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

October 14, 2015

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

RE: **T-Mobile - Exempt Modification - Crown Site BU: 806359**
T-Mobile Site ID: CTNH009B
Located at: 423 Oronoque Road, Milford, CT 06460

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 Benjamin G. Blake, Mayor, City of Milford and Mr. Paul Guernsey and Mr. David Guernsey, Property Owner's.

T-Mobile plans to modify the existing wireless communications facility owned by Crown Castle and located at **423 Oronoque Road, Milford, CT**. Attached are a compound plan and elevation depicting the planned changes (Exhibit-1), and documentation of the structural sufficiency of the structure to accommodate the revised antenna configuration (Exhibit-2). Also included is a power density table report reflecting the modification to T-Mobile's operations at the site (Exhibit-3).

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

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

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

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

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

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

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

Sincerely,

Kimberly Myl
Real Estate Specialist

Enclosures

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

cc: Mr. Benjamin G. Blake, Mayor of City of Milford
City of Milford
70 West River Street
Milford, CT 06460

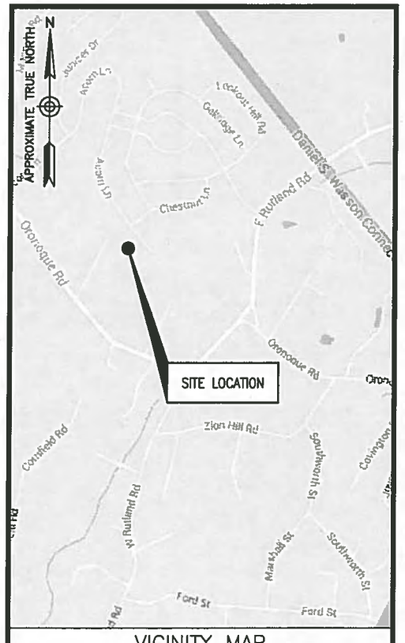
Mr. David Guernsey
423 Oronoque Road
Milford, CT 06460

Mr. Paul Guernsey
1247 Middle Road
Warren, ME 04864

Winthrop S. Smith, Jr., Esq.
Dey Smith, LLC
9 Depot Street, 2nd Floor
Milford, CT 06460

T-MOBILE NORTHEAST LLC

T-MOBILE SITE #: CTNH009B
CROWN CASTLE BU #: 806359
SITE NAME: NHV 104 943122
423 ORONOQUE ROAD
MILFORD, CT 06460
NEW HAVEN COUNTY



VICINITY MAP

FROM PARSIPPANY, NJ:

DEPART SYLVAN WAY AND TAKE I-80 E TO I-95 N. TAKE EXIT 1C-D FOR ALBANY N TOWARD ALBANY. USE THE RIGHT LANE TO MERGE ONTO I-87 N. TAKE EXIT 4 TOWARD CROSS COUNTRY PKWY E. MERGE ONTO CENTRAL PARK AVENUE. USE THE RIGHT LANE TO TAKE THE CROSS COUNTRY PKWY E RAMP. KEEP LEFT AND MERGE ONTO ROUTE 907K. CONTINUE ONTO HUTCHINSON RIVER PKWY N. CONTINUE ONTO CT-15 N. TAKE EXIT 55A FOR WHEELERS FARMS RD. TURN RIGHT ONTO WHEELER FARMS RD. TURN RIGHT ONTO E RUTLAND RD. TURN RIGHT ONTO LEXINGTON WAY. TURN RIGHT ONTO LOOKOUT HILL RD. TURN LEFT ONTO CHESTNUT LN. TURN LEFT ONTO ACORN LN. SITE WILL BE ON THE RIGHT.

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

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

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

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

CONSULTANT TEAM

SITE NAME:
NHV 104 943122

SITE NUMBER:
CTNH009B

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

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

COORDINATES:
LATITUDE: 41°-14'-16.23" N (NAD83)
LONGITUDE: 73°-05'-10.0" W (NAD83)
(PER CROWN CASTLE)

CONFIGURATION
704Bu

PROJECT SUMMARY

SITE ADDRESS:
423 ORONOQUE ROAD
MILFORD, CT 06460
NEW HAVEN COUNTY

PROJECT DIRECTORY

- INSTALL (3) NEW ANTENNAS.
- INSTALL (3) NEW BIAS TEES.
- INSTALL (6) NEW LINES OF COAX ALONG MONOPOLE EXTERIOR.
- INSTALL (3) NEW RRU'S ON A UNISTRUT RACK INSIDE EXISTING EQUIPMENT SHELTER AT GRADE.
- INSTALL (1) NEW BBU CABINET INSIDE EXISTING EQUIPMENT SHELTER AT GRADE.

SCOPE OF WORK

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

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

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

SHEET INDEX

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

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

CTNH009B
NHV 104 943122

CONSTRUCTION DRAWINGS

0	10/16/15	ISSUED AS FINAL
A	10/07/15	ISSUED FOR REVIEW

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

STATE OF CONNECTICUT
JIANG YU
LICENSED
PROFESSIONAL ENGINEER

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

DRAWN BY:	RA
REVIEWED BY:	BSH
CHECKED BY:	GHN
PROJECT NUMBER:	50066258
JOB NUMBER:	50074607
SITE ADDRESS:	

423 ORONOQUE ROAD
MILFORD, CT 06460
NEW HAVEN COUNTY

SHEET TITLE

TITLE SHEET

SHEET NUMBER

T-1

GENERAL NOTES:

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

SITE WORK GENERAL NOTES:

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

ELECTRICAL INSTALLATION NOTES:

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

CONCRETE AND REINFORCING STEEL NOTES:

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

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

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

STRUCTURAL STEEL NOTES:

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

CONSTRUCTION NOTES:

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

T-Mobile

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CROWN CASTLE

CROWN CASTLE
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CTNH009B
NHV 104 943122

CONSTRUCTION DRAWINGS

0	10/16/15	ISSUED AS FINAL
A	10/07/15	ISSUED FOR REVIEW

Dewberry
Dewberry Engineers Inc.
600 PARSIPPANY ROAD
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STATE OF CONNECTICUT
JIANG YU
No. 23022
LICENSED
PROFESSIONAL ENGINEER
JIANG YU
CONNECTICUT LICENSE NO. 0023222

DRAWN BY:	RA
REVIEWED BY:	BSH
CHECKED BY:	GHN
PROJECT NUMBER:	50066258
JOB NUMBER:	50074807
SITE ADDRESS:	

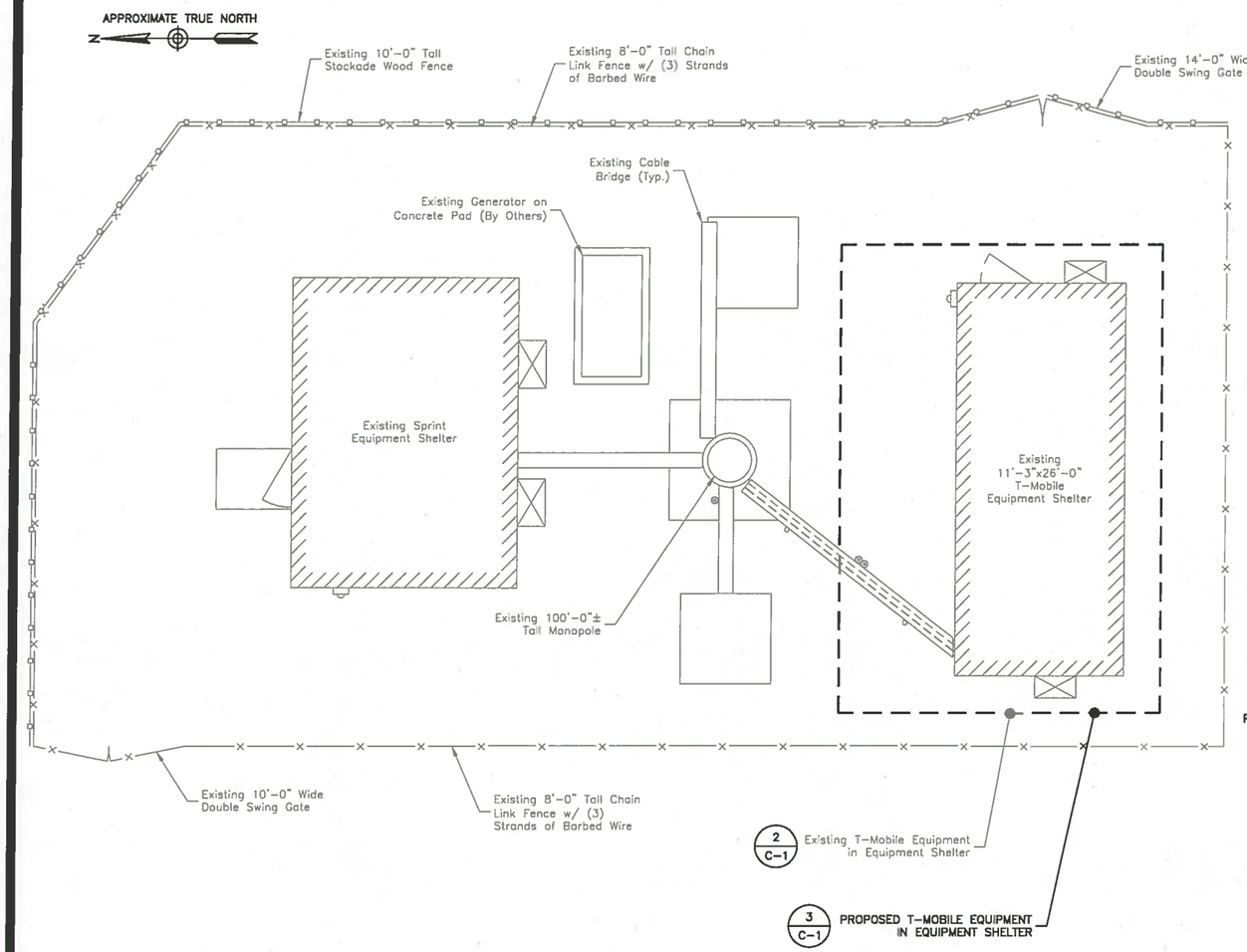
423 ORONOQUE ROAD
MILFORD, CT 06460
NEW HAVEN COUNTY

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

G–1



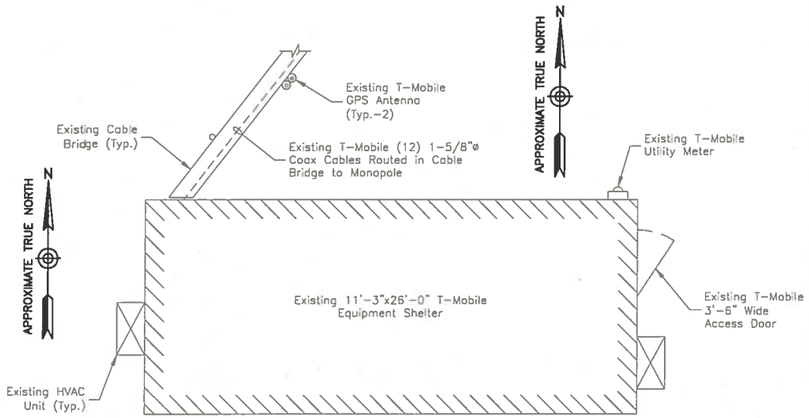
COMPOUND PLAN 1

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

0' 5' 10'

NOTES:

1. NORTH ARROW 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 BY AW SOLUTIONS DATED SEPTEMBER 18, 2015.



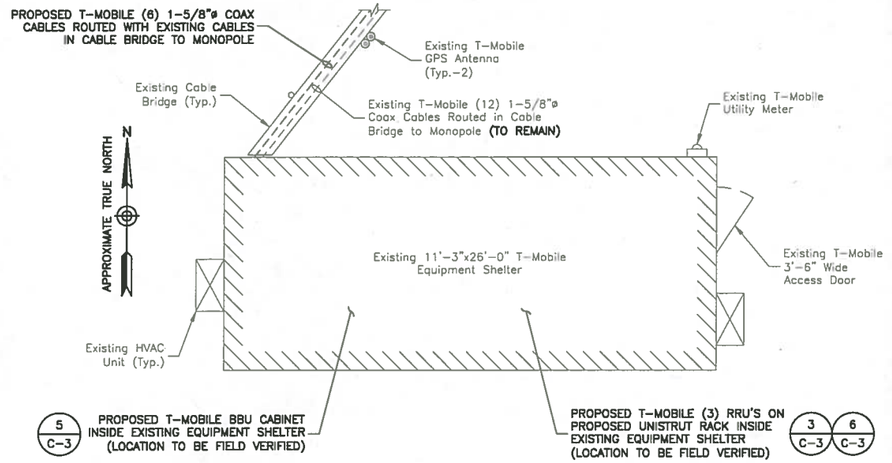
NOTE:

1. NO ACCESS WAS AVAILABLE TO EXISTING T-MOBILE SHELTER AT TIME OF SITE VISIT.

EXISTING EQUIPMENT PLAN 2

SCALE: 1/8"=1' FOR 11"x17"
1/4"=1' FOR 22"x34"

0' 2' 4' 8'



NOTES:

1. NO ACCESS WAS AVAILABLE TO EXISTING T-MOBILE SHELTER AT TIME OF SITE VISIT.
2. PROPOSED EQUIPMENT TO BE FIELD LOCATED BY T-MOBILE CONSTRUCTION MANAGER.

PROPOSED EQUIPMENT PLAN 3

SCALE: 1/8"=1' FOR 11"x17"
1/4"=1' FOR 22"x34"

0' 2' 4' 8'

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CROWN CASTLE

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CTNH009B
NHV 104 943122

CONSTRUCTION DRAWINGS

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

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

DRAWN BY:	RA
REVIEWED BY:	BSH
CHECKED BY:	GHN
PROJECT NUMBER:	50066258
JOB NUMBER:	50074607
SITE ADDRESS:	

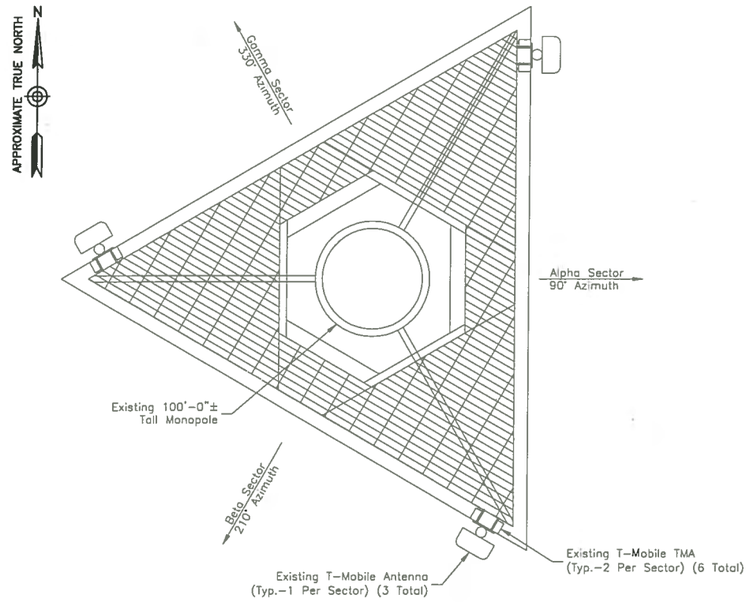
423 ORONOQUE ROAD
MILFORD, CT 06460
NEW HAVEN COUNTY

SHEET TITLE

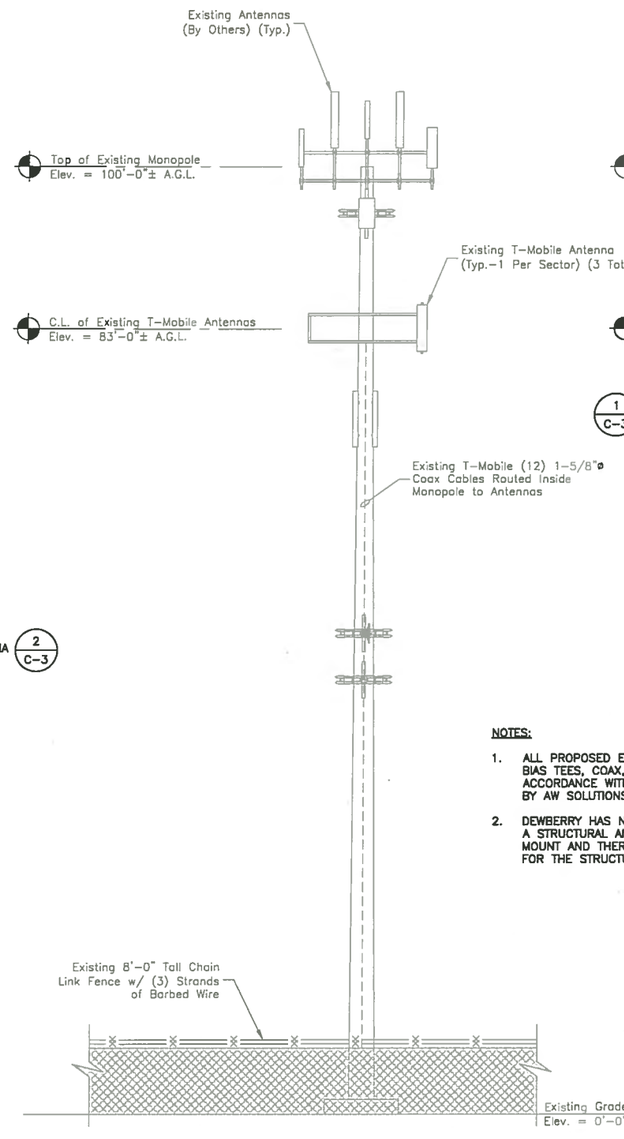
COMPOUND PLAN & EQUIPMENT PLANS

SHEET NUMBER

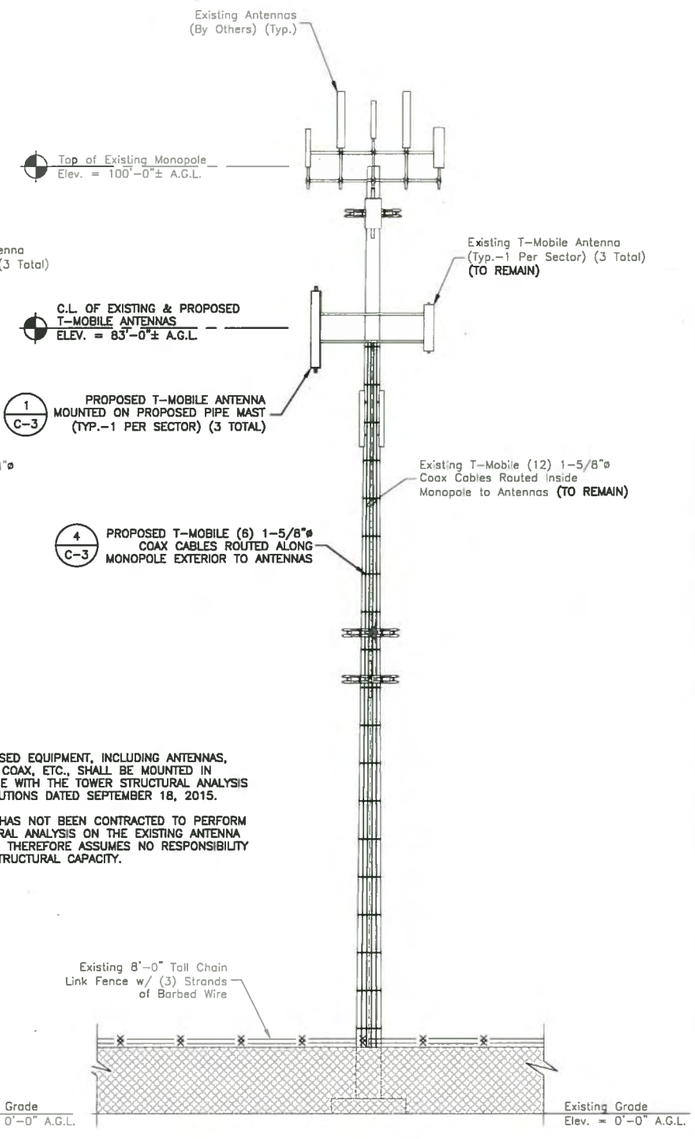
C-1



EXISTING ANTENNA LAYOUT (1)
SCALE: N.T.S.



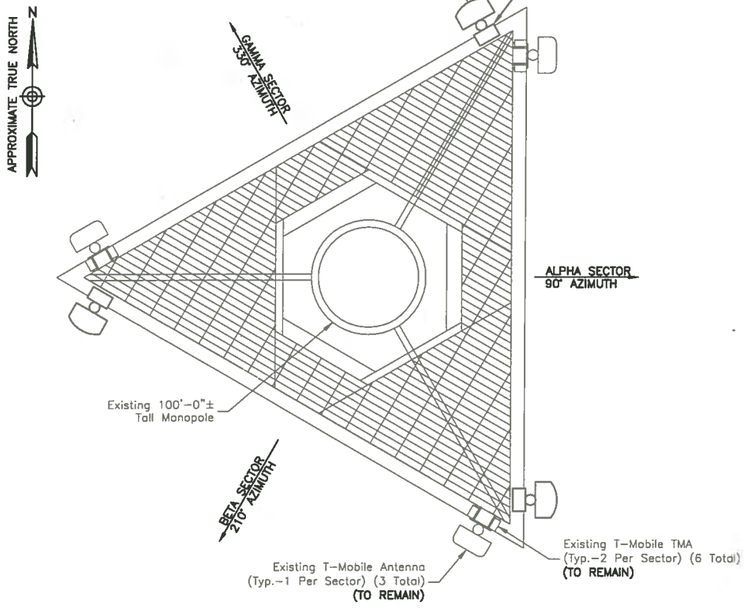
EXISTING ELEVATION (3)
SCALE: 1/16"=1' FOR 11"x17"
1/8"=1' FOR 22"x34"
0' 10' 20'



PROPOSED ELEVATION (4)
SCALE: 1/16"=1' FOR 11"x17"
1/8"=1' 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 BY AW SOLUTIONS DATED SEPTEMBER 18, 2015.
2. DEWBERRY HAS NOT BEEN CONTRACTED TO PERFORM A STRUCTURAL ANALYSIS ON THE EXISTING ANTENNA MOUNT AND THEREFORE ASSUMES NO RESPONSIBILITY FOR THE STRUCTURAL CAPACITY.



PROPOSED ANTENNA LAYOUT (2)
SCALE: N.T.S.

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CONSTRUCTION DRAWINGS

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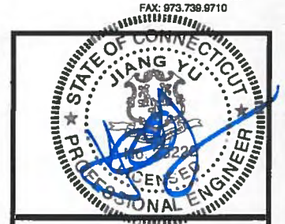


JIANG YU, P.E.
CONNECTICUT LICENSE NO. 0023222

DRAWN BY:	RA
REVIEWED BY:	BSH
CHECKED BY:	GHN
PROJECT NUMBER:	50066258
JOB NUMBER:	50074607
SITE ADDRESS:	

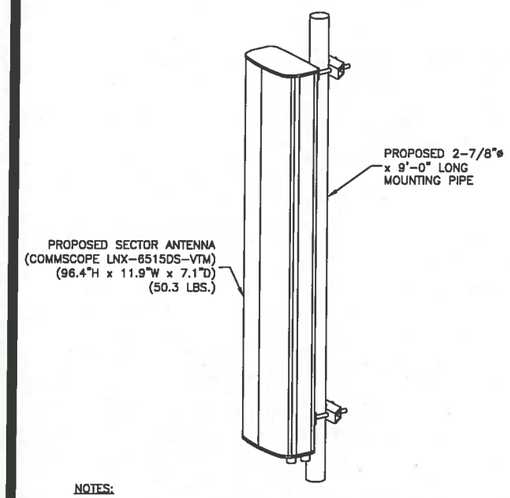
423 ORONOQUE ROAD
MILFORD, CT 06460
NEW HAVEN COUNTY

SHEET TITLE

ANTENNA LAYOUTS & ELEVATIONS

SHEET NUMBER

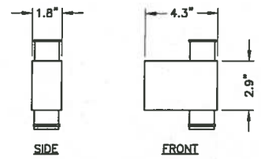
C-2



NOTES:

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

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

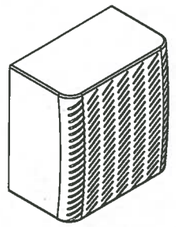


ANDREW ATBT-BOTTOM-24V

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.



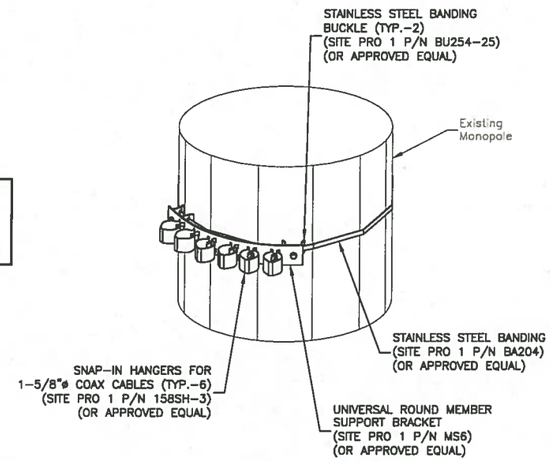
ERICSSON RRUS-11 B12

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

RRU NOTES:

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

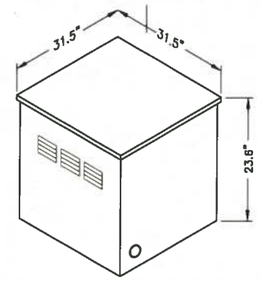
RRUS-11 - REMOTE RADIO UNIT (3)
SCALE: N.T.S.



NOTES:

1. SUPPORT BRACKETS SHALL BE SPACED AT 4'-0" C-C MAX.
2. COAX CABLES SHALL BE INSTALLED NEXT TO VERIZON WIRELESS CABLES ON MONOPOLE EXTERIOR.

COAX SUPPORT DETAIL (4)
SCALE: N.T.S.



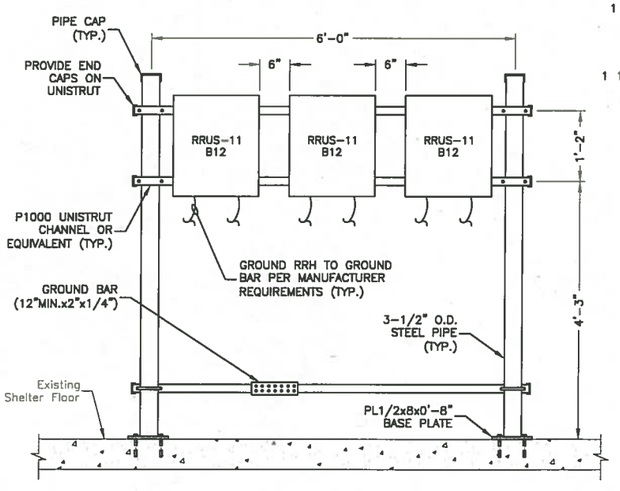
ALCATEL-LUCENT EZBFo BATTERY BACKUP SYSTEM

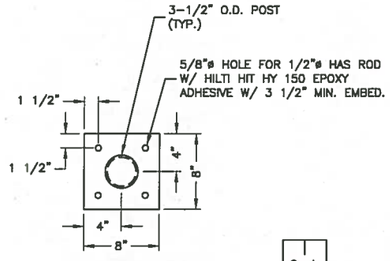
MATERIAL:	ANCHOR:
CONCRETE	3/8"ø HILTI KWIK BOLT 3 W/2-1/2" MIN. EMBED.
STRUCTURAL STEEL	1/2"ø STRUCTURAL BOLTS

NOTE:

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

BBU CABINET DETAIL (5)
SCALE: N.T.S.



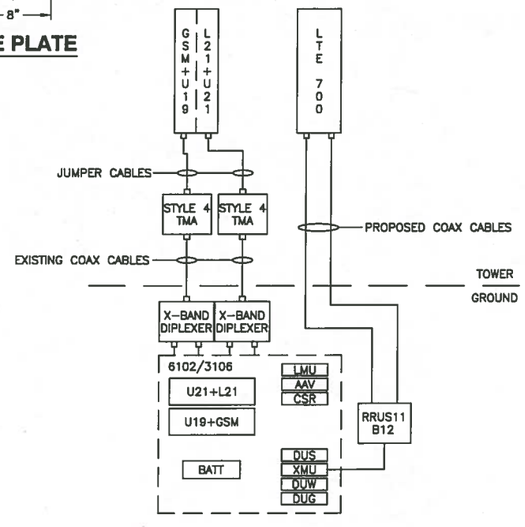


BASE PLATE

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 (6)
SCALE: N.T.S



SITE CONFIGURATION 704Bu (7)
SCALE: N.T.S.

DESIGN CONFIGURATION

	ANTENNAS		COAX		COAX LENGTH
	EXISTING	PROPOSED	EXISTING	PROPOSED	
ALPHA	APX16DWV-16DWVS-E-A20	EXISTING TO REMAIN	(4) 1-5/8"ø	(2) 1-5/8"ø	133'-0"
	-	COMMSCOPE LNX-6515DS-VTM			
BETA	APX16DWV-16DWVS-E-A20	EXISTING TO REMAIN	(4) 1-5/8"ø	(2) 1-5/8"ø	133'-0"
	-	COMMSCOPE LNX-6515DS-VTM			
GAMMA	APX16DWV-16DWVS-E-A20	EXISTING TO REMAIN	(4) 1-5/8"ø	(2) 1-5/8"ø	133'-0"
	-	COMMSCOPE LNX-6515DS-VTM			

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STATE OF CONNECTICUT
JIANG YU
0023222
LICENSED
PROFESSIONAL ENGINEER

CONNECTICUT LICENSE NO. 0023222

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PROJECT NUMBER:	50066258
JOB NUMBER:	50074607
SITE ADDRESS:	

423 ORONOQUE ROAD
MILFORD, CT 06460
NEW HAVEN COUNTY

SHEET TITLE

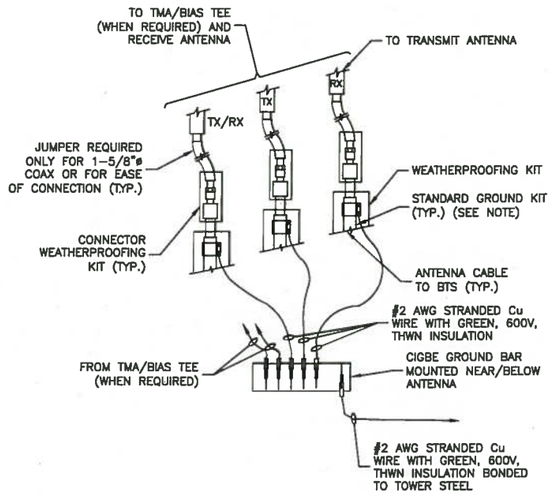
CONSTRUCTION DETAILS

SHEET NUMBER

C-3

GROUNDING NOTES:

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

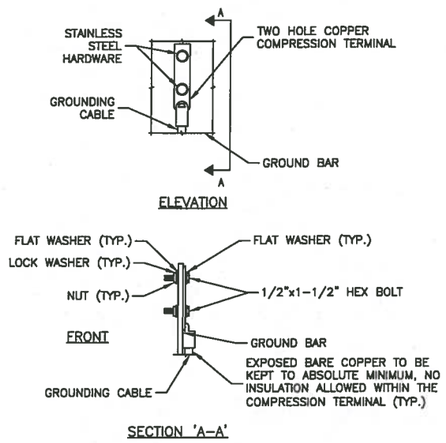


NOTE:

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

CONNECTION OF GROUND WIRES TO GROUNDING BAR (CIGBE) 1

SCALE: N.T.S.

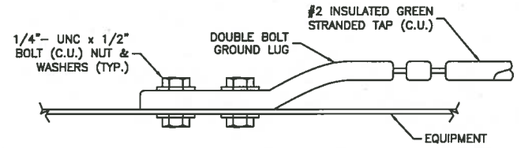


NOTES:

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

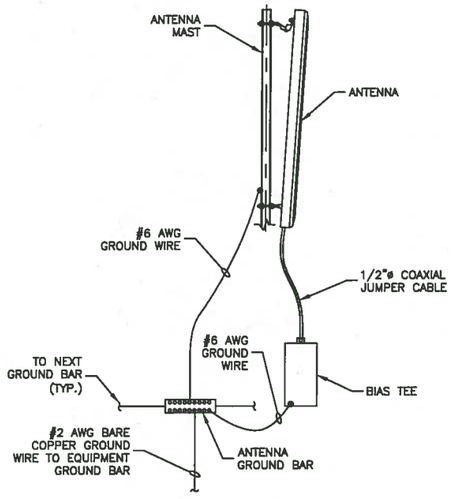
TYPICAL GROUND BAR MECHANICAL CONNECTION DETAIL 2

SCALE: N.T.S.



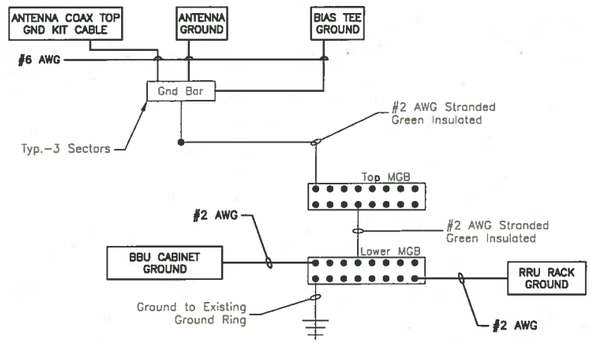
CONNECTION TO EQUIPMENT DETAIL 3

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.

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

CROWN CASTLE

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

CTNH009B
NHV 104 943122

CONSTRUCTION DRAWINGS

0	10/16/15	ISSUED AS FINAL
A	10/07/15	ISSUED FOR REVIEW

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

STATE OF CONNECTICUT
JIANG YU
10-31-2022
LICENSED PROFESSIONAL ENGINEER

JIANG YU
CONNECTICUT LICENSE NO. 0023222

DRAWN BY:	RA
REVIEWED BY:	BSH
CHECKED BY:	GHN
PROJECT NUMBER:	50066258
JOB NUMBER:	50074607
SITE ADDRESS:	

423 ORONOQUE ROAD
MILFORD, CT 06460
NEW HAVEN COUNTY

SHEET TITLE

GROUNDING NOTES & DETAILS

SHEET NUMBER

E-1

Date: **September 18, 2015**

Cheryl Schultz
Crown Castle
3530 Toringdon WaySuite 300
Charlotte, NC 28277

AW Solutions
300 Crown Oak Centre Dr
Longwood, FL 32750
(407) 260-0231

Subject: **Structural Analysis Report**

Carrier Designation: ***T-Mobile* Co-Locate**
Carrier Site Number: CTNH009B
Carrier Site Name: NH009/CrownOronoque_ET

Crown Castle Designation:
Crown Castle BU Number: 806359
Crown Castle Site Name: NHV 104 943122
Crown Castle JDE Job Number: 346200
Crown Castle Work Order Number: 1122514
Crown Castle Application Number: 310127 Rev. 4

Engineering Firm Designation: **AW Solutions Project Number:** 806359

Site Data: **423 ORONOQUE ROAD, MILFORD, New Haven County, CT**
Latitude *41° 14' 16.23"*, Longitude *-73° 5' 10"*
100 Foot - Monopole Tower

Dear Cheryl Schultz,

AW Solutions is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 827331, in accordance with application 310127, revision 4.

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

LC5: Installed + 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 standard and 2005 CT State Building Code with 2009 amendment based upon a wind speed of 90 mph fastest mile.

We at *AW Solutions* 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.

Structural analysis prepared by: Joseph Jimenez, EI / JFB

Respectfully submitted by:

Alan Lockrem, PE
Director of Engineering

09/18/15

tnxTower Report - version 6.1.4.1

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 100 ft Monopole tower designed by VALMONT in August of 1986. The tower was originally designed for an unknown wind speed per EIA-222-C.The tower was modified per reinforcement drawings by Paul J Ford and Company, dated April 2009.

2) ANALYSIS CRITERIA

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

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
83.0	83.0	3	commscope	ATBT-BOTTOM-24V	6	1-5/8	-
		3	commscope	LNX-6515DS-VTM w/ Mount Pipe			
		3	ericsson	KRY 112 144/1			

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
100.0	105.0	3	alcatel lucent	RRH2x40-AWS	14 1 1	7/8 1/2 1-5/8	1
		3	antel	BXA-171063-8BF-EDIN-0 w/ Mount Pipe			
		5	decibel	DB846F65ZAXY w/ Mount Pipe			
		1	rfs	DB-T1-6Z-8AB-0Z			
		5	rfs celwave	FD9R6004/2C-3L			
	102.0	3	antel	BXA-171063-8BF-EDIN-2 w/ Mount Pipe			
		1	decibel	DB846F65ZAXY w/ Mount Pipe			
		1	gps	GPS_A			
		1	rfs celwave	FD9R6004/2C-3L			
		3	swedcom	SWCP 2x5514 w/ Mount Pipe			
	100.0	1	tower mounts	Platform Mount [LP 602-1]			
95.0	95.0	1	til-tek	TA-2335-DAB-L-095	1	7/8	1
		1	tower mounts	Pipe Mount [PM 602-1]			
83.0	83.0	3	ericsson	KRY 112 144/1	12	1-5/8	1
		3	rfs celwave	APX16DWV-16DWVS-E-A20 w/ Mount Pipe			
		1	tower mounts	Platform Mount [LP 602-1]			
73.0	73.0	3	rfs celwave	APXV18-206517S-C	6	1-5/8	1
		1	tower mounts	Pipe Mount [PM 602-3]			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
50.0	50.0	1	til-tek	TA-2324-LHCP	1	1/2	1
		1	tower mounts	Side Arm Mount [SO 102-3]			
45.0	45.0	1	prodelin	1111	2	19/64	1
		1	tower mounts	Side Arm Mount [SO 102-3]			
		1	trimble	57860-30			

Notes:
1) Existing Equipment

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)
-						

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	FDH	1256016	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	FPL Construction	1256012	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Valmont	1245431	CCISITES
4-POST-MODIFICATION INSPECTION	Paul J Ford and Company	2419763	CCISITES

3.1) Analysis Method

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

3.2) Assumptions

1) 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.

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

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	100 - 46.8333	Pole	TP33.26x23.43x0.313	1	-9.238	1673.581	57.7	Pass
L2	46.8333 - 0	Pole	TP41.3x31.68x0.375	2	-19.595	2569.037	81.0	Pass
							Summary	
						Pole (L2)	81.0	Pass
						RATING =	**81.0**	**Pass**

Table 6 - Tower Component Stresses vs. Capacity - LC5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	77.1	Pass
1	Base Plate	0	46.5	Pass
1	Base Foundation Structural	0	38.6	Pass
1	Base Foundation Soil Interaction	0	41.1	Pass

Structure Rating (max from all components) =	**81.0%**

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

4.1) Recommendations

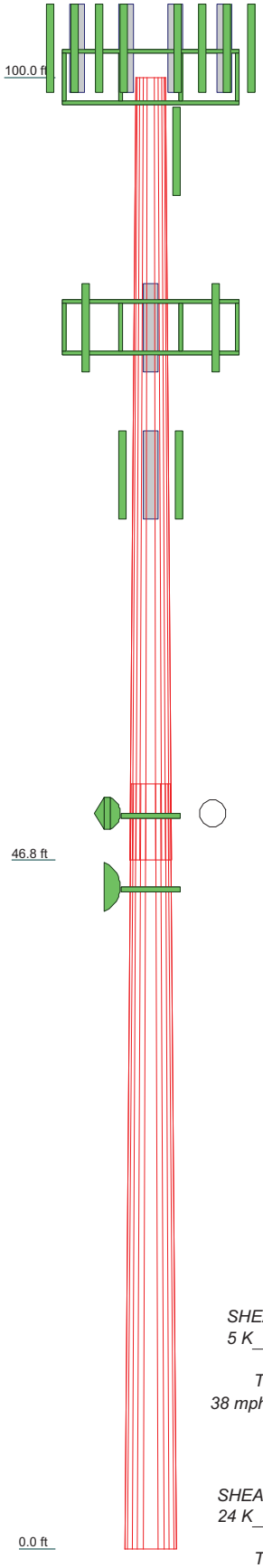
The tower and its foundation have sufficient capacity to carry the existing and proposed loads. No modifications are required at this time.

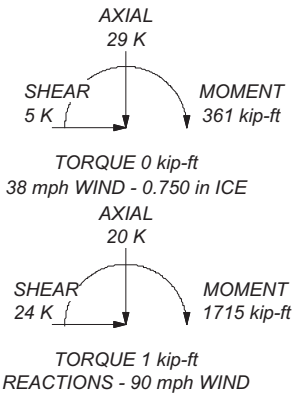
APPENDIX A

TNXTOWER OUTPUT

Section	1	2
Length (ft)	53.167	52.000
Number of Sides	12	12
Thickness (in)	0.313	0.375
Socket Length (ft)	5.167	
Top Dia (in)	23.430	31.680
Bot Dia (in)	33.260	41.300
Grade	A572-65	
Weight (K)	5.1	7.7

Total Weight (K): 12.8





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
SWCP 2x5514 w/ Mount Pipe	100	APX16DWV-16DWVS-E-A20 w/ Mount Pipe	83
SWCP 2x5514 w/ Mount Pipe	100	APX16DWV-16DWVS-E-A20 w/ Mount Pipe	83
SWCP 2x5514 w/ Mount Pipe	100	APX16DWV-16DWVS-E-A20 w/ Mount Pipe	83
(2) DB846F65ZAXY w/ Mount Pipe	100	KRY 112 144/1	83
(2) DB846F65ZAXY w/ Mount Pipe	100	KRY 112 144/1	83
DB846F65ZAXY w/ Mount Pipe	100	KRY 112 144/1	83
DB846F65ZAXY w/ Mount Pipe	100	KRY 112 144/1	83
BXA-171063-8BF-EDIN-0 w/ Mount Pipe	100	KRY 112 144/1	83
BXA-171063-8BF-EDIN-0 w/ Mount Pipe	100	KRY 112 144/1	83
BXA-171063-8BF-EDIN-0 w/ Mount Pipe	100	LNX-6515DS-VTM w/ Mount Pipe	83
BXA-171063-8BF-EDIN-2 w/ Mount Pipe	100	LNX-6515DS-VTM w/ Mount Pipe	83
BXA-171063-8BF-EDIN-2 w/ Mount Pipe	100	LNX-6515DS-VTM w/ Mount Pipe	83
BXA-171063-8BF-EDIN-2 w/ Mount Pipe	100	ATBT-BOTTOM-24V	83
(2) FD9R6004/2C-3L	100	ATBT-BOTTOM-24V	83
(2) FD9R6004/2C-3L	100	ATBT-BOTTOM-24V	83
FD9R6004/2C-3L	100	Platform Mount [LP 602-1]	83
FD9R6004/2C-3L	100	APXV18-206517S-C	73
RRH2x40-AWS	100	APXV18-206517S-C	73
RRH2x40-AWS	100	APXV18-206517S-C	73
RRH2x40-AWS	100	Pipe Mount [PM 602-3]	73
GPS_A	100	Side Arm Mount [SO 102-3]	50
DB-T1-6Z-8AB-0Z	100	6' x 2" Mount Pipe	50
Platform Mount [LP 602-1]	100	TA-2324-LHCP	50
TA-2335-DAB-L-095	95	Side Arm Mount [SO 102-3]	45
Pipe Mount [PM 602-1]	95	6' x 2" Mount Pipe	45
		6' x 2" Mount Pipe	45
		57860-30	45
		1111	45

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for a 90 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 0.75 in ice.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 81%

AW Solutions
AW Solutions
300 Crown Oak Centre Dr
Longwood, FL 32750
Phone: (407) 260-0231
FAX: (407) 260-0749

Job: ***BU806359***			
Project: ***WO1122514***			
Client: Crown Castle	Drawn by: Joseph Jimenez		App'd:
Code: TIA/EIA-222-F	Date: 09/18/15		Scale: NTS
Path: R:\Central_Data\CROWN CASTLE\CRC - STRUCTURAL\BU806359 - WO1122514\ENGINEERING\BU806359 WO1122514.eri			Dwg No. E-1

Tower Input Data

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

1) Tower is located in New Haven County, Connecticut.
2) Basic wind speed of 90 mph.
3) Nominal ice thickness of 0.750 in.
4) Ice density of 56.000 pcf.
5) A wind speed of 38 mph is used in combination with ice.
6) Temperature drop of 50.000 °F.
7) Deflections calculated using a wind speed of 50 mph.
8) A non-linear (P-delta) analysis was used.
9) Pressures are calculated at each section.
10) Stress ratio used in pole design is 1.333.
11) 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*	*Section Length*	*Splice Length*	*Number of Sides*	*Top Diameter*	*Bottom Diameter*	*Wall Thickness*	*Bend Radius*	*Pole Grade*
	ft	*ft*	*ft*		*in*	*in*	*in*	*in*	
L1	100.000-46.833	53.167	5.167	12	23.430	33.260	0.313	1.250	A572-65 (65 ksi)
L2	46.833-0.000	52.000		12	31.680	41.300	0.375	1.500	A572-65 (65 ksi)

Tapered Pole Properties

Section	*Tip Dia.*	*Area*	*I*	*r*	*C*	*I/C*	*J*	*It/Q*	*w*	*w/t*
	in	*in²*	*in⁴*	*in*	*in*	*in³*	*in⁴*	*in²*	*in*	
L1	24.257	23.262	1586.772	8.276	12.137	130.741	3215.230	11.449	5.442	17.414
	34.433	33.153	4593.664	11.795	17.229	266.629	9308.009	16.317	8.076	25.844
L2	33.787	37.800	4728.280	11.207	16.410	288.132	9580.776	18.604	7.485	19.96
	42.757	49.417	10564.262	14.651	21.393	493.809	21406.058	24.322	10.063	26.836

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 100.000-46.833				1	1	1		
L2 46.833-0.000				1	1	1		

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
LDF4-50A(1/2")	B	No	Inside Pole	100.000 - 8.000	1	No Ice	0.000	0.150
						1/2" Ice	0.000	0.150
						1" Ice	0.000	0.150
LDF5-50A(7/8)	B	No	Inside Pole	100.000 - 8.000	14	No Ice	0.000	0.330
						1/2" Ice	0.000	0.330
						1" Ice	0.000	0.330
HB158-1-08U8-S8J18(1-5/8)	B	No	Inside Pole	100.000 - 8.000	1	No Ice	0.000	1.300
						1/2" Ice	0.000	1.300
						1" Ice	0.000	1.300
AVA5-50(7/8")	B	No	Inside Pole	95.000 - 8.000	1	No Ice	0.000	0.300
						1/2" Ice	0.000	0.300
						1" Ice	0.000	0.300
LDF7-50A(1-5/8")	C	No	Inside Pole	83.000 - 8.000	12	No Ice	0.000	0.820
						1/2" Ice	0.000	0.820
						1" Ice	0.000	0.820
CR 50 1873(1-5/8")	A	No	CaAa (Out Of Face)	83.000 - 73.000	5	No Ice	0.000	0.830
						1/2" Ice	0.000	2.345
						1" Ice	0.000	4.471
CR 50 1873(1-5/8")	A	No	CaAa (Out Of Face)	73.000 - 8.000	11	No Ice	0.000	0.830
						1/2" Ice	0.000	2.345
						1" Ice	0.000	4.471
CR 50 1873(1-5/8")	A	No	CaAa (Out Of Face)	83.000 - 8.000	1	No Ice	0.198	0.830
						1/2" Ice	0.298	2.345
						1" Ice	0.398	4.471
LDF4-50A(1/2")	B	No	Inside Pole	50.000 - 0.000	1	No Ice	0.000	0.150
						1/2" Ice	0.000	0.150
						1" Ice	0.000	0.150
7916A(19/64)	B	No	Inside Pole	45.000 - 0.000	2	No Ice	0.000	0.033
						1/2" Ice	0.000	0.033
						1" Ice	0.000	0.033
***								
Safety Line 3/8	C	No	CaAa (Out Of Face)	100.000 - 10.000	1	No Ice	0.037	0.220
						1/2" Ice	0.137	0.750
						1" Ice	0.238	1.280

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	100.000-46.833	A	0.000	0.000	0.000	7.161	0.310
		B	0.000	0.000	0.000	0.000	0.338
		C	0.000	0.000	0.000	1.994	0.368
L2	46.833-0.000	A	0.000	0.000	0.000	7.689	0.387
		B	0.000	0.000	0.000	0.000	0.257
		C	0.000	0.000	0.000	1.381	0.390

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	100.000-46.833	A	0.750	0.000	0.000	0.000	12.586	1.275
		B		0.000	0.000	0.000	0.000	0.338
		C		0.000	0.000	0.000	9.969	0.410
L2	46.833-0.000	A	0.750	0.000	0.000	0.000	13.514	1.588
		B		0.000	0.000	0.000	0.000	0.257
		C		0.000	0.000	0.000	6.906	0.420

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	100.000-46.833	-0.045	-0.173	-0.198	-0.190
L2	46.833-0.000	-0.035	-0.207	-0.158	-0.268

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
SWCP 2x5514 w/ Mount Pipe	A	From Leg	4.000 0.000 2.000	0.000	100.000	No Ice 1/2" Ice 1" Ice	7.251 7.751 8.252	6.966 7.746 8.499	0.039 0.104 0.174
SWCP 2x5514 w/ Mount Pipe	B	From Leg	4.000 0.000 2.000	0.000	100.000	No Ice 1/2" Ice 1" Ice	7.251 7.751 8.252	6.966 7.746 8.499	0.039 0.104 0.174
SWCP 2x5514 w/ Mount Pipe	C	From Leg	4.000 0.000 2.000	0.000	100.000	No Ice 1/2" Ice 1" Ice	7.251 7.751 8.252	6.966 7.746 8.499	0.039 0.104 0.174
(2) DB846F65ZAXY w/ Mount Pipe	A	From Leg	4.000 0.000 5.000	0.000	100.000	No Ice 1/2" Ice 1" Ice	7.271 7.877 8.484	7.821 9.010 9.912	0.047 0.114 0.189
(2) DB846F65ZAXY w/ Mount Pipe	B	From Leg	4.000 0.000 5.000	0.000	100.000	No Ice 1/2" Ice 1" Ice	7.271 7.877 8.484	7.821 9.010 9.912	0.047 0.114 0.189
DB846F65ZAXY w/ Mount Pipe	C	From Leg	4.000 0.000 5.000	0.000	100.000	No Ice 1/2" Ice 1" Ice	7.271 7.877 8.484	7.821 9.010 9.912	0.047 0.114 0.189
DB846F65ZAXY w/ Mount Pipe	C	From Leg	4.000 0.000 2.000	0.000	100.000	No Ice 1/2" Ice 1" Ice	7.271 7.877 8.484	7.821 9.010 9.912	0.047 0.114 0.189
BXA-171063-8BF-EDIN-0 w/ Mount Pipe	A	From Leg	4.000 0.000 5.000	0.000	100.000	No Ice 1/2" Ice 1" Ice	3.179 3.555 3.964	3.353 3.971 4.595	0.029 0.061 0.099
BXA-171063-8BF-EDIN-0 w/ Mount Pipe	B	From Leg	4.000 0.000 5.000	0.000	100.000	No Ice 1/2" Ice 1" Ice	3.179 3.555 3.964	3.353 3.971 4.595	0.029 0.061 0.099

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
BXA-171063-8BF-EDIN-0 w/ Mount Pipe	C	From Leg	4.000 0.000 5.000	0.000	100.000	No Ice 1/2" Ice 1" Ice	3.179 3.555 3.964	3.353 3.971 4.595	0.029 0.061 0.099
BXA-171063-8BF-EDIN-2 w/ Mount Pipe	A	From Leg	4.000 0.000 2.000	0.000	100.000	No Ice 1/2" Ice 1" Ice	3.179 3.555 3.964	3.353 3.971 4.595	0.029 0.061 0.099
BXA-171063-8BF-EDIN-2 w/ Mount Pipe	B	From Leg	4.000 0.000 2.000	0.000	100.000	No Ice 1/2" Ice 1" Ice	3.179 3.555 3.964	3.353 3.971 4.595	0.029 0.061 0.099
BXA-171063-8BF-EDIN-2 w/ Mount Pipe	C	From Leg	4.000 0.000 2.000	0.000	100.000	No Ice 1/2" Ice 1" Ice	3.179 3.555 3.964	3.353 3.971 4.595	0.029 0.061 0.099
(2) FD9R6004/2C-3L	A	From Leg	4.000 0.000 5.000	0.000	100.000	No Ice 1/2" Ice 1" Ice	0.367 0.451 0.543	0.085 0.136 0.196	0.003 0.005 0.009
(2) FD9R6004/2C-3L	B	From Leg	4.000 0.000 5.000	0.000	100.000	No Ice 1/2" Ice 1" Ice	0.367 0.451 0.543	0.085 0.136 0.196	0.003 0.005 0.009
FD9R6004/2C-3L	C	From Leg	4.000 0.000 5.000	0.000	100.000	No Ice 1/2" Ice 1" Ice	0.367 0.451 0.543	0.085 0.136 0.196	0.003 0.005 0.009
FD9R6004/2C-3L	C	From Leg	4.000 0.000 2.000	0.000	100.000	No Ice 1/2" Ice 1" Ice	0.367 0.451 0.543	0.085 0.136 0.196	0.003 0.005 0.009
RRH2x40-AWS	A	From Leg	4.000 0.000 5.000	0.000	100.000	No Ice 1/2" Ice 1" Ice	2.522 2.753 2.993	1.589 1.795 2.010	0.044 0.061 0.082
RRH2x40-AWS	B	From Leg	4.000 0.000 5.000	0.000	100.000	No Ice 1/2" Ice 1" Ice	2.522 2.753 2.993	1.589 1.795 2.010	0.044 0.061 0.082
RRH2x40-AWS	C	From Leg	4.000 0.000 5.000	0.000	100.000	No Ice 1/2" Ice 1" Ice	2.522 2.753 2.993	1.589 1.795 2.010	0.044 0.061 0.082
GPS_A	C	From Leg	4.000 0.000 2.000	0.000	100.000	No Ice 1/2" Ice 1" Ice	0.297 0.374 0.459	0.297 0.374 0.459	0.001 0.005 0.010
DB-T1-6Z-8AB-0Z	A	From Leg	4.000 0.000 5.000	0.000	100.000	No Ice 1/2" Ice 1" Ice	5.600 5.915 6.240	2.333 2.558 2.791	0.044 0.080 0.120
Platform Mount [LP 602-1]	C	None		0.000	100.000	No Ice 1/2" Ice 1" Ice	32.030 38.710 45.390	32.030 38.710 45.390	1.343 1.800 2.257
95 TA-2335-DAB-L-095	B	From Leg	1.000 0.000 0.000	0.000	95.000	No Ice 1/2" Ice 1" Ice	7.758 8.145 8.540	2.956 3.258 3.569	0.033 0.076 0.124
Pipe Mount [PM 602-1]	B	From Leg	1.000 0.000 0.000	0.000	95.000	No Ice 1/2" Ice 1" Ice	5.250 6.500 7.750	1.580 1.950 2.320	0.093 0.118 0.142

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
83									
APX16DWV-16DWVS-E-A20 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	83.000	No Ice 1/2" Ice 1" Ice	7.808 8.368 8.915	3.782 4.643 5.382	0.064 0.115 0.173
APX16DWV-16DWVS-E-A20 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	83.000	No Ice 1/2" Ice 1" Ice	7.808 8.368 8.915	3.782 4.643 5.382	0.064 0.115 0.173
APX16DWV-16DWVS-E-A20 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	83.000	No Ice 1/2" Ice 1" Ice	7.808 8.368 8.915	3.782 4.643 5.382	0.064 0.115 0.173
KRY 112 144/1	A	From Leg	4.000 0.000 0.000	0.000	83.000	No Ice 1/2" Ice 1" Ice	0.408 0.497 0.594	0.204 0.273 0.351	0.011 0.014 0.019
KRY 112 144/1	B	From Leg	4.000 0.000 0.000	0.000	83.000	No Ice 1/2" Ice 1" Ice	0.408 0.497 0.594	0.204 0.273 0.351	0.011 0.014 0.019
KRY 112 144/1	C	From Leg	4.000 0.000 0.000	0.000	83.000	No Ice 1/2" Ice 1" Ice	0.408 0.497 0.594	0.204 0.273 0.351	0.011 0.014 0.019
KRY 112 144/1	A	From Leg	4.000 0.000 0.000	0.000	83.000	No Ice 1/2" Ice 1" Ice	0.408 0.497 0.594	0.204 0.273 0.351	0.011 0.014 0.019
KRY 112 144/1	B	From Leg	4.000 0.000 0.000	0.000	83.000	No Ice 1/2" Ice 1" Ice	0.408 0.497 0.594	0.204 0.273 0.351	0.011 0.014 0.019
KRY 112 144/1	C	From Leg	4.000 0.000 0.000	0.000	83.000	No Ice 1/2" Ice 1" Ice	0.408 0.497 0.594	0.204 0.273 0.351	0.011 0.014 0.019
LNX-6515DS-VTM w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	83.000	No Ice 1/2" Ice 1" Ice	11.683 12.404 13.135	9.842 11.366 12.914	0.083 0.173 0.273
LNX-6515DS-VTM w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	83.000	No Ice 1/2" Ice 1" Ice	11.683 12.404 13.135	9.842 11.366 12.914	0.083 0.173 0.273
LNX-6515DS-VTM w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	83.000	No Ice 1/2" Ice 1" Ice	11.683 12.404 13.135	9.842 11.366 12.914	0.083 0.173 0.273
ATBT-BOTTOM-24V	A	From Leg	4.000 0.000 0.000	0.000	83.000	No Ice 1/2" Ice 1" Ice	0.121 0.172 0.232	0.075 0.119 0.172	0.003 0.004 0.006
ATBT-BOTTOM-24V	B	From Leg	4.000 0.000 0.000	0.000	83.000	No Ice 1/2" Ice 1" Ice	0.121 0.172 0.232	0.075 0.119 0.172	0.003 0.004 0.006
ATBT-BOTTOM-24V	C	From Leg	4.000 0.000 0.000	0.000	83.000	No Ice 1/2" Ice 1" Ice	0.121 0.172 0.232	0.075 0.172	0.003 0.004 0.006
Platform Mount [LP 602-1]	C	None		0.000	83.000	No Ice 1/2" Ice 1" Ice	32.030 38.710 45.390	32.030 38.710 45.390	1.343 1.800 2.257

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
73									
APXV18-206517S-C	A	From Leg	1.000 0.000 0.000	0.000	73.000	No Ice 1/2" Ice 1" Ice	5.167 5.618 6.077	3.038 3.469 3.909	0.026 0.053 0.085
APXV18-206517S-C	B	From Leg	1.000 0.000 0.000	0.000	73.000	No Ice 1/2" Ice 1" Ice	5.167 5.618 6.077	3.038 3.469 3.909	0.026 0.053 0.085
APXV18-206517S-C	C	From Leg	1.000 0.000 0.000	0.000	73.000	No Ice 1/2" Ice 1" Ice	5.167 5.618 6.077	3.038 3.469 3.909	0.026 0.053 0.085
Pipe Mount [PM 602-3]	C	None		0.000	73.000	No Ice 1/2" Ice 1" Ice	7.680 9.500 11.320	7.680 9.500 11.320	0.279 0.353 0.427
50									
Side Arm Mount [SO 102-3]	C	None		0.000	50.000	No Ice 1/2" Ice 1" Ice	3.000 3.480 3.960	3.000 3.480 3.960	0.081 0.111 0.141
6' x 2" Mount Pipe	C	From Leg	1.000 0.000 0.000	0.000	50.000	No Ice 1/2" Ice 1" Ice	1.425 1.925 2.294	1.425 1.925 2.294	0.022 0.033 0.048
45									
57860-30	A	From Leg	4.000 0.000 0.000	0.000	45.000	No Ice 1/2" Ice 1" Ice	0.077 0.118 0.168	0.077 0.118 0.168	0.000 0.002 0.003
Side Arm Mount [SO 102-3]	C	None		0.000	45.000	No Ice 1/2" Ice 1" Ice	3.000 3.480 3.960	3.000 3.480 3.960	0.081 0.111 0.141
6' x 2" Mount Pipe	A	From Leg	1.000 0.000 0.000	0.000	45.000	No Ice 1/2" Ice 1" Ice	1.425 1.925 2.294	1.425 1.925 2.294	0.022 0.033 0.048
6' x 2" Mount Pipe	C	From Leg	1.000 0.000 0.000	0.000	45.000	No Ice 1/2" Ice 1" Ice	1.425 1.925 2.294	1.425 1.925 2.294	0.022 0.033 0.048

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
TA-2324-LHCP	C	Paraboloid w/Radome	From Leg	1.000 0.000 0.000	0.000		50.000	2.167	No Ice 1/2" Ice 1" Ice	3.690 3.980 4.270	0.028 0.048 0.069
***											
1111	C	Paraboloid w/o Radome	From Leg	1.000 0.000 0.000	0.000		45.000	3.330	No Ice 1/2" Ice 1" Ice	8.709 9.151 9.592	0.040 0.087 0.134

Load Combinations

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

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	100 - 46.8333	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-15.912	-0.324	1.729
			Max. Mx	5	-9.244	-615.461	-7.121
			Max. My	2	-9.248	7.339	615.457
			Max. Vy	5	17.216	-615.461	-7.121
			Max. Vx	2	-17.173	7.339	615.457
			Max. Torque	5			0.563
L2	46.8333 - 0	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-29.030	0.242	4.065
			Max. Mx	5	-19.596	-1707.674	-3.423
			Max. My	2	-19.596	-3.800	1700.167
			Max. Vy	5	24.043	-1707.674	-3.423
			Max. Vx	2	-23.870	-3.800	1700.167
			Max. Torque	9			-0.726

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	15	29.030	-0.050	4.891
	Max. H_x	11	19.619	23.828	0.154
	Max. H_z	2	19.619	-0.278	23.851
	Max. M_x	2	1700.167	-0.278	23.851
	Max. M_z	5	1707.674	-24.024	0.098
	Max. Torsion	5	0.500	-24.024	0.098
	Min. Vert	1	19.619	0.000	0.000
	Min. H_x	5	19.619	-24.024	0.098
	Min. H_z	8	19.619	-0.123	-23.677
	Min. M_x	8	-1690.074	-0.123	-23.677
	Min. M_z	11	-1698.641	23.828	0.154
	Min. Torsion	9	-0.726	11.780	-20.503

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	19.619	0.000	0.000	-0.974	0.036	0.000
Dead+Wind 0 deg - No Ice	19.619	0.278	-23.851	-1700.167	-3.800	-0.183
Dead+Wind 30 deg - No Ice	19.619	12.097	-20.546	-1463.259	-850.007	-0.248
Dead+Wind 60 deg - No Ice	19.619	20.782	-11.877	-840.769	-1473.380	-0.442
Dead+Wind 90 deg - No Ice	19.619	24.024	-0.098	3.423	-1707.674	-0.500
Dead+Wind 120 deg - No Ice	19.619	21.004	11.685	845.266	-1492.270	-0.209
Dead+Wind 150 deg - No Ice	19.619	11.978	20.506	1467.962	-859.888	0.306
Dead+Wind 180 deg - No Ice	19.619	0.123	23.677	1690.074	-14.462	0.629
Dead+Wind 210 deg - No Ice	19.619	-11.780	20.503	1459.137	835.582	0.726
Dead+Wind 240 deg - No Ice	19.619	-20.617	11.782	834.397	1465.844	0.392
Dead+Wind 270 deg - No Ice	19.619	-23.828	-0.154	-16.887	1698.641	-0.028
Dead+Wind 300 deg - No Ice	19.619	-20.653	-11.945	-859.067	1476.148	-0.186
Dead+Wind 330 deg - No Ice	19.619	-11.951	-20.521	-1470.743	858.570	-0.254
Dead+Ice+Temp	29.030	0.000	-0.000	-4.065	0.242	0.000
Dead+Wind 0 deg+Ice+Temp	29.030	0.050	-4.891	-361.003	-0.195	-0.071
Dead+Wind 30 deg+Ice+Temp	29.030	2.477	-4.214	-311.300	-178.252	-0.081
Dead+Wind 60 deg+Ice+Temp	29.030	4.262	-2.434	-180.461	-309.419	-0.107
Dead+Wind 90 deg+Ice+Temp	29.030	4.928	-0.016	-3.002	-358.699	-0.104
Dead+Wind 120 deg+Ice+Temp	29.030	4.306	2.402	173.930	-313.282	-0.034
Dead+Wind 150 deg+Ice+Temp	29.030	2.460	4.208	304.582	-180.620	0.078
Dead+Wind 180 deg+Ice+Temp	29.030	0.026	4.857	351.200	-2.789	0.152
Dead+Wind 210 deg+Ice+Temp	29.030	-2.418	4.205	302.628	175.994	0.175
Dead+Wind 240 deg+Ice+Temp	29.030	-4.230	2.416	171.373	308.464	0.105
Dead+Wind 270 deg+Ice+Temp	29.030	-4.890	-0.032	-7.424	357.452	0.008
Dead+Wind 300 deg+Ice+Temp	29.030	-4.240	-2.451	-184.418	310.694	-0.044
Dead+Wind 330 deg+Ice+Temp	29.030	-2.454	-4.211	-312.994	180.838	-0.076
Dead+Wind 0 deg - Service	19.619	0.086	-7.361	-525.706	-1.147	-0.059
Dead+Wind 30 deg - Service	19.619	3.734	-6.341	-452.544	-262.459	-0.074
Dead+Wind 60 deg - Service	19.619	6.414	-3.666	-260.317	-454.959	-0.131
Dead+Wind 90 deg - Service	19.619	7.415	-0.030	0.373	-527.315	-0.152
Dead+Wind 120 deg - Service	19.619	6.483	3.606	260.342	-460.801	-0.068

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead+Wind 150 deg - Service	19.619	3.697	6.329	452.633	-265.516	0.089
Dead+Wind 180 deg - Service	19.619	0.038	7.308	521.217	-4.443	0.192
Dead+Wind 210 deg - Service	19.619	-3.636	6.328	449.898	258.053	0.227
Dead+Wind 240 deg - Service	19.619	-6.363	3.636	256.977	452.680	0.127
Dead+Wind 270 deg - Service	19.619	-7.354	-0.048	-5.901	524.573	-0.006
Dead+Wind 300 deg - Service	19.619	-6.374	-3.687	-265.974	455.871	-0.060
Dead+Wind 330 deg - Service	19.619	-3.689	-6.334	-454.863	265.158	-0.084

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.000	-19.619	0.000	0.000	19.619	0.000	0.000%
2	0.278	-19.619	-23.851	-0.278	19.619	23.851	0.000%
3	12.097	-19.619	-20.546	-12.097	19.619	20.546	0.000%
4	20.782	-19.619	-11.877	-20.782	19.619	11.877	0.000%
5	24.024	-19.619	-0.098	-24.024	19.619	0.098	0.000%
6	21.004	-19.619	11.685	-21.004	19.619	-11.685	0.000%
7	11.978	-19.619	20.506	-11.978	19.619	-20.506	0.000%
8	0.123	-19.619	23.677	-0.123	19.619	-23.677	0.000%
9	-11.780	-19.619	20.503	11.780	19.619	-20.503	0.000%
10	-20.617	-19.619	11.782	20.617	19.619	-11.782	0.000%
11	-23.828	-19.619	-0.154	23.828	19.619	0.154	0.000%
12	-20.653	-19.619	-11.945	20.653	19.619	11.945	0.000%
13	-11.951	-19.619	-20.521	11.951	19.619	20.521	0.000%
14	0.000	-29.030	0.000	0.000	29.030	0.000	0.000%
15	0.050	-29.030	-4.891	-0.050	29.030	4.891	0.000%
16	2.477	-29.030	-4.214	-2.477	29.030	4.214	0.000%
17	4.262	-29.030	-2.434	-4.262	29.030	2.434	0.000%
18	4.928	-29.030	-0.016	-4.928	29.030	0.016	0.000%
19	4.306	-29.030	2.402	-4.306	29.030	-2.402	0.000%
20	2.460	-29.030	4.208	-2.460	29.030	-4.208	0.000%
21	0.026	-29.030	4.857	-0.026	29.030	-4.857	0.000%
22	-2.418	-29.030	4.205	2.418	29.030	-4.205	0.000%
23	-4.230	-29.030	2.416	4.230	29.030	-2.416	0.000%
24	-4.890	-29.030	-0.032	4.890	29.030	0.032	0.000%
25	-4.240	-29.030	-2.451	4.240	29.030	2.451	0.000%
26	-2.454	-29.030	-4.211	2.454	29.030	4.211	0.000%
27	0.086	-19.619	-7.361	-0.086	19.619	7.361	0.000%
28	3.734	-19.619	-6.341	-3.734	19.619	6.341	0.000%
29	6.414	-19.619	-3.666	-6.414	19.619	3.666	0.000%
30	7.415	-19.619	-0.030	-7.415	19.619	0.030	0.000%
31	6.483	-19.619	3.606	-6.483	19.619	-3.606	0.000%
32	3.697	-19.619	6.329	-3.697	19.619	-6.329	0.000%
33	0.038	-19.619	7.308	-0.038	19.619	-7.308	0.000%
34	-3.636	-19.619	6.328	3.636	19.619	-6.328	0.000%
35	-6.363	-19.619	3.636	6.363	19.619	-3.636	0.000%
36	-7.354	-19.619	-0.048	7.354	19.619	0.048	0.000%
37	-6.374	-19.619	-3.687	6.374	19.619	3.687	0.000%
38	-3.689	-19.619	-6.334	3.689	19.619	6.334	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00000841
3	Yes	4	0.00000001	0.00068622
4	Yes	4	0.00000001	0.00069462
5	Yes	4	0.00000001	0.00001747
6	Yes	4	0.00000001	0.00070024
7	Yes	4	0.00000001	0.00071719
8	Yes	4	0.00000001	0.00001616
9	Yes	4	0.00000001	0.00069028
10	Yes	4	0.00000001	0.00067282
11	Yes	4	0.00000001	0.00002975
12	Yes	4	0.00000001	0.00072049
13	Yes	4	0.00000001	0.00071203
14	Yes	4	0.00000001	0.00000001
15	Yes	4	0.00000001	0.00020816
16	Yes	4	0.00000001	0.00022350
17	Yes	4	0.00000001	0.00022346
18	Yes	4	0.00000001	0.00020643
19	Yes	4	0.00000001	0.00022342
20	Yes	4	0.00000001	0.00022223
21	Yes	4	0.00000001	0.00020263
22	Yes	4	0.00000001	0.00021783
23	Yes	4	0.00000001	0.00021855
24	Yes	4	0.00000001	0.00020596
25	Yes	4	0.00000001	0.00022724
26	Yes	4	0.00000001	0.00022721
27	Yes	4	0.00000001	0.00000001
28	Yes	4	0.00000001	0.00003817
29	Yes	4	0.00000001	0.00003982
30	Yes	4	0.00000001	0.00000001
31	Yes	4	0.00000001	0.00003838
32	Yes	4	0.00000001	0.00004048
33	Yes	4	0.00000001	0.00000001
34	Yes	4	0.00000001	0.00003917
35	Yes	4	0.00000001	0.00003641
36	Yes	4	0.00000001	0.00000001
37	Yes	4	0.00000001	0.00004111
38	Yes	4	0.00000001	0.00003977

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	100 - 46.8333	12.955	31	1.034	0.001
L2	52 - 0	3.901	31	0.668	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
100.000	SWCP 2x5514 w/ Mount Pipe	31	12.955	1.034	0.001	33810
95.000	TA-2335-DAB-L-095	31	11.877	1.002	0.001	33810
83.000	APX16DWV-16DWVS-E-A20 w/ Mount Pipe	31	9.343	0.923	0.001	9944
73.000	APXV18-206517S-C	31	7.359	0.851	0.001	6260
50.000	TA-2324-LHCP	31	3.640	0.647	0.000	3689
45.000	1111	31	3.043	0.593	0.000	4068

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	100 - 46.8333	41.939	6	3.348	0.003
L2	52 - 0	12.638	6	2.164	0.002

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
100.000	SWCP 2x5514 w/ Mount Pipe	6	41.939	3.348	0.004	10504
95.000	TA-2335-DAB-L-095	6	38.451	3.245	0.004	10504
83.000	APX16DWV-16DWVS-E-A20 w/ Mount Pipe	6	30.251	2.989	0.003	3088
73.000	APXV18-206517S-C	6	23.830	2.757	0.002	1943
50.000	TA-2324-LHCP	6	11.792	2.097	0.002	1143
45.000	1111	6	9.857	1.922	0.001	1260

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	100 - 46.8333 (1)	TP33.26x23.43x0.313	53.167	0.000	0.0	39.00	32.192	-9.238	1255.500	0.007
L2	46.8333 - 0 (2)	TP41.3x31.68x0.375	52.000	0.000	0.0	39.00	49.417	-19.595	1927.260	0.010

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	100 - 46.8333 (1)	TP33.26x23.43x0.313	621.893	29.69	39.00	0.761	0.000	0.00	39.00	0.000
L2	46.8333 - 0 (2)	TP41.3x31.68x0.375	1715.033	41.68	39.00	1.069	0.000	0.00	39.00	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	100 - 46.8333 (1)	TP33.26x23.43x0.313	17.337	0.54	26.00	0.042	0.501	0.01	26.00	0.000
L2	46.8333 - 0 (2)	TP41.3x31.68x0.375	24.055	0.49	26.00	0.038	0.209	0.00	26.00	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 $\frac{f_{vt}}{F_{vt}}$

Pole Interaction Design Data

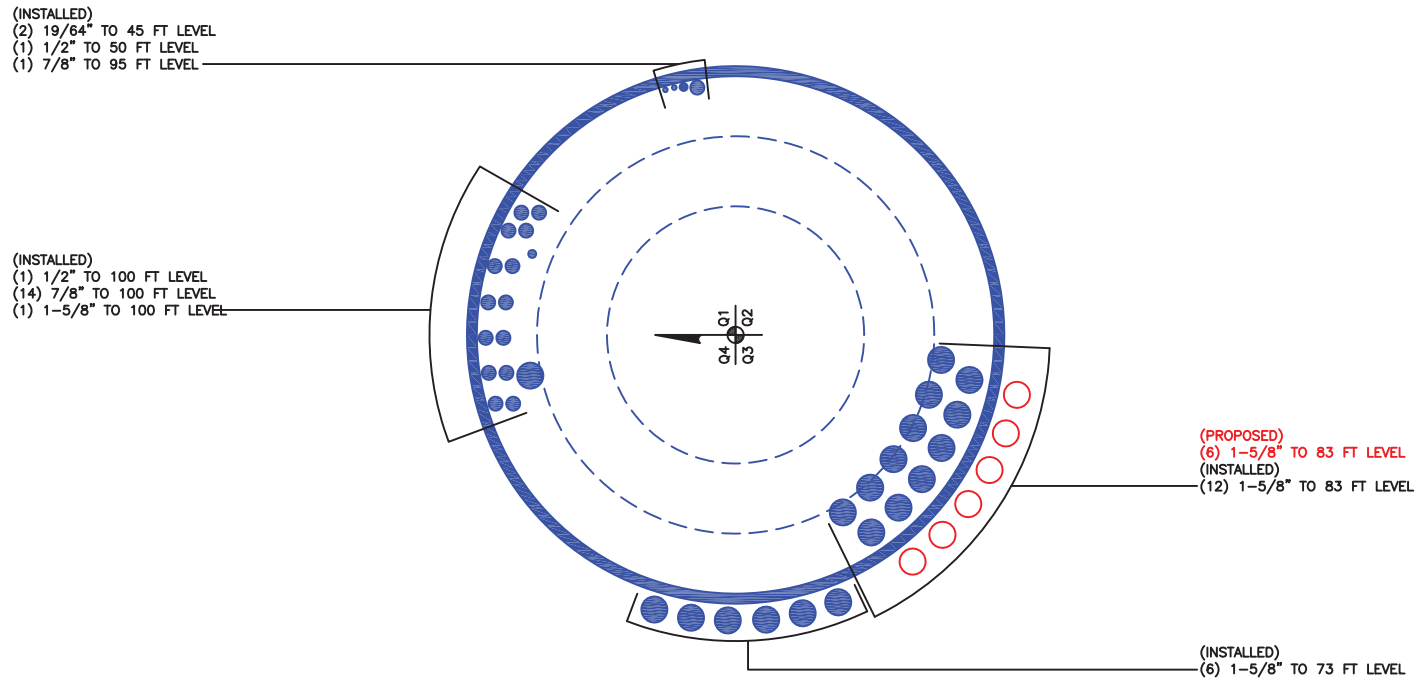
Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	100 - 46.8333 (1)	0.007	0.761	0.000	0.042	0.000	0.769 ✔	1.333	H1-3+VT ✔
L2	46.8333 - 0 (2)	0.010	1.069	0.000	0.038	0.000	1.079 ✔	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	100 - 46.8333	Pole	TP33.26x23.43x0.313	1	-9.238	1673.581	57.7	Pass
L2	46.8333 - 0	Pole	TP41.3x31.68x0.375	2	-19.595	2569.037	81.0	Pass
							Summary	
						Pole (L2)	81.0	Pass
						RATING =	**81.0**	**Pass**

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 806359 TOWER ID: C_BASELEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

9/18/2015
BU:806359
WO:1122514
Engineer: JJ

Asymmetric Anchor Rod

Reactions	
Moment (k-ft)	1,715.0
Axial (k)	20.0
Shear (k)	24.0
Code	F
Total Anchor Rods	12

	Original	Additional
Anchor Rods	8	4
Anchor Rod Grade	A615-J	Dywidag
Fy (ksi)	75	127.7
Fu (ksi)	100	150
Anchor Rod Diameter (in)	2.25	1.75
Anchor Rod Circle (in)	47.58	52.8
Base Plate	Round	
ETA Factor, η	0.5	

Additional Anchor Rods

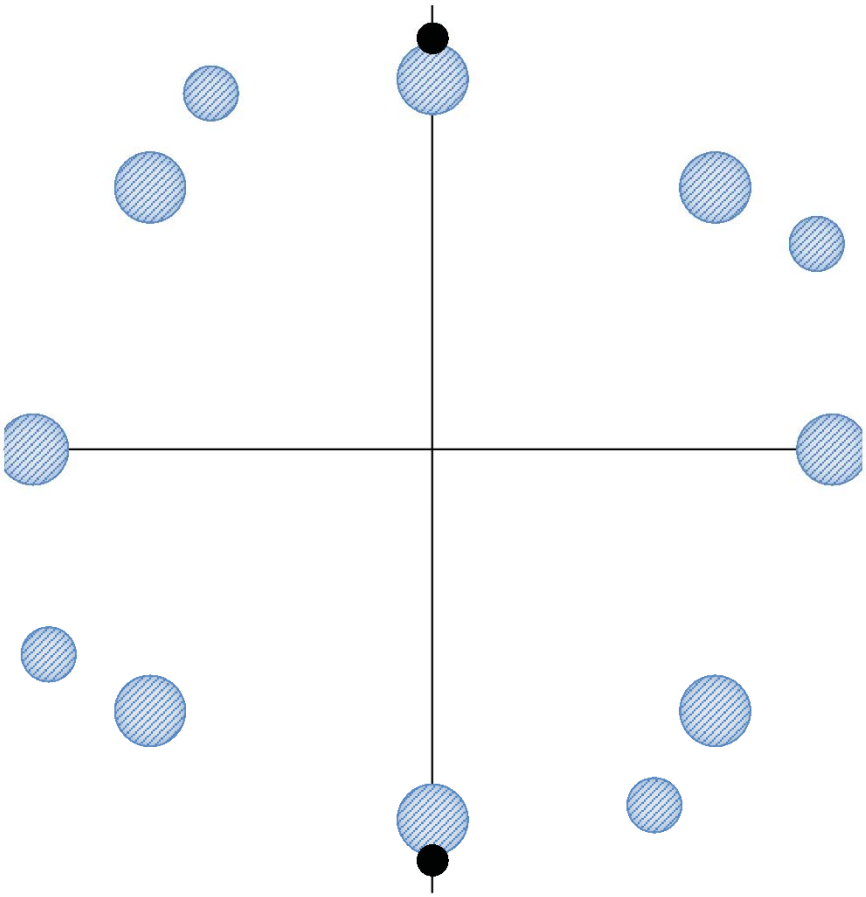
Anchor Rod		Anchor Rod Diameter, in	Anchor Rod Circle, in	Location, degrees	Anchor Rod Gross Area, in2	Force, kips	Anchor Rod Stress Ratio
1	A615-J	2.25	47.58	0.0	3.98	150.4	77.1%
2	A615-J	2.25	47.58	45.0	3.98	105.8	54.3%
3	A615-J	2.25	47.58	90.0	3.98	-1.9	1.0%
4	A615-J	2.25	47.58	135.0	3.98	-105.8	54.3%
5	A615-J	2.25	47.58	180.0	3.98	-150.4	77.1%
6	A615-J	2.25	47.58	225.0	3.98	-105.8	54.3%
7	A615-J	2.25	47.58	270.0	3.98	1.9	1.0%
8	A615-J	2.25	47.58	315.0	3.98	105.8	54.3%
9	Dywidag	1.75	52.8	30.0	2.71	98.6	55.1%
10	Dywidag	1.75	52.8	120.0	2.71	-56.4	31.5%
11	Dywidag	1.75	52.8	210.0	2.71	-98.6	55.1%
12	Dywidag	1.75	52.8	300.0	2.71	56.4	31.5%

9/18/2015
BU:806359
WO:1122514
Engineer: JJ

Adjusted Loads for Base Plate Check

Welded Anchor Brackets?	No	
Adjusted Moment	1715.0	k-ft
Adjusted Axial	20.0	kips
Shear	24.0	kips

Ix, in^4	Iy, in^4	Ixy, in^4	x bar, in	y bar, in	Φ	c, in
12781.58	12781.58	0.00	0.000	0.000	90.00	23.79



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

TIA Rev F

Site Data

BU#:	*806359*
Site Name:	*NHV 104 943122*
App #:	*310127 Rev. 4*
Pole Manufacturer:	*Other*

Reactions		
Moment:	1715	ft-kips
Axial:	20	kips
Shear:	24	kips

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

Anchor Rod Data		
Qty:	8	
Diam:	2.25	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	47.58	in

Plate Data		
Diam:	53.58	in
Thick:	2.5	in
Grade:	60	ksi
Single-Rod B-eff:	14.81	in

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

Pole Data		
Diam:	41.3	in
Thick:	0.375	in
Grade:	65	ksi
# of Sides:	12	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0	"0" if None

Stress Increase Factor		
ASIF:	1.333	

Base Plate Results	Flexural Check	Rigid
Base Plate Stress:	27.9 ksi	Service ASD
Allowable Plate Stress:	60.0 ksi	0.75*Fy*ASIF
Base Plate Stress Ratio:	46.5% **Pass**	Y.L. Length: 23.63

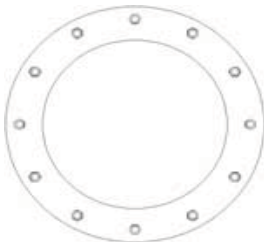
n/a

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

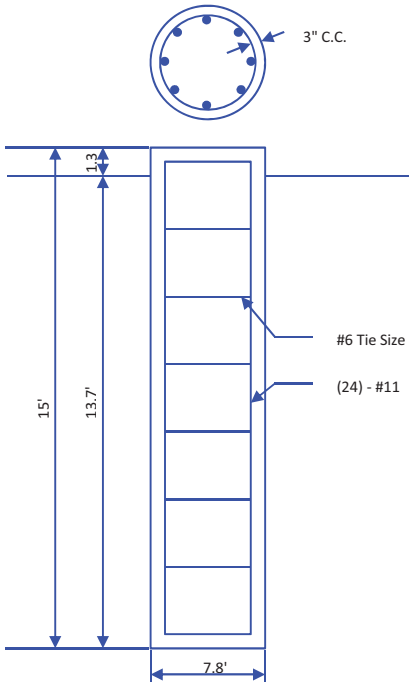
CCI Foundation Tool Suite - Monopole Pier

CCIFTS 1.2.108.14286 - Phase 1-2 Date: 9/18/2015

BU:	806359
Site Name:	NHV 104 943122
App Number:	310127 R.4
Work Order:	1122514

Monopole Drilled Pier

Input



Criteria		
TIA Revision:	F	
ACI 318 Revision:	2002	
Seismic Category:	B	
Forces		
Compression	20	kips
Shear	24	kips
Moment	1715	k-ft
Swelling Force	0	kips
Foundation Dimensions		
Pier Diameter:	7.8	ft
Ext. above grade:	1.3	ft
Depth below grade:	13.7	ft
Material Properties		
Number of Rebar:	24	
Rebar Size:	11	
Tie Size	6	
Rebar tensile strength:	60	ksi
Concrete Strength:	3000	psi
Ultimate Concrete Strain	0.003	in/in
Clear Cover to Ties:	3	in

Soil Profile: 123

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	4	0	4	105	0				0	
2	2	4	6	105		29			0	
3	2.3	6	8.3	135		40			0	
4	5.4	8.3	13.7	150	20000				0	

Analysis Results

Soil Lateral Capacity

Depth to Zero Shear:	6.64	ft
Max Moment, Mu:	1972.97	k-ft
Soil Safety Factor:	4.87	
Safety Factor Req'd:	2	
RATING:	41.1%	

Soil Axial Capacity

Skin Friction (k):	450.69	kips
End Bearing (k):	0.00	kips
Comp. Capacity (k), ϕCn:	450.69	kips
Comp. (k), Cu:	26.00	kips
RATING:	5.8%	

Concrete/Steel Check

Mu (from soil analysis)	2564.86	k-ft
ϕMn	6651.55	k-ft
RATING:	38.6%	
rho provided	0.54	
rho required	0.33	OK
Rebar Spacing	9.68	
Spacing required	22.56	OK
Dev. Length required	6.81	
Dev. Length provided	61.78	OK

Overall Foundation Rating: 41.1%

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: CTNH009B

NH009/CrownOronoque_ET
423 Oronoque Road
Milford, CT 06460

September 16, 2015

EBI Project Number: 6215004761

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	14.20 %

EBI Consulting
environmental | engineering | due diligence

September 16, 2015

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

Emissions Analysis for Site: **CTNH009B – NH009/CrownOronoque_ET**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **423 Oronoque Road, Milford, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at **423 Oronoque Road, Milford, 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 / UMTS 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) Since the radios are ground mounted there are additional cabling losses accounted for. For each RF path the following losses were calculated. 1.24 dB of additional cable loss for all 1900 MHz and 2100 MHz channels and 0.673 dB of additional cable loss at 700 MHz. This is based on manufacturers Specifications for 120 feet of 1-5/8” coax cable on each path.

6) 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.

7) 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.

8) 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.

9) The antenna mounting height centerline of the proposed antennas is **83 feet** above ground level (AGL).

10) 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):	83	Height (AGL):	83	Height (AGL):	83
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):	7,695.05	ERP (W):	7,695.05	ERP (W):	7,695.05
Antenna A1 MPE%	4.67	Antenna B1 MPE%	4.67	Antenna C1 MPE%	4.67
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):	83	Height (AGL):	83	Height (AGL):	83
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):	741.01	ERP (W):	741.01	ERP (W):	741.01
Antenna A2 MPE%	0.96	Antenna B2 MPE%	0.96	Antenna C2 MPE%	0.96

Site Composite MPE%	
Carrier	**MPE%**
T-Mobile (Per Sector Max)	**5.63 %**
MetroPCS	1.28 %
Verizon Wireless	4.03 %
Sirius XM Radio	3.26 %
Site Total MPE %:	**14.20 %**

T-Mobile Sector 1 Total:	5.63 %
T-Mobile Sector 2 Total:	5.63 %
T-Mobile Sector 3 Total:	5.63 %
Site Total:	14.20 %

T-Mobile _per sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
T-Mobile 2100 MHz (AWS) LTE	**2**	**1923.76**	**83**	**23.33**	**2100**	**1000**	**2.33 %**
T-Mobile 700 MHz LTE	**1**	**741.01**	**83**	**4.49**	**700**	**467**	**0.96 %**
T-Mobile 1900 MHz (PCS) GSM/UMTS	**2**	**961.88**	**83**	**11.66**	**1900**	**1000**	**1.17 %**
T-Mobile 2100 MHz (AWS) UMTS	**2**	**961.88**	**83**	**11.66**	**2100**	**1000**	**1.17 %**
						Total:	**4.31%**

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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:	5.63 %
Sector 2:	5.63 %
Sector 3 :	5.63 %
T-Mobile Per Sector Maximum:	5.63 %
Site Total:	14.20 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **14.20%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

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