCALE
AS SHOWN

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DATE 11/03/14

TITLE

CONSTRUCTION DETAILS

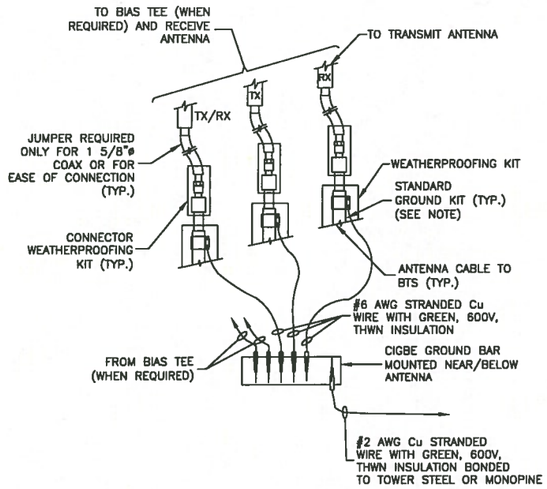
PROJECT NO. 50066258/50070376

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 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.

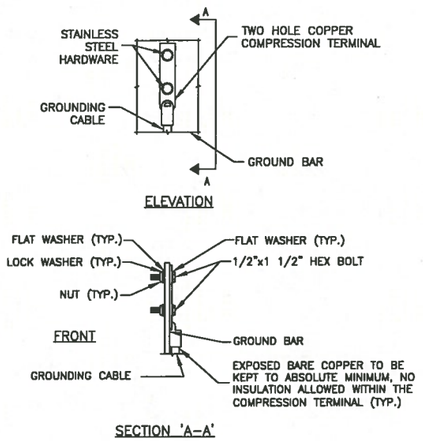


NOTE:

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.



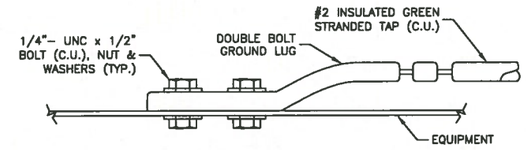
SECTION 'A-A'

NOTES:

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

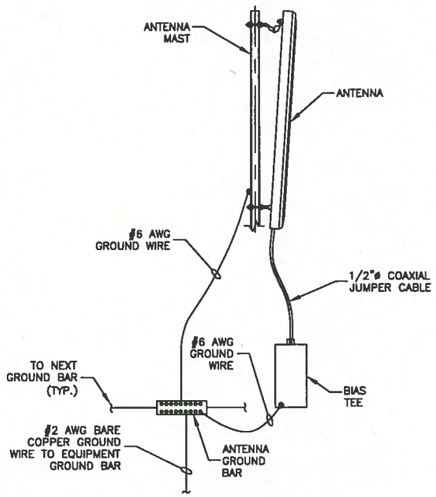
TYPICAL GROUND BAR MECHANICAL CONNECTION DETAIL — 2

SCALE: N.T.S.



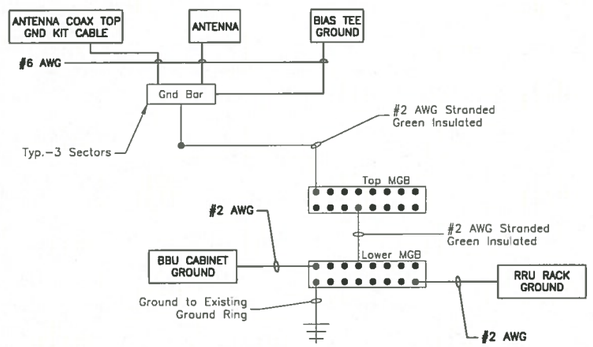
CONNECTION TO EQUIPMENT DETAIL — 3

SCALE: N.T.S.



TYPICAL ANTENNA GROUNDING DETAIL — 4

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 — 5

SCALE: N.T.S.

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FAIRFIELD COUNTY

SEAL

STATE OF CONNECTICUT — JIANG YU — No. 23222 — LICENSED PROFESSIONAL ENGINEER — COMMONWEALTH OF PENNSYLVANIA

SCALE

AS SHOWN

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GROUNDING NOTES & DETAILS

PROJECT NO. 50066258/50070376

E - 1

SHEET NO.

Date: **March 24, 2015**

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

FDH Engineering, Inc
6521 Merdien Dr
Raleigh, NC 27616
(919) 755-1012

Subject: **Structural Modification Report**

Carrier Designation:	***T-Mobile* Co-Locate**	
	Carrier Site Number:	CTFF531A
Crown Castle Designation:	**Crown Castle BU Number:**	842873
	Crown Castle Site Name:	SHELTON NE
	Crown Castle JDE Job Number:	314190
	Crown Castle Work Order Number:	1023781
	Crown Castle Application Number:	271495 Rev. 3
Engineering Firm Designation:	**FDH Engineering, Inc Project Number:**	15BGXE1400
Site Data:	**30 Oliver Terrace, SHELTON, Fairfield County, CT** **Latitude *41° 17' 38.21"*, Longitude *-73° 6' 25.83"*** **140 Foot - Monopole Tower**	

Dear Timothy Howell,

FDH Engineering, Inc is pleased to submit this **"Structural Modification 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 764706, in accordance with application 271495, revision 3.

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:

LC4.5: Modified Tower w/ Existing + Proposed Equipment **Sufficient Capacity**
Note: See Table I and Table II for the proposed and existing loading, respectively.

The analysis has been performed in accordance with the TIA/EIA-222-F standards and 2005 CT State Building Code based upon a wind speed of 85 mph fastest mile.

All modifications and 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 *FDH Engineering, Inc.* 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:

Byron K Webb, EI
Project Engineer

Reviewed by:

Dennis D. Abel, PE
Director of Structural Engineering
CT PE License No. 23247

STATE OF CONNECTICUT
No. 23247
LICENSED
PROFESSIONAL ENGINEER
03-24-2015

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1) INTRODUCTION

This tower is a 140 ft Monopole tower designed by FWT INC. in January of 2003. The tower was originally designed for a wind speed of 85 mph per TIA/EIA-222-F. This tower has been modified by GPD Associates in 2009 and 2010 and by B&T Group in 2012. All of these modifications were considered in this analysis. Modification drawings have been prepared by FDH Engineering, Inc. in March of 2015. Reinforcement consists of additional flat plate from 50' to 65'. This reinforcement was considered 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 85 mph with no ice, 38 mph with 0.75 inch ice thickness and 50 mph under service loads.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
120.0	120.0	3	commscope	LNX-6515DS-VTM w/ Mount Pipe	-	-	-
		3	kathrein	782 11066			

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
138.0	145.0	1	andrew	DB636-C	13 1	1-5/8 7/8	1
	140.0	3	alcatel lucent	RRH2X40-AWS			
		3	amphenol	BXA-80063-6BF-EDIN-4 w/ Mount Pipe			
		6	antel	BXA-171063-8BF-2 w/ Mount Pipe			
		3	antel	BXA-70063-6CF-2 w/ Mount Pipe			
		1	rfs celwave	DB-T1-6Z-8AB-0Z			
		6	rfs celwave	FD9R6004/2C-3L			
	138.0	1	crown mounts	Platform Mount [LP 403-1]			
120.0	120.0	3	cci	DTMA-1819-DD-12 TMA	18	1-5/8	1
		1	crown mounts	T-Arm Mount [TA 602-3]			
		3	rfs	APX16PV-16PVL-E w/ Mount Pipe			
		3	cci	DTMA-1819-DD-12 TMA	-	-	2
		3	rfs	APX16PV-16PVL-E w/ Mount Pipe			
110.0	110.0	1	crown mounts	T-Arm Mount [TA 702-3]	6	1-5/8	1
		3	kathrein	800 10504 w/ Mount Pipe			
		3	kathrein	860 10025 RET			
99.0	99.0	1	crown mounts	Side Arm Mount [SO 102-3]	2 1	7/8 3/4	1
		6	ericsson	RRUS-11			
		1	raycap	DC6-48-60-18-8F			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
95.0	95.0	1	crown mounts	Platform Mount [LP 713-1]	6	7/8	1
		3	powerwave	7770.00 w/Mount Pipe			
		6	powerwave	LGP21401 TMA			
		3	powerwave	P65-16-XLH-RR w/Mount Pipe			
73.0	75.0	3	alcatel lucent	1900MHz 4X40W RRH	3	1-1/4	1
		3	alcatel lucent	800 MHz External Notch Filter			
		3	alcatel lucent	800MHz 2x50W RRH			
		3	rfs	APXVSPP18-C-A20 w/Mount Pipe			
	73.0	1	crown mounts	Platform Mount [LP 712-1]			
		1	crown mounts	Side Arm Mount [SO 102-3]			
50.0	50.0	1	maxrad	GPS-TMG-HR-26NCM GPS	-	-	1

Notes:
1) Existing Equipment
2) Equipment to be Removed, Not considered in this analysis

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
100	100	6	allgon	7920.XX	-	-
		2	generic	4' Dish		
90	90	9	generic	4'x1'x3" Panel	-	-
80	80	9	generic	4'x1'x3" Panel	-	-

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Dr. Clarence Welti, P.E., P.C.	4529442	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	AT&T	4598376	CCISITES
4-TOWER MANUFACTURER DRAWINGS	FWT	4598387	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	B&T Group	4858944	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	GPD Associates	2010262.58	On File
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	GPD Associates	2009286.08	On File
4-POST MODIFICATION INSPECTION	B&T Group	5095590	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	FDH Engineering, Inc.	Project No. 15BGXE1400	APPENDIX D

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) The modifications listed in FDH Engineering, Inc. (Project No. 15BGXE1400) Modification Drawings for a 140' Monopole dated March 24, 2015 must be installed as specified.

This analysis may be affected if any assumptions are not valid or have been made in error. FDH Engineering, Inc. should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
140 - 135	Pole	TP14.296x13.161x0.1875	Pole	18.0%	Pass
135 - 130	Pole	TP15.431x14.296x0.1875	Pole	32.4%	Pass
130 - 125	Pole	TP16.566x15.431x0.1875	Pole	43.4%	Pass
125 - 120	Pole	TP17.701x16.566x0.1875	Pole	51.9%	Pass
120 - 115	Pole	TP18.836x17.701x0.1875	Pole	65.9%	Pass
115 - 110	Pole	TP19.971x18.836x0.1875	Pole	76.9%	Pass
110 - 105	Pole	TP21.106x19.971x0.1875	Pole	87.6%	Pass
105 - 101.58	Pole	TP21.882x21.106x0.1875	Pole	93.8%	Pass
101.58 - 96.58	Pole	TP23.017x21.882x0.3125	Pole	62.2%	Pass
96.58 - 91.58	Pole	TP24.152x23.017x0.3125	Pole	68.9%	Pass
91.58 - 86.58	Pole	TP25.287x24.152x0.3125	Pole	75.1%	Pass
86.58 - 81.58	Pole	TP26.422x25.287x0.3125	Pole	80.3%	Pass
81.58 - 76.58	Pole	TP27.557x26.422x0.3125	Pole	84.7%	Pass
76.58 - 71.58	Pole	TP28.692x27.557x0.3125	Pole	89.7%	Pass
71.58 - 70.08	Pole	TP29.033x28.692x0.3125	Pole	91.4%	Pass
70.08 - 69.83	Pole + Reinf.	TP29.089x29.033x0.5313	Reinf. 4 Tension Rupture	70.9%	Pass
69.83 - 64.83	Pole + Reinf.	TP30.224x29.089x0.525	Reinf. 4 Tension Rupture	75.5%	Pass
64.83 - 62.5	Pole + Reinf.	TP30.753x30.224x0.5125	Reinf. 4 Tension Rupture	77.6%	Pass
62.5 - 62.25	Pole + Reinf.	TP30.81x30.753x0.7375	Reinf. 4 Tension Rupture	55.6%	Pass
62.25 - 58.92	Pole + Reinf.	TP31.566x30.81x0.725	Reinf. 4 Tension Rupture	58.1%	Pass
58.92 - 58.67	Pole + Reinf.	TP31.623x31.566x0.525	Reinf. 5 Compression	77.8%	Pass
58.67 - 53.67	Pole + Reinf.	TP32.758x31.623x0.5125	Reinf. 5 Compression	81.6%	Pass
53.67 - 53	Pole + Reinf.	TP33.913x32.758x0.5125	Reinf. 5 Compression	81.2%	Pass
53 - 47.58	Pole + Reinf.	TP33.515x32.285x0.5	Reinf. 3 Tension Rupture	92.1%	Pass
47.58 - 42.58	Pole + Reinf.	TP34.65x33.515x0.4875	Reinf. 3 Tension Rupture	95.2%	Pass
42.58 - 39.08	Pole + Reinf.	TP35.445x34.65x0.4875	Reinf. 3 Tension Rupture	97.2%	Pass
39.08 - 38.83	Pole + Reinf.	TP35.502x35.445x0.575	Reinf. 3 Tension Rupture	82.8%	Pass
38.83 - 33.83	Pole + Reinf.	TP36.637x35.502x0.5625	Reinf. 3 Tension Rupture	85.3%	Pass
33.83 - 30	Pole + Reinf.	TP37.506x36.637x0.5625	Reinf. 3 Tension Rupture	85.7%	Pass
30 - 29.75	Pole + Reinf.	TP37.563x37.506x0.5625	Reinf. 2 Tension Rupture	87.2%	Pass
29.75 - 24.75	Pole + Reinf.	TP38.698x37.563x0.55	Reinf. 2 Tension Rupture	89.0%	Pass
24.75 - 19.75	Pole + Reinf.	TP39.833x38.698x0.5375	Reinf. 2 Tension Rupture	91.3%	Pass
19.75 - 14.75	Pole + Reinf.	TP40.968x39.833x0.5375	Reinf. 2 Tension Rupture	93.2%	Pass
14.75 - 9.75	Pole + Reinf.	TP42.104x40.968x0.525	Reinf. 2 Tension Rupture	94.9%	Pass
9.75 - 4.75	Pole + Reinf.	TP43.239x42.104x0.525	Reinf. 2 Tension Rupture	96.5%	Pass
4.75 - 0	Pole + Reinf.	TP44.317x43.239x0.5125	Reinf. 2 Tension Rupture	97.9%	Pass
				Summary	
			Pole	93.8%	Pass
			Reinforcement	97.9%	Pass
			Overall	97.9%	Pass

Table 6 - Tower Component Stresses vs. Capacity – LC4.5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	76.2	Pass
1	Base Plate	0	70.7	Pass
1	Base Foundation	0	65.1	Pass
1	Flange Bolts	101.58	69.1	Pass
1	Flange Plate	101.58	49.8	Pass

Structure Rating (max from all components) =	**97.9%**

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

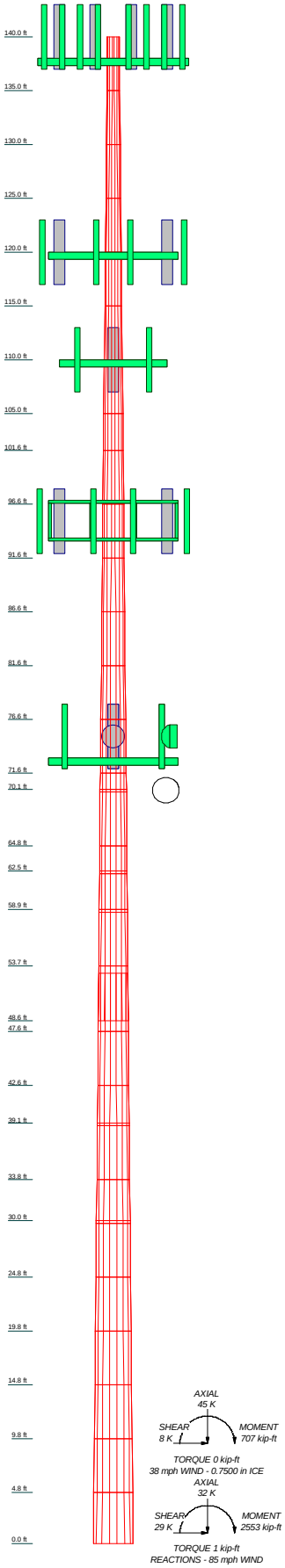
4.1) Recommendations

The modifications listed in FDH Engineering, Inc. (Project No. 15BGXE1400) Modification Drawings for a 140' Monopole dated March 24, 2015 must be installed as specified.

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	5.00	18	0.1875		13.1610	14.2960		0.1
2	5.00	18	0.1875		14.2960	15.4309		0.1
3	5.00	18	0.1875		15.4309	16.5659		0.2
4	5.00	18	0.1875		16.5659	17.7008		0.2
5	5.00	18	0.1875		17.7008	18.8358		0.2
6	5.00	18	0.1875		18.8358	19.9707		0.2
7	5.00	18	0.1875		19.9707	21.1057		0.2
8	3.42	18	0.1875		21.1057	21.8820		0.1
9	5.00	18	0.3125		21.8820	23.0170		0.4
10	5.00	18	0.3125		23.0170	24.1520		0.4
11	5.00	18	0.3125		24.1520	25.2870		0.4
12	5.00	18	0.3125		25.2870	26.4220		0.4
13	5.00	18	0.3125		26.4220	27.5570		0.5
14	5.00	18	0.3125		27.5570	28.6920		0.5
15	0.50	18	0.3125		28.6920	29.0725		0.1
16	0.50	18	0.3125		29.0725	29.4530		0.1
17	5.00	18	0.5250		29.0993	30.2243	A572-65	0.8
18	2.33	18	0.5125		30.2243	30.6532		0.4
19	0.25	18	0.5125		30.6532	30.7807		0.0
20	3.33	18	0.5125		30.7807	31.3488		0.7
21	0.25	18	0.5125		31.3488	31.4763		0.0
22	5.00	18	0.5125		31.6226	32.7576		0.8
23	6.09	18	0.5125	4.42	32.7576	33.9130		0.9
24	0.50	18	0.5000		32.2947	33.5151		0.09
25	5.00	18	0.4875		33.5151	34.6933		0.9
26	3.90	18	0.4875		34.6933	35.4449		0.6
27	0.25	18	0.4750		35.4449	35.5110		0.1
28	5.00	18	0.5625		35.5110	36.6367		1.0
29	3.83	18	0.5625		36.6367	37.5062		0.8
30	0.25	18	0.5625		37.5062	37.6630		0.1
31	5.00	18	0.5500		37.6630	38.6981		1.1
32	5.00	18	0.5375		38.6981	39.8333		1.1
33	5.00	18	0.5375		39.8333	40.9684		1.1
34	5.00	18	0.5250		40.9684	42.1035		1.1
35	5.00	18	0.5250		42.1035	43.2386		1.2
36	4.75	18	0.5125		43.2386	44.3170		1.1
								18.8



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
DB636-C	138	(2) RRUS-11	99
BXA-70063-6CF-2 w/ Mount Pipe	138	(2) RRUS-11	99
BXA-70063-6CF-2 w/ Mount Pipe	138	DC6-48-60-18-8F	99
BXA-70063-6CF-2 w/ Mount Pipe	138	Side Arm Mount [SO 102-3]	99
(2) BXA-171063-8BF-2 w/ Mount Pipe	138	7770.00 w/Mount Pipe	95
(2) BXA-171063-8BF-2 w/ Mount Pipe	138	7770.00 w/Mount Pipe	95
(2) BXA-171063-8BF-2 w/ Mount Pipe	138	7770.00 w/Mount Pipe	95
(2) FD9R6004/2C-3L	138	P65-16-XLH-RR w/Mount Pipe	95
(2) FD9R6004/2C-3L	138	P65-16-XLH-RR w/Mount Pipe	95
(2) FD9R6004/2C-3L	138	P65-16-XLH-RR w/Mount Pipe	95
BXA-80063-6BF-EDIN-4 w/ Mount Pipe	138	(2) LGP21401 TMA	95
BXA-80063-6BF-EDIN-4 w/ Mount Pipe	138	(2) LGP21401 TMA	95
BXA-80063-6BF-EDIN-4 w/ Mount Pipe	138	(2) LGP21401 TMA	95
RRHZX40-AWS	138	(2) Empty Mount Pipe	95
RRHZX40-AWS	138	(2) Empty Mount Pipe	95
RRHZX40-AWS	138	(2) Empty Mount Pipe	95
DB-T1-6Z-8AB-0Z	138	Platform Mount [LP 713-1]	95
Platform Mount [LP 403-1]	138	APXVSPP18-C-A20 w/Mount Pipe	73
APX16PV-16PVL-E w/ Mount Pipe	120	APXVSPP18-C-A20 w/Mount Pipe	73
APX16PV-16PVL-E w/ Mount Pipe	120	APXVSPP18-C-A20 w/Mount Pipe	73
APX16PV-16PVL-E w/ Mount Pipe	120	800MHz 2x50W RRH	73
DTMA-1819-DD-12 TMA	120	800MHz 2x50W RRH	73
DTMA-1819-DD-12 TMA	120	800MHz 2x50W RRH	73
DTMA-1819-DD-12 TMA	120	800 MHz External Notch Filter	73
LNX-6515DS-VTM w/ Mount Pipe	120	800 MHz External Notch Filter	73
782 11066	120	800 MHz External Notch Filter	73
LNX-6515DS-VTM w/ Mount Pipe	120	1900MHz 4X40W RRH	73
782 11066	120	1900MHz 4X40W RRH	73
LNX-6515DS-VTM w/ Mount Pipe	120	1900MHz 4X40W RRH	73
782 11066	120	LLPX310R w/Mount Pipe	73
Empty Mount Pipe	120	LLPX310R w/Mount Pipe	73
Empty Mount Pipe	120	LLPX310R w/Mount Pipe	73
Empty Mount Pipe	120	FDD_R6_RRH	73
T-Arm Mount [TA 602-3]	120	FDD_R6_RRH	73
800 10504 w/ Mount Pipe	110	FDD_R6_RRH	73
800 10504 w/ Mount Pipe	110	Horizon Duo ODU	73
800 10504 w/ Mount Pipe	110	Horizon Duo ODU	73
860 10025 RET	110	Side Arm Mount [SO 102-3]	73
860 10025 RET	110	Platform Mount [LP 712-1]	73
860 10025 RET	110	Empty Mount Pipe	73
Empty Mount Pipe	110	Empty Mount Pipe	73
Empty Mount Pipe	110	Empty Mount Pipe	73
Empty Mount Pipe	110	A-ANT-23G-2-C Dish	73
T-Arm Mount [TA 702-3]	110	A-ANT-23G-2-C Dish	73
(2) RRUS-11	99	GPS-TMG-HR-26NCM GPS	50

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

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

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Raleigh, NC 27616
Phone: (919) 755-1012
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Tower Analyst

Job:	842873 - Shelton NE
Project:	15BGXE1400
Client: Crown Castle	Drawn by: Byron K Webb
Code: TIA/EIA-222-F	Date: 03/24/15
Path:	Scale: NTS
	Dwg No. E-1

Tower Input Data

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

Tower is located in Fairfield County, Connecticut.
Basic wind speed of 85 mph.
Nominal ice thickness of 0.7500 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 38 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 50 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.333.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

Tapered Pole Section Geometry

Section	*Elevation* *ft*	*Section Length* *ft*	*Splice Length* *ft*	*Number of Sides*	*Top Diameter* *in*	*Bottom Diameter* *in*	*Wall Thickness* *in*	*Bend Radius* *in*	*Pole Grade*
L1	140.00-135.00	5.00	0.00	18	13.1610	14.2960	0.1875	0.7500	A572-65 (65 ksi)
L2	135.00-130.00	5.00	0.00	18	14.2960	15.4309	0.1875	0.7500	A572-65 (65 ksi)
L3	130.00-125.00	5.00	0.00	18	15.4309	16.5659	0.1875	0.7500	A572-65 (65 ksi)
L4	125.00-120.00	5.00	0.00	18	16.5659	17.7008	0.1875	0.7500	A572-65 (65 ksi)
L5	120.00-115.00	5.00	0.00	18	17.7008	18.8358	0.1875	0.7500	A572-65

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	115.00-110.00	5.00	0.00	18	18.8358	19.9707	0.1875	0.7500	(65 ksi) A572-65 (65 ksi)
L7	110.00-105.00	5.00	0.00	18	19.9707	21.1057	0.1875	0.7500	A572-65 (65 ksi)
L8	105.00-101.58	3.42	0.00	18	21.1057	21.8820	0.1875	0.7500	A572-65 (65 ksi)
L9	101.58-96.58	5.00	0.00	18	21.8820	23.0170	0.3125	1.2500	A572-65 (65 ksi)
L10	96.58-91.58	5.00	0.00	18	23.0170	24.1520	0.3125	1.2500	A572-65 (65 ksi)
L11	91.58-86.58	5.00	0.00	18	24.1520	25.2870	0.3125	1.2500	A572-65 (65 ksi)
L12	86.58-81.58	5.00	0.00	18	25.2870	26.4220	0.3125	1.2500	A572-65 (65 ksi)
L13	81.58-76.58	5.00	0.00	18	26.4220	27.5570	0.3125	1.2500	A572-65 (65 ksi)
L14	76.58-71.58	5.00	0.00	18	27.5570	28.6920	0.3125	1.2500	A572-65 (65 ksi)
L15	71.58-70.08	1.50	0.00	18	28.6920	29.0325	0.3125	1.2500	A572-65 (65 ksi)
L16	70.08-69.83	0.25	0.00	18	29.0325	29.0893	0.5313	2.1250	A572-65 (65 ksi)
L17	69.83-64.83	5.00	0.00	18	29.0893	30.2243	0.5250	2.1000	A572-65 (65 ksi)
L18	64.83-62.50	2.33	0.00	18	30.2243	30.7532	0.5125	2.0500	A572-65 (65 ksi)
L19	62.50-62.25	0.25	0.00	18	30.7532	30.8099	0.7375	2.9500	A572-65 (65 ksi)
L20	62.25-58.92	3.33	0.00	18	30.8099	31.5658	0.7250	2.9000	A572-65 (65 ksi)
L21	58.92-58.67	0.25	0.00	18	31.5658	31.6226	0.5250	2.1000	A572-65 (65 ksi)
L22	58.67-53.67	5.00	0.00	18	31.6226	32.7576	0.5125	2.0500	A572-65 (65 ksi)
L23	53.67-48.58	5.09	4.42	18	32.7576	33.9130	0.5125	2.0500	A572-65 (65 ksi)
L24	48.58-47.58	5.42	0.00	18	32.2847	33.5151	0.5000	2.0000	A572-65 (65 ksi)
L25	47.58-42.58	5.00	0.00	18	33.5151	34.6503	0.4875	1.9500	A572-65 (65 ksi)
L26	42.58-39.08	3.50	0.00	18	34.6503	35.4449	0.4875	1.9500	A572-65 (65 ksi)
L27	39.08-38.83	0.25	0.00	18	35.4449	35.5016	0.5750	2.3000	A572-65 (65 ksi)
L28	38.83-33.83	5.00	0.00	18	35.5016	36.6367	0.5625	2.2500	A572-65 (65 ksi)
L29	33.83-30.00	3.83	0.00	18	36.6367	37.5062	0.5625	2.2500	A572-65 (65 ksi)
L30	30.00-29.75	0.25	0.00	18	37.5062	37.5630	0.5625	2.2500	A572-65 (65 ksi)
L31	29.75-24.75	5.00	0.00	18	37.5630	38.6981	0.5500	2.2000	A572-65 (65 ksi)
L32	24.75-19.75	5.00	0.00	18	38.6981	39.8333	0.5375	2.1500	A572-65 (65 ksi)
L33	19.75-14.75	5.00	0.00	18	39.8333	40.9684	0.5375	2.1500	A572-65 (65 ksi)
L34	14.75-9.75	5.00	0.00	18	40.9684	42.1035	0.5250	2.1000	A572-65 (65 ksi)
L35	9.75-4.75	5.00	0.00	18	42.1035	43.2386	0.5250	2.1000	A572-65 (65 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
L36	4.75-0.00	4.75		18	43.2386	44.3170	0.5125	2.0500	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	13.3640	7.7209	164.1788	4.6056	6.6858	24.5564	328.5737	3.8612	1.9863	10.594
	14.5165	8.3963	211.1466	5.0085	7.2623	29.0742	422.5710	4.1989	2.1861	11.659
L2	14.5165	8.3963	211.1466	5.0085	7.2623	29.0742	422.5710	4.1989	2.1861	11.659
	15.6690	9.0717	266.3129	5.4114	7.8389	33.9732	532.9762	4.5367	2.3858	12.724
L3	15.6690	9.0717	266.3129	5.4114	7.8389	33.9732	532.9762	4.5367	2.3858	12.724
	16.8214	9.7472	330.3372	5.8143	8.4155	39.2536	661.1090	4.8745	2.5856	13.79
L4	16.8214	9.7472	330.3372	5.8143	8.4155	39.2536	661.1090	4.8745	2.5856	13.79
	17.9739	10.4226	403.8790	6.2172	8.9920	44.9153	808.2895	5.2123	2.7853	14.855
L5	17.9739	10.4226	403.8790	6.2172	8.9920	44.9153	808.2895	5.2123	2.7853	14.855
	19.1264	11.0981	487.5980	6.6201	9.5686	50.9583	975.8376	5.5501	2.9851	15.921
L6	19.1264	11.0981	487.5980	6.6201	9.5686	50.9583	975.8376	5.5501	2.9851	15.921
	20.2788	11.7735	582.1536	7.0230	10.1451	57.3825	1165.0732	5.8879	3.1848	16.986
L7	20.2788	11.7735	582.1536	7.0230	10.1451	57.3825	1165.0732	5.8879	3.1848	16.986
	21.4313	12.4489	688.2052	7.4260	10.7217	64.1881	1377.3160	6.2257	3.3846	18.051
L8	21.4313	12.4489	688.2052	7.4260	10.7217	64.1881	1377.3160	6.2257	3.3846	18.051
	22.2196	12.9109	767.7054	7.7015	11.1161	69.0627	1536.4209	6.4567	3.5212	18.78
L9	22.2196	21.3942	1257.5192	7.6572	11.1161	113.1264	2516.6931	10.6992	3.3012	10.564
	23.3721	22.5200	1466.6626	8.0601	11.6926	125.4347	2935.2551	11.2622	3.5010	11.203
L10	23.3721	22.5200	1466.6626	8.0601	11.6926	125.4347	2935.2551	11.2622	3.5010	11.203
	24.5246	23.6458	1697.7972	8.4630	12.2692	138.3786	3397.8285	11.8251	3.7008	11.842
L11	24.5246	23.6458	1697.7972	8.4630	12.2692	138.3786	3397.8285	11.8251	3.7008	11.842
	25.6771	24.7716	1952.0224	8.8659	12.8458	151.9581	3906.6134	12.3881	3.9005	12.482
L12	25.6771	24.7716	1952.0224	8.8659	12.8458	151.9581	3906.6134	12.3881	3.9005	12.482
	26.8296	25.8974	2230.4375	9.2689	13.4224	166.1731	4463.8099	12.9511	4.1003	13.121
L13	26.8296	25.8974	2230.4375	9.2689	13.4224	166.1731	4463.8099	12.9511	4.1003	13.121
	27.9821	27.0231	2534.1418	9.6718	13.9990	181.0236	5071.6182	13.5141	4.3000	13.76
L14	27.9821	27.0231	2534.1418	9.6718	13.9990	181.0236	5071.6182	13.5141	4.3000	13.76
	29.1346	28.1489	2864.2348	10.0747	14.5755	196.5097	5732.2384	14.0771	4.4998	14.399
L15	29.1346	28.1489	2864.2348	10.0747	14.5755	196.5097	5732.2384	14.0771	4.4998	14.399
	29.4804	28.4867	2968.5728	10.1956	14.7485	201.2795	5941.0517	14.2460	4.5597	14.591
L16	29.4804	48.0585	4932.1359	10.1179	14.7485	334.4159	9870.7617	24.0338	4.1747	7.858
	29.5380	48.1541	4961.6564	10.1381	14.7773	335.7612	9929.8414	24.0816	4.1847	7.877
L17	29.5380	47.5980	4906.5039	10.1403	14.7773	332.0289	9819.4640	23.8035	4.1957	7.992
	30.6905	49.4893	5514.9315	10.5432	15.3539	359.1872	11037.1197	24.7494	4.3955	8.372
L18	30.6905	48.3314	5390.4241	10.5477	15.3539	351.0781	10787.9411	24.1703	4.4175	8.619
	31.2276	49.1917	5683.4499	10.7354	15.6226	363.7966	11374.3783	24.6005	4.5106	8.801
L19	31.2276	70.2614	7997.4234	10.6556	15.6226	511.9136	16005.3700	35.1374	4.1146	5.579
	31.2852	70.3942	8042.8709	10.6757	15.6514	513.8744	16096.3249	35.2038	4.1245	5.593
L20	31.2852	69.2299	7916.4146	10.6801	15.6514	505.7948	15843.2457	34.6215	4.1465	5.719
	32.0528	70.9694	8528.2540	10.9485	16.0354	531.8380	17067.7298	35.4914	4.2796	5.903
L21	32.0528	51.7249	6296.5583	11.0195	16.0354	392.6652	12601.4019	25.8673	4.6316	8.822
	32.1104	51.8194	6331.1563	11.0396	16.0643	394.1143	12670.6434	25.9146	4.6416	8.841
L22	32.1104	50.6060	6187.8704	11.0441	16.0643	385.1947	12383.8829	25.3078	4.6636	9.1
	33.2629	52.4522	6890.1427	11.4470	16.6408	414.0500	13789.3516	26.2311	4.8633	9.489
L23	33.2629	52.4522	6890.1427	11.4470	16.6408	414.0500	13789.3516	26.2311	4.8633	9.489
	34.4362	54.3318	7657.6788	11.8572	17.2278	444.4954	15325.4338	27.1710	5.0667	9.886
L24	33.8016	50.4423	6438.2389	11.2836	16.4006	392.5610	12884.9494	25.2259	4.8021	9.604
	34.0322	52.3950	7215.2883	11.7204	17.0257	423.7883	14440.0706	26.2025	5.0187	10.037
L25	34.0322	51.1045	7042.8997	11.7248	17.0257	413.6631	14095.0665	25.5571	5.0407	10.34

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
	35.1848	52.8609	7794.3151	12.1278	17.6023	442.8001	15598.8861	26.4355	5.2404	10.75
L26	35.1848	52.8609	7794.3151	12.1278	17.6023	442.8001	15598.8861	26.4355	5.2404	10.75
	35.9916	54.0904	8350.9249	12.4099	18.0060	463.7861	16712.8381	27.0503	5.3803	11.037
L27	35.9916	63.6392	9776.0301	12.3788	18.0060	542.9323	19564.9237	31.8257	ficatio9.089	9.089
	36.0493	63.7428	9823.8438	12.3989	18.0348	544.7155	19660.6140	31.8775	5.2363	9.107
L28	36.0493	62.3794	9620.6040	12.4034	18.0348	533.4462	19253.8670	31.1956	5.2583	9.348
	37.2019	64.4060	10589.0815	12.8064	18.6115	568.9549	21192.0963	32.2091	5.4581	9.703
L29	37.2019	64.4060	10589.0815	12.8064	18.6115	568.9549	21192.0963	32.2091	5.4581	9.703
	38.0848	65.9584	11373.3799	13.1150	19.0532	596.9285	22761.7253	32.9855	5.6111	9.975
L30	38.0848	65.9584	11373.3799	13.1150	19.0532	596.9285	22761.7253	32.9855	5.6111	9.975
	38.1425	66.0598	11425.8787	13.1352	19.0820	598.7777	22866.7918	33.0362	5.6211	9.993
L31	38.1425	64.6136	11183.2969	13.1396	19.0820	586.0651	22381.3090	32.3129	5.6431	10.26
	39.2951	66.5952	12244.0930	13.5426	19.6586	622.8350	24504.2971	33.3039	5.8429	10.623
L32	39.2951	65.1030	11977.5845	13.5470	19.6586	609.2782	23970.9295	32.5577	5.8649	10.911
	40.4477	67.0395	13078.5507	13.9500	20.2353	646.3238	26174.3105	33.5261	6.0647	11.283
L33	40.4477	67.0395	13078.5507	13.9500	20.2353	646.3238	26174.3105	33.5261	6.0647	11.283
	41.6004	68.9761	14244.9958	14.3530	20.8119	684.4628	28508.7356	34.4946	6.2644	11.655
L34	41.6004	67.3928	13926.6260	14.3574	20.8119	669.1653	27871.5769	33.7028	6.2864	11.974
	42.7530	69.2843	15132.4840	14.7604	21.3886	707.5030	30284.8797	34.6488	6.4862	12.355
L35	42.7530	69.2843	15132.4840	14.7604	21.3886	707.5030	30284.8797	34.6488	6.4862	12.355
	43.9057	71.1759	16406.0156	15.1633	21.9652	746.9086	32833.6186	35.5947	6.6860	12.735
L36	43.9057	69.5015	16029.4608	15.1678	21.9652	729.7654	32080.0137	34.7574	6.7080	13.089
	45.0007	71.2557	17274.0600	15.5506	22.5130	767.2915	34570.8497	35.6346	6.8978	13.459

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 140.00-135.00				1	1	1		
L2 135.00-130.00				1	1	1		
L3 130.00-125.00				1	1	1		
L4 125.00-120.00				1	1	1		
L5 120.00-115.00				1	1	1		
L6 115.00-110.00				1	1	1		
L7 110.00-105.00				1	1	1		
L8 105.00-101.58				1	1	1		
L9 101.58-96.58				1	1	1		
L10 96.58-91.58				1	1	1		
L11 91.58-86.58				1	1	1		
L12 86.58-81.58				1	1	1		
L13 81.58-76.58				1	1	1		
L14 76.58-71.58				1	1	1		
L15 71.58-70.08				1	1	1		
L16 70.08-69.83				1	1	0.950979		

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
L17 69.83-64.83				1	1	0.948069		
L18 64.83-62.50				1	1	0.96447		
L19 62.50-62.25				1	1	0.930486		
L20 62.25-58.92				1	1	0.933511		
L21 58.92-58.67				1	1	0.946678		
L22 58.67-53.67				1	1	0.95672		
L23 53.67-48.58				1	1	0.955091		
L24 48.58-47.58				1	1	0.957791		
L25 47.58-42.58				1	1	0.970649		
L26 42.58-39.08				1	1	0.963157		
L27 39.08-38.83				1	1	0.955624		
L28 38.83-33.83				1	1	0.963264		
L29 33.83-30.00				1	1	0.953669		
L30 30.00-29.75				1	1	0.953058		
L31 29.75-24.75				1	1	0.962302		
L32 24.75-19.75				1	1	0.972718		
L33 19.75-14.75				1	1	0.961732		
L34 14.75-9.75				1	1	0.973703		
L35 9.75-4.75				1	1	0.963645		
L36 4.75-0.00				1	1	0.977577		

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
Safety Line 3/8 ***	A	Surface Ar (CaAa)	140.00 - 0.00	1	1	0.450 0.500	0.3750		0.22

Feed Line/Linear Appurtenances - Entered As Area

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

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
***								
***								
5.75" x 1" Flat Plate (F)	A	No	CaAa (Out Of Face)	72.00 - 57.00	1	No Ice	0.17	0.00
						1/2" Ice	0.28	0.00
						1" Ice	0.39	0.00
						2" Ice	0.61	0.00
						4" Ice	1.06	0.00
5.75" x 1" Flat Plate (F)	B	No	CaAa (Out Of Face)	72.00 - 57.00	1	No Ice	0.17	0.00
						1/2" Ice	0.28	0.00
						1" Ice	0.39	0.00
						2" Ice	0.61	0.00
						4" Ice	1.06	0.00
5.75" x 1" Flat Plate (F)	A	No	Inside Pole	72.00 - 57.00	1	No Ice	0.00	0.00
						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
						2" Ice	0.00	0.00
						4" Ice	0.00	0.00
***								
5.75" x 1" Flat Plate (F)	A	No	CaAa (Out Of Face)	50.60 - 30.60	1	No Ice	0.17	0.00
						1/2" Ice	0.28	0.00
						1" Ice	0.39	0.00
						2" Ice	0.61	0.00
						4" Ice	1.06	0.00
5.75" x 1" Flat Plate (F)	B	No	CaAa (Out Of Face)	50.60 - 30.60	1	No Ice	0.17	0.00
						1/2" Ice	0.28	0.00
						1" Ice	0.39	0.00
						2" Ice	0.61	0.00
						4" Ice	1.06	0.00
5.75" x 1" Flat Plate (F)	C	No	Inside Pole	50.60 - 30.60	1	No Ice	0.00	0.00
						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
						2" Ice	0.00	0.00
						4" Ice	0.00	0.00
5.75" x 1" Flat Plate (F)	A	No	CaAa (Out Of Face)	33.30 - 0.50	1	No Ice	0.17	0.00
						1/2" Ice	0.28	0.00
						1" Ice	0.39	0.00
						2" Ice	0.61	0.00
						4" Ice	1.06	0.00
5.75" x 1" Flat Plate (F)	B	No	CaAa (Out Of Face)	33.30 - 0.50	1	No Ice	0.17	0.00
						1/2" Ice	0.28	0.00
						1" Ice	0.39	0.00
						2" Ice	0.61	0.00
						4" Ice	1.06	0.00
5.75" x 1" Flat Plate (F)	C	No	Inside Pole	33.30 - 0.50	1	No Ice	0.00	0.00
						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
						2" Ice	0.00	0.00
						4" Ice	0.00	0.00
***								
Aero MP304 Channel	A	No	CaAa (Out Of Face)	40.50 - 0.50	1	No Ice	0.27	0.00
						1/2" Ice	0.38	0.00
						1" Ice	0.49	0.00
						2" Ice	0.71	0.00
						4" Ice	1.16	0.00
Aero MP304 Channel	B	No	CaAa (Out Of Face)	40.50 - 0.50	1	No Ice	0.27	0.00
						1/2" Ice	0.38	0.00
						1" Ice	0.49	0.00
						2" Ice	0.71	0.00
						4" Ice	1.16	0.00
Aero MP304 Channel	C	No	Inside Pole	40.50 - 0.50	1	No Ice	0.00	0.00
						1/2" Ice	0.00	0.00

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
						1" Ice	0.00	0.00
						2" Ice	0.00	0.00
						4" Ice	0.00	0.00
***								
LDF5-50A(7/8")	C	No	Inside Pole	138.00 - 0.00	1	No Ice	0.00	0.33
						1/2" Ice	0.00	0.33
						1" Ice	0.00	0.33
						2" Ice	0.00	0.33
						4" Ice	0.00	0.33
LDF7-50A(1-5/8")	C	No	Inside Pole	138.00 - 0.00	13	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
						2" Ice	0.00	0.82
						4" Ice	0.00	0.82
**								
LDF7-50A(1-5/8")	B	No	CaAa (Out Of Face)	120.00 - 0.00	2	No Ice	0.20	0.82
						1/2" Ice	0.30	2.33
						1" Ice	0.40	4.46
						2" Ice	0.60	10.54
						4" Ice	1.00	30.04
LDF7-50A(1-5/8")	B	No	Inside Pole	120.00 - 0.00	16	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
						2" Ice	0.00	0.82
						4" Ice	0.00	0.82
**								
LDF7-50A(1-5/8")	B	No	CaAa (Out Of Face)	110.00 - 0.00	1	No Ice	0.20	0.82
						1/2" Ice	0.30	2.33
						1" Ice	0.40	4.46
						2" Ice	0.60	10.54
						4" Ice	1.00	30.04
LDF7-50A(1-5/8")	B	No	Inside Pole	110.00 - 0.00	5	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
						2" Ice	0.00	0.82
						4" Ice	0.00	0.82
**								
LDF5-50A(7/8")	A	No	Inside Pole	99.00 - 0.00	2	No Ice	0.00	0.33
						1/2" Ice	0.00	0.33
						1" Ice	0.00	0.33
						2" Ice	0.00	0.33
						4" Ice	0.00	0.33
9776(3/4")	A	No	Inside Pole	99.00 - 0.00	1	No Ice	0.00	0.31
						1/2" Ice	0.00	0.31
						1" Ice	0.00	0.31
						2" Ice	0.00	0.31
						4" Ice	0.00	0.31
**								
LDF5-50A(7/8")	A	No	Inside Pole	95.00 - 0.00	6	No Ice	0.00	0.33
						1/2" Ice	0.00	0.33
						1" Ice	0.00	0.33
						2" Ice	0.00	0.33
						4" Ice	0.00	0.33
**								
LDF6-50A(1-1/4")	A	No	Inside Pole	73.00 - 0.00	3	No Ice	0.00	0.66
						1/2" Ice	0.00	0.66
						1" Ice	0.00	0.66
						2" Ice	0.00	0.66
						4" Ice	0.00	0.66
9207(5/16")	揉	No	Inside Pole	73.00 - 0.00	6	No Ice	0.00	0.60
						1/2" Ice	0.00	0.60

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
						1" Ice	0.00	0.60
						2" Ice	0.00	0.60
						4" Ice	0.00	0.60
***								
6" x 1" Flat Plate (F)	A	No	CaAa (Out Of Face)	65.00 - 50.00	1	No Ice	0.17	0.00
						1/2" Ice	0.28	0.00
						1" Ice	0.39	0.00
						2" Ice	0.61	0.00
						4" Ice	1.06	0.00
6" x 1" Flat Plate (F)	B	No	CaAa (Out Of Face)	65.00 - 50.00	1	No Ice	0.17	0.00
						1/2" Ice	0.28	0.00
						1" Ice	0.39	0.00
						2" Ice	0.61	0.00
						4" Ice	1.06	0.00
6" x 1" Flat Plate (F)	C	No	Inside Pole	65.00 - 50.00	1	No Ice	0.00	0.00
						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
						2" Ice	0.00	0.00
						4" Ice	0.00	0.00

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	140.00-135.00	A	0.000	0.000	0.188	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.03
L2	135.00-130.00	A	0.000	0.000	0.188	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.05
L3	130.00-125.00	A	0.000	0.000	0.188	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.05
L4	125.00-120.00	A	0.000	0.000	0.188	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.05
L5	120.00-115.00	A	0.000	0.000	0.188	0.000	0.00
		B	0.000	0.000	0.000	1.980	0.07
		C	0.000	0.000	0.000	0.000	0.05
L6	115.00-110.00	A	0.000	0.000	0.188	0.000	0.00
		B	0.000	0.000	0.000	1.980	0.07
		C	0.000	0.000	0.000	0.000	0.05
L7	110.00-105.00	A	0.000	0.000	0.188	0.000	0.00
		B	0.000	0.000	0.000	2.970	0.10
		C	0.000	0.000	0.000	0.000	0.05
L8	105.00-101.58	A	0.000	0.000	0.128	0.000	0.00
		B	0.000	0.000	0.000	2.031	0.07
		C	0.000	0.000	0.000	0.000	0.04
L9	101.58-96.58	A	0.000	0.000	0.188	0.000	0.00
		B	0.000	0.000	0.000	2.970	0.10
		C	0.000	0.000	0.000	0.000	0.05
L10	96.58-91.58	A	0.000	0.000	0.188	0.000	0.01
		B	0.000	0.000	0.000	2.970	0.10
		C	0.000	0.000	0.000	0.000	0.05
L11	91.58-86.58	A	0.000	0.000	0.188	0.000	0.02
		B	0.000	0.000	0.000	2.970	0.10
		C	0.000	0.000	0.000	0.000	0.05

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
L12	86.58-81.58	A	0.000	0.000	0.188	0.000	0.02
		B	0.000	0.000	0.000	2.970	0.10
		C	0.000	0.000	0.000	0.000	0.05
L13	81.58-76.58	A	0.000	0.000	0.188	0.000	0.02
		B	0.000	0.000	0.000	2.970	0.10
		C	0.000	0.000	0.000	0.000	0.05
L14	76.58-71.58	A	0.000	0.000	0.188	0.070	0.02
		B	0.000	0.000	0.000	3.040	0.10
		C	0.000	0.000	0.000	0.000	0.05
L15	71.58-70.08	A	0.000	0.000	0.056	0.250	0.01
		B	0.000	0.000	0.000	1.141	0.03
		C	0.000	0.000	0.000	0.000	0.02
L16	70.08-69.83	A	0.000	0.000	0.009	0.042	0.00
		B	0.000	0.000	0.000	0.190	0.00
		C	0.000	0.000	0.000	0.000	0.00
L17	69.83-64.83	A	0.000	0.000	0.188	0.862	0.04
		B	0.000	0.000	0.000	3.832	0.10
		C	0.000	0.000	0.000	0.000	0.05
L18	64.83-62.50	A	0.000	0.000	0.087	0.777	0.02
		B	0.000	0.000	0.000	2.161	0.05
		C	0.000	0.000	0.000	0.000	0.03
L19	62.50-62.25	A	0.000	0.000	0.009	0.083	0.00
		B	0.000	0.000	0.000	0.232	0.00
		C	0.000	0.000	0.000	0.000	0.00
L20	62.25-58.92	A	0.000	0.000	0.125	1.110	0.03
		B	0.000	0.000	0.000	3.088	0.07
		C	0.000	0.000	0.000	0.000	0.04
L21	58.92-58.67	A	0.000	0.000	0.009	0.083	0.00
		B	0.000	0.000	0.000	0.232	0.00
		C	0.000	0.000	0.000	0.000	0.00
L22	58.67-53.67	A	0.000	0.000	0.188	1.112	0.04
		B	0.000	0.000	0.000	4.082	0.10
		C	0.000	0.000	0.000	0.000	0.05
L23	53.67-48.58	A	0.000	0.000	0.191	0.948	0.04
		B	0.000	0.000	0.000	3.972	0.10
		C	0.000	0.000	0.000	0.000	0.06
L24	48.58-47.58	A	0.000	0.000	0.037	0.167	0.01
		B	0.000	0.000	0.000	0.761	0.02
		C	0.000	0.000	0.000	0.000	0.01
L25	47.58-42.58	A	0.000	0.000	0.188	0.833	0.04
		B	0.000	0.000	0.000	3.803	0.10
		C	0.000	0.000	0.000	0.000	0.05
L26	42.58-39.08	A	0.000	0.000	0.131	0.964	0.03
		B	0.000	0.000	0.000	3.043	0.07
		C	0.000	0.000	0.000	0.000	0.04
L27	39.08-38.83	A	0.000	0.000	0.009	0.109	0.00
		B	0.000	0.000	0.000	0.257	0.00
		C	0.000	0.000	0.000	0.000	0.00
L28	38.83-33.83	A	0.000	0.000	0.188	2.175	0.04
		B	0.000	0.000	0.000	5.145	0.10
		C	0.000	0.000	0.000	0.000	0.05
L29	33.83-30.00	A	0.000	0.000	0.144	2.116	0.03
		B	0.000	0.000	0.000	4.391	0.08
		C	0.000	0.000	0.000	0.000	0.04
L30	30.00-29.75	A	0.000	0.000	0.009	0.109	0.00
		B	0.000	0.000	0.000	0.257	0.00
		C	0.000	0.000	0.000	0.000	0.00
L31	29.75-24.75	A	0.000	0.000	0.188	2.175	0.04
		B	0.000	0.000	0.000	5.145	0.10
		C	0.000	0.000	0.000	0.000	0.05
L32	24.75-19.75	A	0.000	0.000	0.188	2.175	0.04

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B	0.000	0.000	0.000	5.145	0.10
		C	0.000	0.000	0.000	0.000	0.05
L33	19.75-14.75	A	0.000	0.000	0.188	2.175	0.04
		B	0.000	0.000	0.000	5.145	0.10
		C	0.000	0.000	0.000	0.000	0.05
L34	14.75-9.75	A	0.000	0.000	0.188	2.175	0.04
		B	0.000	0.000	0.000	5.145	0.10
		C	0.000	0.000	0.000	0.000	0.05
L35	9.75-4.75	A	0.000	0.000	0.188	2.175	0.04
		B	0.000	0.000	0.000	5.145	0.10
		C	0.000	0.000	0.000	0.000	0.05
L36	4.75-0.00	A	0.000	0.000	0.178	1.849	0.04
		B	0.000	0.000	0.000	4.670	0.09
		C	0.000	0.000	0.000	0.000	0.05

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	140.00-135.00	A	0.890	0.000	0.000	1.078	0.000	0.01
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.03
L2	135.00-130.00	A	0.886	0.000	0.000	1.074	0.000	0.01
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.05
L3	130.00-125.00	A	0.882	0.000	0.000	1.070	0.000	0.01
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.05
L4	125.00-120.00	A	0.878	0.000	0.000	1.065	0.000	0.01
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.05
L5	120.00-115.00	A	0.873	0.000	0.000	1.061	0.000	0.01
		B		0.000	0.000	0.000	3.727	0.10
		C		0.000	0.000	0.000	0.000	0.05
L6	115.00-110.00	A	0.869	0.000	0.000	1.056	0.000	0.01
		B		0.000	0.000	0.000	3.718	0.10
		C		0.000	0.000	0.000	0.000	0.05
L7	110.00-105.00	A	0.864	0.000	0.000	1.052	0.000	0.01
		B		0.000	0.000	0.000	5.563	0.14
		C		0.000	0.000	0.000	0.000	0.05
L8	105.00-101.58	A	0.860	0.000	0.000	0.717	0.000	0.01
		B		0.000	0.000	0.000	3.796	0.10
		C		0.000	0.000	0.000	0.000	0.04
L9	101.58-96.58	A	0.856	0.000	0.000	1.043	0.000	0.01
		B		0.000	0.000	0.000	5.537	0.14
		C		0.000	0.000	0.000	0.000	0.05
L10	96.58-91.58	A	0.850	0.000	0.000	1.038	0.000	0.02
		B		0.000	0.000	0.000	5.521	0.14
		C		0.000	0.000	0.000	0.000	0.05
L11	91.58-86.58	A	0.845	0.000	0.000	1.032	0.000	0.02
		B		0.000	0.000	0.000	5.505	0.14
		C		0.000	0.000	0.000	0.000	0.05
L12	86.58-81.58	A	0.839	0.000	0.000	1.027	0.000	0.02
		B		0.000	0.000	0.000	5.487	0.14
		C		0.000	0.000	0.000	0.000	0.05
L13	81.58-76.58	A	0.833	0.000	0.000	1.020	0.000	0.02
		B		0.000	0.000	0.000	5.469	0.14

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
		C		0.000	0.000	0.000	0.000	0.05
L14	76.58-71.58	A	0.826	0.000	0.000	1.014	0.147	0.03
		B		0.000	0.000	0.000	5.596	0.14
		C		0.000	0.000	0.000	0.000	0.05
L15	71.58-70.08	A	0.822	0.000	0.000	0.303	0.524	0.01
		B		0.000	0.000	0.000	2.155	0.04
		C		0.000	0.000	0.000	0.000	0.02
L16	70.08-69.83	A	0.821	0.000	0.000	0.050	0.087	0.00
		B		0.000	0.000	0.000	0.359	0.01
		C		0.000	0.000	0.000	0.000	0.00
L17	69.83-64.83	A	0.817	0.000	0.000	1.004	1.800	0.05
		B		0.000	0.000	0.000	7.221	0.14
		C		0.000	0.000	0.000	0.000	0.05
L18	64.83-62.50	A	0.812	0.000	0.000	0.466	1.617	0.02
		B		0.000	0.000	0.000	4.136	0.07
		C		0.000	0.000	0.000	0.000	0.03
L19	62.50-62.25	A	0.810	0.000	0.000	0.050	0.173	0.00
		B		0.000	0.000	0.000	0.443	0.01
		C		0.000	0.000	0.000	0.000	0.00
L20	62.25-58.92	A	0.807	0.000	0.000	0.662	2.304	0.03
		B		0.000	0.000	0.000	5.894	0.09
		C		0.000	0.000	0.000	0.000	0.04
L21	58.92-58.67	A	0.804	0.000	0.000	0.050	0.173	0.00
		B		0.000	0.000	0.000	0.442	0.01
		C		0.000	0.000	0.000	0.000	0.00
L22	58.67-53.67	A	0.799	0.000	0.000	0.987	2.297	0.05
		B		0.000	0.000	0.000	7.665	0.14
		C		0.000	0.000	0.000	0.000	0.05
L23	53.67-48.58	A	0.790	0.000	0.000	0.996	1.948	0.05
		B		0.000	0.000	0.000	7.385	0.14
		C		0.000	0.000	0.000	0.000	0.06
L24	48.58-47.58	A	0.785	0.000	0.000	0.196	0.342	0.01
		B		0.000	0.000	0.000	1.411	0.03
		C		0.000	0.000	0.000	0.000	0.01
L25	47.58-42.58	A	0.779	0.000	0.000	0.966	1.698	0.05
		B		0.000	0.000	0.000	7.004	0.14
		C		0.000	0.000	0.000	0.000	0.05
L26	42.58-39.08	A	0.769	0.000	0.000	0.670	1.806	0.03
		B		0.000	0.000	0.000	5.500	0.10
		C		0.000	0.000	0.000	0.000	0.04
L27	39.08-38.83	A	0.765	0.000	0.000	0.048	0.194	0.00
		B		0.000	0.000	0.000	0.457	0.01
		C		0.000	0.000	0.000	0.000	0.00
L28	38.83-33.83	A	0.759	0.000	0.000	0.946	3.861	0.05
		B		0.000	0.000	0.000	9.107	0.14
		C		0.000	0.000	0.000	0.000	0.05
L29	33.83-30.00	A	0.750	0.000	0.000	0.718	3.843	0.04
		B		0.000	0.000	0.000	7.841	0.10
		C		0.000	0.000	0.000	0.000	0.04
L30	30.00-29.75	A	0.750	0.000	0.000	0.047	0.192	0.00
		B		0.000	0.000	0.000	0.453	0.01
		C		0.000	0.000	0.000	0.000	0.00
L31	29.75-24.75	A	0.750	0.000	0.000	0.938	3.842	0.05
		B		0.000	0.000	0.000	9.062	0.14
		C		0.000	0.000	0.000	0.000	0.05
L32	24.75-19.75	A	0.750	0.000	0.000	0.938	3.842	0.05
		B		0.000	0.000	0.000	9.062	0.14
		C		0.000	0.000	0.000	0.000	0.05
L33	19.75-14.75	A	0.750	0.000	0.000	0.938	3.842	0.05
		B		0.000	0.000	0.000	9.062	0.14
		C		0.000	0.000	0.000	0.000	0.05

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
L34	14.75-9.75	A	0.750	0.000	0.000	0.938	3.842	0.05
		B		0.000	0.000	0.000	9.062	0.14
		C		0.000	0.000	0.000	0.000	0.05
L35	9.75-4.75	A	0.750	0.000	0.000	0.938	3.842	0.05
		B		0.000	0.000	0.000	9.062	0.14
		C		0.000	0.000	0.000	0.000	0.05
L36	4.75-0.00	A	0.750	0.000	0.000	0.891	3.265	0.05
		B		0.000	0.000	0.000	8.224	0.13
		C		0.000	0.000	0.000	0.000	0.05

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	140.00-135.00	-0.0029	-0.0559	-0.0132	-0.2516
L2	135.00-130.00	-0.0029	-0.0559	-0.0134	-0.2551
L3	130.00-125.00	-0.0029	-0.0559	-0.0135	-0.2581
L4	125.00-120.00	-0.0029	-0.0559	-0.0137	-0.2606
L5	120.00-115.00	0.3981	0.1866	0.5516	0.1361
L6	115.00-110.00	0.4033	0.1891	0.5649	0.1399
L7	110.00-105.00	0.5615	0.2836	0.7692	0.2765
L8	105.00-101.58	0.5683	0.2871	0.7845	0.2825
L9	101.58-96.58	0.5747	0.2904	0.7990	0.2881
L10	96.58-91.58	0.5817	0.2940	0.8151	0.2945
L11	91.58-86.58	0.5883	0.2973	0.8301	0.3005
L12	86.58-81.58	0.5944	0.3004	0.8441	0.3061
L13	81.58-76.58	0.6001	0.3034	0.8571	0.3114
L14	76.58-71.58	0.6143	0.2949	0.8796	0.2978
L15	71.58-70.08	0.7031	0.1881	0.9823	0.1312
L16	70.08-69.83	0.7045	0.1885	0.9851	0.1317
L17	69.83-64.83	0.7116	0.1859	0.9968	0.1276
L18	64.83-62.50	0.7953	0.0918	1.0885	-0.0061
L19	62.50-62.25	0.7979	0.0921	1.0935	-0.0059
L20	62.25-58.92	0.8014	0.0925	1.1002	-0.0057
L21	58.92-58.67	0.8048	0.0929	1.1068	-0.0055
L22	58.67-53.67	0.7541	0.1587	1.0579	0.0872
L23	53.67-48.58	0.7425	0.1828	1.0516	0.1225
L24	48.58-47.58	0.7316	0.1958	1.0398	0.1420
L25	47.58-42.58	0.7354	0.1968	1.0451	0.1439
L26	42.58-39.08	0.8026	0.1292	1.1117	0.0626
L27	39.08-38.83	0.8845	0.0414	1.1868	-0.0402
L28	38.83-33.83	0.8894	0.0417	1.1947	-0.0400
L29	33.83-30.00	0.9515	-0.0164	1.2662	-0.1212
L30	30.00-29.75	0.9012	0.0422	1.2153	-0.0400
L31	29.75-24.75	0.9057	0.0425	1.2245	-0.0402
L32	24.75-19.75	0.9142	0.0429	1.2416	-0.0408
L33	19.75-14.75	0.9224	0.0433	1.2582	-0.0413
L34	14.75-9.75	0.9302	0.0436	1.2743	-0.0418
L35	9.75-4.75	0.9378	0.0440	1.2899	-0.0422
L36	4.75-0.00	0.9186	0.0702	1.2771	-0.0087

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
DB636-C	A	From Leg	4.00 0.00 7.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.38 3.35 4.35 5.58 8.03	2.38 3.35 4.35 5.58 8.03	0.03 0.05 0.07 0.14 0.35
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BXA-70063-6CF-2 w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.97 8.61 9.22 10.46 13.07	5.80 6.95 7.82 9.60 13.37	0.04 0.10 0.17 0.34 0.80
BXA-70063-6CF-2 w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.97 8.61 9.22 10.46 13.07	5.80 6.95 7.82 9.60 13.37	0.04 0.10 0.17 0.34 0.80
BXA-70063-6CF-2 w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.97 8.61 9.22 10.46 13.07	5.80 6.95 7.82 9.60 13.37	0.04 0.10 0.17 0.34 0.80
(2) BXA-171063-8BF-2 w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.18 3.56 3.96 4.85 6.77	3.35 3.97 4.60 5.89 8.89	0.03 0.06 0.10 0.19 0.49
(2) BXA-171063-8BF-2 w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.18 3.56 3.96 4.85 6.77	3.35 3.97 4.60 5.89 8.89	0.03 0.06 0.10 0.19 0.49
(2) BXA-171063-8BF-2 w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.18 3.56 3.96 4.85 6.77	3.35 3.97 4.60 5.89 8.89	0.03 0.06 0.10 0.19 0.49
(2) FD9R6004/2C-3L	A	From Leg	4.00 0.00 2.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.31 0.43 0.55 0.79 1.27	0.08 0.14 0.20 0.32 0.56	0.00 0.01 0.01 0.02 0.06
(2) FD9R6004/2C-3L	B	From Leg	4.00 0.00 2.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.31 0.43 0.55 0.79 1.27	0.08 0.14 0.20 0.32 0.56	0.00 0.01 0.01 0.02 0.06
(2) FD9R6004/2C-3L	C	From Leg	4.00 0.00 2.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.31 0.43 0.55 0.79 1.27	0.08 0.14 0.20 0.32 0.56	0.00 0.01 0.01 0.02 0.06
BXA-80063-6BF-EDIN-4 w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice	7.71 8.33 8.92	5.63 6.72 7.56	0.04 0.10 0.17

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	10.13	9.29	0.33
						4" Ice	12.68	12.97	0.79
BXA-80063-6BF-EDIN-4 w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.71 8.33 8.92 10.13 12.68	5.63 6.72 7.56 9.29 12.97	0.04 0.10 0.17 0.33 0.79
BXA-80063-6BF-EDIN-4 w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.71 8.33 8.92 10.13 12.68	5.63 6.72 7.56 9.29 12.97	0.04 0.10 0.17 0.33 0.79
RRH2X40-AWS	A	From Leg	4.00 0.00 2.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.16 2.46 2.76 3.36 4.56	1.42 1.68 1.94 2.46 3.50	0.04 0.06 0.08 0.13 0.28
RRH2X40-AWS	B	From Leg	4.00 0.00 2.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.16 2.46 2.76 3.36 4.56	1.42 1.68 1.94 2.46 3.50	0.04 0.06 0.08 0.13 0.28
RRH2X40-AWS	C	From Leg	4.00 0.00 2.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.16 2.46 2.76 3.36 4.56	1.42 1.68 1.94 2.46 3.50	0.04 0.06 0.08 0.13 0.28
DB-T1-6Z-8AB-0Z	C	From Leg	4.00 0.00 2.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.60 5.92 6.24 6.91 8.37	2.33 2.56 2.79 3.28 4.37	0.04 0.08 0.12 0.21 0.45
Platform Mount [LP 403-1]	C	None		0.0000	138.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	18.85 24.30 29.75 40.65 62.45	18.85 24.30 29.75 40.65 62.45	1.50 1.80 2.09 2.69 3.87
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APX16PV-16PVL-E w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.77 7.23 7.70 8.67 10.73	3.15 3.77 4.40 5.73 8.64	0.06 0.10 0.15 0.27 0.63
APX16PV-16PVL-E w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.77 7.23 7.70 8.67 10.73	3.15 3.77 4.40 5.73 8.64	0.06 0.10 0.15 0.27 0.63
APX16PV-16PVL-E w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.77 7.23 7.70 8.67 10.73	3.15 3.77 4.40 5.73 8.64	0.06 0.10 0.15 0.27 0.63
DTMA-1819-DD-12 TMA	A	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.65 0.77 0.90 1.18	0.38 0.48 0.60 0.85	0.01 0.02 0.03 0.04

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
						4" Ice	1.85	1.45	0.11
DTMA-1819-DD-12 TMA	B	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.65 0.77 0.90 1.18 1.85	0.38 0.48 0.60 0.85 1.45	0.01 0.02 0.03 0.04 0.11
DTMA-1819-DD-12 TMA	C	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.65 0.77 0.90 1.18 1.85	0.38 0.48 0.60 0.85 1.45	0.01 0.02 0.03 0.04 0.11
LNX-6515DS-VTM w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	11.68 12.40 13.14 14.60 17.87	9.84 11.37 12.91 15.27 20.14	0.08 0.17 0.27 0.51 1.15
782 11066	A	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.17 0.23 0.30 0.47 0.90	0.10 0.15 0.21 0.35 0.75	0.00 0.00 0.01 0.01 0.05
LNX-6515DS-VTM w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	11.68 12.40 13.14 14.60 17.87	9.84 11.37 12.91 15.27 20.14	0.08 0.17 0.27 0.51 1.15
782 11066	C	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.17 0.23 0.30 0.47 0.90	0.10 0.15 0.21 0.35 0.75	0.00 0.00 0.01 0.01 0.05
LNX-6515DS-VTM w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	11.68 12.40 13.14 14.60 17.87	9.84 11.37 12.91 15.27 20.14	0.08 0.17 0.27 0.51 1.15
782 11066	B	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.17 0.23 0.30 0.47 0.90	0.10 0.15 0.21 0.35 0.75	0.00 0.00 0.01 0.01 0.05
Empty Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.40 2.13 2.68 3.56 5.42	1.40 2.13 2.68 3.56 5.42	0.03 0.04 0.06 0.10 0.26
Empty Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.40 2.13 2.68 3.56 5.42	1.40 2.13 2.68 3.56 5.42	0.03 0.04 0.06 0.10 0.26
Empty Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.40 2.13 2.68 3.56 5.42	1.40 2.13 2.68 3.56 5.42	0.03 0.04 0.06 0.10 0.26
T-Arm Mount [TA 602-3]	C	None		0.0000	120.00	No Ice	11.59	11.59	0.77

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
						1/2" Ice	15.44	15.44	0.99
						1" Ice	19.29	19.29	1.21
						2" Ice	26.99	26.99	1.64
						4" Ice	42.39	42.39	2.50
***									
800 10504 w/ Mount Pipe	A	From Leg	3.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.48 3.86 4.24 5.09 7.01	3.19 3.82 4.47 5.82 8.79	0.05 0.08 0.12 0.22 0.52
800 10504 w/ Mount Pipe	B	From Leg	3.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.48 3.86 4.24 5.09 7.01	3.19 3.82 4.47 5.82 8.79	0.05 0.08 0.12 0.22 0.52
800 10504 w/ Mount Pipe	C	From Leg	3.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.48 3.86 4.24 5.09 7.01	3.19 3.82 4.47 5.82 8.79	0.05 0.08 0.12 0.22 0.52
860 10025 RET	A	From Leg	3.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.16 0.23 0.30 0.48 0.93	0.14 0.20 0.27 0.44 0.88	0.00 0.00 0.01 0.01 0.05
860 10025 RET	B	From Leg	3.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.16 0.23 0.30 0.48 0.93	0.14 0.20 0.27 0.44 0.88	0.00 0.00 0.01 0.01 0.05
860 10025 RET	C	From Leg	3.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.16 0.23 0.30 0.48 0.93	0.14 0.20 0.27 0.44 0.88	0.00 0.00 0.01 0.01 0.05
Empty Mount Pipe	A	From Leg	0.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.40 2.13 2.68 3.56 5.42	1.40 2.13 2.68 3.56 5.42	0.03 0.04 0.06 0.10 0.26
Empty Mount Pipe	B	From Leg	0.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.40 2.13 2.68 3.56 5.42	1.40 2.13 2.68 3.56 5.42	0.03 0.04 0.06 0.10 0.26
Empty Mount Pipe	C	From Leg	0.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.40 2.13 2.68 3.56 5.42	1.40 2.13 2.68 3.56 5.42	0.03 0.04 0.06 0.10 0.26
T-Arm Mount [TA 702-3]	C	None		0.0000	110.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.64 6.55 7.46 9.28 12.92	5.64 6.55 7.46 9.28 12.92	0.34 0.43 0.52 0.70 1.06
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(2) RRUS-11	A	From Leg	1.00	0.0000	99.00	No Ice	1.64	1.26	0.06

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
			0.00			1/2" Ice	1.89	1.49	0.07
			0.00			1" Ice	2.14	1.72	0.10
						2" Ice	2.64	2.18	0.15
						4" Ice	3.64	3.10	0.30
(2) RRUS-11	B	From Leg	1.00	0.0000	99.00	No Ice	1.64	1.26	0.06
			0.00			1/2" Ice	1.89	1.49	0.07
			0.00			1" Ice	2.14	1.72	0.10
						2" Ice	2.64	2.18	0.15
						4" Ice	3.64	3.10	0.30
(2) RRUS-11	C	From Leg	1.00	0.0000	99.00	No Ice	1.64	1.26	0.06
			0.00			1/2" Ice	1.89	1.49	0.07
			0.00			1" Ice	2.14	1.72	0.10
						2" Ice	2.64	2.18	0.15
						4" Ice	3.64	3.10	0.30
DC6-48-60-18-8F	A	From Leg	1.00	0.0000	99.00	No Ice	2.57	4.32	0.03
			0.00			1/2" Ice	2.80	4.60	0.06
			0.00			1" Ice	3.04	4.88	0.10
						2" Ice	3.54	5.49	0.18
						4" Ice	4.66	6.80	0.40
Side Arm Mount [SO 102-3]	C	None		0.0000	99.00	No Ice	3.00	3.00	0.08
						1/2" Ice	3.48	3.48	0.11
						1" Ice	3.96	3.96	0.14
						2" Ice	4.92	4.92	0.20
						4" Ice	6.84	6.84	0.32
***									
7770.00 w/Mount Pipe	A	From Leg	4.00	0.0000	95.00	No Ice	6.46	4.59	0.05
			0.00			1/2" Ice	7.14	5.66	0.10
			0.00			1" Ice	7.73	6.45	0.16
						2" Ice	8.94	8.06	0.30
						4" Ice	11.51	11.64	0.71
7770.00 w/Mount Pipe	B	From Leg	4.00	0.0000	95.00	No Ice	6.46	4.59	0.05
			0.00			1/2" Ice	7.14	5.66	0.10
			0.00			1" Ice	7.73	6.45	0.16
						2" Ice	8.94	8.06	0.30
						4" Ice	11.51	11.64	0.71
7770.00 w/Mount Pipe	C	From Leg	4.00	0.0000	95.00	No Ice	6.46	4.59	0.05
			0.00			1/2" Ice	7.14	5.66	0.10
			0.00			1" Ice	7.73	6.45	0.16
						2" Ice	8.94	8.06	0.30
						4" Ice	11.51	11.64	0.71
P65-16-XLH-RR w/Mount Pipe	A	From Leg	4.00	0.0000	95.00	No Ice	8.64	6.36	0.08
			0.00			1/2" Ice	9.29	7.54	0.14
			0.00			1" Ice	9.91	8.43	0.22
						2" Ice	11.18	10.24	0.39
						4" Ice	13.83	14.10	0.89
P65-16-XLH-RR w/Mount Pipe	B	From Leg	4.00	0.0000	95.00	No Ice	8.64	6.36	0.08
			0.00			1/2" Ice	9.29	7.54	0.14
			0.00			1" Ice	9.91	8.43	0.22
						2" Ice	11.18	10.24	0.39
						4" Ice	13.83	14.10	0.89
P65-16-XLH-RR w/Mount Pipe	C	From Leg	4.00	0.0000	95.00	No Ice	8.64	6.36	0.08
			0.00			1/2" Ice	9.29	7.54	0.14
			0.00			1" Ice	9.91	8.43	0.22
						2" Ice	11.18	10.24	0.39
						4" Ice	13.83	14.10	0.89
(2) LGP21401 TMA	A	From Leg	4.00	0.0000	95.00	No Ice	0.95	0.37	0.02
			0.00			1/2" Ice	1.09	0.48	0.02

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
			0.00			1" Ice	1.24	0.60	0.03
						2" Ice	1.57	0.87	0.05
						4" Ice	2.32	1.51	0.12
(2) LGP21401 TMA	B	From Leg	4.00	0.0000	95.00	No Ice	0.95	0.37	0.02
			0.00			1/2" Ice	1.09	0.48	0.02
			0.00			1" Ice	1.24	0.60	0.03
						2" Ice	1.57	0.87	0.05
						4" Ice	2.32	1.51	0.12
(2) LGP21401 TMA	C	From Leg	4.00	0.0000	95.00	No Ice	0.95	0.37	0.02
			0.00			1/2" Ice	1.09	0.48	0.02
			0.00			1" Ice	1.24	0.60	0.03
						2" Ice	1.57	0.87	0.05
						4" Ice	2.32	1.51	0.12
(2) Empty Mount Pipe	A	From Leg	4.00	0.0000	95.00	No Ice	1.40	1.40	0.03
			0.00			1/2" Ice	2.13	2.13	0.04
			0.00			1" Ice	2.68	2.68	0.06
						2" Ice	3.56	3.56	0.10
						4" Ice	5.42	5.42	0.26
(2) Empty Mount Pipe	B	From Leg	4.00	0.0000	95.00	No Ice	1.40	1.40	0.03
			0.00			1/2" Ice	2.13	2.13	0.04
			0.00			1" Ice	2.68	2.68	0.06
						2" Ice	3.56	3.56	0.10
						4" Ice	5.42	5.42	0.26
(2) Empty Mount Pipe	C	From Leg	4.00	0.0000	95.00	No Ice	1.40	1.40	0.03
			0.00			1/2" Ice	2.13	2.13	0.04
			0.00			1" Ice	2.68	2.68	0.06
						2" Ice	3.56	3.56	0.10
						4" Ice	5.42	5.42	0.26
Platform Mount [LP 713-1]	C	None		0.0000	95.00	No Ice	31.27	31.27	1.51
						1/2" Ice	39.68	39.68	1.93
						1" Ice	48.09	48.09	2.35
						2" Ice	64.91	64.91	3.19
						4" Ice	98.55	98.55	4.86
***									
APXVSPP18-C-A20 w/Mount Pipe	A	From Leg	4.00	0.0000	73.00	No Ice	8.50	6.95	0.08
			0.00			1/2" Ice	9.15	8.13	0.15
			2.00			1" Ice	9.77	9.02	0.23
						2" Ice	11.03	10.84	0.41
						4" Ice	13.68	14.85	0.91
APXVSPP18-C-A20 w/Mount Pipe	B	From Leg	4.00	0.0000	73.00	No Ice	8.50	6.95	0.08
			0.00			1/2" Ice	9.15	8.13	0.15
			2.00			1" Ice	9.77	9.02	0.23
						2" Ice	11.03	10.84	0.41
						4" Ice	13.68	14.85	0.91
APXVSPP18-C-A20 w/Mount Pipe	C	From Leg	4.00	0.0000	73.00	No Ice	8.50	6.95	0.08
			0.00			1/2" Ice	9.15	8.13	0.15
			2.00			1" Ice	9.77	9.02	0.23
						2" Ice	11.03	10.84	0.41
						4" Ice	13.68	14.85	0.91
800MHz 2x50W RRH	A	From Leg	4.00	0.0000	73.00	No Ice	2.49	2.07	0.05
			0.00			1/2" Ice	2.71	2.27	0.07
			2.00			1" Ice	2.93	2.48	0.10
						2" Ice	3.41	2.93	0.16
						4" Ice	4.46	3.93	0.32
800MHz 2x50W RRH	B	From Leg	4.00	0.0000	73.00	No Ice	2.49	2.07	0.05
			0.00			1/2" Ice	2.71	2.27	0.07
			2.00			1" Ice	2.93	2.48	0.10

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	3.41	2.93	0.16
							4" Ice	4.46	3.93	0.32
800MHz 2x50W RRH	C	From Leg	4.00	0.00	0.0000	73.00	No Ice	2.49	2.07	0.05
			0.00	2.00			1/2" Ice	2.71	2.27	0.07
							1" Ice	2.93	2.48	0.10
							2" Ice	3.41	2.93	0.16
							4" Ice	4.46	3.93	0.32
800 MHz External Notch Filter	A	From Leg	4.00	0.00	0.0000	73.00	No Ice	0.78	0.29	0.01
			0.00	2.00			1/2" Ice	0.90	0.38	0.01
							1" Ice	1.03	0.48	0.02
							2" Ice	1.31	0.70	0.04
							4" Ice	1.99	1.24	0.10
800 MHz External Notch Filter	B	From Leg	4.00	0.00	0.0000	73.00	No Ice	0.78	0.29	0.01
			0.00	2.00			1/2" Ice	0.90	0.38	0.01
							1" Ice	1.03	0.48	0.02
							2" Ice	1.31	0.70	0.04
							4" Ice	1.99	1.24	0.10
800 MHz External Notch Filter	C	From Leg	4.00	0.00	0.0000	73.00	No Ice	0.78	0.29	0.01
			0.00	2.00			1/2" Ice	0.90	0.38	0.01
							1" Ice	1.03	0.48	0.02
							2" Ice	1.31	0.70	0.04
							4" Ice	1.99	1.24	0.10
1900MHz 4X40W RRH	A	From Leg	4.00	0.00	0.0000	73.00	No Ice	2.71	2.61	0.06
			0.00	2.00			1/2" Ice	2.95	2.84	0.08
							1" Ice	3.20	3.09	0.11
							2" Ice	3.72	3.61	0.17
							4" Ice	4.86	4.74	0.35
1900MHz 4X40W RRH	B	From Leg	4.00	0.00	0.0000	73.00	No Ice	2.71	2.61	0.06
			0.00	2.00			1/2" Ice	2.95	2.84	0.08
							1" Ice	3.20	3.09	0.11
							2" Ice	3.72	3.61	0.17
							4" Ice	4.86	4.74	0.35
1900MHz 4X40W RRH	C	From Leg	4.00	0.00	0.0000	73.00	No Ice	2.71	2.61	0.06
			0.00	2.00			1/2" Ice	2.95	2.84	0.08
							1" Ice	3.20	3.09	0.11
							2" Ice	3.72	3.61	0.17
							4" Ice	4.86	4.74	0.35
LLPX310R w/Mount Pipe	A	From Leg	4.00	0.00	0.0000	73.00	No Ice	5.69	3.63	0.05
			0.00	2.00			1/2" Ice	6.41	4.63	0.10
							1" Ice	6.99	5.35	0.15
							2" Ice	8.18	6.86	0.27
							4" Ice	10.72	10.16	0.63
LLPX310R w/Mount Pipe	B	From Leg	4.00	0.00	0.0000	73.00	No Ice	5.69	3.63	0.05
			0.00	2.00			1/2" Ice	6.41	4.63	0.10
							1" Ice	6.99	5.35	0.15
							2" Ice	8.18	6.86	0.27
							4" Ice	10.72	10.16	0.63
LLPX310R w/Mount Pipe	C	From Leg	4.00	0.00	0.0000	73.00	No Ice	5.69	3.63	0.05
			0.00	2.00			1/2" Ice	6.41	4.63	0.10
							1" Ice	6.99	5.35	0.15
							2" Ice	8.18	6.86	0.27
							4" Ice	10.72	10.16	0.63
FDD_R6_RRH	A	From Leg	4.00	0.00	0.0000	73.00	No Ice	1.79	0.78	0.03
			0.00	2.00			1/2" Ice	1.97	0.92	0.04
							1" Ice	2.16	1.07	0.06
							2" Ice	2.57	1.39	0.09
							4" Ice	3.49	2.14	0.20

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
FDD_R6_RRH	B	From Leg	4.00 0.00 2.00	0.0000	73.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.79 1.97 2.16 2.57 3.49	0.78 0.92 1.07 1.39 2.14	0.03 0.04 0.06 0.09 0.20
FDD_R6_RRH	C	From Leg	4.00 0.00 2.00	0.0000	73.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.79 1.97 2.16 2.57 3.49	0.78 0.92 1.07 1.39 2.14	0.03 0.04 0.06 0.09 0.20
Horizon Duo ODU	A	From Leg	4.00 0.00 2.00	0.0000	73.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.55 0.65 0.76 1.00 1.60	0.34 0.43 0.52 0.73 1.25	0.01 0.01 0.02 0.04 0.10
Horizon Duo ODU	B	From Leg	4.00 0.00 2.00	0.0000	73.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.55 0.65 0.76 1.00 1.60	0.34 0.43 0.52 0.73 1.25	0.01 0.01 0.02 0.04 0.10
Side Arm Mount [SO 102-3]	B	None		0.0000	73.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.00 3.48 3.96 4.92 6.84	3.00 3.48 3.96 4.92 6.84	0.08 0.11 0.14 0.20 0.32
Platform Mount [LP 712-1]	C	None		0.0000	73.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	24.53 29.94 35.35 46.17 67.81	24.53 29.94 35.35 46.17 67.81	1.34 1.65 1.96 2.58 3.82
Empty Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	73.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.40 2.13 2.68 3.56 5.42	1.40 2.13 2.68 3.56 5.42	0.03 0.04 0.06 0.10 0.26
Empty Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	73.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.40 2.13 2.68 3.56 5.42	1.40 2.13 2.68 3.56 5.42	0.03 0.04 0.06 0.10 0.26
Empty Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	73.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.40 2.13 2.68 3.56 5.42	1.40 2.13 2.68 3.56 5.42	0.03 0.04 0.06 0.10 0.26
***									
GPS-TMG-HR-26NCM GPS	C	From Leg	2.00 0.00 0.00	0.0000	50.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.09 0.14 0.20 0.36 0.81	0.09 0.14 0.20 0.36 0.81	0.00 0.00 0.00 0.01 0.04
***									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
A-ANT-23G-2-C Dish	A	Paraboloid w/Shroud (HP)	From Leg	4.00 0.00 2.00	-40.0000		73.00	2.17	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.72 4.01 4.30 4.88 6.04	0.03 0.04 0.05 0.07 0.11
A-ANT-23G-2-C Dish	B	Paraboloid w/Shroud (HP)	From Leg	4.00 0.00 2.00	-10.0000		73.00	2.17	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.72 4.01 4.30 4.88 6.04	0.03 0.04 0.05 0.07 0.11

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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	140 - 139	TP14.296x13.161x0.1875	5.00	0.00	0.0	39.000	7.8559	-0.03	306.38	0.000
	139 - 138					39.000	7.9910	-0.06	311.65	0.000
	138 - 137					39.000	8.1261	-1.59	316.92	0.005
	137 - 136					39.000	8.2612	-1.62	322.19	0.005
	136 - 135					39.000	8.3963	-1.66	327.46	0.005
L2	135 - 134	TP15.4309x14.296x0.1875	5.00	0.00	0.0	39.000	8.5314	-1.69	332.72	0.005
	134 - 133					39.000	8.6665	-1.73	337.99	0.005
	133 - 132					39.000	8.8016	-1.77	343.26	0.005
	132 - 131					39.000	8.9367	-1.81	348.53	0.005
	131 - 130					39.000	9.0717	-1.85	353.80	0.005
L3	130 - 129	TP16.5659x15.4309x0.1875	5.00	0.00	0.0	39.000	9.2068	-1.89	359.07	0.005
	129 - 128					39.000	9.3419	-1.93	364.33	0.005
	128 - 127					39.000	9.4770	-1.97	369.60	0.005
	127 - 126					39.000	9.6121	-2.02	374.87	0.005
	126 - 125					39.000	9.7472	-2.06	380.14	0.005
L4	125 - 124	TP17.7008x16.5659x0.1875	5.00	0.00	0.0	39.000	9.8823	-2.11	385.41	0.005
	124 - 123					39.000	10.0174	-2.15	390.68	0.006
	123 - 122					39.000	10.1524	-2.20	395.94	0.006
	122 - 121					39.000	10.2875	-2.24	401.21	0.006
	121 - 120					39.000	10.4226	-2.29	406.48	0.006
L5	120 - 119	TP18.8358x17.7008x0.1875	5.00	0.00	0.0	39.000	10.5577	-3.31	411.75	0.008
	119 - 118					39.000	10.6928	-3.37	417.02	0.008
	118 - 117					39.000	10.8279	-3.44	422.29	0.008
	117 - 116					39.000	10.9630	-3.51	427.56	0.008
	116 - 115					39.000	11.0981	-3.58	432.82	0.008
L6	115 - 114	TP19.9707x18.8358x0.1875	5.00	0.00	0.0	39.000	11.2331	-3.65	438.09	0.008
	114 - 113					39.000	11.3682	-3.72	443.36	0.008
	113 - 112					39.000	11.5033	-3.79	448.63	0.008
	112 - 111					39.000	11.6384	-3.86	453.90	0.009
	111 - 110					39.000	11.7735	-3.93	459.17	0.009

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 $\frac{P}{P_a}$
L7	110 - 109	TP21.1057x19.9707x0.1875	5.00	0.00	0.0	39.000	11.9086	-4.49	464.44	0.010
	109 - 108					39.000	12.0437	-4.58	469.70	0.010
	108 - 107					39.000	12.1788	-4.66	474.97	0.010
	107 - 106					39.000	12.3138	-4.74	480.24	0.010
	106 - 105					39.000	12.4489	-4.82	485.51	0.010
L8	105 - 103.86	TP21.882x21.1057x0.1875	3.42	0.00	0.0	39.000	12.6029	-4.92	491.51	0.010
	103.86 - 102.72					39.000	12.7569	-5.01	497.52	0.010
	102.72 - 101.58					39.000	12.9109	-5.11	503.53	0.010
L9	101.58 - 100.58	TP23.017x21.882x0.3125	5.00	0.00	0.0	39.000	21.6194	-5.23	843.16	0.006
	100.58 - 99.58					39.000	21.8446	-5.34	851.94	0.006
	99.58 - 98.58					39.000	22.0697	-5.86	860.72	0.007
	98.58 - 97.58					39.000	22.2949	-5.97	869.50	0.007
	97.58 - 96.58					39.000	22.5200	-6.08	878.28	0.007
L10	96.58 - 95.58	TP24.152x23.017x0.3125	5.00	0.00	0.0	39.000	22.7452	-6.20	887.06	0.007
	95.58 - 94.58					39.000	22.9703	-8.21	895.84	0.009
	94.58 - 93.58					39.000	23.1955	-8.34	904.62	0.009
	93.58 - 92.58					39.000	23.4206	-8.46	913.40	0.009
	92.58 - 91.58					39.000	23.6458	-8.58	922.19	0.009
L11	91.58 - 90.58	TP25.287x24.152x0.3125	5.00	0.00	0.0	39.000	23.8710	-8.71	930.97	0.009
	90.58 - 89.58					39.000	24.0961	-8.84	939.75	0.009
	89.58 - 88.58					39.000	24.3213	-8.97	948.53	0.009
	88.58 - 87.58					39.000	24.5464	-9.10	957.31	0.010
	87.58 - 86.58					39.000	24.7716	-9.23	966.09	0.010
L12	86.58 - 85.58	TP26.422x25.287x0.3125	5.00	0.00	0.0	39.000	24.9967	-9.36	974.87	0.010
	85.58 - 84.58					39.000	25.2219	-9.50	983.65	0.010
	84.58 - 83.58					39.000	25.4470	-9.63	992.43	0.010
	83.58 - 82.58					39.000	25.6722	-9.77	1001.22	0.010
	82.58 - 81.58					39.000	25.8974	-9.91	1010.00	0.010
L13	81.58 - 80.58	TP27.557x26.422x0.3125	5.00	0.00	0.0	39.000	26.1225	-10.04	1018.78	0.010
	80.58 - 79.58					39.000	26.3477	-10.18	1027.56	0.010
	79.58 - 78.58					39.000	26.5728	-10.32	1036.34	0.010
	78.58 - 77.58					39.000	26.7980	-10.46	1045.12	0.010
	77.58 - 76.58					39.000	27.0231	-10.61	1053.90	0.010
L14	76.58 - 75.58	TP28.692x27.557x0.3125	5.00	0.00	0.0	39.000	27.2483	-10.75	1062.68	0.010
	75.58 - 74.58					39.000	27.4734	-10.94	1071.46	0.010
	74.58 - 73.58					39.000	27.6986	-11.09	1080.25	0.010
	73.58 - 72.58					39.000	27.9238	-13.39	1089.03	0.012
	72.58 - 71.58					39.000	28.1489	-13.54	1097.81	0.012
L15	71.58 - 70.08 (15)	TP29.0325x28.692x0.3125	1.50	0.00	0.0	39.000	28.4867	-13.77	1110.98	0.012
L16	70.08 - 69.83 (16)	TP29.0893x29.0325x0.5313	0.25	0.00	0.0	39.000	48.1541	-13.84	1878.01	0.007
L17	69.83 - 68.83	TP30.2243x29.0893x0.525	5.00	0.00	0.0	39.000	47.9763	-14.04	1871.08	0.008
	68.83 - 67.83					39.000	48.3546	-14.25	1885.83	0.008
	67.83 - 66.83					39.000	48.7328	-14.46	1900.58	0.008
	66.83 - 65.83					39.000	49.1111	-14.67	1915.33	0.008
	65.83 - 64.83					39.000	49.4893	-14.88	1930.08	0.008
L18	64.83 - 63.665	TP30.7532x30.2243x0.5125	2.33	0.00	0.0	39.000	48.7615	-15.12	1901.70	0.008
	63.665 - 62.5					39.000	49.1917	-15.37	1918.48	0.008
L19	62.5 - 62.25 (19)	TP30.8099x30.7532x0.7375	0.25	0.00	0.0	39.000	70.3942	-15.45	2745.38	0.006
L20	62.25 - 61.14	TP31.5658x30.8099x0.725	3.33	0.00	0.0	39.000	69.8097	-15.74	2722.58	0.006
	61.14 - 60.03					39.000	70.3895	-16.04	2745.19	0.006
	60.03 - 58.92					39.000	70.9694	-16.34	2767.80	0.006
L21	58.92 - 58.67 (21)	TP31.6226x31.5658x0.525	0.25	0.00	0.0	39.000	51.8194	-16.40	2020.96	0.008
L22	58.67 - 57.67	TP32.7576x31.6226x0.5125	5.00	0.00	0.0	39.000	50.9752	-16.61	1988.03	0.008
	57.67 - 56.67					39.000	51.3445	-16.83	2002.43	0.008
	56.67 - 55.67					39.000	51.7137	-17.05	2016.84	0.008
	55.67 - 54.67					39.000	52.0830	-17.28	2031.24	0.009
	54.67 - 53.67					39.000	52.4522	-17.50	2045.64	0.009

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 $\frac{P}{P_a}$
L23	53.67 - 53	TP33.913x32.7576x0.5125	5.09	0.00	0.0	39.000	52.6996	-17.66	2055.29	0.009
	53 - 48.58					39.000	54.3318	-9.92	2118.94	0.005
L24	53 - 48.58	TP33.5151x32.2847x0.5	5.42	0.00	0.0	39.000	52.0347	-9.43	2029.35	0.005
	48.58 - 47.58					39.000	52.3950	-19.59	2043.41	0.010
L25	47.58 - 46.58	TP34.6503x33.5151x0.4875	5.00	0.00	0.0	39.000	51.4558	-19.81	2006.78	0.010
	46.58 - 45.58					39.000	51.8071	-20.04	2020.48	0.010
	45.58 - 44.58					39.000	52.1583	-20.27	2034.18	0.010
	44.58 - 43.58					39.000	52.5096	-20.50	2047.88	0.010
	43.58 - 42.58					39.000	52.8609	-20.74	2061.58	0.010
L26	42.58 - 41.4133	TP35.4449x34.6503x0.4875	3.50	0.00	0.0	39.000	53.2707	-21.00	2077.56	0.010
	41.4133 - 40.2467					39.000	53.6806	-21.28	2093.54	0.010
	40.2467 - 39.08					39.000	54.0904	-21.55	2109.53	0.010
L27	39.08 - 38.83 (27)	TP35.5016x35.4449x0.575	0.25	0.00	0.0	39.000	63.7428	-21.63	2485.97	0.009
L28	38.83 - 37.83	TP36.6367x35.5016x0.5625	5.00	0.00	0.0	39.000	62.7847	-21.88	2448.60	0.009
	37.83 - 36.83					39.000	63.1901	-22.14	2464.41	0.009
	36.83 - 35.83					39.000	63.5954	-22.41	2480.22	0.009
	35.83 - 34.83					39.000	64.0007	-22.67	2496.03	0.009
	34.83 - 33.83					39.000	64.4060	-22.94	2511.84	0.009
L29	33.83 - 32.5533	TP37.5062x36.6367x0.5625	3.83	0.00	0.0	39.000	64.9235	-23.27	2532.02	0.009
	32.5533 - 31.2767					39.000	65.4410	-23.62	2552.20	0.009
	31.2767 - 30					39.000	65.9584	-23.96	2572.38	0.009
L30	30 - 29.75 (30)	TP37.563x37.5062x0.5625	0.25	0.00	0.0	39.000	66.0598	-24.04	2576.33	0.009
L31	29.75 - 28.75	TP38.6981x37.563x0.55	5.00	0.00	0.0	39.000	65.0099	-24.30	2535.39	0.010
	28.75 - 27.75					39.000	65.4062	-24.57	2550.84	0.010
	27.75 - 26.75					39.000	65.8025	-24.84	2566.30	0.010
	26.75 - 25.75					39.000	66.1989	-25.11	2581.76	0.010
	25.75 - 24.75					39.000	66.5952	-25.39	2597.21	0.010
L32	24.75 - 23.75	TP39.8333x38.6981x0.5375	5.00	0.00	0.0	39.000	65.4903	-25.66	2554.12	0.010
	23.75 - 22.75					39.000	65.8776	-25.94	2569.23	0.010
	22.75 - 21.75					39.000	66.2649	-26.21	2584.33	0.010
	21.75 - 20.75					39.000	66.6522	-26.49	2599.44	0.010
	20.75 - 19.75					39.000	67.0395	-26.77	2614.54	0.010
L33	19.75 - 18.75	TP40.9684x39.8333x0.5375	5.00	0.00	0.0	39.000	67.4268	-27.05	2629.65	0.010
	18.75 - 17.75					39.000	67.8142	-27.33	2644.75	0.010
	17.75 - 16.75					39.000	68.2015	-27.61	2659.86	0.010
	16.75 - 15.75					39.000	68.5888	-27.89	2674.96	0.010
	15.75 - 14.75					39.000	68.9761	-28.17	2690.07	0.010
L34	14.75 - 13.75	TP42.1035x40.9684x0.525	5.00	0.00	0.0	39.000	67.7711	-28.46	2643.07	0.011
	13.75 - 12.75					39.000	68.1494	-28.74	2657.83	0.011
	12.75 - 11.75					39.000	68.5277	-29.03	2672.58	0.011
	11.75 - 10.75					39.000	68.9060	-29.31	2687.34	0.011
	10.75 - 9.75					39.000	69.2843	-29.60	2702.09	0.011
L35	9.75 - 8.75	TP43.2386x42.1035x0.525	5.00	0.00	0.0	39.000	69.6626	-29.89	2716.84	0.011
	8.75 - 7.75					39.000	70.0409	-30.18	2731.60	0.011
	7.75 - 6.75					39.000	70.4193	-30.47	2746.35	0.011
	6.75 - 5.75					39.000	70.7976	-30.76	2761.10	0.011
	5.75 - 4.75					39.000	71.1759	-31.05	2775.86	0.011
L36	4.75 - 3.5625	TP44.317x43.2386x0.5125	4.75	0.00	0.0	39.000	69.9401	-31.39	2727.66	0.012
	3.5625 - 2.375					39.000	70.3786	-31.74	2744.77	0.012
	2.375 - 1.1875					39.000	70.8171	-32.09	2761.87	0.012
	1.1875 - 0					39.000	71.2557	-32.45	2778.97	0.012

Pole Bending Design Data

Section No.	Elevation ft	Size	Actual M_x kip-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y kip-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
L1	140 - 139	TP14.296x13.161x0.1875	0.02	0.010	39.000	0.000	0.00	0.000	39.000	0.000
	139 - 138		0.08	0.037	39.000	0.001	0.00	0.000	39.000	0.000
	138 - 137		12.60	5.553	39.000	0.142	0.00	0.000	39.000	0.000
	137 - 136		17.41	7.423	39.000	0.190	0.00	0.000	39.000	0.000
	136 - 135		22.26	9.186	39.000	0.236	0.00	0.000	39.000	0.000
L2	135 - 134	TP15.4309x14.296x0.1875	27.15	10.852	39.000	0.278	0.00	0.000	39.000	0.000
	134 - 133		32.09	12.425	39.000	0.319	0.00	0.000	39.000	0.000
	133 - 132		37.06	13.913	39.000	0.357	0.00	0.000	39.000	0.000
	132 - 131		42.08	15.321	39.000	0.393	0.00	0.000	39.000	0.000
	131 - 130		47.15	16.654	39.000	0.427	0.00	0.000	39.000	0.000
L3	130 - 129	TP16.5659x15.4309x0.1875	52.26	17.918	39.000	0.459	0.00	0.000	39.000	0.000
	129 - 128		57.41	19.116	39.000	0.490	0.00	0.000	39.000	0.000
	128 - 127		62.61	20.254	39.000	0.519	0.00	0.000	39.000	0.000
	127 - 126		67.85	21.334	39.000	0.547	0.00	0.000	39.000	0.000
	126 - 125		73.14	22.360	39.000	0.573	0.00	0.000	39.000	0.000
L4	125 - 124	TP17.7008x16.5659x0.1875	78.48	23.335	39.000	0.598	0.00	0.000	39.000	0.000
	124 - 123		83.86	24.264	39.000	0.622	0.00	0.000	39.000	0.000
	123 - 122		89.28	25.147	39.000	0.645	0.00	0.000	39.000	0.000
	122 - 121		94.76	25.989	39.000	0.666	0.00	0.000	39.000	0.000
	121 - 120		100.28	26.791	39.000	0.687	0.00	0.000	39.000	0.000
L5	120 - 119	TP18.8358x17.7008x0.1875	108.93	28.358	39.000	0.727	0.00	0.000	39.000	0.000
	119 - 118		117.64	29.853	39.000	0.765	0.00	0.000	39.000	0.000
	118 - 117		126.42	31.282	39.000	0.802	0.00	0.000	39.000	0.000
	117 - 116		135.26	32.647	39.000	0.837	0.00	0.000	39.000	0.000
	116 - 115		144.18	33.952	39.000	0.871	0.00	0.000	39.000	0.000
L6	115 - 114	TP19.9707x18.8358x0.1875	153.16	35.200	39.000	0.903	0.00	0.000	39.000	0.000
	114 - 113		162.20	36.393	39.000	0.933	0.00	0.000	39.000	0.000
	113 - 112		171.31	37.536	39.000	0.962	0.00	0.000	39.000	0.000
	112 - 111		180.49	38.630	39.000	0.991	0.00	0.000	39.000	0.000
	111 - 110		189.74	39.678	39.000	1.017	0.00	0.000	39.000	0.000
L7	110 - 109	TP21.1057x19.9707x0.1875	200.01	40.878	39.000	1.048	0.00	0.000	39.000	0.000
	109 - 108		210.35	42.029	39.000	1.078	0.00	0.000	39.000	0.000
	108 - 107		220.77	43.133	39.000	1.106	0.00	0.000	39.000	0.000
	107 - 106		231.26	44.193	39.000	1.133	0.00	0.000	39.000	0.000
	106 - 105		241.83	45.211	39.000	1.159	0.00	0.000	39.000	0.000
L8	105 - 103.86	TP21.882x21.1057x0.1875	253.98	46.323	39.000	1.188	0.00	0.000	39.000	0.000
	103.86 - 102.72		266.22	47.385	39.000	1.215	0.00	0.000	39.000	0.000
	102.72 - 101.58		278.56	48.401	39.000	1.241	0.00	0.000	39.000	0.000
L9	101.58 - 100.58	TP23.017x21.882x0.3125	289.47	30.065	39.000	0.771	0.00	0.000	39.000	0.000
	100.58 - 99.58		300.46	30.562	39.000	0.784	0.00	0.000	39.000	0.000
	99.58 - 98.58		311.80	31.067	39.000	0.797	0.00	0.000	39.000	0.000
	98.58 - 97.58		323.66	31.596	39.000	0.810	0.00	0.000	39.000	0.000
	97.58 - 96.58		335.60	32.106	39.000	0.823	0.00	0.000	39.000	0.000
L10	96.58 - 95.58	TP24.152x23.017x0.3125	347.62	32.596	39.000	0.836	0.00	0.000	39.000	0.000
	95.58 - 94.58		361.27	33.211	39.000	0.852	0.00	0.000	39.000	0.000
	94.58 - 93.58		377.13	33.995	39.000	0.872	0.00	0.000	39.000	0.000
	93.58 - 92.58		393.06	34.749	39.000	0.891	0.00	0.000	39.000	0.000
	92.58 - 91.58		409.08	35.475	39.000	0.910	0.00	0.000	39.000	0.000
L11	91.58 - 90.58	TP25.287x24.152x0.3125	425.17	36.174	39.000	0.928	0.00	0.000	39.000	0.000
	90.58 - 89.58		441.35	36.847	39.000	0.945	0.00	0.000	39.000	0.000
	89.58 - 88.58		457.60	37.496	39.000	0.961	0.00	0.000	39.000	0.000
	88.58 - 87.58		473.94	38.121	39.000	0.977	0.00	0.000	39.000	0.000
	87.58 - 86.58		490.35	38.723	39.000	0.993	0.00	0.000	39.000	0.000
L12	86.58 - 85.58	TP26.422x25.287x0.3125	506.85	39.303	39.000	1.008	0.00	0.000	39.000	0.000
	85.58 - 84.58		523.42	39.862	39.000	1.022	0.00	0.000	39.000	0.000
	84.58 - 83.58		540.07	40.402	39.000	1.036	0.00	0.000	39.000	0.000
	83.58 - 82.58		556.80	40.922	39.000	1.049	0.00	0.000	39.000	0.000

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 $\frac{f_{by}}{F_{by}}$
	82.58 - 81.58		573.62	41.423	39.000	1.062	0.00	0.000	39.000	0.000
L13	81.58 - 80.58	TP27.557x26.422x0.3125	590.51	41.907	39.000	1.075	0.00	0.000	39.000	0.000
	80.58 - 79.58		607.47	42.373	39.000	1.086	0.00	0.000	39.000	0.000
	79.58 - 78.58		624.52	42.822	39.000	1.098	0.00	0.000	39.000	0.000
	78.58 - 77.58		641.65	43.256	39.000	1.109	0.00	0.000	39.000	0.000
	77.58 - 76.58		658.85	43.675	39.000	1.120	0.00	0.000	39.000	0.000
L14	76.58 - 75.58	TP28.692x27.557x0.3125	676.13	44.079	39.000	1.130	0.00	0.000	39.000	0.000
	75.58 - 74.58		693.67	44.480	39.000	1.141	0.00	0.000	39.000	0.000
	74.58 - 73.58		711.33	44.869	39.000	1.151	0.00	0.000	39.000	0.000
	73.58 - 72.58		735.23	45.628	39.000	1.170	0.00	0.000	39.000	0.000
	72.58 - 71.58		756.72	46.209	39.000	1.185	0.00	0.000	39.000	0.000
L15	71.58 - 70.08 (15)	TP29.0325x28.692x0.3125	789.10	47.045	39.000	1.206	0.00	0.000	39.000	0.000
L16	70.08 - 69.83 (16)	TP29.0893x29.0325x0.5313	794.52	28.396	39.000	0.728	0.00	0.000	39.000	0.000
L17	69.83 - 68.83	TP30.2243x29.0893x0.525	816.25	29.033	39.000	0.744	0.00	0.000	39.000	0.000
	68.83 - 67.83		838.08	29.340	39.000	0.752	0.00	0.000	39.000	0.000
	67.83 - 66.83		859.99	29.638	39.000	0.760	0.00	0.000	39.000	0.000
	66.83 - 65.83		882.01	29.927	39.000	0.767	0.00	0.000	39.000	0.000
	65.83 - 64.83		904.13	30.206	39.000	0.775	0.00	0.000	39.000	0.000
L18	64.83 - 63.665	TP30.7532x30.2243x0.5125	930.02	31.226	39.000	0.801	0.00	0.000	39.000	0.000
	63.665 - 62.5		956.07	31.536	39.000	0.809	0.00	0.000	39.000	0.000
L19	62.5 - 62.25 (19)	TP30.8099x30.7532x0.7375	961.68	22.457	39.000	0.576	0.00	0.000	39.000	0.000
L20	62.25 - 61.14	TP31.5658x30.8099x0.725	986.67	23.017	39.000	0.590	0.00	0.000	39.000	0.000
	61.14 - 60.03		1011.81	23.212	39.000	0.595	0.00	0.000	39.000	0.000
	60.03 - 58.92		1037.10	23.400	39.000	0.600	0.00	0.000	39.000	0.000
L21	58.92 - 58.67 (21)	TP31.6226x31.5658x0.525	1042.82	31.752	39.000	0.814	0.00	0.000	39.000	0.000
L22	58.67 - 57.67	TP32.7576x31.6226x0.5125	1065.73	32.718	39.000	0.839	0.00	0.000	39.000	0.000
	57.67 - 56.67		1088.76	32.942	39.000	0.845	0.00	0.000	39.000	0.000
	56.67 - 55.67		1111.88	33.159	39.000	0.850	0.00	0.000	39.000	0.000
	55.67 - 54.67		1135.08	33.369	39.000	0.856	0.00	0.000	39.000	0.000
	54.67 - 53.67		1158.39	33.573	39.000	0.861	0.00	0.000	39.000	0.000
L23	53.67 - 53	TP33.913x32.7576x0.5125	1174.07	33.706	39.000	0.864	0.00	0.000	39.000	0.000
	53 - 48.58		665.29	17.961	39.000	0.461	0.00	0.000	39.000	0.000
L24	53 - 48.58	TP33.5151x32.2847x0.5	613.35	17.611	39.000	0.452	0.00	0.000	39.000	0.000
	48.58 - 47.58		1302.58	36.884	39.000	0.946	0.00	0.000	39.000	0.000
L25	47.58 - 46.58	TP34.6503x33.5151x0.4875	1326.59	37.956	39.000	0.973	0.00	0.000	39.000	0.000
	46.58 - 45.58		1350.71	38.120	39.000	0.977	0.00	0.000	39.000	0.000
	45.58 - 44.58		1374.90	38.278	39.000	0.981	0.00	0.000	39.000	0.000
	44.58 - 43.58		1399.18	38.431	39.000	0.985	0.00	0.000	39.000	0.000
	43.58 - 42.58		1423.54	38.578	39.000	0.989	0.00	0.000	39.000	0.000
L26	42.58 - 41.4133	TP35.4449x34.6503x0.4875	1452.08	38.744	39.000	0.993	0.00	0.000	39.000	0.000
	41.4133 - 40.2467		1480.73	38.904	39.000	0.998	0.00	0.000	39.000	0.000
	40.2467 - 39.08		1509.52	39.057	39.000	1.001	0.00	0.000	39.000	0.000
L27	39.08 - 38.83 (27)	TP35.5016x35.4449x0.575	1515.70	33.391	39.000	0.856	0.00	0.000	39.000	0.000
L28	38.83 - 37.83	TP36.6367x35.5016x0.5625	1540.49	34.204	39.000	0.877	0.00	0.000	39.000	0.000
	37.83 - 36.83		1565.39	34.309	39.000	0.880	0.00	0.000	39.000	0.000
	36.83 - 35.83		1590.39	34.411	39.000	0.882	0.00	0.000	39.000	0.000
	35.83 - 34.83		1615.48	34.509	39.000	0.885	0.00	0.000	39.000	0.000
	34.83 - 33.83		1640.68	34.604	39.000	0.887	0.00	0.000	39.000	0.000
L29	33.83 - 32.5533	TP37.5062x36.6367x0.5625	1673.01	34.721	39.000	0.890	0.00	0.000	39.000	0.000
	32.5533 - 31.2767		1705.50	34.834	39.000	0.893	0.00	0.000	39.000	0.000

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 $\frac{f_{by}}{F_{by}}$
	31.2767 - 30		1738.16	34.942	39.000	0.896	0.00	0.000	39.000	0.000
L30	30 - 29.75 (30)	TP37.563x37.5062x0.5625	1744.58	34.963	39.000	0.896	0.00	0.000	39.000	0.000
L31	29.75 - 28.75	TP38.6981x37.563x0.55	1770.30	35.804	39.000	0.918	0.00	0.000	39.000	0.000
	28.75 - 27.75		1796.14	35.885	39.000	0.920	0.00	0.000	39.000	0.000
	27.75 - 26.75		1822.10	35.963	39.000	0.922	0.00	0.000	39.000	0.000
	26.75 - 25.75		1848.17	36.039	39.000	0.924	0.00	0.000	39.000	0.000
	25.75 - 24.75		1874.33	36.112	39.000	0.926	0.00	0.000	39.000	0.000
L32	24.75 - 23.75	TP39.8333x38.6981x0.5375	1900.58	36.988	39.000	0.948	0.00	0.000	39.000	0.000
	23.75 - 22.75		1926.94	37.059	39.000	0.950	0.00	0.000	39.000	0.000
	22.75 - 21.75		1953.39	37.126	39.000	0.952	0.00	0.000	39.000	0.000
	21.75 - 20.75		1979.94	37.192	39.000	0.954	0.00	0.000	39.000	0.000
	20.75 - 19.75		2006.59	37.255	39.000	0.955	0.00	0.000	39.000	0.000
L33	19.75 - 18.75	TP40.9684x39.8333x0.5375	2033.33	37.317	39.000	0.957	0.00	0.000	39.000	0.000
	18.75 - 17.75		2060.18	37.376	39.000	0.958	0.00	0.000	39.000	0.000
	17.75 - 16.75		2087.12	37.433	39.000	0.960	0.00	0.000	39.000	0.000
	16.75 - 15.75		2114.16	37.488	39.000	0.961	0.00	0.000	39.000	0.000
	15.75 - 14.75		2141.30	37.541	39.000	0.963	0.00	0.000	39.000	0.000
L34	14.75 - 13.75	TP42.1035x40.9684x0.525	2168.53	38.452	39.000	0.986	0.00	0.000	39.000	0.000
	13.75 - 12.75		2195.87	38.503	39.000	0.987	0.00	0.000	39.000	0.000
	12.75 - 11.75		2223.30	38.552	39.000	0.989	0.00	0.000	39.000	0.000
	11.75 - 10.75		2250.82	38.599	39.000	0.990	0.00	0.000	39.000	0.000
	10.75 - 9.75		2278.45	38.645	39.000	0.991	0.00	0.000	39.000	0.000
L35	9.75 - 8.75	TP43.2386x42.1035x0.525	2306.18	38.689	39.000	0.992	0.00	0.000	39.000	0.000
	8.75 - 7.75		2334.00	38.731	39.000	0.993	0.00	0.000	39.000	0.000
	7.75 - 6.75		2361.93	38.772	39.000	0.994	0.00	0.000	39.000	0.000
	6.75 - 5.75		2389.94	38.811	39.000	0.995	0.00	0.000	39.000	0.000
	5.75 - 4.75		2418.06	38.849	39.000	0.996	0.00	0.000	39.000	0.000
L36	4.75 - 3.5625	TP44.317x43.2386x0.5125	2451.57	39.806	39.000	1.021	0.00	0.000	39.000	0.000
	3.5625 - 2.375		2485.22	39.848	39.000	1.022	0.00	0.000	39.000	0.000
	2.375 - 1.1875		2519.01	39.888	39.000	1.023	0.00	0.000	39.000	0.000
	1.1875 - 0		2552.93	39.926	39.000	1.024	0.00	0.000	39.000	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V K	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
L1	140 - 139	TP14.296x13.161x0.1875	0.04	0.005	26.000	0.000	0.00	0.000	26.000	0.000
	139 - 138		0.08	0.010	26.000	0.001	0.00	0.000	26.000	0.000
	138 - 137		4.79	0.589	26.000	0.045	0.46	0.098	26.000	0.004
	137 - 136		4.83	0.585	26.000	0.045	0.46	0.095	26.000	0.004
	136 - 135		4.87	0.580	26.000	0.045	0.46	0.092	26.000	0.004
L2	135 - 134	TP15.4309x14.296x0.1875	4.92	0.576	26.000	0.044	0.46	0.089	26.000	0.003
	134 - 133		4.96	0.572	26.000	0.044	0.46	0.086	26.000	0.003
	133 - 132		5.00	0.568	26.000	0.044	0.46	0.084	26.000	0.003
	132 - 131		5.04	0.565	26.000	0.043	0.46	0.081	26.000	0.003
	131 - 130		5.09	0.561	26.000	0.043	0.46	0.079	26.000	0.003
L3	130 - 129	TP16.5659x15.4309x0.1875	5.13	0.558	26.000	0.043	0.46	0.077	26.000	0.003
	129 - 128		5.18	0.554	26.000	0.043	0.46	0.074	26.000	0.003
	128 - 127		5.22	0.551	26.000	0.042	0.46	0.072	26.000	0.003
	127 - 126		5.27	0.548	26.000	0.042	0.46	0.070	26.000	0.003
	126 - 125		5.31	0.545	26.000	0.042	0.46	0.068	26.000	0.003
L4	125 - 124	TP17.7008x16.5659x0.1875	5.36	0.542	26.000	0.042	0.46	0.067	26.000	0.003
	124 - 123		5.41	0.540	26.000	0.042	0.46	0.065	26.000	0.002
	123 - 122		5.45	0.537	26.000	0.041	0.46	0.063	26.000	0.002
	122 - 121		5.50	0.535	26.000	0.041	0.46	0.061	26.000	0.002

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 $\frac{f_{vt}}{F_{vt}}$
	121 - 120		5.55	0.532	26.000	0.041	0.46	0.060	26.000	0.002
L5	120 - 119	TP18.8358x17.7008x0.1875	8.68	0.823	26.000	0.063	0.46	0.058	26.000	0.002
	119 - 118		8.75	0.818	26.000	0.063	0.46	0.057	26.000	0.002
	118 - 117		8.82	0.814	26.000	0.063	0.46	0.055	26.000	0.002
	117 - 116		8.88	0.810	26.000	0.062	0.45	0.053	26.000	0.002
	116 - 115		8.95	0.807	26.000	0.062	0.45	0.052	26.000	0.002
L6	115 - 114	TP19.9707x18.8358x0.1875	9.02	0.803	26.000	0.062	0.45	0.050	26.000	0.002
	114 - 113		9.08	0.799	26.000	0.061	0.45	0.049	26.000	0.002
	113 - 112		9.15	0.795	26.000	0.061	0.45	0.048	26.000	0.002
	112 - 111		9.22	0.792	26.000	0.061	0.44	0.046	26.000	0.002
	111 - 110		9.29	0.789	26.000	0.061	0.44	0.045	26.000	0.002
L7	110 - 109	TP21.1057x19.9707x0.1875	10.31	0.866	26.000	0.067	0.44	0.044	26.000	0.002
	109 - 108		10.39	0.862	26.000	0.066	0.44	0.042	26.000	0.002
	108 - 107		10.46	0.859	26.000	0.066	0.43	0.041	26.000	0.002
	107 - 106		10.54	0.856	26.000	0.066	0.43	0.040	26.000	0.002
	106 - 105		10.62	0.853	26.000	0.066	0.43	0.039	26.000	0.001
L8	105 - 103.86	TP21.882x21.1057x0.1875	10.70	0.849	26.000	0.065	0.42	0.038	26.000	0.001
	103.86 - 102.72		10.79	0.846	26.000	0.065	0.42	0.036	26.000	0.001
	102.72 - 101.58		10.88	0.842	26.000	0.065	0.41	0.035	26.000	0.001
L9	101.58 - 100.58	TP23.017x21.882x0.3125	10.95	0.507	26.000	0.039	0.41	0.021	26.000	0.001
	100.58 - 99.58		11.04	0.505	26.000	0.039	0.41	0.020	26.000	0.001
	99.58 - 98.58		11.82	0.536	26.000	0.041	0.71	0.034	26.000	0.001
	98.58 - 97.58		11.91	0.534	26.000	0.041	0.71	0.033	26.000	0.001
	97.58 - 96.58		11.99	0.532	26.000	0.041	0.70	0.033	26.000	0.001
L10	96.58 - 95.58	TP24.152x23.017x0.3125	12.07	0.531	26.000	0.041	0.70	0.032	26.000	0.001
	95.58 - 94.58		15.82	0.689	26.000	0.053	0.69	0.031	26.000	0.001
	94.58 - 93.58		15.90	0.686	26.000	0.053	0.69	0.030	26.000	0.001
	93.58 - 92.58		15.98	0.682	26.000	0.052	0.69	0.030	26.000	0.001
	92.58 - 91.58		16.06	0.679	26.000	0.052	0.68	0.029	26.000	0.001
L11	91.58 - 90.58	TP25.287x24.152x0.3125	16.14	0.676	26.000	0.052	0.68	0.028	26.000	0.001
	90.58 - 89.58		16.22	0.673	26.000	0.052	0.68	0.027	26.000	0.001
	89.58 - 88.58		16.30	0.670	26.000	0.052	0.67	0.027	26.000	0.001
	88.58 - 87.58		16.38	0.667	26.000	0.051	0.67	0.026	26.000	0.001
	87.58 - 86.58		16.46	0.665	26.000	0.051	0.66	0.025	26.000	0.001
L12	86.58 - 85.58	TP26.422x25.287x0.3125	16.54	0.662	26.000	0.051	0.66	0.025	26.000	0.001
	85.58 - 84.58		16.62	0.659	26.000	0.051	0.66	0.024	26.000	0.001
	84.58 - 83.58		16.70	0.656	26.000	0.050	0.65	0.024	26.000	0.001
	83.58 - 82.58		16.78	0.654	26.000	0.050	0.65	0.023	26.000	0.001
	82.58 - 81.58		16.86	0.651	26.000	0.050	0.64	0.023	26.000	0.001
L13	81.58 - 80.58	TP27.557x26.422x0.3125	16.94	0.648	26.000	0.050	0.64	0.022	26.000	0.001
	80.58 - 79.58		17.02	0.646	26.000	0.050	0.64	0.022	26.000	0.001
	79.58 - 78.58		17.10	0.643	26.000	0.049	0.63	0.021	26.000	0.001
	78.58 - 77.58		17.17	0.641	26.000	0.049	0.63	0.021	26.000	0.001
	77.58 - 76.58		17.25	0.638	26.000	0.049	0.62	0.020	26.000	0.001
L14	76.58 - 75.58	TP28.692x27.557x0.3125	17.33	0.636	26.000	0.049	0.62	0.020	26.000	0.001
	75.58 - 74.58		17.62	0.641	26.000	0.049	0.73	0.023	26.000	0.001
	74.58 - 73.58		17.70	0.639	26.000	0.049	0.73	0.023	26.000	0.001
	73.58 - 72.58		21.46	0.768	26.000	0.059	0.73	0.022	26.000	0.001
	72.58 - 71.58		21.53	0.765	26.000	0.059	0.73	0.022	26.000	0.001
L15	71.58 - 70.08 (15)	TP29.0325x28.692x0.3125	21.67	0.761	26.000	0.058	0.72	0.021	26.000	0.001
L16	70.08 - 69.83 (16)	TP29.0893x29.0325x0.5313	21.70	0.451	26.000	0.035	0.72	0.012	26.000	0.000
L17	69.83 - 68.83	TP30.2243x29.0893x0.525	21.78	0.454	26.000	0.035	0.71	0.012	26.000	0.000
	68.83 - 67.83		21.88	0.452	26.000	0.035	0.71	0.012	26.000	0.000
	67.83 - 66.83		21.98	0.451	26.000	0.035	0.71	0.012	26.000	0.000
	66.83 - 65.83		22.07	0.449	26.000	0.035	0.70	0.012	26.000	0.000

Section No.	Elevation ft	Size	Actual V K	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
	65.83 - 64.83		22.17	0.448	26.000	0.034	0.70	0.011	26.000	0.000
L18	64.83 - 63.665	TP30.7532x30.2243x0.5125	22.30	0.457	26.000	0.035	0.69	0.011	26.000	0.000
	63.665 - 62.5		22.42	0.456	26.000	0.035	0.69	0.011	26.000	0.000
L19	62.5 - 62.25	TP30.8099x30.7532x0.7375	22.46	0.319	26.000	0.025	0.68	0.008	26.000	0.000
	(19)									
L20	62.25 - 61.14	TP31.5658x30.8099x0.725	22.58	0.323	26.000	0.025	0.68	0.008	26.000	0.000
	61.14 - 60.03		22.73	0.323	26.000	0.025	0.75	0.008	26.000	0.000
	60.03 - 58.92		22.86	0.322	26.000	0.025	0.74	0.008	26.000	0.000
L21	58.92 - 58.67	TP31.6226x31.5658x0.525	22.89	0.442	26.000	0.034	0.74	0.011	26.000	0.000
	(21)									
L22	58.67 - 57.67	TP32.7576x31.6226x0.5125	22.98	0.451	26.000	0.035	0.74	0.011	26.000	0.000
	57.67 - 56.67		23.08	0.449	26.000	0.035	0.73	0.011	26.000	0.000
	56.67 - 55.67		23.17	0.448	26.000	0.034	0.73	0.011	26.000	0.000
	55.67 - 54.67		23.27	0.447	26.000	0.034	0.72	0.010	26.000	0.000
	54.67 - 53.67		23.37	0.446	26.000	0.034	0.72	0.010	26.000	0.000
L23	53.67 - 53	TP33.913x32.7576x0.5125	23.43	0.445	26.000	0.034	0.71	0.010	26.000	0.000
	53 - 48.58		12.55	0.231	26.000	0.018	0.37	0.005	26.000	0.000
L24	53 - 48.58	TP33.5151x32.2847x0.5	11.36	0.218	26.000	0.017	0.34	0.005	26.000	0.000
	48.58 - 47.58		23.99	0.458	26.000	0.035	0.69	0.009	26.000	0.000
L25	47.58 - 46.58	TP34.6503x33.5151x0.4875	24.08	0.468	26.000	0.036	0.69	0.010	26.000	0.000
	46.58 - 45.58		24.16	0.466	26.000	0.036	0.68	0.009	26.000	0.000
	45.58 - 44.58		24.25	0.465	26.000	0.036	0.68	0.009	26.000	0.000
	44.58 - 43.58		24.33	0.463	26.000	0.036	0.67	0.009	26.000	0.000
	43.58 - 42.58		24.42	0.462	26.000	0.036	0.67	0.009	26.000	0.000
L26	42.58 - 41.4133	TP35.4449x34.6503x0.4875	24.52	0.460	26.000	0.035	0.67	0.009	26.000	0.000
	41.4133 - 40.2467		24.63	0.459	26.000	0.035	0.66	0.008	26.000	0.000
	40.2467 - 39.08		24.74	0.457	26.000	0.035	0.66	0.008	26.000	0.000
L27	39.08 - 38.83	TP35.5016x35.4449x0.575	24.76	0.388	26.000	0.030	0.65	0.007	26.000	0.000
	(27)									
L28	38.83 - 37.83	TP36.6367x35.5016x0.5625	24.86	0.396	26.000	0.030	0.65	0.007	26.000	0.000
	37.83 - 36.83		24.96	0.395	26.000	0.030	0.65	0.007	26.000	0.000
	36.83 - 35.83		25.06	0.394	26.000	0.030	0.64	0.007	26.000	0.000
	35.83 - 34.83		25.16	0.393	26.000	0.030	0.64	0.007	26.000	0.000
	34.83 - 33.83		25.26	0.392	26.000	0.030	0.63	0.006	26.000	0.000
L29	33.83 - 32.5533	TP37.5062x36.6367x0.5625	25.40	0.391	26.000	0.030	0.63	0.006	26.000	0.000
	32.5533 - 31.2767		25.53	0.390	26.000	0.030	0.62	0.006	26.000	0.000
	31.2767 - 30		25.67	0.389	26.000	0.030	0.62	0.006	26.000	0.000
L30	30 - 29.75 (30)	TP37.563x37.5062x0.5625	25.68	0.389	26.000	0.030	0.61	0.006	26.000	0.000
L31	29.75 - 28.75	TP38.6981x37.563x0.55	25.79	0.397	26.000	0.031	0.61	0.006	26.000	0.000
	28.75 - 27.75		25.93	0.396	26.000	0.030	0.85	0.008	26.000	0.000
	27.75 - 26.75		26.03	0.396	26.000	0.030	0.85	0.008	26.000	0.000
	26.75 - 25.75		26.12	0.395	26.000	0.030	0.85	0.008	26.000	0.000
	25.75 - 24.75		26.22	0.394	26.000	0.030	0.85	0.008	26.000	0.000
L32	24.75 - 23.75	TP39.8333x38.6981x0.5375	26.32	0.402	26.000	0.031	0.85	0.008	26.000	0.000
	23.75 - 22.75		26.42	0.401	26.000	0.031	0.85	0.008	26.000	0.000
	22.75 - 21.75		26.52	0.400	26.000	0.031	0.85	0.008	26.000	0.000
	21.75 - 20.75		26.61	0.399	26.000	0.031	0.85	0.008	26.000	0.000
	20.75 - 19.75		26.71	0.398	26.000	0.031	0.85	0.008	26.000	0.000
L33	19.75 - 18.75	TP40.9684x39.8333x0.5375	26.81	0.398	26.000	0.031	0.85	0.008	26.000	0.000
	18.75 - 17.75		26.91	0.397	26.000	0.031	0.85	0.007	26.000	0.000
	17.75 - 16.75		27.00	0.396	26.000	0.030	0.85	0.007	26.000	0.000
	16.75 - 15.75		27.10	0.395	26.000	0.030	0.85	0.007	26.000	0.000
	15.75 - 14.75		27.20	0.394	26.000	0.030	0.85	0.007	26.000	0.000
L34	14.75 - 13.75	TP42.1035x40.9684x0.525	27.30	0.403	26.000	0.031	0.85	0.007	26.000	0.000
	13.75 - 12.75		27.40	0.402	26.000	0.031	0.85	0.007	26.000	0.000

Section No.	Elevation ft	Size	Actual V K	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
	12.75 - 11.75		27.49	0.401	26.000	0.031	0.84	0.007	26.000	0.000
	11.75 - 10.75		27.59	0.400	26.000	0.031	0.84	0.007	26.000	0.000
	10.75 - 9.75		27.69	0.400	26.000	0.031	0.84	0.007	26.000	0.000
L35	9.75 - 8.75	TP43.2386x42.1035x0.525	27.79	0.399	26.000	0.031	0.84	0.007	26.000	0.000
	8.75 - 7.75		27.89	0.398	26.000	0.031	0.84	0.007	26.000	0.000
	7.75 - 6.75		27.99	0.397	26.000	0.031	0.84	0.007	26.000	0.000
	6.75 - 5.75		28.08	0.397	26.000	0.031	0.84	0.007	26.000	0.000
	5.75 - 4.75		28.18	0.396	26.000	0.030	0.84	0.007	26.000	0.000
L36	4.75 - 3.5625	TP44.317x43.2386x0.5125	28.30	0.405	26.000	0.031	0.84	0.007	26.000	0.000
	3.5625 - 2.375		28.41	0.404	26.000	0.031	0.84	0.007	26.000	0.000
	2.375 - 1.1875		28.52	0.403	26.000	0.031	0.84	0.006	26.000	0.000
	1.1875 - 0		28.64	0.402	26.000	0.031	0.84	0.006	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	140 - 139	0.000	0.000	0.000	0.000	0.000	0.000 ✔	1.333	H1-3+VT ✔
	139 - 138	0.000	0.001	0.000	0.001	0.000	0.001 ✔	1.333	H1-3+VT ✔
	138 - 137	0.005	0.142	0.000	0.045	0.004	0.148 ✔	1.333	H1-3+VT ✔
	137 - 136	0.005	0.190	0.000	0.045	0.004	0.196 ✔	1.333	H1-3+VT ✔
	136 - 135	0.005	0.236	0.000	0.045	0.004	0.241 ✔	1.333	H1-3+VT ✔
L2	135 - 134	0.005	0.278	0.000	0.044	0.003	0.284 ✔	1.333	H1-3+VT ✔
	134 - 133	0.005	0.319	0.000	0.044	0.003	0.324 ✔	1.333	H1-3+VT ✔
	133 - 132	0.005	0.357	0.000	0.044	0.003	0.363 ✔	1.333	H1-3+VT ✔
	132 - 131	0.005	0.393	0.000	0.043	0.003	0.399 ✔	1.333	H1-3+VT ✔
	131 - 130	0.005	0.427	0.000	0.043	0.003	0.433 ✔	1.333	H1-3+VT ✔
L3	130 - 129	0.005	0.459	0.000	0.043	0.003	0.465 ✔	1.333	H1-3+VT ✔
	129 - 128	0.005	0.490	0.000	0.043	0.003	0.496 ✔	1.333	H1-3+VT ✔
	128 - 127	0.005	0.519	0.000	0.042	0.003	0.525 ✔	1.333	H1-3+VT ✔
	127 - 126	0.005	0.547	0.000	0.042	0.003	0.553 ✔	1.333	H1-3+VT ✔
	126 - 125	0.005	0.573	0.000	0.042	0.003	0.579 ✔	1.333	H1-3+VT ✔
L4	125 - 124	0.005	0.598	0.000	0.042	0.003	0.604 ✔	1.333	H1-3+VT ✔

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
	124 - 123	0.006	0.622	0.000	0.042	0.002	0.628 ✔	1.333	H1-3+VT ✔
	123 - 122	0.006	0.645	0.000	0.041	0.002	0.651 ✔	1.333	H1-3+VT ✔
	122 - 121	0.006	0.666	0.000	0.041	0.002	0.672 ✔	1.333	H1-3+VT ✔
	121 - 120	0.006	0.687	0.000	0.041	0.002	0.693 ✔	1.333	H1-3+VT ✔
L5	120 - 119	0.008	0.727	0.000	0.063	0.002	0.736 ✔	1.333	H1-3+VT ✔
	119 - 118	0.008	0.765	0.000	0.063	0.002	0.775 ✔	1.333	H1-3+VT ✔
	118 - 117	0.008	0.802	0.000	0.063	0.002	0.811 ✔	1.333	H1-3+VT ✔
	117 - 116	0.008	0.837	0.000	0.062	0.002	0.846 ✔	1.333	H1-3+VT ✔
	116 - 115	0.008	0.871	0.000	0.062	0.002	0.880 ✔	1.333	H1-3+VT ✔
L6	115 - 114	0.008	0.903	0.000	0.062	0.002	0.912 ✔	1.333	H1-3+VT ✔
	114 - 113	0.008	0.933	0.000	0.061	0.002	0.943 ✔	1.333	H1-3+VT ✔
	113 - 112	0.008	0.962	0.000	0.061	0.002	0.972 ✔	1.333	H1-3+VT ✔
	112 - 111	0.009	0.991	0.000	0.061	0.002	1.000 ✔	1.333	H1-3+VT ✔
	111 - 110	0.009	1.017	0.000	0.061	0.002	1.027 ✔	1.333	H1-3+VT ✔
L7	110 - 109	0.010	1.048	0.000	0.067	0.002	1.059 ✔	1.333	H1-3+VT ✔
	109 - 108	0.010	1.078	0.000	0.066	0.002	1.089 ✔	1.333	H1-3+VT ✔
	108 - 107	0.010	1.106	0.000	0.066	0.002	1.117 ✔	1.333	H1-3+VT ✔
	107 - 106	0.010	1.133	0.000	0.066	0.002	1.144 ✔	1.333	H1-3+VT ✔
	106 - 105	0.010	1.159	0.000	0.066	0.001	1.170 ✔	1.333	H1-3+VT ✔
L8	105 - 103.86	0.010	1.188	0.000	0.065	0.001	1.199 ✔	1.333	H1-3+VT ✔
	103.86 - 102.72	0.010	1.215	0.000	0.065	0.001	1.226 ✔	1.333	H1-3+VT ✔
	102.72 - 101.58	0.010	1.241	0.000	0.065	0.001	1.252 ✔	1.333	H1-3+VT ✔
L9	101.58 - 100.58	0.006	0.771	0.000	0.039	0.001	0.778 ✔	1.333	H1-3+VT ✔
	100.58 - 99.58	0.006	0.784	0.000	0.039	0.001	0.790 ✔	1.333	H1-3+VT ✔
	99.58 - 98.58	0.007	0.797	0.000	0.041	0.001	0.804 ✔	1.333	H1-3+VT ✔
	98.58 - 97.58	0.007	0.810	0.000	0.041	0.001	0.817 ✔	1.333	H1-3+VT ✔

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
	97.58 - 96.58	0.007	0.823	0.000	0.041	0.001	0.831 ✔	1.333	H1-3+VT ✔
L10	96.58 - 95.58	0.007	0.836	0.000	0.041	0.001	0.843 ✔	1.333	H1-3+VT ✔
	95.58 - 94.58	0.009	0.852	0.000	0.053	0.001	0.861 ✔	1.333	H1-3+VT ✔
	94.58 - 93.58	0.009	0.872	0.000	0.053	0.001	0.882 ✔	1.333	H1-3+VT ✔
	93.58 - 92.58	0.009	0.891	0.000	0.052	0.001	0.901 ✔	1.333	H1-3+VT ✔
	92.58 - 91.58	0.009	0.910	0.000	0.052	0.001	0.920 ✔	1.333	H1-3+VT ✔
L11	91.58 - 90.58	0.009	0.928	0.000	0.052	0.001	0.938 ✔	1.333	H1-3+VT ✔
	90.58 - 89.58	0.009	0.945	0.000	0.052	0.001	0.955 ✔	1.333	H1-3+VT ✔
	89.58 - 88.58	0.009	0.961	0.000	0.052	0.001	0.972 ✔	1.333	H1-3+VT ✔
	88.58 - 87.58	0.010	0.977	0.000	0.051	0.001	0.988 ✔	1.333	H1-3+VT ✔
	87.58 - 86.58	0.010	0.993	0.000	0.051	0.001	1.003 ✔	1.333	H1-3+VT ✔
L12	86.58 - 85.58	0.010	1.008	0.000	0.051	0.001	1.018 ✔	1.333	H1-3+VT ✔
	85.58 - 84.58	0.010	1.022	0.000	0.051	0.001	1.032 ✔	1.333	H1-3+VT ✔
	84.58 - 83.58	0.010	1.036	0.000	0.050	0.001	1.046 ✔	1.333	H1-3+VT ✔
	83.58 - 82.58	0.010	1.049	0.000	0.050	0.001	1.060 ✔	1.333	H1-3+VT ✔
	82.58 - 81.58	0.010	1.062	0.000	0.050	0.001	1.073 ✔	1.333	H1-3+VT ✔
L13	81.58 - 80.58	0.010	1.075	0.000	0.050	0.001	1.085 ✔	1.333	H1-3+VT ✔
	80.58 - 79.58	0.010	1.086	0.000	0.050	0.001	1.097 ✔	1.333	H1-3+VT ✔
	79.58 - 78.58	0.010	1.098	0.000	0.049	0.001	1.109 ✔	1.333	H1-3+VT ✔
	78.58 - 77.58	0.010	1.109	0.000	0.049	0.001	1.120 ✔	1.333	H1-3+VT ✔
	77.58 - 76.58	0.010	1.120	0.000	0.049	0.001	1.131 ✔	1.333	H1-3+VT ✔
L14	76.58 - 75.58	0.010	1.130	0.000	0.049	0.001	1.141 ✔	1.333	H1-3+VT ✔
	75.58 - 74.58	0.010	1.141	0.000	0.049	0.001	1.151 ✔	1.333	H1-3+VT ✔
	74.58 - 73.58	0.010	1.151	0.000	0.049	0.001	1.161 ✔	1.333	H1-3+VT ✔
	73.58 - 72.58	0.012	1.170	0.000	0.059	0.001	1.183 ✔	1.333	H1-3+VT ✔
	72.58 - 71.58	0.012	1.185	0.000	0.059	0.001	1.198 ✔	1.333	H1-3+VT ✔

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
L15	71.58 - 70.08 (15)	0.012	1.206	0.000	0.058	0.001	1.220 ✔	1.333	H1-3+VT ✔
L16	70.08 - 69.83 (16)	0.007	0.728	0.000	0.035	0.000	0.736 ✔	1.333	H1-3+VT ✔
L17	69.83 - 68.83	0.008	0.744	0.000	0.035	0.000	0.752 ✔	1.333	H1-3+VT ✔
	68.83 - 67.83	0.008	0.752	0.000	0.035	0.000	0.760 ✔	1.333	H1-3+VT ✔
	67.83 - 66.83	0.008	0.760	0.000	0.035	0.000	0.768 ✔	1.333	H1-3+VT ✔
	66.83 - 65.83	0.008	0.767	0.000	0.035	0.000	0.775 ✔	1.333	H1-3+VT ✔
	65.83 - 64.83	0.008	0.775	0.000	0.034	0.000	0.783 ✔	1.333	H1-3+VT ✔
L18	64.83 - 63.665	0.008	0.801	0.000	0.035	0.000	0.809 ✔	1.333	H1-3+VT ✔
	63.665 - 62.5	0.008	0.809	0.000	0.035	0.000	0.817 ✔	1.333	H1-3+VT ✔
L19	62.5 - 62.25 (19)	0.006	0.576	0.000	0.025	0.000	0.582 ✔	1.333	H1-3+VT ✔
L20	62.25 - 61.14	0.006	0.590	0.000	0.025	0.000	0.596 ✔	1.333	H1-3+VT ✔
	61.14 - 60.03	0.006	0.595	0.000	0.025	0.000	0.601 ✔	1.333	H1-3+VT ✔
	60.03 - 58.92	0.006	0.600	0.000	0.025	0.000	0.606 ✔	1.333	H1-3+VT ✔
L21	58.92 - 58.67 (21)	0.008	0.814	0.000	0.034	0.000	0.823 ✔	1.333	H1-3+VT ✔
L22	58.67 - 57.67	0.008	0.839	0.000	0.035	0.000	0.848 ✔	1.333	H1-3+VT ✔
	57.67 - 56.67	0.008	0.845	0.000	0.035	0.000	0.853 ✔	1.333	H1-3+VT ✔
	56.67 - 55.67	0.008	0.850	0.000	0.034	0.000	0.859 ✔	1.333	H1-3+VT ✔
	55.67 - 54.67	0.009	0.856	0.000	0.034	0.000	0.864 ✔	1.333	H1-3+VT ✔
	54.67 - 53.67	0.009	0.861	0.000	0.034	0.000	0.870 ✔	1.333	H1-3+VT ✔
L23	53.67 - 53	0.009	0.864	0.000	0.034	0.000	0.873 ✔	1.333	H1-3+VT ✔
	53 - 48.58	0.005	0.461	0.000	0.018	0.000	0.465 ✔	1.333	H1-3+VT ✔
L24	53 - 48.58	0.005	0.452	0.000	0.017	0.000	0.456 ✔	1.333	H1-3+VT ✔
	48.58 - 47.58	0.010	0.946	0.000	0.035	0.000	0.956 ✔	1.333	H1-3+VT ✔
L25	47.58 - 46.58	0.010	0.973	0.000	0.036	0.000	0.983 ✔	1.333	H1-3+VT ✔
	46.58 - 45.58	0.010	0.977	0.000	0.036	0.000	0.988 ✔	1.333	H1-3+VT ✔
	45.58 - 44.58	0.010	0.981	0.000	0.036	0.000	0.992 ✔	1.333	H1-3+VT ✔

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
	44.58 - 43.58	0.010	0.985	0.000	0.036	0.000	0.996 ✔	1.333	H1-3+VT ✔
	43.58 - 42.58	0.010	0.989	0.000	0.036	0.000	1.000 ✔	1.333	H1-3+VT ✔
L26	42.58 - 41.4133	0.010	0.993	0.000	0.035	0.000	1.004 ✔	1.333	H1-3+VT ✔
	41.4133 - 40.2467	0.010	0.998	0.000	0.035	0.000	1.008 ✔	1.333	H1-3+VT ✔
	40.2467 - 39.08	0.010	1.001	0.000	0.035	0.000	1.012 ✔	1.333	H1-3+VT ✔
L27	39.08 - 38.83 (27)	0.009	0.856	0.000	0.030	0.000	0.865 ✔	1.333	H1-3+VT ✔
L28	38.83 - 37.83	0.009	0.877	0.000	0.030	0.000	0.886 ✔	1.333	H1-3+VT ✔
	37.83 - 36.83	0.009	0.880	0.000	0.030	0.000	0.889 ✔	1.333	H1-3+VT ✔
	36.83 - 35.83	0.009	0.882	0.000	0.030	0.000	0.892 ✔	1.333	H1-3+VT ✔
	35.83 - 34.83	0.009	0.885	0.000	0.030	0.000	0.894 ✔	1.333	H1-3+VT ✔
	34.83 - 33.83	0.009	0.887	0.000	0.030	0.000	0.897 ✔	1.333	H1-3+VT ✔
L29	33.83 - 32.5533	0.009	0.890	0.000	0.030	0.000	0.900 ✔	1.333	H1-3+VT ✔
	32.5533 - 31.2767	0.009	0.893	0.000	0.030	0.000	0.903 ✔	1.333	H1-3+VT ✔
	31.2767 - 30	0.009	0.896	0.000	0.030	0.000	0.905 ✔	1.333	H1-3+VT ✔
L30	30 - 29.75 (30)	0.009	0.896	0.000	0.030	0.000	0.906 ✔	1.333	H1-3+VT ✔
L31	29.75 - 28.75	0.010	0.918	0.000	0.031	0.000	0.928 ✔	1.333	H1-3+VT ✔
	28.75 - 27.75	0.010	0.920	0.000	0.030	0.000	0.930 ✔	1.333	H1-3+VT ✔
	27.75 - 26.75	0.010	0.922	0.000	0.030	0.000	0.932 ✔	1.333	H1-3+VT ✔
	26.75 - 25.75	0.010	0.924	0.000	0.030	0.000	0.934 ✔	1.333	H1-3+VT ✔
	25.75 - 24.75	0.010	0.926	0.000	0.030	0.000	0.936 ✔	1.333	H1-3+VT ✔
L32	24.75 - 23.75	0.010	0.948	0.000	0.031	0.000	0.959 ✔	1.333	H1-3+VT ✔
	23.75 - 22.75	0.010	0.950	0.000	0.031	0.000	0.961 ✔	1.333	H1-3+VT ✔
	22.75 - 21.75	0.010	0.952	0.000	0.031	0.000	0.962 ✔	1.333	H1-3+VT ✔
	21.75 - 20.75	0.010	0.954	0.000	0.031	0.000	0.964 ✔	1.333	H1-3+VT ✔
	20.75 - 19.75	0.010	0.955	0.000	0.031	0.000	0.966 ✔	1.333	H1-3+VT ✔
L33	19.75 - 18.75	0.010	0.957	0.000	0.031	0.000	0.967 ✔	1.333	H1-3+VT ✔

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
	18.75 - 17.75	0.010	0.958	0.000	0.031	0.000	0.969 ✔	1.333	H1-3+VT ✔
	17.75 - 16.75	0.010	0.960	0.000	0.030	0.000	0.970 ✔	1.333	H1-3+VT ✔
	16.75 - 15.75	0.010	0.961	0.000	0.030	0.000	0.972 ✔	1.333	H1-3+VT ✔
	15.75 - 14.75	0.010	0.963	0.000	0.030	0.000	0.973 ✔	1.333	H1-3+VT ✔
L34	14.75 - 13.75	0.011	0.986	0.000	0.031	0.000	0.997 ✔	1.333	H1-3+VT ✔
	13.75 - 12.75	0.011	0.987	0.000	0.031	0.000	0.998 ✔	1.333	H1-3+VT ✔
	12.75 - 11.75	0.011	0.989	0.000	0.031	0.000	1.000 ✔	1.333	H1-3+VT ✔
	11.75 - 10.75	0.011	0.990	0.000	0.031	0.000	1.001 ✔	1.333	H1-3+VT ✔
	10.75 - 9.75	0.011	0.991	0.000	0.031	0.000	1.002 ✔	1.333	H1-3+VT ✔
L35	9.75 - 8.75	0.011	0.992	0.000	0.031	0.000	1.003 ✔	1.333	H1-3+VT ✔
	8.75 - 7.75	0.011	0.993	0.000	0.031	0.000	1.004 ✔	1.333	H1-3+VT ✔
	7.75 - 6.75	0.011	0.994	0.000	0.031	0.000	1.005 ✔	1.333	H1-3+VT ✔
	6.75 - 5.75	0.011	0.995	0.000	0.031	0.000	1.007 ✔	1.333	H1-3+VT ✔
	5.75 - 4.75	0.011	0.996	0.000	0.030	0.000	1.008 ✔	1.333	H1-3+VT ✔
L36	4.75 - 3.5625	0.012	1.021	0.000	0.031	0.000	1.032 ✔	1.333	H1-3+VT ✔
	3.5625 - 2.375	0.012	1.022	0.000	0.031	0.000	1.034 ✔	1.333	H1-3+VT ✔
	2.375 - 1.1875	0.012	1.023	0.000	0.031	0.000	1.035 ✔	1.333	H1-3+VT ✔
	1.1875 - 0	0.012	1.024	0.000	0.031	0.000	1.036 ✔	1.333	H1-3+VT ✔

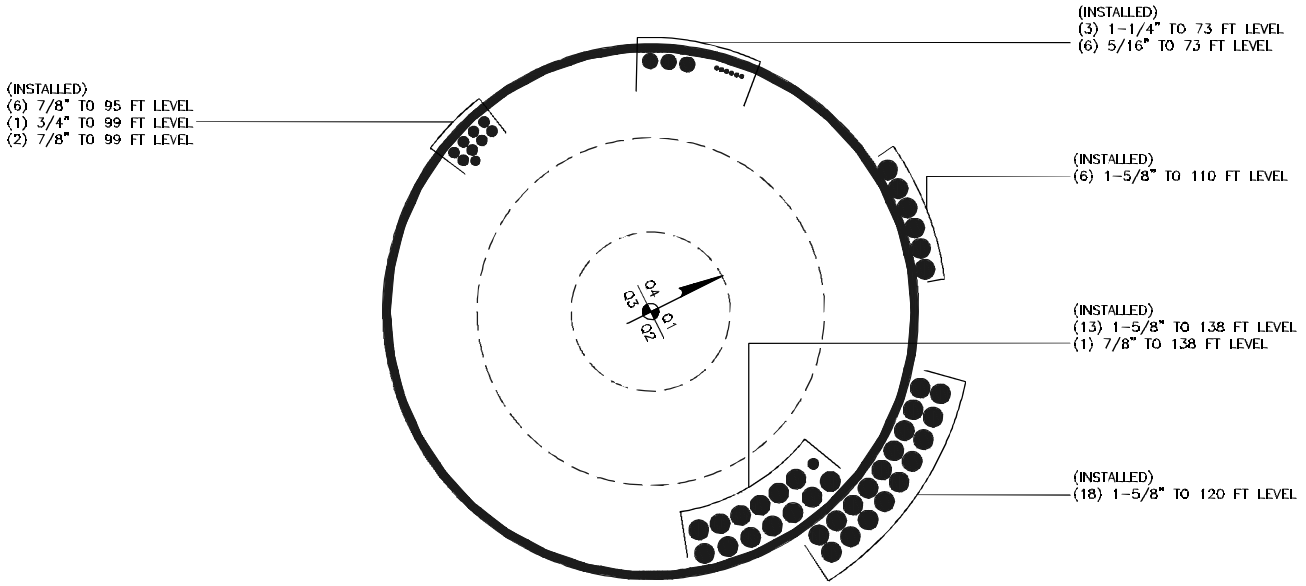
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
L1	140 - 135	Pole	TP14.296x13.161x0.1875	1	-1.66	436.50	18.1	Pass
L2	135 - 130	Pole	TP15.4309x14.296x0.1875	2	-1.85	471.61	32.5	Pass
L3	130 - 125	Pole	TP16.5659x15.4309x0.1875	3	-2.06	506.73	43.5	Pass
L4	125 - 120	Pole	TP17.7008x16.5659x0.1875	4	-2.29	541.84	52.0	Pass
L5	120 - 115	Pole	TP18.8358x17.7008x0.1875	5	-3.58	576.95	66.0	Pass
L6	115 - 110	Pole	TP19.9707x18.8358x0.1875	6	-3.93	612.07	77.0	Pass
L7	110 - 105	Pole	TP21.1057x19.9707x0.1875	7	-4.82	647.18	87.8	Pass
L8	105 - 101.58	Pole	TP21.882x21.1057x0.1875	8	-5.11	671.20	93.9	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
L9	101.58 - 96.58	Pole	TP23.017x21.882x0.3125	9	-6.08	1170.75	62.3	Pass
L10	96.58 - 91.58	Pole	TP24.152x23.017x0.3125	10	-8.58	1229.27	69.0	Pass
L11	91.58 - 86.58	Pole	TP25.287x24.152x0.3125	11	-9.23	1287.80	75.3	Pass
L12	86.58 - 81.58	Pole	TP26.422x25.287x0.3125	12	-9.91	1346.33	80.5	Pass
L13	81.58 - 76.58	Pole	TP27.557x26.422x0.3125	13	-10.61	1404.85	84.8	Pass
L14	76.58 - 71.58	Pole	TP28.692x27.557x0.3125	14	-13.54	1463.38	89.9	Pass
L15	71.58 - 70.08	Pole	TP29.0325x28.692x0.3125	15	-13.77	1480.94	91.5	Pass
L16	70.08 - 69.83	Pole	TP29.0893x29.0325x0.5313	16	-13.84	2503.39	55.2	Pass
L17	69.83 - 64.83	Pole	TP30.2243x29.0893x0.525	17	-14.88	2572.80	58.7	Pass
L18	64.83 - 62.5	Pole	TP30.7532x30.2243x0.5125	18	-15.37	2557.33	61.3	Pass
L19	62.5 - 62.25	Pole	TP30.8099x30.7532x0.7375	19	-15.45	3659.59	43.6	Pass
L20	62.25 - 58.92	Pole	TP31.5658x30.8099x0.725	20	-16.34	3689.48	45.5	Pass
L21	58.92 - 58.67	Pole	TP31.6226x31.5658x0.525	21	-16.40	2693.94	61.7	Pass
L22	58.67 - 53.67	Pole	TP32.7576x31.6226x0.5125	22	-17.50	2726.84	65.2	Pass
L23	53.67 - 48.58	Pole	TP33.913x32.7576x0.5125	23	-17.66	2739.70	65.5	Pass
L24	48.58 - 47.58	Pole	TP33.5151x32.2847x0.5	24	-19.59	2723.87	71.7	Pass
L25	47.58 - 42.58	Pole	TP34.6503x33.5151x0.4875	25	-20.74	2748.09	75.0	Pass
L26	42.58 - 39.08	Pole	TP35.4449x34.6503x0.4875	26	-21.55	2812.00	75.9	Pass
L27	39.08 - 38.83	Pole	TP35.5016x35.4449x0.575	27	-21.63	3313.80	64.9	Pass
L28	38.83 - 33.83	Pole	TP36.6367x35.5016x0.5625	28	-22.94	3348.28	67.3	Pass
L29	33.83 - 30	Pole	TP37.5062x36.6367x0.5625	29	-23.96	3428.98	67.9	Pass
L30	30 - 29.75	Pole	TP37.563x37.5062x0.5625	30	-24.04	3434.25	68.0	Pass
L31	29.75 - 24.75	Pole	TP38.6981x37.563x0.55	31	-25.39	3462.08	70.2	Pass
L32	24.75 - 19.75	Pole	TP39.8333x38.6981x0.5375	32	-26.77	3485.18	72.4	Pass
L33	19.75 - 14.75	Pole	TP40.9684x39.8333x0.5375	33	-28.17	3585.86	73.0	Pass
L34	14.75 - 9.75	Pole	TP42.1035x40.9684x0.525	34	-29.60	3601.89	75.2	Pass
L35	9.75 - 4.75	Pole	TP43.2386x42.1035x0.525	35	-31.05	3700.22	75.6	Pass
L36	4.75 - 0	Pole	TP44.317x43.2386x0.5125	36	-32.45	3704.37	77.7	Pass
							Summary	
						Pole (L8)	93.9	Pass
						RATING =	**93.9**	**Pass**

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 842873 TOWER ID: C_BASELEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

FDH ENGINEERING INNOVATION
FDH Engineering, Inc., 6521 Meridien Dr. Raleigh, NC 27616, Ph. 919.755.1012, Fax 919.755.1031

Anchor Rod Design

Site Name:	Shelton NE
Job No. :	15BGXE1400
Elevation:	0
	Input Cells in Yellow

*Note: Use Anchor Rod Transfer Plate Design Spreadsheet in Conjunction

Code (F or G):	F	Pull Down
Anchor Bolts (Yes or No)	Yes	Pull Down
P (from RISA)	32	kips
V (from RISA)	29	kips
M (from RISA)	2553	ft-kips

Existing Rods		
y	25.5	in
No. Bolts	12	
BC	51	in
I	15527.97	in^4
Bolt Grade	A615-75	Pull Down
Thread Form	Non-Upset	-
d (in)	2.25	Pull Down
Ag	3.98	in^2
Ae	3.25	in^2
Fy	75	ksi
Fu	100	ksi

New Rods		
y new	25.5	in
No. Bolts new	4	
BC new	51	in
Inew	5,176	in^4
Bolt Grade	A193 B7	Pull Down
Thread Form	Non-Upset	Pull Down
d new (in)	2.25	Pull Down
Ag new	3.98	in^2
Ae new	3.25	in^2
Fy new	105	ksi
Fu new	125	ksi

Req'd Embedment Length for New Rods		
f'c, caisson's concrete strength	3000	psi
fy, rebar yield strength	60000	psi
d_b, diameter of vertical rebar	1	in
vertical rebar cage BC ø	22	in
vertical rebar top cover distance	3	in
τ, Ultimate Hilti Bond Resistance	1.8	ksi

****Note For New Anchor Rods:****
Williams Bars (Upset)
A722 (Fy=127.7 ksi, Fu=150 ksi)
A615-75 (Fy=75 ksi, Fu=100 ksi)

Itot	20703.96	in^4

T	148.176	kips
V	1.813	kips

Tnew	148.176	kips
Vnew	1.813	kips

				% Capacity	**Pullout Test Value**
Tn/Ω	194.5	kips	OK	**76.18**	**218.90 kips**
Tn/Ω, new	218.9	kips	OK	**67.69**	
øTn	260	kips			
øTn, new	325	kips			

l_d (vertical rebar dev. Length)	32.863	in
l_{dH} (Hilti dev. length)	76.630	in
G/1.5	-9.667	in

Total Embed. Length of New Bolts	76.63	in
	6.39	ft

Equations:

T = (M*y*Ag)/Itot-P*(Ag/Atotal)

Tn/Ω = 0.33*Fu*Ag*(4/3)

øTn = 0.8*Fu*Ae (anchor bolts only)

øTn = 0.75*Fu*Ae (non anchor bolts)

I = (No. Bolts/8)*BC^2*Ag

l_d = [(fy*ψ$_t$ψ$_e$λ)/(20*√f'c)]*d_b PER ACI 12.2.2

l_{dH} = (øTn*FS)/(τ*pi*d_{new})

See Worksheet "New (Design Procedure)" for diagram

Notes:

***Ag and Ae are taken from AISC 13th Ed. Manual (pg. 7-83)**

***I calc. will only work for symmetric bolt group, otherwise use CAD**

Interaction Equation Checks per Rev. G: See section 4.9.9			(works for Rev F also)
Detail Type (see sheet 2)	c	Pull Down	(see sheet 2 for Detail Type)
η	0.55		
l_{ar}, for Detail Type d only	3	in	(length from top of concrete to bottom of leveling nut)

øRnt	194.5	kips
øRnv	119.4	kips
øRnm	94.922	kip-in
Mu	3.534	kip-in

(Pu+Vu/η)/øRnt	0.779	<1?	OK
$(Vu/øRnv)^2 + ((Pu/øRnt)+(Mu/øRnm))^2$	N/A		(only applicable for Detail Type d)

Bearing Strength Check of Anchor Rod Pipe Sleeve		
New Anchor Rod Diameter	2.25	in
Selected Pipe Sleeve Area	0	in^2
Selected Pipe Sleeve Fy	0	ksi
Rn/Ω (Rev F) or øRn (Rev G)	0.00	k
% Capacity	**#DIV/0!**	**No Good**

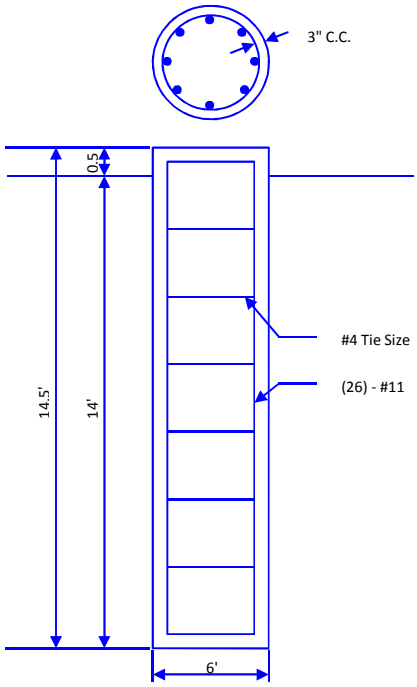
CCI Foundation Tool Suite - Monopole Pier

CCIFTS 1.2.108.14286 - Phase 1-2 Date: 3/24/2015

BU:	842873
Site Name:	Shelton NE
App Number:	271495 Rev. 1
Work Order:	

Monopole Drilled Pier

Input



Criteria

TIA Revision:	F
ACI 318 Revision:	2002
Seismic Category:	C

Forces

Compression	32.475	kips
Shear	28.637	kips
Moment	2552.9	k-ft
Swelling Force	0	kips

Foundation Dimensions

Pier Diameter:	6	ft
Ext. above grade:	0.5	ft
Depth below grade:	14	ft

Material Properties

Number of Rebar:	26	
Rebar Size:	11	
Tie Size	4	
Rebar tensile strength:	60	ksi
Concrete Strength:	4000	psi
Ultimate Concrete Strain	0.003	in/in
Clear Cover to Ties:	3	in

Soil Profile: 842873

Layer	Thickness (ft)	From (ft)	To (ft)	Unit Weight (pcf)	Cohesion (psf)	Friction Angle (deg)	Ultimate Uplift Skin Friction (ksf)	Ultimate Comp. Skin Friction (ksf)	Ultimate Bearing Capacity (ksf)	SPT 'N' Counts
1	3	0	3	100	0	0				0
2	5.5	3	8.5	130	4000	0				0
3	1.92	8.5	10.42	130	12000	0				0
4	3.58	10.42	14	130	12000	0				0

Analysis Results

Soil Lateral Capacity

Depth to Zero Shear:	3.50	ft
Max Moment, Mu:	2675.41	k-ft
Soil Safety Factor:	3.36	
Safety Factor Req'd:	2	
RATING:	59.5%	

Soil Axial Capacity

Skin Friction (k):	292.36	kips
End Bearing (k):	0.00	kips
Comp. Capacity (k), ϕCn:	292.36	kips
Comp. (k), Cu:	42.22	kips
RATING:	14.4%	

Concrete/Steel Check

Mu (from soil analysis)	3478.04	k-ft
ϕMn	5345.36	k-ft
RATING:	65.1%	

rho provided	1.00	
rho required	0.33	OK

Rebar Spacing	6.27	
Spacing required	22.56	OK

Dev. Length required	10.25	
Dev. Length provided	53.51	OK

Overall Foundation Rating: 65.1%

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in^4)			Area (in^2)			% Capacity					
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4	R5
140 - 135	211	n/a	211	8.40	n/a	8.40	18.0%					
135 - 130	266	n/a	266	9.07	n/a	9.07	32.4%					
130 - 125	330	n/a	330	9.75	n/a	9.75	43.4%					
125 - 120	404	n/a	404	10.42	n/a	10.42	51.9%					
120 - 115	487	n/a	487	11.10	n/a	11.10	65.9%					
115 - 110	582	n/a	582	11.77	n/a	11.77	76.9%					
110 - 105	688	n/a	688	12.45	n/a	12.45	87.6%					
105 - 101.58	767	n/a	767	12.91	n/a	12.91	93.8%					
101.58 - 96.58	1466	n/a	1466	22.52	n/a	22.52	62.2%					
96.58 - 91.58	1697	n/a	1697	23.64	n/a	23.64	68.9%					
91.58 - 86.58	1951	n/a	1951	24.77	n/a	24.77	75.1%					
86.58 - 81.58	2230	n/a	2230	25.90	n/a	25.90	80.3%					
81.58 - 76.58	2533	n/a	2533	27.02	n/a	27.02	84.7%					
76.58 - 71.58	2863	n/a	2863	28.15	n/a	28.15	89.7%					
71.58 - 70.08	2968	n/a	2968	28.49	n/a	28.49	91.4%					
70.08 - 69.83	2985	1977	4962	28.54	17.25	45.79	54.4%				70.9%	
69.83 - 64.83	3353	2127	5479	29.67	17.25	46.92	58.9%				75.8%	
64.83 - 62.5	3534	2199	5732	30.19	17.25	47.44	60.5%				77.9%	
62.5 - 62.25	3553	4511	8064	30.25	35.25	65.50	43.4%				55.8%	54.6%
62.25 - 58.92	3824	4725	8549	31.00	35.25	66.25	44.7%				58.1%	56.9%
58.92 - 58.67	3845	2422	6267	31.05	18.00	49.05	62.1%					78.1%
58.67 - 53.67	4278	2592	6870	32.18	18.00	50.18	65.2%					81.9%
53.67 - 53	4339	2615	6954	32.33	18.00	50.33	65.8%					82.4%
53 - 47.58	4585	2593	7178	32.93	17.25	50.18	71.0%			92.1%		
47.58 - 42.58	5072	2765	7837	34.06	17.25	51.31	73.5%			95.2%		
42.58 - 39.08	5432	2888	8321	34.85	17.25	52.10	75.0%			97.2%		
39.08 - 38.83	5458	4374	9832	34.90	26.01	60.91	63.9%	77.5%		82.8%		
38.83 - 33.83	6004	4648	10651	36.03	26.01	62.04	65.9%	79.8%		85.3%		
33.83 - 30	6445	4863	11309	36.89	26.01	62.90	68.3%	81.5%		87.1%		
30 - 29.75	6475	4877	11352	36.95	26.01	62.96	67.4%	81.6%	87.2%			
29.75 - 24.75	7085	5167	12252	38.07	26.01	64.08	69.9%	83.6%	89.3%			
24.75 - 19.75	7732	5464	13197	39.20	26.01	65.21	70.7%	85.5%	91.4%			
19.75 - 14.75	8418	5770	14188	40.32	26.01	66.33	72.2%	87.2%	93.2%			
14.75 - 9.75	9143	6085	15228	41.45	26.01	67.46	73.6%	88.8%	94.9%			
9.75 - 4.75	9908	6408	16316	42.58	26.01	68.59	74.9%	90.3%	96.5%			
4.75 - 0	10674	6722	17396	43.65	26.01	69.66	76.0%	91.6%	97.9%			

Note: Section capacity checked in 5 degree increments.

TNX Section Forces

Increment (ft):	5	TNX Output		
	Section Height (ft)	P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	140 - 135	1.6551	22.257	4.8731
2	135 - 130	1.8486	47.15	5.0888
3	130 - 125	2.0613	73.142	5.3136
4	125 - 120	2.2913	100.28	5.5471
5	120 - 115	3.5765	144.18	8.9506
6	115 - 110	3.9322	189.74	9.2852
7	110 - 105	4.8218	241.83	10.616
8	105 - 101.58	5.1119	278.56	10.875
9	101.58 - 96.58	6.0828	335.6	11.99
10	96.58 - 91.58	8.5848	409.08	16.065
11	91.58 - 86.58	9.2312	490.35	16.463
12	86.58 - 81.58	9.905	573.62	16.86
13	81.58 - 76.58	10.605	658.85	17.254
14	76.58 - 71.58	13.54	756.72	21.532
15	71.58 - 70.08	13.771	789.1	21.668
16	70.08 - 69.83	13.841	794.52	21.696
17	69.83 - 64.83	14.877	904.13	22.172
18	64.83 - 62.5	15.37	956.07	22.425
19	62.5 - 62.25	15.447	961.68	22.464
20	62.25 - 58.92	16.339	1037.1	22.855
21	58.92 - 58.67	16.4	1042.8	22.889
22	58.67 - 53.67	17.502	1158.4	23.369
23	53.67 - 53	17.656	1174.1	23.429
24	53 - 47.58	19.587	1302.6	23.993
25	47.58 - 42.58	20.736	1423.5	24.419
26	42.58 - 39.08	21.551	1509.5	24.735
27	39.08 - 38.83	21.627	1515.7	24.757
28	38.83 - 33.83	22.937	1640.7	25.261
29	33.83 - 30	23.959	1738.2	25.666
30	30 - 29.75	24.037	1744.6	25.684
31	29.75 - 24.75	25.387	1874.3	26.223
32	24.75 - 19.75	26.769	2006.6	26.712
33	19.75 - 14.75	28.173	2141.3	27.202
34	14.75 - 9.75	29.601	2278.5	27.692
35	9.75 - 4.75	31.049	2418.1	28.183
36	4.75 - 0	32.445	2552.9	28.637

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
140 - 135	Pole	TP14.296x13.161x0.1875	Pole	18.0%	Pass
135 - 130	Pole	TP15.431x14.296x0.1875	Pole	32.4%	Pass
130 - 125	Pole	TP16.566x15.431x0.1875	Pole	43.4%	Pass
125 - 120	Pole	TP17.701x16.566x0.1875	Pole	51.9%	Pass
120 - 115	Pole	TP18.836x17.701x0.1875	Pole	65.9%	Pass
115 - 110	Pole	TP19.971x18.836x0.1875	Pole	76.9%	Pass
110 - 105	Pole	TP21.106x19.971x0.1875	Pole	87.6%	Pass
105 - 101.58	Pole	TP21.882x21.106x0.1875	Pole	93.8%	Pass
101.58 - 96.58	Pole	TP23.017x21.882x0.3125	Pole	62.2%	Pass
96.58 - 91.58	Pole	TP24.152x23.017x0.3125	Pole	68.9%	Pass
91.58 - 86.58	Pole	TP25.287x24.152x0.3125	Pole	75.1%	Pass
86.58 - 81.58	Pole	TP26.422x25.287x0.3125	Pole	80.3%	Pass
81.58 - 76.58	Pole	TP27.557x26.422x0.3125	Pole	84.7%	Pass
76.58 - 71.58	Pole	TP28.692x27.557x0.3125	Pole	89.7%	Pass
71.58 - 70.08	Pole	TP29.033x28.692x0.3125	Pole	91.4%	Pass
70.08 - 69.83	Pole + Reinf.	TP29.089x29.033x0.5313	Reinf. 4 Tension Rupture	70.9%	Pass
69.83 - 64.83	Pole + Reinf.	TP30.224x29.089x0.525	Reinf. 4 Tension Rupture	75.5%	Pass
64.83 - 62.5	Pole + Reinf.	TP30.753x30.224x0.5125	Reinf. 4 Tension Rupture	77.6%	Pass
62.5 - 62.25	Pole + Reinf.	TP30.81x30.753x0.7375	Reinf. 4 Tension Rupture	55.6%	Pass
62.25 - 58.92	Pole + Reinf.	TP31.566x30.81x0.725	Reinf. 4 Tension Rupture	58.1%	Pass
58.92 - 58.67	Pole + Reinf.	TP31.623x31.566x0.525	Reinf. 5 Compression	77.8%	Pass
58.67 - 53.67	Pole + Reinf.	TP32.758x31.623x0.5125	Reinf. 5 Compression	81.6%	Pass
53.67 - 53	Pole + Reinf.	TP33.913x32.758x0.5125	Reinf. 5 Compression	81.2%	Pass
53 - 47.58	Pole + Reinf.	TP33.515x32.285x0.5	Reinf. 3 Tension Rupture	92.1%	Pass
47.58 - 42.58	Pole + Reinf.	TP34.65x33.515x0.4875	Reinf. 3 Tension Rupture	95.2%	Pass
42.58 - 39.08	Pole + Reinf.	TP35.445x34.65x0.4875	Reinf. 3 Tension Rupture	97.2%	Pass
39.08 - 38.83	Pole + Reinf.	TP35.502x35.445x0.575	Reinf. 3 Tension Rupture	82.8%	Pass
38.83 - 33.83	Pole + Reinf.	TP36.637x35.502x0.5625	Reinf. 3 Tension Rupture	85.3%	Pass
33.83 - 30	Pole + Reinf.	TP37.506x36.637x0.5625	Reinf. 3 Tension Rupture	85.7%	Pass
30 - 29.75	Pole + Reinf.	TP37.563x37.506x0.5625	Reinf. 2 Tension Rupture	87.2%	Pass
29.75 - 24.75	Pole + Reinf.	TP38.698x37.563x0.55	Reinf. 2 Tension Rupture	89.0%	Pass
24.75 - 19.75	Pole + Reinf.	TP39.833x38.698x0.5375	Reinf. 2 Tension Rupture	91.3%	Pass
19.75 - 14.75	Pole + Reinf.	TP40.968x39.833x0.5375	Reinf. 2 Tension Rupture	93.2%	Pass
14.75 - 9.75	Pole + Reinf.	TP42.104x40.968x0.525	Reinf. 2 Tension Rupture	94.9%	Pass
9.75 - 4.75	Pole + Reinf.	TP43.239x42.104x0.525	Reinf. 2 Tension Rupture	96.5%	Pass
4.75 - 0	Pole + Reinf.	TP44.317x43.239x0.5125	Reinf. 2 Tension Rupture	97.9%	Pass
				Summary	
			Pole	93.8%	Pass
			Reinforcement	97.9%	Pass
			Overall	97.9%	Pass

TNX Geometry Input

Increment (ft): 5

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	140 - 135	5		18	13.161	14.296	0.1875	A572-65	1.000
2	135 - 130	5		18	14.296	15.431	0.1875	A572-65	1.000
3	130 - 125	5		18	15.431	16.566	0.1875	A572-65	1.000
4	125 - 120	5		18	16.566	17.701	0.1875	A572-65	1.000
5	120 - 115	5		18	17.701	18.836	0.1875	A572-65	1.000
6	115 - 110	5		18	18.836	19.971	0.1875	A572-65	1.000
7	110 - 105	5		18	19.971	21.106	0.1875	A572-65	1.000
8	105 - 101.58	3.42	0	18	21.106	21.882	0.1875	A572-65	1.000
9	101.58 - 96.58	5		18	21.882	23.017	0.3125	A572-65	1.000
10	96.58 - 91.58	5		18	23.017	24.152	0.3125	A572-65	1.000
11	91.58 - 86.58	5		18	24.152	25.287	0.3125	A572-65	1.000
12	86.58 - 81.58	5		18	25.287	26.422	0.3125	A572-65	1.000
13	81.58 - 76.58	5		18	26.422	27.557	0.3125	A572-65	1.000
14	76.58 - 71.58	5		18	27.557	28.692	0.3125	A572-65	1.000
15	71.58 - 70.08	1.5		18	28.692	29.033	0.3125	A572-65	1.000
16	70.08 - 69.83	0.25		18	29.033	29.089	0.53125	A572-65	0.951
17	69.83 - 64.83	5		18	29.089	30.224	0.525	A572-65	0.948
18	64.83 - 62.5	2.33		18	30.224	30.753	0.5125	A572-65	0.964
19	62.5 - 62.25	0.25		18	30.753	30.810	0.7375	A572-65	0.930
20	62.25 - 58.92	3.33		18	30.810	31.566	0.725	A572-65	0.934
21	58.92 - 58.67	0.25		18	31.566	31.623	0.525	A572-65	0.947
22	58.67 - 53.67	5		18	31.623	32.758	0.5125	A572-65	0.957
23	53.67 - 53	5.09	4.42	18	32.758	33.913	0.5125	A572-65	0.955
24	53 - 47.58	5.42		18	32.285	33.515	0.5	A572-65	0.958
25	47.58 - 42.58	5		18	33.515	34.650	0.4875	A572-65	0.971
26	42.58 - 39.08	3.5		18	34.650	35.445	0.4875	A572-65	0.963
27	39.08 - 38.83	0.25		18	35.445	35.502	0.575	A572-65	0.956
28	38.83 - 33.83	5		18	35.502	36.637	0.5625	A572-65	0.963
29	33.83 - 30	3.83		18	36.637	37.506	0.5625	A572-65	0.954
30	30 - 29.75	0.25		18	37.506	37.563	0.5625	A572-65	0.953
31	29.75 - 24.75	5		18	37.563	38.698	0.55	A572-65	0.962
32	24.75 - 19.75	5		18	38.698	39.833	0.5375	A572-65	0.973
33	19.75 - 14.75	5		18	39.833	40.968	0.5375	A572-65	0.962
34	14.75 - 9.75	5		18	40.968	42.104	0.525	A572-65	0.974
35	9.75 - 4.75	5		18	42.104	43.239	0.525	A572-65	0.964
36	4.75 - 0	4.75		18	43.239	44.317	0.5125	A572-65	0.978

CCIpole

per TIA-222- F

Site BU: 842873

Work Order: 1023781

Pole Geometry

	Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
1	140	38.42	0	18	13.161	21.882	0.1875	0.75	A572-65
2	101.58	53	4.42	18	21.88	33.913	0.3125	1.25	A572-65
3	53	53	0	18	32.28	44.317	0.3125	1.25	A572-65

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Pole Flat Width (in)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	0	39.08	channel	MP3-03 (1.1875")	6.25				E						E						E		
2	0	30	plate	5 3/4" x 1"	6.61	E						E						E					
3	30	48.67	plate	5 3/4" x 1"	5.98						E						E						E
4	58.92	70.08	plate	5 3/4" x 1"	5.12						E						E						E
5	52.5	62.5	plate	CCI-AFP-060100	5.42			P						P						P			
6																							
7																							
8																							
9																							
10																							

Reinforcement Details

	B (in)	H (in)	Gross Area (in^2)	Pole Face to Centroid (in)	Bottom Termination Length (in)	Top Termination Length (in)	L_u (in)	Net Area (in^2)	Bolt Hole Size (in)	Reinforcement Material
1	4.06	1.57	2.92	0.59	14.000	14.000	18.000	2.545	1.1875	A572-65
2	5.75	1	5.75	0.5			16.000	4.438	1.2500	A572-65
3	5.75	1	5.75	0.5			16.000	4.438	1.2500	A572-65
4	5.75	1	5.75	0.5			16.000	4.438	1.2500	A572-65
5	6	1	6	0.5	30.000	30.000	16.000	4.750	1.1875	A572-65

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

TIA Rev F

Site Data

Project No.	*15BGXE1400*
Site Name:	*Shelton NE*
Site ID:	*842873*
Pole Manufacturer:	*Other*

Reactions		
Moment:	2553	ft-kips
Axial:	32	kips
Shear:	29	kips

Anchor Rod Data		
Qty:	16	
Diam:	2.25	in
Rod Material:	A615-J	**
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	51	in

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

Anchor Rod Results

Maximum Rod Tension:	148.2 Kips	Rigid
Allowable Tension:	195.0 Kips	Service, ASD
Anchor Rod Stress Ratio:	76.0% **Pass**	Fty*ASIF

****Note: anchor rod grade is assumed to be lowest grade of all existing rods**

Plate Data		
Diam:	57	in
Thick:	2.25	in
Grade:	60	ksi
Single-Rod B-eff:	8.79	in

Base Plate Results Flexural Check

Base Plate Stress:	42.4 ksi	Rigid
Allowable Plate Stress:	60.0 ksi	Service ASD
Base Plate Stress Ratio:	70.7% **Pass**	0.75*Fy*ASIF
		Y.L. Length: 25.24

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

n/a

Stiffener Results

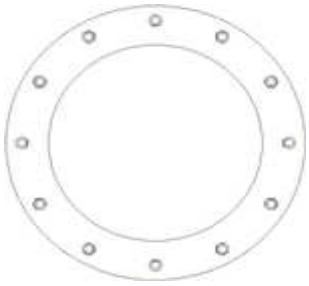
Horizontal Weld :	n/a
Vertical Weld:	n/a
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	n/a
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	n/a
Plate Comp. (AISC Bracket):	n/a

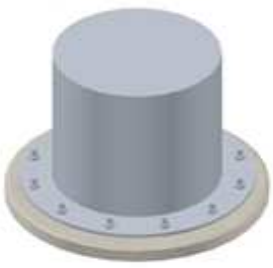
Pole Results

Pole Punching Shear Check: n/a

Pole Data		
Diam:	44.317	in
Thick:	0.3125	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0	"0" if None

Stress Increase Factor		
ASIF:	1.333	





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

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

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

Site Data

Project No.: *15BCPC1400*
Site Name: *Shelton NE*
Site ID: *842873*

Pole Manufacturer:	Other

Reactions		
Moment:	278.54	ft-kips
Axial:	5.1137	kips
Shear:	10.874	kips
Elevation:	101.58	feet

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

Bolt Data			
Qty:	16		
Diameter (in.):	1	Bolt Fu:	120
Bolt Material:	A325	Bolt Fy:	92
N/A:		<-- Disregard	Bolt Fty:
N/A:		<-- Disregard	44.00
Circle (in.):	26		

Plate Data		
Diam:	30	in
Thick, t:	1.5	in
Grade (Fy):	50	ksi
Strength, Fu:	65	ksi
Single-Rod B-eff:	4.34	in

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

Pole Data		
Diam:	21.882	in
Thick:	0.1875	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	

Flange Bolt Results

			Rigid
Bolt Tension Capacity, **B**:	46.07	kips	Service, ASD
Max Bolt directly applied T:	31.82	Kips	Fty*ASIF
Min. PL "tc" for **B** cap. **w/o** Pry:	1.416	in	
Min PL "treq" for actual **T w/ Pry**:	0.889	in	
Min PL "t1" for actual **T w/o Pry**:	1.177	in	
T allowable w/o Prying:	46.07	kips	α'<0 case
Prying Force, Q:	0.00	kips	
Total Bolt Tension=T+Q:	31.82	kips	
Non-Prying Bolt Stress Ratio, T/B:	69.1%	**Pass**	

Exterior Flange Plate Results Flexural Check

			Rigid
Compression Side Plate Stress:	24.9	ksi	Service ASD
Allowable Plate Stress:	50.0	ksi	0.75*Fy*ASIF
Compression Plate Stress Ratio:	49.8%	**Pass**	Comp. Y.L. Length:
No Prying			14.04
Tension Side Stress Ratio, (treq/t)^2:	35.1%	**Pass**	

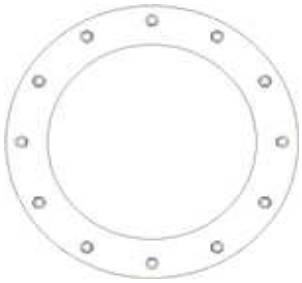
n/a

Stiffener Results

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

Pole Results

Pole Punching Shear Check: n/a



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

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

APPENDIX D

MODIFICATION DRAWINGS

THE MODIFICATIONS DEPICTED ON THESE DRAWINGS ARE BASED ON THE RECOMMENDATIONS OUTLINED IN THE STRUCTURAL ANALYSIS COMPLETED BY FDH ENGINEERING, INC., PROJECT NO. 15BCPC1400 DATED JANUARY 30, 2015.

FOR PASSING STRUCTURAL ANALYSIS WITH MODIFICATIONS IN PLACE SEE FDH ENGINEERING, INC., (PROJECT NO. 15BGXE1400), CROWN SDD WO# 1023781 FOR T-MOBILE APPLICATION 271495 REV. 3 DATED MARCH 24, 2015.

ALL DIMENSIONS, MEASUREMENTS, QUANTITIES, PART NUMBERS AND COAX/ANTENNA PLACEMENTS TO BE FIELD VERIFIED BY CONTRACTOR PRIOR TO MATERIAL ORDERS AND CONSTRUCTION.

THIS MODIFICATION DESIGN HAS BEEN PERFORMED IN ACCORDANCE WITH THE ANSI / TIA-222-F "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES"

TOWER MANUFACTURER : FWT
DRAWING NO. J030219001

PROJECT CONTACTS:

CROWN CASTLE TSA
TIMOTHY HOWELL
TIMOTHY.HOWELL@CROWNCASTLE.COM
(980) 209-8424

FDH PROJECT ENGINEER
BYRON K. WEBB
BYRON.WEBB@FDHVELOCITEL.COM
(919) 755-1012

FDH ENGINEER (EOR)
DENNIS D. ABEL, P.E.
DENNIS.ABEL@FDHVELOCITEL.COM
(919) 755-1012

PROJECT DESCRIPTION:

MODIFICATION DRAWINGS FOR A 140' MONOPOLE

CROWN CASTLE

SITE NAME:
SHELTON NE

SITE NUMBER:
842873

SITE ADDRESS:
30 OLIVER TERRACE
SHELTON, CT 06484

COORDINATES:
LATITUDE: 41.2939°
LONGITUDE: -73.1072°

SHEET INDEX

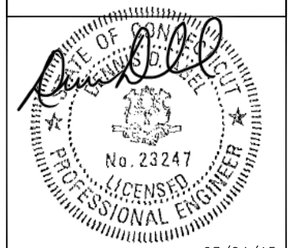
SHT. NO.	DESCRIPTION
S-1	TITLE SHEET
S-2	MODIFICATION INSPECTION CHECKLIST
S-3	GENERAL NOTES
S-4	MODIFICATION SCHEDULE & FLAT PLATE INSTALLATION DETAILS

PREPARED BY:

FDH
6521 MERIDIEN DRIVE
RALEIGH, NC 27616
PHONE: 919-755-1012
FAX: 919-755-1031
ENGINEERING INNOVATION

PREPARED FOR:

CROWN CASTLE



03/24/15
DENNIS D. ABEL, P.E.
CONNECTICUT LIC. NO. 23247

DRAWN BY:	JK
CHECKED BY:	BKW
ENG APPV'D:	DDA
PROJECT NO:	15BGXE1400

SUBMITTALS

DATE	DESCRIPTION	REV
03/24/15	CONSTRUCTION	0

SITE NAME:
SHELTON NE

SITE NUMBER:
842873

SITE ADDRESS:
30 OLIVER TERRACE
SHELTON, CT 06484

SHEET TITLE
TITLE SHEET

SHEET NUMBER
S-1

MI CHECKLIST

CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY EOR)	REPORT ITEM
PRE-CONSTRUCTION	
X	MI CHECKLIST DRAWING
X	EOR APPROVAL
X	FABRICATION INSPECTION
N/A	FABRICATOR CERTIFIED WELD INSPECTION
X	MATERIAL TEST REPORT (MTR)
N/A	FABRICATOR NDE INSPECTION
N/A	NDE REPORT OF MONOPOLE BASE PLATE PER ENG-SOW-10033
X	PACKING SLIPS
ADDITIONAL TESTING AND INSPECTIONS:	
CONSTRUCTION	
X	CONSTRUCTION INSPECTIONS
N/A	FOUNDATION INSPECTIONS
N/A	CONCRETE COMP. STRENGTH AND SLUMP TESTS
N/A	POST INSTALLED ANCHOR ROD VERIFICATION
N/A	BASE PLATE GROUT VERIFICATION
N/A	CONTRACTOR'S CERTIFIED WELD INSPECTION
N/A	EARTHWORK: LIFT AND DENSITY
X	ON SITE COLD GALVANIZING VERIFICATION
N/A	GUY WIRE TENSION REPORT
X	GC AS-BUILT DOCUMENTS
ADDITIONAL TESTING AND INSPECTIONS:	
POST-CONSTRUCTION	
X	MI INSPECTOR REDLINE OR RECORD DRAWING(S)
N/A	POST INSTALLED ANCHOR ROD PULL-OUT TESTING
X	PHOTOGRAPHS
ADDITIONAL TESTING AND INSPECTIONS:	

NOTE: X DENOTES A DOCUMENT NEEDED FOR THE PMI REPORT
N/A DENOTES A DOCUMENT THAT IS NOT REQUIRED FOR THE PMI REPORT

MODIFICATION INSPECTION NOTES:

GENERAL

THE MODIFICATION INSPECTION (MI) IS A VISUAL INSPECTION OF TOWER MODIFICATIONS AND A REVIEW OF CONSTRUCTION INSPECTIONS AND OTHER REPORTS TO ENSURE THE INSTALLATION WAS CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, NAMELY THE MODIFICATION DRAWINGS, AS DESIGNED BY THE ENGINEER OF RECORD (EOR).

THE MI IS TO CONFIRM INSTALLATION CONFIGURATION AND WORKMANSHIP ONLY AND IS NOT A REVIEW OF THE MODIFICATION DESIGN ITSELF, NOR DOES THE MI INSPECTOR TAKE OWNERSHIP OF THE MODIFICATION DESIGN. OWNERSHIP OF THE STRUCTURAL MODIFICATION DESIGN EFFECTIVENESS AND INTEGRITY RESIDES WITH THE EOR AT ALL TIMES.

ALL MI'S SHALL BE CONDUCTED BY A CROWN ENGINEERING VENDOR (AEV) OR ENGINEERING SERVICE VENDOR (AESV) THAT IS APPROVED TO PERFORM ELEVATED WORK FOR CROWN. SEE ENG-BUL-10173 LIST OF APPROVED MI VENDORS.

TO ENSURE THAT THE REQUIREMENTS OF THE MI ARE MET, IT IS VITAL THAT THE GENERAL CONTRACTOR (GC) AND THE MI INSPECTOR BEGIN COMMUNICATING AND COORDINATING AS SOON AS A PO IS RECEIVED. IT IS EXPECTED THAT EACH PARTY WILL BE PROACTIVE IN REACHING OUT TO THE OTHER PARTY. IF CONTACT INFORMATION IS NOT KNOWN, CONTACT YOUR CROWN POINT OF CONTACT (POC).

REFER TO ENG-SOW-10007 : MODIFICATION INSPECTION SOW FOR FURTHER DETAILS AND REQUIREMENTS.

MI INSPECTOR

THE MI INSPECTOR IS REQUIRED TO CONTACT THE GC AS SOON AS RECEIVING A PO FOR THE MI TO, AT A MINIMUM:

- REVIEW THE REQUIREMENTS OF THE MI CHECKLIST
- WORK WITH THE GC TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS

THE MI INSPECTOR IS RESPONSIBLE FOR COLLECTING ALL GENERAL CONTRACTOR (GC) INSPECTION AND TEST REPORTS, REVIEWING THE DOCUMENTS FOR ADHERENCE TO THE CONTRACT DOCUMENTS, CONDUCTING THE IN-FIELD INSPECTIONS, AND SUBMITTING THE MI REPORT TO CROWN.

GENERAL CONTRACTOR

THE GC IS REQUIRED TO CONTACT THE MI INSPECTOR AS SOON AS RECEIVING A PO FOR THE MODIFICATION INSTALLATION OR TURNKEY PROJECT TO, AT A MINIMUM:

- REVIEW THE REQUIREMENTS OF THE MI CHECKLIST
- WORK WITH THE MI INSPECTOR TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE MI INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS
- BETTER UNDERSTAND ALL INSPECTION AND TESTING REQUIREMENTS

THE GC SHALL PERFORM AND RECORD THE TEST AND INSPECTION RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE MI CHECKLIST AND ENG-SOW-10007.

RECOMMENDATIONS

THE FOLLOWING RECOMMENDATIONS AND SUGGESTIONS ARE OFFERED TO ENHANCE THE EFFICIENCY AND EFFECTIVENESS OF DELIVERING A MI REPORT:

- IT IS SUGGESTED THAT THE GC PROVIDE A MINIMUM OF 5 BUSINESS DAYS NOTICE, PREFERABLY 10, TO THE MI INSPECTOR AS TO WHEN THE SITE WILL BE READY FOR THE MI TO BE CONDUCTED.
- THE GC AND MI INSPECTOR COORDINATE CLOSELY THROUGHOUT THE ENTIRE PROJECT.
- WHEN POSSIBLE, IT IS PREFERRED TO HAVE THE GC AND MI INSPECTOR ON-SITE SIMULTANEOUSLY FOR ANY GUY WIRE TENSIONING OR RE-TENSIONING OPERATIONS.
- IT MAY BE BENEFICIAL TO INSTALL ALL TOWER MODIFICATIONS PRIOR TO CONDUCTING THE FOUNDATION INSPECTIONS TO ALLOW FOUNDATION AND MI INSPECTION(S) TO COMMENCE WITH ONE SITE VISIT.
- WHEN POSSIBLE, IT IS PREFERRED TO HAVE THE GC AND MI INSPECTOR ON-SITE DURING THE MI TO HAVE ANY DEFICIENCIES CORRECTED DURING THE INITIAL MI. THEREFORE, THE GC MAY CHOOSE TO COORDINATE THE MI CAREFULLY TO ENSURE ALL CONSTRUCTION FACILITIES ARE AT THEIR DISPOSAL WHEN THE MI INSPECTOR IS ON SITE.

CANCELLATION OR DELAYS IN SCHEDULED MI

IF THE GC AND MI INSPECTOR AGREE TO A DATE ON WHICH THE MI WILL BE CONDUCTED, AND EITHER PARTY CANCELS OR DELAYS, CROWN SHALL NOT BE RESPONSIBLE FOR ANY COSTS, FEES, LOSS OF DEPOSITS AND/OR OTHER PENALTIES RELATED TO THE CANCELLATION OR DELAY INCURRED BY EITHER PARTY FOR ANY TIME (E.G. TRAVEL AND LODGING, COSTS OF KEEPING EQUIPMENT ON-SITE, ETC.). IF CROWN CONTRACTS DIRECTLY FOR A THIRD PARTY MI, EXCEPTIONS MAY BE MADE IN THE EVENT THAT THE DELAY/CANCELLATION IS CAUSED BY WEATHER OR OTHER CONDITIONS THAT MAY COMPROMISE THE SAFETY OF THE PARTIES INVOLVED.

CORRECTION OF FAILING MI'S

IF THE MODIFICATION INSTALLATION WOULD FAIL THE MI ("FAILED MI"), THE GC SHALL WORK WITH CROWN TO COORDINATE A REMEDIATION PLAN IN ONE OF TWO WAYS:

- CORRECT FAILING ISSUES TO COMPLY WITH THE SPECIFICATIONS CONTAINED IN THE ORIGINAL CONTRACT DOCUMENTS AND COORDINATE A SUPPLEMENT MI.
- OR, WITH CROWN'S APPROVAL, THE GC MAY WORK WITH THE EOR TO RE-ANALYZE THE MODIFICATION/REINFORCEMENT USING THE AS-BUILT CONDITION

MI VERIFICATION INSPECTIONS

CROWN RESERVES THE RIGHT TO CONDUCT A MI VERIFICATION INSPECTION TO VERIFY THE ACCURACY AND COMPLETENESS OF PREVIOUSLY COMPLETED MI INSPECTION(S) ON TOWER MODIFICATION PROJECTS.

ALL VERIFICATION INSPECTIONS SHALL BE HELD TO THE SAME SPECIFICATIONS AND REQUIREMENTS IN THE CONTRACT DOCUMENTS AND IN ACCORDANCE WITH ENG-SOW-10007.

VERIFICATION INSPECTION MAY BE CONDUCTED BY AN INDEPENDENT AEV/AESV FIRM AFTER A MODIFICATION PROJECT IS COMPLETED, AS MARKED BY THE DATE OF AN ACCEPTED "PASSING MI" OR "PASS AS NOTED MI" REPORT FOR THE ORIGINAL PROJECT.

REQUIRED PHOTOS

BETWEEN THE GC AND THE MI INSPECTOR THE FOLLOWING PHOTOGRAPHS, AT A MINIMUM, ARE TO BE TAKEN AND INCLUDED IN THE MI REPORT:

- PRE-CONSTRUCTION GENERAL SITE CONDITION
- PHOTOGRAPHS DURING THE REINFORCEMENT MODIFICATION CONSTRUCTION/ERECTION AND INSPECTION
  - RAW MATERIALS
  - PHOTOS OF ALL CRITICAL DETAILS
  - FOUNDATION MODIFICATIONS
  - WELD PREPARATION
  - BOLT INSTALLATION AND TORQUE
  - FINAL INSTALLED CONDITION
  - SURFACE COATING REPAIR
- POST CONSTRUCTION PHOTOGRAPHS
  - FINAL INFIELD CONDITION

PHOTOS OF ELEVATED MODIFICATIONS TAKEN FROM THE GROUND SHALL BE CONSIDERED INADEQUATE.

THIS IS NOT A COMPLETE LIST OF REQUIRED PHOTOS, PLEASE REFER TO ENG-SOW-10007.

PREPARED BY:

FDH ENGINEERING INNOVATION

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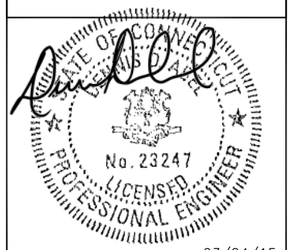
FAX: 919-755-1031

PREPARED FOR:

CROWN CASTLE



03/24/15

DENNIS D. ABEL, P.E.
CONNECTICUT LIC. NO. 23247

DRAWN BY:	JK
CHECKED BY:	BKW
ENG APPV'D:	DDA
PROJECT NO:	15BGXE1400

SUBMITTALS

DATE	DESCRIPTION	REV
03/24/15	CONSTRUCTION	0

SITE NAME:
SHELTON NE

SITE NUMBER:
842873

SITE ADDRESS:
30 OLIVER TERRACE
SHELTON, CT 06484

SHEET TITLE
MODIFICATION
INSPECTION CHECKLIST

SHEET NUMBER
S-2

GENERAL NOTES:

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES AND ORDINANCES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN ALL PERMITS NECESSARY TO COMPLETE THE PROJECT AND ABIDE BY ALL CONDITIONS AND REQUIREMENTS OF THE PERMITS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL DIMENSIONS, ELEVATIONS AND EXISTING CONDITIONS AT THE SITE BEFORE ORDERING ANY MATERIALS OR DOING ANY WORK. NO EXTRA CHARGE OR COMPENSATION SHALL BE ALLOWED DUE TO DIFFERENCE BETWEEN ACTUAL DIMENSIONS AND DIMENSIONS INDICATED ON THE CONSTRUCTION DRAWINGS. ANY SUCH DISCREPANCY IN DIMENSION WHICH MAY BE FOUND SHALL BE SUBMITTED TO FDH ENGINEERING FOR CONSIDERATION BEFORE THE CONTRACTOR PROCEEDS WITH THE WORK IN THE AFFECTED AREAS.
3. INCORRECTLY FABRICATED, DAMAGED, OTHERWISE MISFITTING, OR NON-CONFORMING MATERIALS AND CONDITIONS SHALL BE REPORTED TO FDH ENGINEERING PRIOR TO ANY REMEDIAL OR CORRECTIVE ACTION. ALL ACTIONS SHALL REQUIRE FDH ENGINEERING APPROVAL.
4. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE TO ENSURE THE SAFETY OF THE STRUCTURE AND ITS COMPONENT PARTS DURING ERECTION AND/OR FIELD MODIFICATIONS. THIS INCLUDES, BUT IS NOT LIMITED TO, THE ADDITION OF TEMPORARY BRACING, GUYS OR TIE DOWNS THAT MAY BE NECESSARY. SUCH MATERIAL SHALL BE REMOVED AFTER THE COMPLETION OF THE PROJECT.
5. CONTRACTOR SHALL PROMPTLY REMOVE ANY & ALL DEBRIS FROM SITE AND RESTORE AS BEST AS POSSIBLE TO PRECONSTRUCTION CONDITION.
6. THE CLIMBING FACILITIES, SAFETY CLIMB AND ALL PARTS THEREOF SHALL NOT BE IMPEDED, MODIFIED OR ALTERED WITHOUT THE EXPRESS APPROVAL OF THE CROWN ENGINEERING GROUP (OR ENGINEER OF RECORD)

CONTRACTOR QUALIFICATION NOTES:

1. ALL REPAIRS SHALL BE PERFORMED BY A TOWER CONTRACTOR WITH A MINIMUM 5 YEARS EXPERIENCE IN TOWER ERECTION AND RETROFIT AND WITH WORKING KNOWLEDGE OF THE TIA/EIA 222-F "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES".
2. CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION MEANS AND METHODS. SHOULD THE CONTRACTOR REQUIRE DIRECT CONSULTATION, FDH ENGINEERING, INC. IS WILLING TO OFFER SERVICES BASED UPON AN AGREED FEE FOR THE WORK REQUIRED.
3. ALL SUBMITTAL INFORMATION MUST BE SENT TO FDH ENGINEERING, INC. 6521 MERIDIEN DRIVE, RALEIGH NC, 27616, TEL. (919) 755-1012, FAX. (919) 755-1031, E-MAIL INFO@FDH-INC.COM. ANY VARIATION OF THESE SPECIFICATIONS OR DRAWINGS WITHOUT CONSENT FROM FDH ENGINEERING, INC. WILL VOID ANY RESPONSIBILITY OR LIABILITY FOR DAMAGE (MATERIAL OR PHYSICAL) TOWARDS FDH ENGINEERING, INC.
4. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH THE TIA-1019-A STANDARD.

JOB SITE SAFETY & NOTES:

1. NEITHER THE PROFESSIONAL ACTIVITIES OF FDH ENGINEERING, INC. NOR THE PRESENCE OF FDH ENGINEERING, INC. OR EMPLOYEES AND SUB-CONSULTANTS AT THE CONSTRUCTION SITE, SHALL RELIEVE THE GENERAL CONTRACTOR AND OR SUBCONTRACTORS AND ANY OTHER ENTITY OF THEIR OBLIGATIONS, DUTIES AND RESPONSIBILITIES INCLUDING, BUT NOT LIMITED TO, CONSTRUCTION MEANS, METHODS, SEQUENCE, TECHNIQUES OR PROCEDURES NECESSARY FOR PERFORMING, SUPERINTENDING OR COORDINATING ALL PORTIONS OF THE WORK OF CONSTRUCTION IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND ANY HEALTH OR SAFETY PRECAUTIONS REQUIRED BY ANY REGULATORY AGENCIES. THE GENERAL CONTRACTOR AND OR SUBCONTRACTOR IS SOLELY RESPONSIBLE FOR JOB SAFETY, AND WARRANTS THAT THIS INTENT IS EVIDENT BY ACCEPTING THIS WORK.

STEEL:

1. ALL STRUCTURAL STEEL SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST AISC CODE AND ASTM SPECIFICATIONS.

   *ALL STEEL PLATE & SHAPES SHALL BE ASTM A572-65 (Fy=65KSI) UNLESS OTHERWISE SPECIFIED.
2. ALL CONNECTIONS OF STRUCTURAL STEEL MEMBERS SHALL BE MADE USING SPECIFIED WELDS WITH WELDING ELECTRODES E-80XX OR SPECIFIED HIGH STRENGTH BOLTS TO BE ASTM A325N, THREAD INCLUDED WITH SHEAR PLANE (UNLESS OTHERWISE NOTED).
3. ALL BOLTED CONNECTIONS TO BE INSTALLED TO A SNUG-TIGHTENED CONDITION IN ACCORDANCE WITH AISC 13 PART 16.2, "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS", SECTION 8.1, UNLESS OTHERWISE SPECIFIED. WHEN "X" TYPE BOLTS ARE USED, CONTRACTOR MAY BE REQUIRED TO STACK ADDITIONAL WASHERS TO OBTAIN PROPER SNUG TIGHT INSTALLATION. ALL NUTS SHALL BE HEAVY HEX UNLESS OTHERWISE NOTED.
4. ALL STEEL, AFTER FABRICATION, SHALL BE HOT DIPPED GALVANIZED PER ASTM A-123. ALL DAMAGED SURFACES, WELDED AREAS AND AUTHORIZED NON-GALVANIZED MEMBERS OR PARTS (EXISTING OR NEW) SHALL BE PAINTED WITH MULTIPLE COATS OF ZRC COLD GALVANIZING COMPOUND ACHEIVING A MINIMUM OF 4 MILS DRY FILM PER ASTM A 780.
5. ALL SHOP AND FIELD WELDING SHALL BE DONE BY WELDERS QUALIFIED AS DESCRIBED IN THE "AMERICAN WELDING SOCIETY'S STANDARD QUALIFICATION PROCEDURE" TO PERFORM THE TYPE OF WORK REQUIRED. CONTRACTOR IS REQUIRED TO PROVIDE FDH ENGINEERING, INC. WITH A PASSING CERTIFIED WELDING INSPECTION FOR ALL WELDS.
6. STRUCTURAL STEEL MAY NOT BE TORCH CUT FOR FABRICATION. ALL STEEL FABRICATION MUST FOLLOW AISC STANDARDS.

MISC. NOTES:

1. ALL MODIFICATIONS ARE ASSUMED TO BE MADE ON AN EMPTY TOWER. CONTRACTOR IS RESPONSIBLE TO MAKE PROVISIONS TO SUPPORT OR WORK AROUND EXISTING ANTENNAS AND TRANSMISSION LINES. MODIFICATIONS MUST BE CONTINUOUS THROUGH ALL AREAS SHOWN.
2. CONTRACTOR FIELD VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION.

FABRICATION NOTES:

1. ALL DIMENSIONS ARE PRELIMINARY UNTIL FIELD VERIFIED BY CONTRACTOR. ANY CHANGES MUST BE APPROVED BY ENGINEER OF RECORD IN WRITING PRIOR TO FABRICATION AND INSTALLATION.
2. NEW STEEL MEMBERS MUST HAVE SINGLE DRILLED HOLES. SLOTTED AND DOUBLE DRILLED HOLES ARE NOT ACCEPTABLE MEANS OF FABRICATION.

SUBSTITUTES AND/OR EQUALS:

1. IF CONTRACTOR WISHES TO FURNISH OR USE A SUBSTITUTE ITEM OF MATERIAL OR EQUIPMENT, CONTRACTOR SHALL FIRST MAKE WRITTEN APPLICATION TO ENGINEER OF RECORD FOR ACCEPTANCE THEREOF, CERTIFYING THAT THE PROPOSED SUBSTITUTE WILL PERFORM ADEQUATELY THE FUNCTIONS AND ACHIEVE THE RESULTS CALLED FOR BY THE GENERAL DESIGN, BE SIMILAR IN SUBSTANCE TO THAT SPECIFIED AND SUITED TO THE SAME USE AS THAT SPECIFIED. ALL VARIATIONS OF THE PROPOSED SUBSTITUTE FROM THAT SPECIFIED WILL BE IDENTIFIED IN THE APPLICATION AND AVAILABLE MAINTENANCE, REPAIR AND REPLACEMENT SERVICE WILL BE INDICATED. THE APPLICATION WILL ALSO CONTAIN AN ITEMIZED ESTIMATE OF ALL COSTS OR CREDITS THAT WILL RESULT DIRECTLY OR INDIRECTLY FROM ACCEPTANCE OF SUCH SUBSTITUTE INCLUDING COSTS OF REDESIGN AND CLAIMS OF OTHER CONTRACTORS AFFECTED BY THE RESULTING CHANGE, ALL OF WHICH WILL BE CONSIDERED BY ENGINEER OF RECORD IN EVALUATION OF THE PROPOSED SUBSTITUTE. ENGINEER OF RECORD MAY REQUIRE CONTRACTOR TO FURNISH ADDITIONAL DATA ABOUT THE PROPOSED SUBSTITUTE.

NEW MONOPOLE REINFORCEMENT NOTES:

1. CONTRACTOR TO FIELD VERIFY PROPOSED LOCATION OF REINFORCEMENT TO ENSURE THAT PROPER SPACING CAN BE MET.
2. CONTRACTOR TO REPLACE AND/OR RELOCATE ANY CLIMBING PEGS THAT INTERFERE WITH THE INSTALLATION OF FLAT PLATE.
3. ALL AJAX CONNECTIONS TO USE HIGH TENSILE SLEEVE PROVIDED BY MANUFACTURER. AJAX BOLT ASSEMBLY TO BE INSTALLED PER MANUFACTURER SPECIFICATIONS. SEE AJAX BOLT ASSEMBLY DETAIL ON SHEET S-3.
4. ALL SHEAR SLEEVES TO BE HOT DIPPED GALVANIZED PRIOR TO INSTALLATION.
5. PRIOR TO FLAT PLATE INSTALLATION, SLIP JOINTS MUST BE TIGHTENED WITH A MINIMUM JACKING FORCE OF 6000 LBS.
6. NEW REINFORCEMENT TO BE INSTALLED ON THE CENTER OF PROPOSED SIDE UNLESS OTHERWISE NOTED.
7. EXISTING COAX BANDS TO BE REPLACED AFTER REINFORCEMENT INSTALLATION. NEW FLAT PLATE TO BE INSTALLED BENEATH EXISTING COAX BANDS.

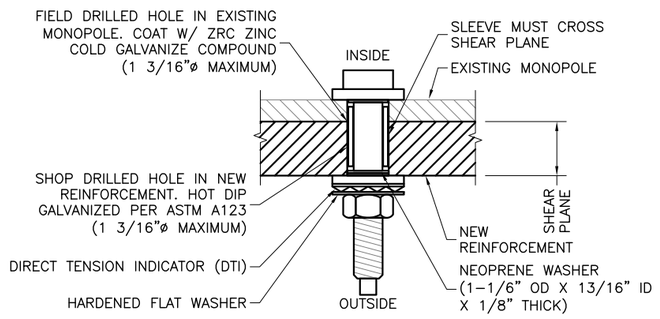
CONSTRUCTION NOTES:

1. CONTRACTOR TO FIELD VERIFY PROPOSED REINFORCEMENT LAYOUT PRIOR TO CONSTRUCTION. IF ISSUES ARE PRESENT IN THE FIT OF THE REINFORCEMENT, CONTRACTOR TO CONTACT ENGINEER OF RECORD OR FDH ENGINEERING PROJECT MANAGER PRIOR TO PROCEEDING WITH PROPOSED MODIFICATION OR FABRICATION.

AJAX PRETENSION JOINTS:

1. ALL AJAX BOLTS SHALL BE INSTALLED USING DIRECT TENSION INDICATORS (DTI'S) & HARDENED WASHERS. ALL AJAX M20 BOLTS WITH REAR SLEEVES SHALL BE PRETENSIONED & TIGHTENED UNTIL DIRECT TENSION INDICATOR (DTI) WASHER SHOW THAT THE PROPER BOLT TENSION HAS BEEN REACHED.
2. ALL DIRECT TENSION INDICATOR (DTI) WASHERS SHALL BE THE "SQUIRTER® STYLE" AS MANUFACTURED BY:

   APPLIED BOLTING TECHNOLOGY PRODUCTS, INC.
   1413 ROCKINGHAM ROAD
   BELLOWS FALLS, VERMONT 05101, USA
   PHONE: 1-800-552-1999
   WEBSITE: WWW.APPLIEDBOLTING.COM
3. USE DIRECT TENSION INDICATOR (DTI WASHERS COMPATIBLE WITH 3/4" NOMINAL A325 BOLTS FOR THE AJAX M20 BOLTS. DTI'S SHALL NOT BE HOT-DIP GALVANIZED. DTI'S SHALL BE MECHANICALLY GALVANIZED (MG) BY THE COLD MECHANICAL PROCESS ONLY AS PROVIDED BY THE DTI MANUFACTURER.
4. USE HARDENED WASHER FOR A 3/4" NOMINAL BOLT BETWEEN THE TOP OF DIRECT TENSION INDICATOR (DTI) WASHER AND THE NUT OF THE AJAX M20 BOLT. HARDENED WASHERS SHALL CONFORM TO ASTM F436 AND HAVE A MINIMUM HARDNESS OF RE 38 OR HIGHER. THE HARDENED WASHERS SHALL BE MECHANICALLY GALVANIZED BY COLD MECHANICAL PROCESS. ALTERNATIVELY, CORRECTLY MADE HOT DIP GALVANIZED HARDENED FLAT WASHERS HAVING A MINIMUM HARDNESS OF RC 38 CAN BE USED; CONTRACTOR SHALL PROVIDE DOCUMENTATION OF WASHER SPECIFICATION AND HARDNESS.
5. CONTRACTOR SHALL FOLLOW DTI MANUFACTURES'S INSTRUCTION FOR INSTALLATION, LUBRICATION, TIGHTENING AND INSPECTION.
6. EFFECTIVE 5/30/2012: UNTIL FURTHER NOTICE, CROWN CASTLE WILL ACCEPT AJAX BOLTS TIGHTENED USING AISC "TURN-OF-NUT" METHOD. INSTALLERS SHALL FOLLOW CROWN GUIDELINES FOR AISC "TURN-OFF-NUT" METHOD AND ALSO PROVIDE COMPLETE INSPECTION DOCUMENTATION IN THE PMI. PRIOR TO STARTING WORK, CONTRACTOR SHALL CONSULT WITH CROWN ENGINEERING TO DETERMINE WHETHER THIS POLICY IS STILL IN PLACE.
7. REQUIREMENT EFFECTIVE 04/20/2013, PER CROWN CASTLE DIRECTIVE: ANY AND ALL STRUCTURAL BOLTS THAT ARE TIGHTENED TO THE PRETENSIONED CONDITION USING THE AISC "TURN-OF-NUT" TENSIONING PROCEDURE (NON-TENSION CONTROLLED ('NON-TC') BOLTS AND/OR BOLTS WITHOUT DTI'S INSTALLED) SHALL BE INSPECTED ONSITE BY AN INDEPENDENT THIRD-PARTY BOLT INSPECTOR, AS APPROVED BY CROWN. **THIS INSPECTION IS REQUIRED TO BE AN ONSITE FIELD INSPECTION.** THE THIRD PARTY BOLT INSPECTOR SHALL FOLLOW THE PUBLISHED CROWN CASTLE INSPECTION PROCEDURE "MI NON-TC BOLT INSPECTION", DATED APRIL 2013, THE THIRD PARTY BOLT INSPECTION SHALL PREPARE A FULLY DOCUMENTED BOLT INSPECTION REPORT, AS SPECIFIED BY CROWN, AND SHALL SUBMIT A COPY OF THE BOLT INSPECTION REPORT TO THE MI INSPECTOR, THE EOR, AND TO CROWN CASTLE.



AJAX BOLT ASSEMBLY
SCALE: NTS

PREPARED BY:
FDH
6521 MERIDIEN DRIVE
RALEIGH, NC 27616
PHONE: 919-755-1012
FAX: 919-755-1031
ENGINEERING INNOVATION

PREPARED FOR:

CROWN CASTLE

STATE OF CONNECTICUT
DENNIS D. ABEL
No. 23247
LICENSED PROFESSIONAL ENGINEER

03/24/15
DENNIS D. ABEL, P.E.
CONNECTICUT LIC. NO. 23247

DRAWN BY:	JK
CHECKED BY:	BKW
ENG APPV'D:	DDA
PROJECT NO:	15BGXE1400

SUBMITTALS

DATE	DESCRIPTION	REV
03/24/15	CONSTRUCTION	0

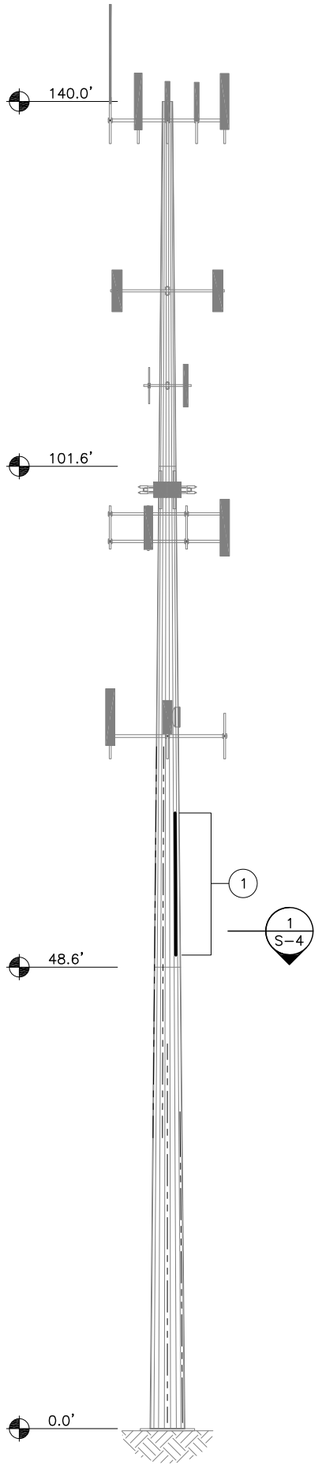
SITE NAME:
SHELTON NE

SITE NUMBER:
842873

SITE ADDRESS:
30 OLIVER TERRACE
SHELTON, CT 06484

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
S-3



TOWER ELEVATION
SCALE: NTS

- CONTRACTOR SHALL VERIFY ALL APPURTENANCE CONDITIONS AND DIMENSIONS IN RELATIONSHIP TO THIS MODIFICATION. APPURTENANCES MAY NEED TO BE TEMPORARILY REMOVED OR MOVED DURING THE INSTALLATION OF THIS MODIFICATION. CONTRACTOR SHALL IMMEDIATELY REPORT ANY AND ALL DISCREPANCIES TO THE EOR AND CROWN CASTLE PRIOR TO PROCEEDING WITH THE WORK.
- ALL MODIFICATIONS TO BE INSTALLED CONTINUOUSLY THROUGH EXISTING EQUIPMENT. ALL EXISTING EQUIPMENT NOT TO BE DAMAGED OR TAKEN OFF AIR DURING INSTALLATION.
- SEE STRUCTURAL ANALYSIS REPORT FOR EXISTING ANTENNA LOADING AND COAX LAYOUT.
- CONTRACTOR TO FIELD VERIFY DIMENSIONS & LOCATIONS OF PROPOSED MODIFICATIONS PRIOR TO STEEL FABRICATION.

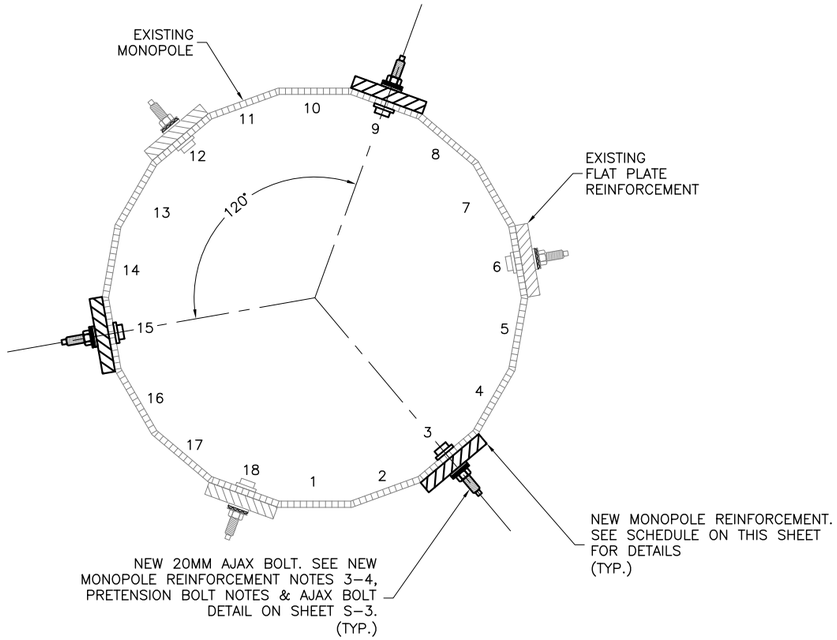
TOWER MODIFICATION SCHEDULE

NO.	TYPE OF MODIFICATION	BOTTOM ELEV. (FT)	TOP ELEV. (FT)
1	INSTALLATION OF NEW FLAT PLATE REINFORCEMENT. SEE THIS SHEET FOR DETAILS.	50.0±	65.0±
REFER TO STRUCTURAL ANALYSIS FOR COAX INFORMATION			

CROWN CASTLE REINFORCEMENT INSTALLATION SCHEDULE

ELEVATION**	QTY.	FLAT NUMBER	CCI-65FP PLATE (65 KSI)	MAX. STITCH BOLT SPACING	AJAX BOLT QUANTITY	STEEL WEIGHT (LBS.)
50'–0"± TO 65'–0"±	3	3 – 9 – 15	CCI–AFP–06010015	1'–4"	27*	306.0*
				TOTAL	81	918.0

*QUANTITY SHOWN IS FOR (1) REINFORCEMENT PLATE.



MONOPOLE REINFORCEMENT LAYOUT
SECTION VIEW

1/S-4 SECTION
NTS

PREPARED BY:
FDH
6521 MERIDIEN DRIVE
RALEIGH, NC 27616
PHONE: 919-755-1012
FAX: 919-755-1031
ENGINEERING INNOVATION

PREPARED FOR:
CROWN CASTLE

STATE OF CONNECTICUT
DENNIS D. ABEL
No. 23247
LICENSED PROFESSIONAL ENGINEER
03/24/15
DENNIS D. ABEL, P.E.
CONNECTICUT LIC. NO. 23247

DRAWN BY:	JK
CHECKED BY:	BKW
ENG APPV'D:	DDA
PROJECT NO:	15BGXE1400

SUBMITTALS

DATE	DESCRIPTION	REV
03/24/15	CONSTRUCTION	0

SITE NAME:
SHELTON NE

SITE NUMBER:
842873

SITE ADDRESS:
30 OLIVER TERRACE
SHELTON, CT 06484

SHEET TITLE
MODIFICATION SCHEDULE
&
FLAT PLATE INSTALLATION DETAILS

SHEET NUMBER
S-4

EBI Consulting
environmental | engineering | due diligence

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

T-Mobile Existing Facility

Site ID: CTFF531

Shelton_RT 8- AT&T
30 Oliver Terrace
Shelton, CT 06484

April 23, 2015

EBI Project Number: 6215002702

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	32.32 %

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

EBI Consulting
environmental | engineering | due diligence

April 23, 2015

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

Emissions Analysis for Site: **CTFF531 – Shelton_RT 8- AT&T**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **30 Oliver Terrace, Shelton, 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 **30 Oliver Terrace, Shelton, 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 **RFS APX16DWV-16DWVS-E-A20** 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 **RFS APX16DWV-16DWVS-E-A20** has a maximum gain of **16.3 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 **120 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.

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	RFS APX16DWV-16DWVS-E-A20	Make / Model:	RFS APX16DWV-16DWVS-E-A20	Make / Model:	RFS APX16DWV-16DWVS-E-A20
Gain:	16.3 dBd	Gain:	16.3 dBd	Gain:	16.3 dBd
Height (AGL):	120	Height (AGL):	120	Height (AGL):	120
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	6	Channel Count	6	# PCS Channels:	6
Total TX Power:	240	Total TX Power:	240	# AWS Channels:	240
ERP (W):	10,237.91	ERP (W):	10,237.91	ERP (W):	10,237.91
Antenna A1 MPE%	2.83	Antenna B1 MPE%	2.83	Antenna C1 MPE%	2.83
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
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):	120	Height (AGL):	120	Height (AGL):	120
Frequency Bands	700 MHz	Frequency Bands	700 MHz	Frequency Bands	700 MHz
Channel Count	1	Channel Count	1	Channel Count	1
Total TX Power:	30	Total TX Power:	30	Total TX Power:	30
ERP (W):	865.21	ERP (W):	865.21	ERP (W):	865.21
Antenna A2 MPE%	0.51	Antenna B2 MPE%	0.51	Antenna C2 MPE%	0.51

Site Composite MPE%	
Carrier	**MPE%**
T-Mobile	**10.03**
Field Measurements per CSC database. Includes Baseline measurements and calcs received after baseline determined	22.29 %
Site Total MPE %:	**32.32 %**

T-Mobile Sector 1 Total:	3.34 %
T-Mobile Sector 2 Total:	3.34 %
T-Mobile Sector 3 Total:	3.34 %
Site Total:	32.32 %

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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:	3.34 %
Sector 2:	3.34 %
Sector 3 :	3.34 %
T-Mobile Total:	10.03 %
Site Total:	32.32 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **32.32%** 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

EBI Consulting
21 B Street
Burlington, MA 01803