Crown Castle
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065

February 12, 2016

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

RE: **Notice of Exempt Modification for AT&T/ LTE 3C Crown Site BU: 876380**
AT&T Site ID: CT2066
103 Great Hollow Road, Woodbury, CT 06798
Latitude: 41° 31' 19.2"/ Longitude: -73° 13' 15.6"

Dear Ms. Bachman:

AT&T currently maintains nine (9) antennas at the 139-foot level of the existing 139-foot monopole at 103 Great Hollow Road in Woodbury, CT. The tower is owned by Crown Castle. The property is owned by the O&G Industries. AT&T now intends to replace three (3) antennas with three (3) new 700 MHz antennas. These antennas would be installed at the 139-foot level of the tower. AT&T also intends to install three (3) RRUs, one (1) A2 module.

This facility was approved by the by the Connecticut Siting Council in Docket No. 236 on June 19, 2003. This approval included the conditions that:

1. The tower shall be constructed no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of Sprint PCS, AT&T Wireless PCS, LLC and other entities, both public and private, but such tower shall not exceed a height of 110 feet above ground level.

2. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be submitted to and approved by the Council prior to the commencement of facility construction and shall include:

   a. Visual simulations of the monopole and stealth options for a 110-foot tower at the site including a flagpole and tree tower;
   b. a final site plan(s) of site development to include specifications for the tower, tower foundation, antennas, equipment building, access road, utility line, and landscaping; and

c. construction plans for site clearing, water drainage, and erosion and sedimentation control consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.

3. The Certificate Holder shall, prior to the commencement of operation, provide the Council worst-case modeling of electromagnetic radio frequency power density of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall ensure a recalculated report of electromagnetic radio frequency power density is submitted to the Council if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.

4. Upon the establishment of any new State or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.
5. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.
6. If the facility does not initially provide wireless services within one year of completion of construction or ceases to provide wireless services for a period of one year, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.
7. Any antenna that becomes obsolete and ceases to function shall be removed within 60 days after such antennas become obsolete and cease to function.
8. Unless otherwise approved by the Council, this Decision and Order shall be void if the facility authorized herein is not operational within one year of the effective date of this Decision and Order or within one year after all appeals to this Decision and Order have been resolved.

This modification complies with the aforementioned condition(s).

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.S.C.A. § 16-50j-73, a copy of this letter is being sent to Mr. William J. Butterly, Jr., First Selectman, Town of Woodbury, as well as the property owner, and Crown Castle is the tower owner.

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

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

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

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

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

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

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

Sincerely,

Jeffrey Barbadora
Real Estate Specialist
12 Gill Street, Suite 5800, Woburn, MA 01801
781-729-0053
Jeff.Barbadora@crowncastle.com

Attachments:

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. William J. Butterly, Jr.
Town of Woodbury
281 Main Street South
Woodbury, CT 06798

O&G Industries
112 Wall Street
Torrington, CT 06790

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@po.state.ct.us
Web Site: www.state.ct.us/csc/index.htm

June 24, 2003

TO: Parties and Intervenors

FROM: S. Derek Phelps, Executive Director

RE: **DOCKET NO. 236** - Sprint Spectrum L.P. application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a wireless telecommunications facility off Great Hollow Road or at 103 Great Hollow Road, South Woodbury, Connecticut.

By its Decision and Order dated June 19, 2003, the Connecticut Siting Council granted a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a wireless telecommunications facility located at Site A off of Great Hollow Road, Woodbury, Connecticut.

Enclosed are the Council's Findings of Fact, Opinion, and Decision and Order.

SDP/laf

Enclosures (4)

c: Albert Palko, State Documents Librarian
Council Members

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

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CERTIFICATE

OF

ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED

DOCKET NO. 236

Pursuant to General Statutes § 16-50k, as amended, the Connecticut Siting Council hereby issues a Certificate of Environmental Compatibility and Public Need to Sprint Spectrum, L.P. d/b/a Sprint PCS for the construction, maintenance and operation of a wireless telecommunications facility located at Site A off of Great Hollow Road, Woodbury, Connecticut. This Certificate is issued in accordance with and subject to the terms and conditions set forth in the Decision and Order of the Council on June 19, 2003.

By order of the Council,

Pamela B. Katz, P.E., Chairman

June 19, 2003

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@po.state.ct.us
Web Site: www.state.ct.us/csc/index.htm

June 24, 2003

Thomas J. Regan, Esq.
Brown Rudnick Berlack Israels LLP
185 Asylum Street, CityPlace I
Hartford, CT 06103-3402

RE: **DOCKET NO. 236** - Sprint Spectrum L.P. application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a wireless telecommunications facility off Great Hollow Road or at 103 Great Hollow Road, South Woodbury, Connecticut.

Dear Attorney Regan:

By its Decision and Order dated June 19, 2003, the Connecticut Siting Council (Council) granted a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a wireless telecommunications facility at Site A off of Great Hollow Road in Woodbury to Sprint Spectrum.

Enclosed are the Council's Certificate, Findings of Fact, Opinion, and Decision and Order.

Very truly yours,

S. Derek Phelps
Executive Director

SDP/CML

Enclosures (4)

Town of Woodbury

Zoning Permit

Number 8156 Date: **February 3, 2004**

Permission granted to: O & G Ind. (owner) / Peter Maxwell (agent)

To Construct: Telecommunications facilities

Address: Great Hollow Road

District OS-80 Map 34 Lot 15

Set back distance from lot lines

Front:: N/A

Right Side: N/A

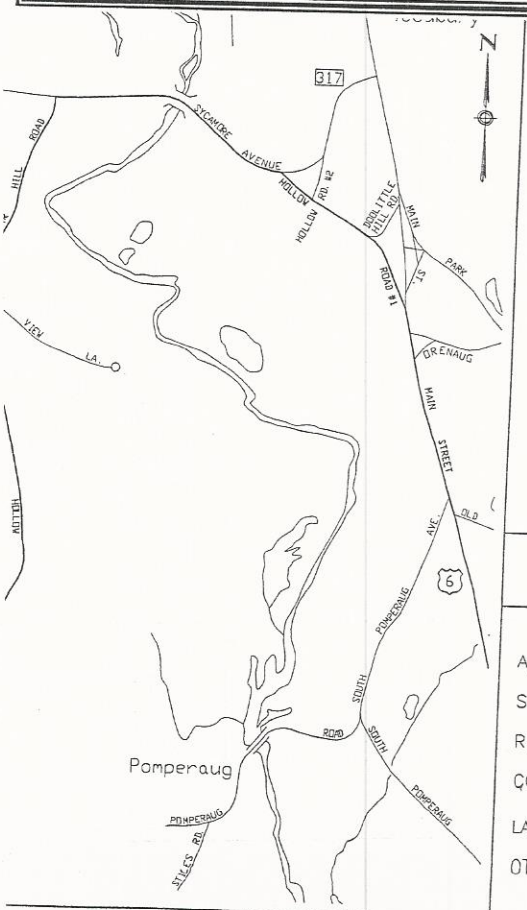
Left Side: N/A

Rear: N/A

A-2 Requirements ☐ Foundation N/A ☐ Final N/A ☐ Both Required

Reviewed and approved: ~~Judi Lynch, Land Use Administrator~~ Mark Dunn Town Planner

Building Height must be shown and indicated on the final.



PROPERTY OWNER:	ROBERT CHASE, TRUSTEE C/O O&G INDUSTRIES WOODBURY, CT
PROPERTY LESSEE:	SPRINT SITES USA 535 EAST CRESCENT AVENUE RAMSEY, NEW JERSEY 07446
APPLICANT/SUBLESSEE:	AT&T WIRELESS PCS LLC 12 OMEGA DRIVE STAMFORD, CONNECTICUT 06902
LATITUDE:	41.52201° (NAD 83)
LONGITUDE:	73.22074° (NAD 83)
ELEVATION:	590' AMSL
JURISDICTION:	TOWN OF WOODBURY, CONNECTICUT
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

B

SITE QUALIFICATION PARTICIPANTS

	NAME	COMPANY	NUMBER
A/E	IGNACIO C ARTAIZ	URS CORPORATION AES	(860) 529-8882
SAC	HOLLIS REDDING	OPTASITE, INC.	(860) 657-1460
RF	KUMAR RUGHOOBUR	BECHTEL	(203) 630-9930
CON	ALI HEMMATI	BECHTEL	(201) 707-8161
LANDLORD	RUSS VAN OUDENAREN	SPRINT SITES USA	(201) 995-4023
OTHER	–		–

STATE OF CONNECTICUT IGNACIO C. ARTAIZ

0	10/01/03	ISSUED FOR CONSTRUCTION	JCF
A	09/16/03	100% REVIEW	

URS CORPORATION AES

TITLE SHEET

Town of Woodbury

Date: 1/30/04 Zoning Permit Number 8156

Address of property: Great Hollow Road

Map No. 34 **Lot No.** 15 Subdivision Name:

Name of Owner: O & G Industries Phone Number: 860-489-9261

Address of Owner: 112 Wall Street

DESCRIPTION OF WORK PROPOSED

concrete pad & telecommunications equipment cabinets within existing fenced enclosure; antennas on existing monopole

Size of structure: Height of structure: 110'

Square footage: Number of stories:

Type of construction: 100x100 SF leased area

Zone: ☐ R-40 ☐ OS-60 ☑ OS-80 ☐ OS-100 ☐ GA ☐ MSD ☐ PI ☐ EE ☐ MQ

Width of lot: Depth of lot: Total Acreage:

Setback distances from property lines

Front yard: 223 Rear yard:

Right side yard: NA Left side yard:

Name of Agent: Peter N. Maxwell Phone Number: 860-202-0219

Address of Agent: URS Corp, 795 Brook St. Bldg 5, Rocky Hill, CT 06067

Please Note:
An agent must provide an approval letter from the owner of the subject property before application will be approved.

Check all applicable

Is this property in the Historic District?	☐ Yes	☑ No
Does this application involve any grading or filling?	☐ Yes	☐ No
Will there be construction in or within 100 feet of a wetland watercourse?	☐ Yes	☐ No
Will this require approval from the Pomperaug Health District	☑ Yes	☐ No

Other

Signature of Owner/Agent:

Approved by: Mark Dalton Date: 2-3-04

Please Note

This issued permit is based upon the plot plan submitted. Falsification by misrepresentation or omission, or failure to comply with the conditions of approval of this permit shall constitute a violation of the Town of Woodbury Zoning Regulations.

120203

PROJECT INFORMATION

SCOPE OF WORK:
- AT&T ANTENNAS: (3) EXISTING ANTENNAS PER SECTOR TO REMAIN FOR 3 SECTORS, FOR A TOTAL OF (9) EXISTING ANTENNAS TO REMAIN.
- AT&T RRUs: (1) NEW RRUs PER SECTOR WITH (3) SECTORS, FOR A TOTAL OF (3) NEW RRUs; (1) EXISTING RRU PER SECTOR TO BE REUSED, FOR A TOTAL OF (3) EXISTING RRUs.
- (1) NEW A2 MODULE PER SECTOR WITH (3) SECTORS, FOR A TOTAL OF (3) NEW A2 MODULES.
- AT&T SQUID: (1) EXISTING DC-6 SQUID TO REMAIN.

SITE ADDRESS:	103 GREAT HOLLOW ROAD WOODBURY, CT 06798
LATITUDE: LONGITUDE:	41.5219981 41° 31' 19.19316"N -73.2207350 -73° 13' 14.646"W
USID:	71303
TOWER OWNER:	CROWN CASTLE 876380
TYPE OF SITE:	MONOPOLE/INDOOR EQUIPMENT
MONOPOLE HEIGHT:	139'-0"±
RAD CENTER:	139'-0"±
CURRENT USE:	UNMANNED WIRELESS TELECOMMUNICATIONS FACILITY
PROPOSED USE:	UNMANNED WIRELESS TELECOMMUNICATIONS FACILITY

DRAWING INDEX

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T-1	TITLE SHEET	0
GN-1	GROUNDING & GENERAL NOTES	0
A-1	COMPOUND LAYOUT	0
A-2	EQUIPMENT LAYOUT	0
A-3	ANTENNA LAYOUTS & ELEVATIONS	0
A-4	DETAILS	0
G-1	GROUNDING, ONE-LINE DIAGRAM & DETAILS	0

APPROVALS

THE FOLLOWING PARTIES HEREBY APPROVE AND ACCEPT THESE DOCUMENTS AND AUTHORIZE THE SUBCONTRACTOR TO PROCEED WITH THE CONSTRUCTION DESCRIBED HEREIN, ALL DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT AMD MAY IMPOSE CHANGES OR SITE MODIFICATIONS.

DISCIPLINE:	NAME:	
SITE ACQUISITION:		
CONSTRUCTION MANAGER:		
AT&T PROJECT MANAGER:		

at&t MOBILITY

FA CODE: 10035444
SITE NUMBER: CT2066
SITE NAME:
WOODBURY CT GREAT HOLLOW ROAD

VICINITY MAP

1. HEAD NORTHEAST ON ENTERPRISE DR TOWARD CAPITAL BLVD (0.3 MI). 2. TURN LEFT ONTO CAPITAL BLVD (0.2 MI). 3. USE THE LEFT 2 LANES TO TURN LEFT ONTO STATE HWY 411 (0.3 MI). 4. TURN LEFT TO MERGE ONTO I-91 S (0.3 MI). 5. MERGE ONTO I-91 S (8.8 MI). 6. TAKE EXIT 18 FOR I-691 W TOWARD MERIDEN/WATERBURY (0.2 MI). 7. CONTINUE ONTO I-691 W (7.7 MI). 8. USE THE LEFT 2 LANES TO TAKE EXIT 1 FOR I-84 W TOWARD WATERBURY/DANBURY (1.0 MI). 9. MERGE ONTO I-84 (9.5 MI). 10. TAKE EXIT 17 FOR CT-64 TOWARD CT-63/MIDDLEBURY/WATERTOWN (0.2 MI). 11. CONTINUE ON CT-64 W. DRIVE TO GREAT HOLLOW RD IN WOODBURY (10.4 MI). 12. CONTINUE TO FOLLOW CT-64 W 3.4 MI). 13. TURN RIGHT TO STAY ON CT-64 W (4.2 MI). 14. TURN RIGHT ONTO US-6 E/MAIN ST S (0.6 MI). 15. TURN LEFT ONTO HOLLOW RD (0.2 MI). 16. CONTINUE ONTO CT-317 W (0.4 MI). 17. TURN LEFT ONTO BEAR HILL RD (0.3 MI). 18. TURN LEFT ONTO GREAT HOLLOW RD (1.1 MI).

PROJECT TEAM

CLIENT REPRESENTATIVE
COMPANY: EMPIRE TELECOM
ADDRESS: 16 ESQUIRE ROAD, BILLERICA, MA 01821
CONTACT: DAVID COOPER
PHONE: 617-639-4908
EMAIL: dcooper@empiretelecomm.com

SITE ACQUISITION:
COMPANY: EMPIRE TELECOM
ADDRESS: 16 ESQUIRE ROAD, BILLERICA, MA 01821
CONTACT: DAVID COOPER
PHONE: 617-639-4908
EMAIL: dcooper@empiretelecomm.com

COMPANY: EMPIRE TELECOM
ADDRESS: 16 ESQUIRE ROAD, BILLERICA, MA 01821
CONTACT: DAVID COOPER
PHONE: 617-639-4908
EMAIL: dcooper@empiretelecomm.com

ENGINEERING:
COMPANY: COM-EX CONSULTANTS, LLC
ADDRESS: 115 ROUTE 46, SUITE E39, MOUNTAIN LAKES, NJ 07046
CONTACT: NICHOLAS D. BARILE, P.E.
PHONE: 862-209-4300
EMAIL: nbarile@comexconsultants.com

RF ENGINEER:
COMPANY: AT&T MOBILITY - NEW ENGLAND
ADDRESS: 550 COCHITUATE ROAD, SUITE 550 13 & 14, FRAMINGHAM, MA 01701
CONTACT: CAMERON SYME
PHONE: 508-596-7146
EMAIL: cs6970@att.com

CONSTRUCTION MANAGEMENT:
COMPANY: EMPIRE TELECOM
ADDRESS: 16 ESQUIRE ROAD, BILLERICA, MA 01821
CONTACT: GRZEGORZ "GREG" DORMAN
PHONE: 484-683-1750
EMAIL: gdorman@empiretelecomm.com

GENERAL NOTES

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY, AND COPYRIGHTED WORK OF AT&T. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.

2. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.

3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE AT&T REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

CONNECTICUT ONE CALL SYSTEM, INC. 1-800-922-4455 STOP · CALL BEFORE YOU DIG!

CONNECTICUT LAW REQUIRES TWO WORKING DAYS NOTICE PRIOR TO ANY EARTH MOVING ACTIVITIES BY CALLING 800-922-4455 OR DIAL 811

COM-EX Consultants
115 ROUTE 46
SUITE E39
MOUNTAIN LAKES, NJ 07046
PHONE: 862.209.4300
FAX: 862.209.4301

EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01821

SITE NUMBER: CT2066
SITE NAME: WOODBURY CT GREAT HOLLOW RD
103 GREAT HOLLOW ROAD
WOODBURY, CT 06798
LITCHFIELD COUNTY

at&t MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	02/08/16	ISSUED AS FINAL	CJT	NDB	NDB

SCALE: AS SHOWN | DESIGNED BY: NJM | DRAWN BY: CJT

SEAL: STATE OF CONNECTICUT · NICHOLAS D. BARILE · REGISTERED PROFESSIONAL ENGINEER · 28643

AT&T

DRAWING TITLE: TITLE SHEET

JOB NUMBER	DRAWING NUMBER	REV
15121-EMP	T-1	0

GROUNDING NOTES:

1. THE SUBCONTRACTOR 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 SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.

2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.

3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS. TESTS SHALL BE PERFORMED IN ACCORDANCE WITH 25471-000-3PS-EG00-0001, DESIGN & TESTING OF FACILITY GROUNDING FOR CELL SITES.

4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.

5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS; 2 AWG STRANDED COPPER FOR OUTDOOR BTS.

6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.

7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.

8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED WITH STAINLESS STEEL HARDWARE TO THE BRIDGE AND THE TOWER GROUND BAR.

9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.

10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.

11. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.

12. 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.

13. ALL TOWER GROUNDING SYSTEMS SHALL COMPLY WITH THE REQUIREMENTS OF ANSI/TIA 222. FOR TOWERS BEING BUILT TO REV-G OF THE STANDARD, THE WIRE SIZE OF THE BURIED GROUND RING AND CONNECTIONS BETWEEN THE TOWER AND THE BURIED GROUND RING SHALL BE CHANGED FROM 2 AWG TO 2/0 AWG. IN ADDITION, THE MINIMUM LENGTH OF THE GROUND RODS SHALL BE INCREASED FROM EIGHT FEET (8') TO TEN FEET (10').

14. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE ½" OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID TINNED COPPER GROUND WIRE, PER NEC 250.50.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
   CONTRACTOR – EMPIRE TELECOM
   SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – AT&T MOBILITY
   OEM – ORIGINAL EQUIPMENT MANUFACTURER

2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR 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 CONTRACTOR (EMPIRE TELECOM).

3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.

5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

6. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

7. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.

8. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR. ROUTING OF TRENCHING SHALL BE APPROVED BY CONTRACTOR

9. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.

10. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OFF 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.

11. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

12. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

13. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS UNLESS OTHERWISE SPECIFIED. ALL CONCRETING WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.

14. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy=36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCH UP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.

15. CONSTRUCTION SHALL COMPLY WITH SPECIFICATION 25741-000-3APS-A00Z-00002, "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T MOBILITY SITES."

16. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.

17. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK MAY NEED TO BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.

18. SINCE THE CELL SITE MAY BE 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 REQUIRED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

19. SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.
   - INTERNATIONAL BUILDING CODE: IBC 2009 WITH LOCAL & COUNTY AMENDMENTS
   - NATIONAL ELECTRICAL CODE: NEC 2011 WITH LOCAL & COUNTY AMENDMENTS
   - FIRE/LIFE SAFETY CODE: NFPA-101 2009 WITH LOCAL & COUNTY AMENDMENTS

20. SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:
   - AMERICAN CONCRETE INSTITUTE (ACI) 318, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
   - AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC), MANUAL OF STEEL CONSTRUCTION, THIRTEENTH EDITION
   - AMERICAN SOCIETY OF TESTING OF MATERIALS, ASTM
   - TELECOMMUNICATIONS INDUSTRY ASSOCIATION (ANSI/TIA-222-G-1), STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES:
   - TIA 607, COMMERCIAL BUILDING GROUNDING AND BONDING REQUIREMENTS FOR TELECOMMUNICATIONS
   - OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION, OSHA
   - INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE) 81, GUIDE FOR MEASURING EARTH RESISTIVELY, GROUND IMPEDANCE, AND EARTH SURFACE POTENTIALS OF A GROUND SYSTEM IEEE 1100 (1999) RECOMMENDED PRACTICE FOR POWERING AND GROUNDING OF ELECTRONIC EQUIPMENT
   - TELCORDIA GR-1503, COAXIAL CABLE CONNECTIONS

21. FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

22. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES AND EXISTING CONDITIONS AT THE SITE PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA AND SUBMIT TO THE ENGINEER ANY DISCREPANCIES FROM THE DRAWINGS.

23. INFORMATION SHOWN ON THIS SET OF PLANS TAKEN FROM DRAWINGS PREPARED BY CENTEK ENGINEERING FOR A RECENT UPGRADE DATED 11/26/2012. CONTRACTOR TO NOTIFY DESIGN ENGINEER OF ANY DISCREPANCIES PRIOR TO COMMENCEMENT OF CONSTRUCTION.

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16 ESQUIRE ROAD
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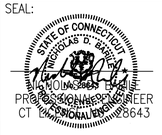
SITE NUMBER: CT2066
SITE NAME: WOODBURY CT GREAT HOLLOW RD

103 GREAT HOLLOW ROAD
WOODBURY, CT 06798
LITCHFIELD COUNTY

at&t MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	02/08/16	ISSUED AS FINAL	CJT	NDB	NDB

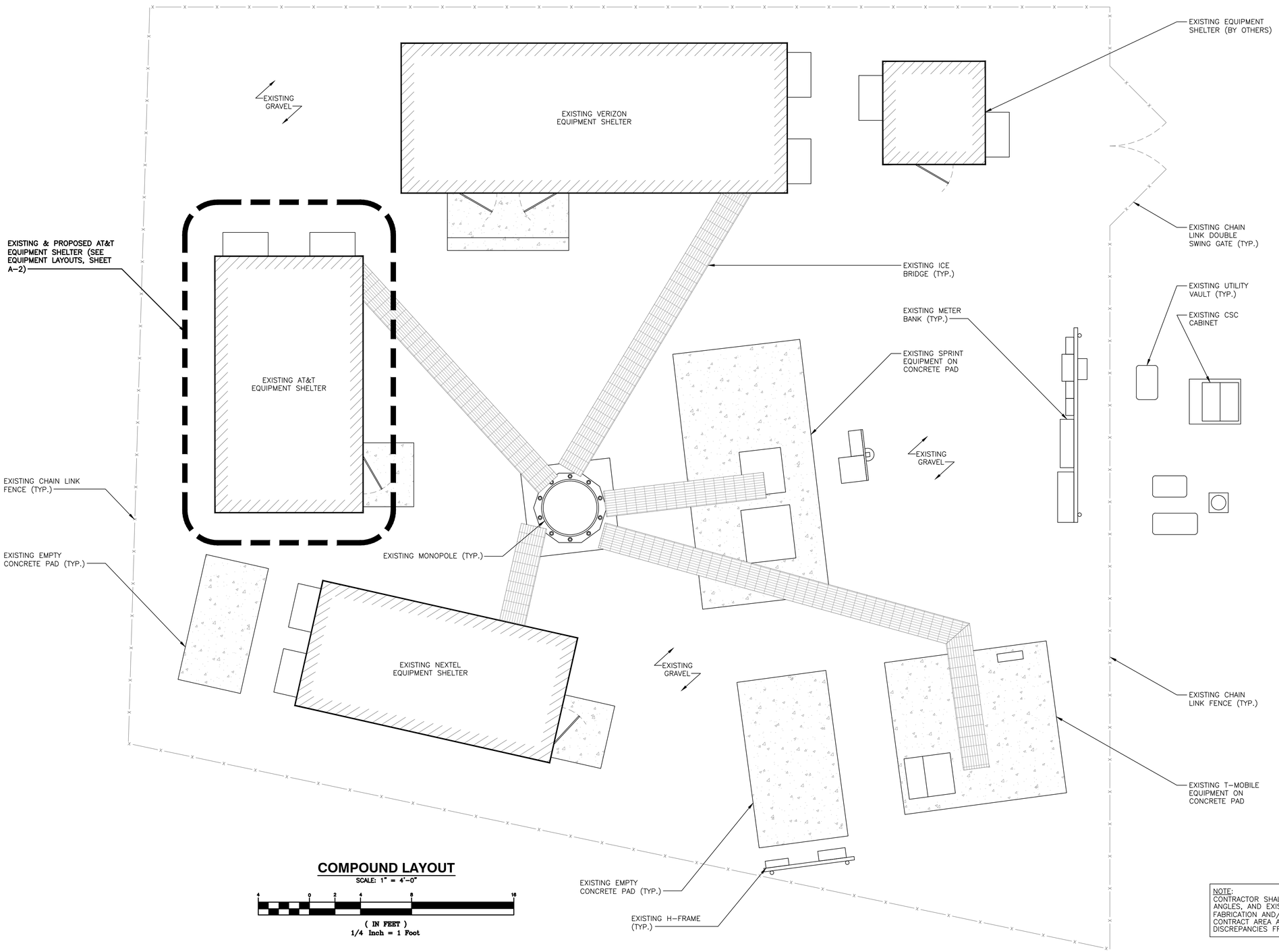
SCALE: AS SHOWN | DESIGNED BY: NJM | DRAWN BY: CJT

SEAL:


AT&T

DRAWING TITLE:
GROUNDING & GENERAL NOTES

JOB NUMBER	DRAWING NUMBER	REV
15121-EMP	GN-1	0



NOTE:
CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES, AND EXISTING CONDITIONS AT THE SITE PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA AND SUBMIT TO THE ENGINEER ANY DISCREPANCIES FROM THE DRAWINGS.

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0	02/08/16	ISSUED AS FINAL	CJT	NDB	NDB

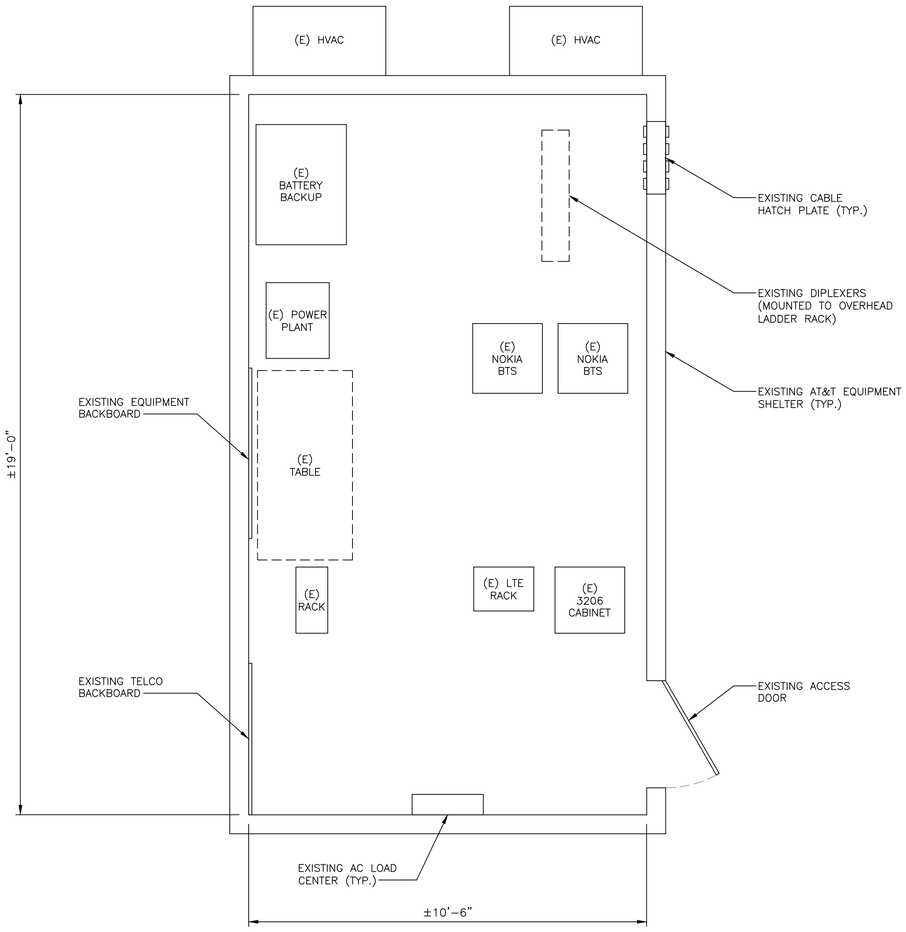
SCALE: AS SHOWN | DESIGNED BY: NJM | DRAWN BY: CJT

SEAL:
STATE OF CONNECTICUT
NICHOLAS D. BOLDISSAR
LICENSED
PROFESSIONAL ENGINEER
CT PROFESSIONAL ENGINEER LICENSE NO. 28643

AT&T

DRAWING TITLE:
COMPOUND LAYOUT

JOB NUMBER	DRAWING NUMBER	REV
15121-EMP	A-1	0



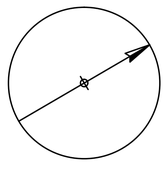
EXISTING EQUIPMENT LAYOUT

SCALE: 1/2" = 1'-0"

2 0 1 2 4 8

(IN FEET)
1/2 Inch = 1 Foot

NOTE:
NO MODIFICATIONS TO THE EXISTING GROUND LEVEL EQUIPMENT CONFIGURATION ARE PROPOSED AS PART OF THIS UPGRADE. EXISTING GROUND LEVEL EQUIPMENT TO REMAIN UNCHANGED.



NORTH

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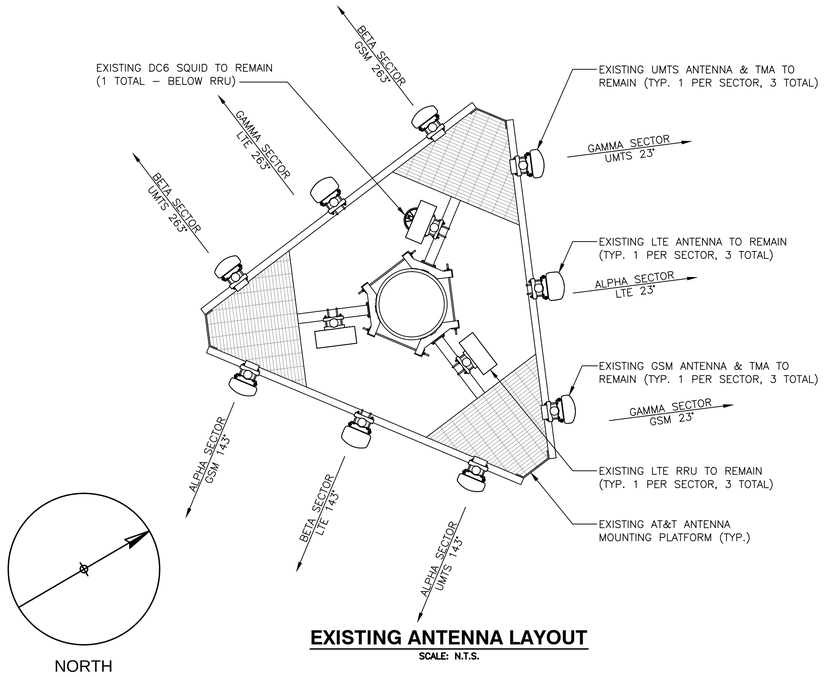
SCALE: AS SHOWN | DESIGNED BY: NJM | DRAWN BY: CJT

SEAL:
STATE OF CONNECTICUT
THOMAS B. WARD
PROFESSIONAL ENGINEER
CT LICENSE NO. 28643

AT&T

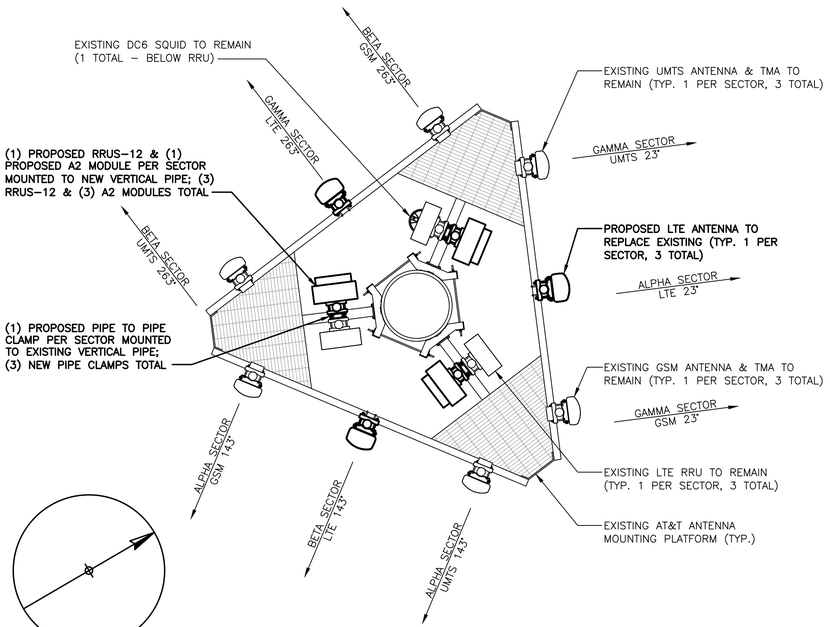
DRAWING TITLE:
EQUIPMENT LAYOUT

JOB NUMBER	DRAWING NUMBER	REV
15121-EMP	A-2	0



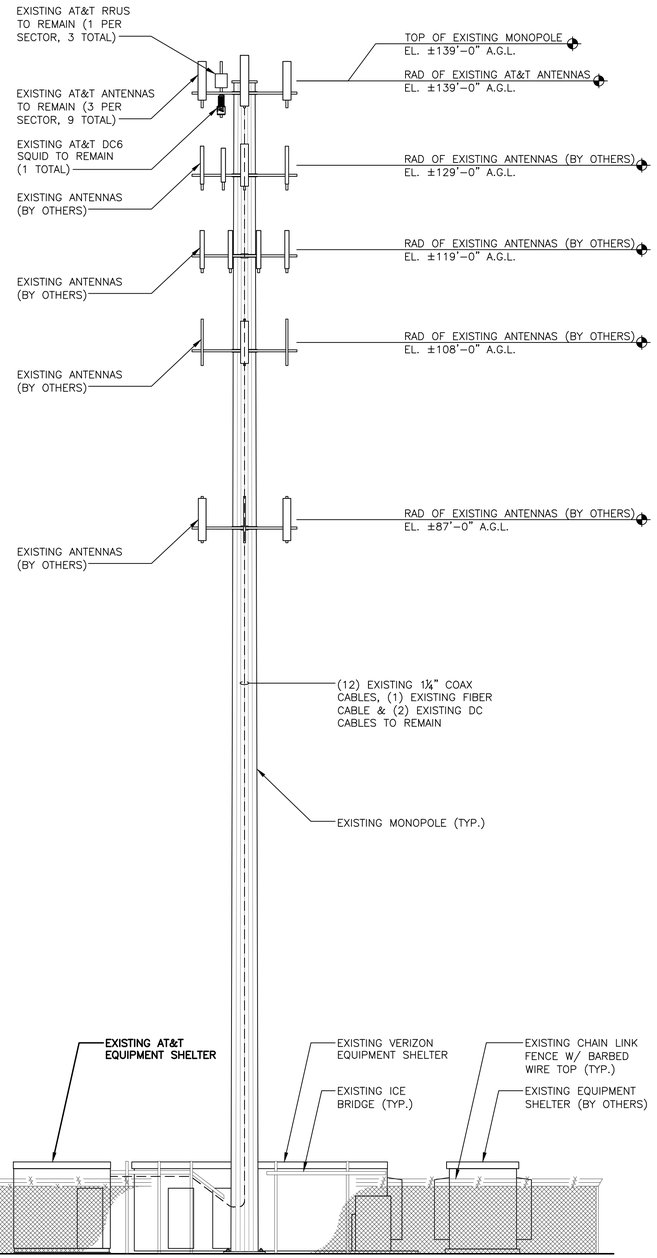
EXISTING ANTENNA LAYOUT

SCALE: N.T.S.



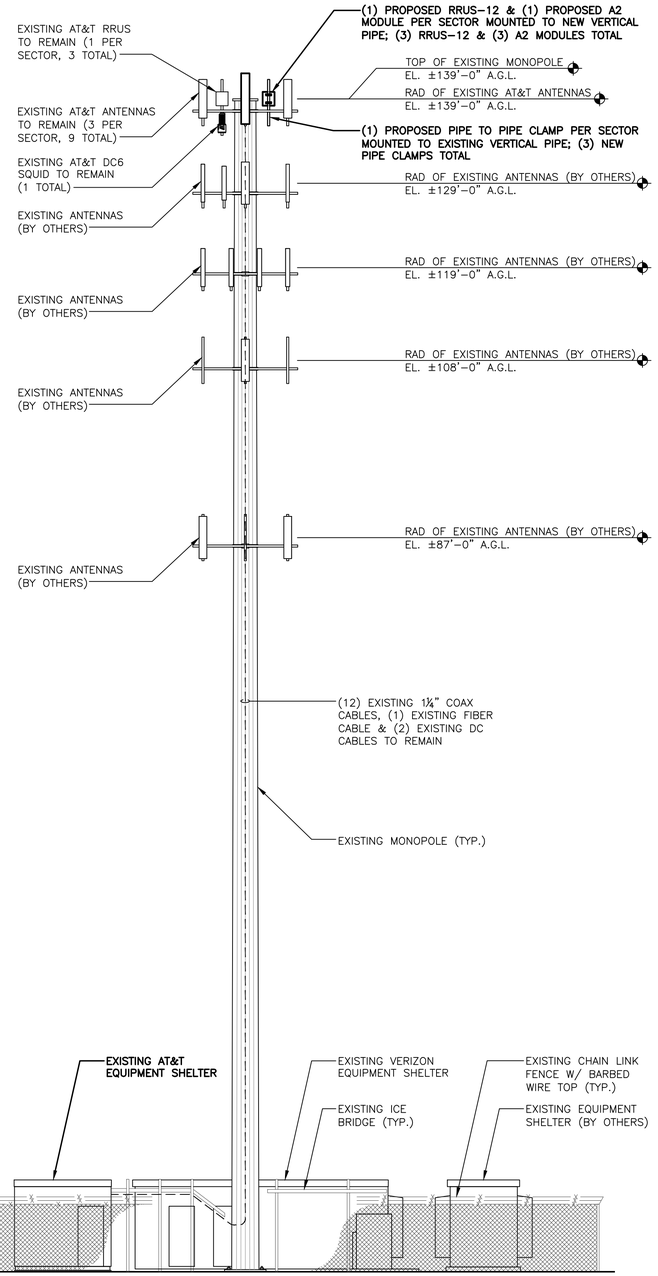
PROPOSED ANTENNA LAYOUT

SCALE: N.T.S.



EXISTING TOWER ELEVATION

SCALE: NTS



PROPOSED TOWER ELEVATION

SCALE: NTS

PROJECT OWNER IS RESPONSIBLE FOR PROVIDING A STRUCTURAL STABILITY ANALYSIS TO DETERMINE THE CAPACITY AND SUITABILITY OF THE EXISTING ANTENNA SUPPORT STRUCTURE TO SAFELY CARRY ALL ADDITIONAL LOADS IMPOSED BY THE PROPOSED EQUIPMENT AS SHOWN HEREIN. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR INCORPORATING ANY REQUIRED STRUCTURAL MODIFICATIONS INTO THEIR SCOPE OF WORK.

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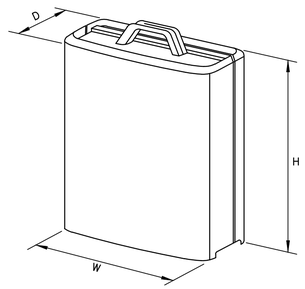
SCALE: AS SHOWN | DESIGNED BY: NJM | DRAWN BY: CJT

SEAL:

AT&T

DRAWING TITLE:
ANTENNA LAYOUTS & ELEVATIONS

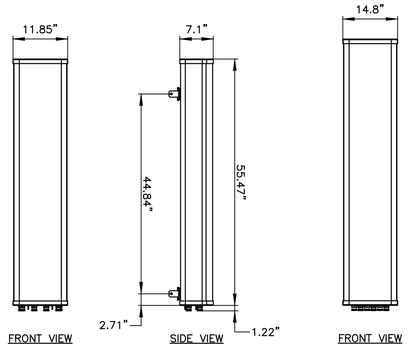
JOB NUMBER	DRAWING NUMBER	REV
15121–EMP	A–3	0



MODEL	L x W x H	WEIGHT
*RRUS-11	19.69" x 16.97" x 7.17"	50.7 LBS
RRUS-12	20.4"x18.5"x7.5"	58 LBS

*DENOTES EXISTING.

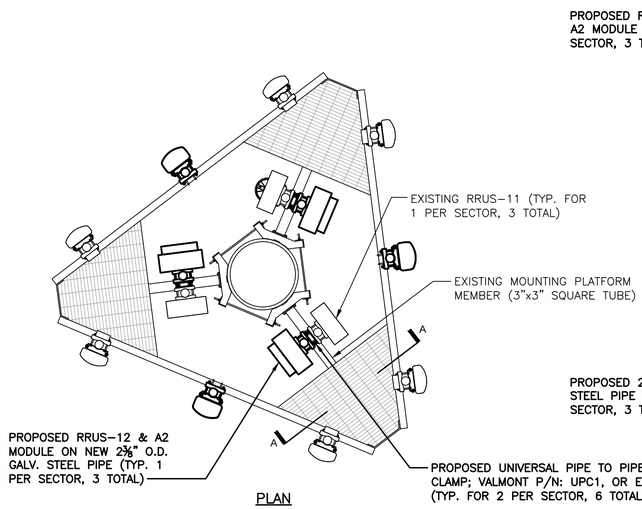
RRUS DETAIL
SCALE: N.T.S.

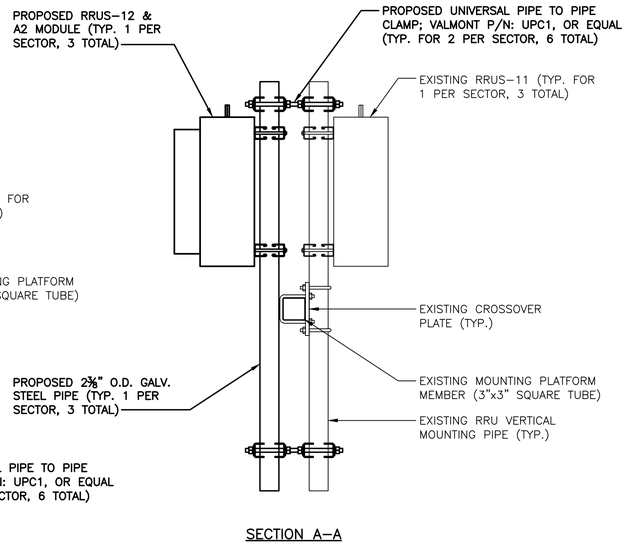


MANUFACTURER	ANDREW
MODEL	SBNHH-1D65A
WEIGHT	33.5 LBS

MANUFACTURER	CCI
MODEL	HPA-65R-BUU-H6
WEIGHT	51.0 LBS

ANTENNA DETAIL
SCALE: N.T.S.





RRU MOUNTING DETAIL
SCALE: N.T.S.

EXISTING ANTENNA SCHEDULE

SECTOR	POSITION	MAKE	MODEL	SIZE (INCHES)
ALPHA	A1	POWERWAVE	7770	55"x11"x5"
	A2	–	–	–
	A3	KMW	AM-X-CD-16-65-00T-RET	72"x11.8"x5.9"
	A4	POWERWAVE	7770	55"x11"x5"
BETA	B1	POWERWAVE	7770	55"x11"x5"
	B2	–	–	–
	B3	KATHREIN	800-10764	55.2"x11.8"x6"
	B4	POWERWAVE	7770	55"x11"x5"
GAMMA	G1	POWERWAVE	7770	55"x11"x5"
	G2	–	–	–
	G3	KMW	AM-X-CD-14-65-00T-RET	48"x11.8"x5.9"
	G4	POWERWAVE	7770	55"x11"x5"

FINAL ANTENNA SCHEDULE

SECTOR	POSITION	MAKE	MODEL	SIZE (INCHES)
ALPHA	A1	POWERWAVE	7770	55"x11"x5"
	A2	–	–	–
	A3	**CCI**	**HPA-65R-BUU-H6**	**72"x14.8"x9"**
	A4	POWERWAVE	7770	55"x11"x5"
BETA	B1	POWERWAVE	7770	55"x11"x5"
	B2	–	–	–
	B3	**POWERWAVE**	**SBNHH-1D65A**	**55"X11.9"X7.1"**
	B4	POWERWAVE	7770	55"x11"x5"
GAMMA	G1	POWERWAVE	7770	55"x11"x5"
	G2	–	–	–
	G3	**POWERWAVE**	**SBNHH-1D65A**	**55"X11.9"X7.1"**
	G4	POWERWAVE	7770	55"x11"x5"

PROPOSED RRU SCHEDULE

SECTOR	MAKE	MODEL	SIZE (INCHES)	ADDITIONAL COMPONENT	SIZE (INCHES)
ALPHA	**ERICSSON**	**RRUS-12**	**20.4"x18.5"x9.5"**	**A2 MODULE**	**16.4"x15.2"x3.4"**
	ERICSSON	RRUS-11 (EXISTING)	19.7"x16.9"x7.2"	–	–
BETA	**ERICSSON**	**RRUS-12**	**20.4"x18.5"x9.5"**	**A2 MODULE**	**16.4"x15.2"x3.4"**
	ERICSSON	RRUS-11 (EXISTING)	19.7"x16.9"x7.2"	–	–
GAMMA	**ERICSSON**	**RRUS-12**	**20.4"x18.5"x9.5"**	**A2 MODULE**	**16.4"x15.2"x3.4"**
	ERICSSON	RRUS-11 (EXISTING)	19.7"x16.9"x7.2"	–	–

PROJECT OWNER IS RESPONSIBLE FOR PROVIDING A STRUCTURAL STABILITY ANALYSIS TO DETERMINE THE CAPACITY AND SUITABILITY OF THE EXISTING ANTENNA SUPPORT STRUCTURE TO SAFELY CARRY ALL ADDITIONAL LOADS IMPOSED BY THE PROPOSED EQUIPMENT AS SHOWN HEREIN. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR INCORPORATING ANY REQUIRED STRUCTURAL MODIFICATIONS INTO THEIR SCOPE OF WORK.

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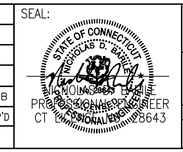
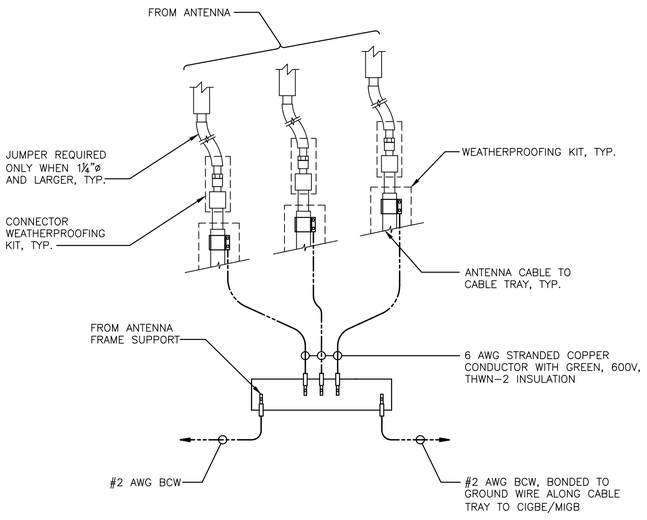
SCALE: AS SHOWN | DESIGNED BY: NJM | DRAWN BY: CJT

SEAL:


AT&T

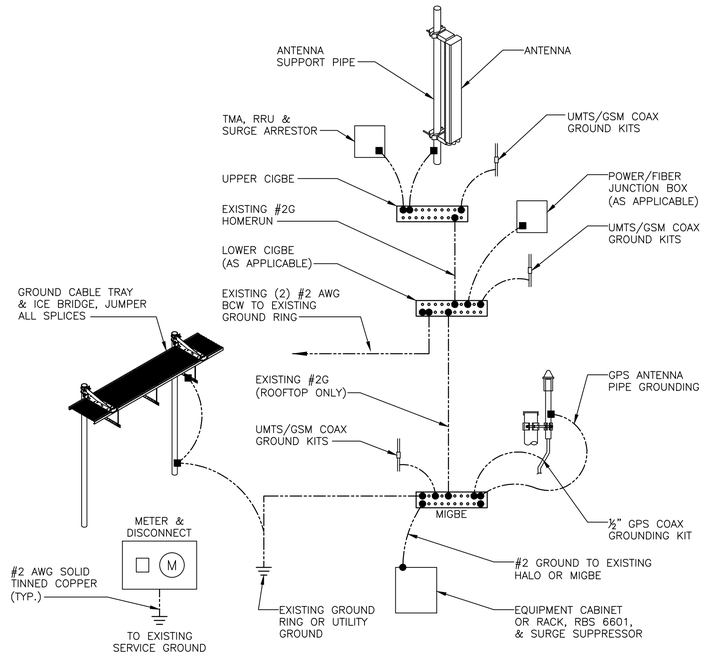
DRAWING TITLE: DETAILS

JOB NUMBER	DRAWING NUMBER	REV
15121-EMP	A-4	0



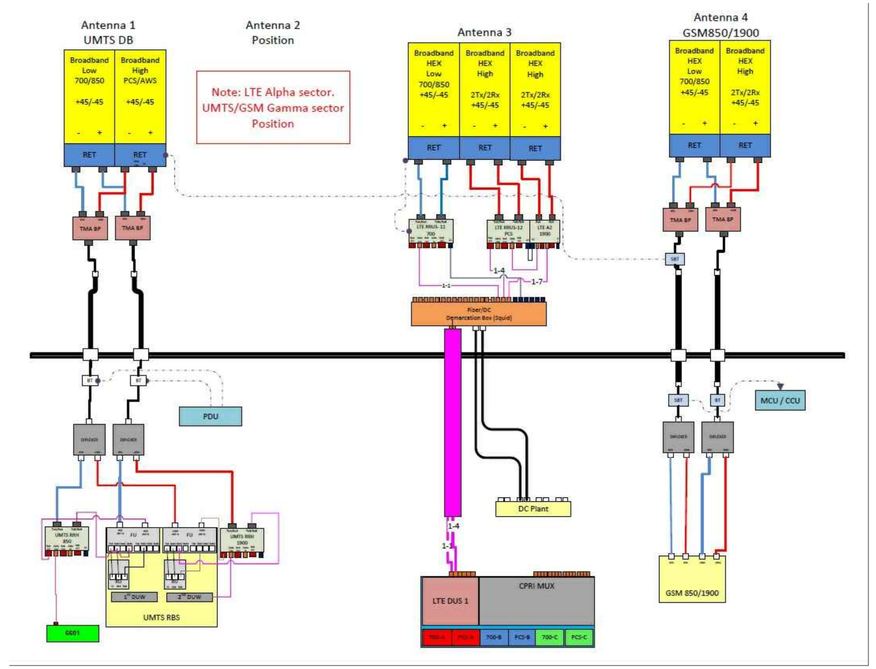
GROUND WIRE TO GROUND BAR CONNECTION DETAIL

SCALE: N.T.S.



GROUNDING RISER DIAGRAM

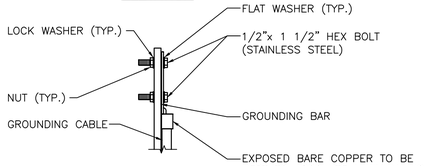
SCALE: N.T.S.



TYPICAL PLUMBING DIAGRAM (PER SECTOR)

SCALE: N.T.S.

ELEVATION



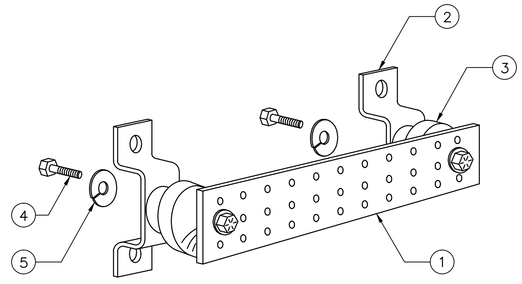
SECTION "A–A"

NOTE:

1. "DOUBLING UP" OR "STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB.

TYPICAL GROUND BAR CONNECTION DETAIL

SCALE: N.T.S.



ITEM NO.	QTY.	DESCRIPTION
1	1	SOLID GROUND BAR (20"x 4"x ¼")
2	2	WALL MOUNTING BRACKET
3	2	INSULATORS
4	4	⅝"–11x1" H.H.C.S.
5	4	⅝" LOCK WASHER

NOTES:

EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION

SECTION "P" – SURGE PRODUCERS
- CABLE ENTRY PORTS (HATCH PLATES) (#2)
- GENERATOR FRAMEWORK (IF AVAILABLE) (#2)
- TELCO GROUND BAR
- COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2)
- +24V POWER SUPPLY RETURN BAR (#2)
- –48V POWER SUPPLY RETURN BAR (#2)
- RECTIFIER FRAMES

SECTION "A" – SURGE ABSORBERS
- INTERIOR GROUND RING (#2)
- EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2)
- METALLIC COLD WATER PIPE (IF AVAILABLE) (#2)
- BUILDING STEEL (IF AVAILABLE) (#2)

GROUND BAR DETAIL

SCALE: N.T.S.

COM-EX Consultants
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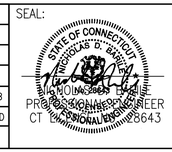
SCALE: AS SHOWN | DESIGNED BY: NJM | DRAWN BY: CJT

SEAL:



AT&T

DRAWING TITLE: GROUNDING, ONE–LINE DIAGRAM & DETAILS

JOB NUMBER	DRAWING NUMBER	REV
15121–EMP	G–1	0

Date: **January 26, 2016**

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

Velocitel, Inc. d.b.a. FDH Velocitel
6521 Meridien Drive, Suite 107
Raleigh, North Carolina 27616
9197551012

Subject: Structural Analysis Report

Carrier Designation:	***AT&T Mobility* Co-Locate**	
	Carrier Site Number:	CT2066
	Carrier Site Name:	Woodbury Ct Great Hollow Rd
Crown Castle Designation:	**Crown Castle BU Number:**	876380
	Crown Castle Site Name:	O&G WOODBURY
	Crown Castle JDE Job Number:	363012
	Crown Castle Work Order Number:	1181261
	Crown Castle Application Number:	322059 Rev. 2
Engineering Firm Designation:	**FDH Velocitel Project Number:**	16BBJO1400
Site Data:	**Great Hollow Road, WOODBURY, Litchfield County, CT** **Latitude *41° 31' 19.2"*, Longitude *-73° 13' 15.6"*** **138.5 Foot - Monopole Tower**	

Dear Sean Dempsey,

FDH Velocitel 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 865465, in accordance with application 322059, revision 2.

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

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

The analysis has been performed in accordance with the TIA/EIA-222-F standard and 2005 CT State Building Code based upon a wind speed of 80 mph fastest mile.

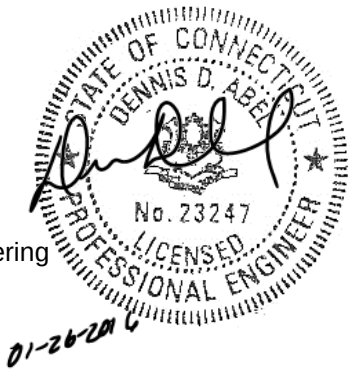
We at *FDH Velocitel* appreciate the opportunity of providing our continuing professional services to you and Crown Castle. If you have any questions or need further assistance on this or any other projects please give us a call.

Respectfully submitted by:

Trace Allard, EI
Project Engineer

Reviewed by:

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



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1) INTRODUCTION

This tower is a 138.5 ft Monopole tower designed by ENGINEERED ENDEAVORS, INC. in April of 2003. The tower was originally designed for a wind speed of 85 mph per TIA/EIA-222-F. The tower was originally designed to be 150-ft but was only constructed to a height of 139 ft. The tower has been modified multiple times in the past to accommodate additional loading. The tower was modified per reinforcement drawings prepared by Semaan Engineering Solutions, Inc. in November of 2005. Reinforcement consists of base plate stiffeners. The tower was modified again per reinforcement drawings prepared by GPD Group in December of 2011. Reinforcement consists of additional anchor rods.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a fastest mile wind speed of 80 mph with no ice, 28 mph with 1 inch ice thickness and 50 mph under service loads.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
138.0	139.0	1	cci antennas	HPA-65R-BUU-H6	-	-	-
		2	andrew	SBNHH-1D65A			
		3	ericsson	RRUS 12			
		3	ericsson	RRUS A2			

Table 2 - Existing and Reserved Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
138.0	148.0	1	dbspectra	DS9A09F36D-N	1	1/2	3
	139.0	6	powerwave tech.	TT19-08BP111-001			
		6	powerwave tech.	LGP21901			
		3	ericsson	RRUS 11			
		1	kathrein	800 10764			
		1	kmw comm.	AM-X-CD-14-65-00T-RET			
		1	kmw comm.	AM-X-CD-16-65-00T-RET			
		6	powerwave technologies	LGP2140X			
		12	powerwave tech.	7020.00	12 1 2	1-1/4 3/8 7/16	1
		6	powerwave technologies	7770.00			
		6	powerwave tech.	TT19-08BP111-001			
		1	raycap	DC6-48-60-18-8F			
	138.0	1	crown mounts	Platform Mount [LP 303-1]			
137.0	140.0	3	ericsson	TME-RRUS-11	-	-	1
	137.0	1	crown mounts	Side Arm Mount [SO 102-3]			
136.0	148.0	1	telewave	ANT150F6	1	1-1/4	1
	136.0	1	crown mounts	Pipe Mount [PM 601-1]			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
129.0	129.0	3	alcatel lucent	RRH2X60-AWS	1	1-5/8	2
		6	andrew	HBXX-6517DS-A2M			
		3	andrew	LNX-8513DS-A1M			
		1	rfs celwave	DB-B1-6C-12AB-0Z			
		3	antel	BXA-70063/6CF-2	18	1-5/8	1
		1	crown mounts	Platform Mount [LP 304-1]			
119.0	119.0	12	decibel	DB846G90A-XY	12	1-5/8	3
		1	crown mounts	Platform Mount [LP 304-1]			
105.0	105.0	3	alcatel lucent	TME-1900MHz RRH (65MHz)	-	-	1
		1	crown mounts	Side Arm Mount [SO 102-3]			
104.0	108.0	3	rfs celwave	APXVSPP18-C-A20	3	1-1/4	1
	104.0	3	alcatel lucent	800 EXTERNAL NOTCH FILTER			
		3	alcatel lucent	800MHZ RRH			
		9	rfs celwave	ACU-A20-N			
		1	crown mounts	Platform Mount [LP 712-1]			
		1	crown mounts	Miscellaneous [NA 507-1]			
87.0	87.0	3	commscope	LNX-6515DS-VTM	-	-	2
		3	commscope	ATBT-BOTTOM-24V			
		3	andrew	ETM19V2S12UB	12	1-5/8	1
		3	rfs celwave	APXV18-209014-C			
		1	crown mounts	Platform Mount [LP 305-1]			
70.0	71.0	1	lucent	KS24019-L112A	1	1/2	1
	70.0	1	crown mounts	Side Arm Mount [SO 701-1]			

Notes:
1) Existing Equipment
2) Reserved Equipment
3) Equipment To Be Removed; Not Considered In Analysis

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
150	150	12	decibel	DB980F90	-	-
140	140	12	decibel	DB980F90	-	-
130	130	12	decibel	DB980F90	-	-
120	120	12	decibel	DB980F90	-	-
109	109	12	decibel	DB980F90	-	-
100	100	12	decibel	DB980F90	-	-

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Clarence Welti Assoc, Inc.	1531967	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Engineered Endeavors, Inc.	2122534	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Engineered Endeavors, Inc.	1533002	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	Semaan Engineering Solutions	2055776	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	GPD Group	3030835	CCISITES
4-POST-INSTALLATION INSPECTION	GPD Group	3420974	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.
5) Tower dimensions for elevation 108.5' to 138.5' was taken from Crown Castle Structural Analysis Report dated March 19, 2013 (Project No. 587330).

This analysis may be affected if any assumptions are not valid or have been made in error. FDH Velocitel 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	138.5 - 108.5	Pole	TP24.5x17.375x0.1875	1	-5.71	752.20	73.0	Pass
L2	108.5 - 83.75	Pole	TP31.88x24.5x0.25	2	-10.03	1249.44	73.5	Pass
L3	83.75 - 43	Pole	TP43.42x30.0382x0.3125	3	-18.52	2131.32	74.3	Pass
L4	43 - 0	Pole	TP55.5x41.0206x0.3125	4	-29.83	2629.01	82.7	Pass
							Summary	
						Pole (L4)	82.7	Pass
						RATING =	82.7	Pass

Table 6 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	58.6	Pass
1	Base Plate	0	84.2	Pass
1	Base Plate Stiffeners	0	86.5	Pass
1	Base Foundation	0	55.8	Pass
1	Base Foundation Soil Interaction	0	65.3	Pass
1	Flange Bolts	108.5	41.5	Pass
1	Flange Plate	108.5	28.9	Pass

Structure Rating (max from all components) =	86.5%

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

4.1) Recommendations

The tower and foundation have sufficient capacity to carry the existing, reserved, and proposed loading. In order for the results of this analysis to be considered valid the loading modification listed below must be completed.

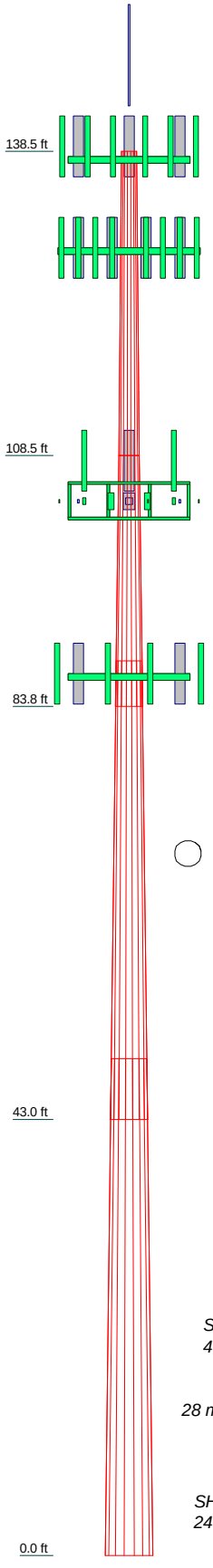
Loading Changes:

1.) All loading and mounts at the elevation of 119’ have been removed.

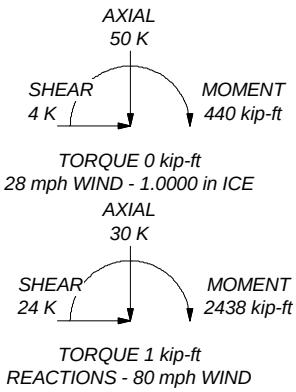
No structural modifications are required at this time, provided that the above listed changes are implemented.

APPENDIX A

TNXTOWER OUTPUT



Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	30.00	18	0.1875		17.3750	24.5000		1.3
2	24.75	18	0.2500	4.50	24.5000	31.8800		1.9
3	45.25	18	0.3125	6.00	30.0382	43.4200	A572-65	5.6
4	49.00	18	0.3125		41.0206	55.5000		7.9



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
HPA-65R-BUU-H6 w/ Mount Pipe	138	RRH2X60-AWS	129
SBNHH-1D65A w/ Mount Pipe	138	Platform Mount [LP 304-1]	129
SBNHH-1D65A w/ Mount Pipe	138	TME-1900MHz RRH (65MHz)	105
RRUS 12	138	TME-1900MHz RRH (65MHz)	105
RRUS 12	138	TME-1900MHz RRH (65MHz)	105
RRUS 12	138	Side Arm Mount [SO 102-3]	105
RRUS A2	138	APXVSPP18-C-A20 w/ Mount Pipe	104
RRUS A2	138	APXVSPP18-C-A20 w/ Mount Pipe	104
RRUS A2	138	APXVSPP18-C-A20 w/ Mount Pipe	104
DC6-48-60-18-8F	138	(3) ACU-A20-N	104
(4) 7020.00	138	(3) ACU-A20-N	104
(4) 7020.00	138	(3) ACU-A20-N	104
(4) 7020.00	138	800 EXTERNAL NOTCH FILTER	104
(2) TT19-08BP111-001	138	800 EXTERNAL NOTCH FILTER	104
(2) TT19-08BP111-001	138	800 EXTERNAL NOTCH FILTER	104
(2) TT19-08BP111-001	138	800MHZ RRH	104
(2) 7770.00 w/ Mount Pipe	138	800MHZ RRH	104
(2) 7770.00 w/ Mount Pipe	138	800MHZ RRH	104
(2) 7770.00 w/ Mount Pipe	138	Platform Mount [LP 712-1]	104
Platform Mount [LP 303-1]	138	Miscellaneous [NA 507-1]	104
TME-RRUS-11	137	LNX-6515DS-VTM w/ Mount Pipe	87
TME-RRUS-11	137	LNX-6515DS-VTM w/ Mount Pipe	87
TME-RRUS-11	137	LNX-6515DS-VTM w/ Mount Pipe	87
Side Arm Mount [SO 102-3]	137	ATBT-BOTTOM-24V	87
ANT150F6	136	ATBT-BOTTOM-24V	87
Pipe Mount [PM 601-1]	136	ATBT-BOTTOM-24V	87
BXA-70063/6CF-2 W/Mount Pipe	129	ETM19V2S12UB	87
BXA-70063/6CF-2 W/Mount Pipe	129	ETM19V2S12UB	87
BXA-70063/6CF-2 W/Mount Pipe	129	ETM19V2S12UB	87
(2) HBXX-6517DS-A2M w/ Mount Pipe	129	APXV18-209014-C w/ Mount Pipe	87
(2) HBXX-6517DS-A2M w/ Mount Pipe	129	APXV18-209014-C w/ Mount Pipe	87
(2) HBXX-6517DS-A2M w/ Mount Pipe	129	APXV18-209014-C w/ Mount Pipe	87
LNX-8513DS-A1M w/ Mount Pipe	129	Pipe Mount	87
LNX-8513DS-A1M w/ Mount Pipe	129	Pipe Mount	87
LNX-8513DS-A1M w/ Mount Pipe	129	Pipe Mount	87
DB-B1-6C-12AB-0Z	129	Platform Mount [LP 305-1]	87
RRH2X60-AWS	129	KS24019-L112A	70
RRH2X60-AWS	129	Side Arm Mount [SO 701-1]	70

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Litchfield County, Connecticut.
2. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 28 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 82.7%

FDH VELOCITEL
Tower Analysis

FDH Velocitel
6521 Meridien Drive, Suite 107
Raleigh, North Carolina 27616
Phone: 9197551012
FAX: 9197551031

Job: ***876380, O&G WOODBURY***			
Project: ***16BBJO1400***			
Client: Crown Castle	Drawn by: Trace G. Allard	App'd:	
Code: TIA/EIA-222-F	Date: 01/25/16	Scale: NTS	
Path:		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 Litchfield County, Connecticut.
2) Basic wind speed of 80 mph.
3) Nominal ice thickness of 1.0000 in.
4) Ice thickness is considered to increase with height.
5) Ice density of 56 pcf.
6) A wind speed of 28 mph is used in combination with ice.
7) Temperature drop of 50 °F.
8) Deflections calculated using a wind speed of 50 mph.
9) A non-linear (P-delta) analysis was used.
10) Pressures are calculated at each section.
11) Stress ratio used in pole design is 1.333.
12) Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	138.50-108.50	30.00	0.00	18	17.3750	24.5000	0.1875	0.7500	A572-65 (65 ksi)
L2	108.50-83.75	24.75	4.50	18	24.5000	31.8800	0.2500	1.0000	A572-65 (65 ksi)
L3	83.75-43.00	45.25	6.00	18	30.0382	43.4200	0.3125	1.2500	A572-65 (65 ksi)
L4	43.00-0.00	49.00		18	41.0206	55.5000	0.3125	1.2500	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	17.6430	10.2287	381.7542	6.1016	8.8265	43.2509	764.0106	5.1153	2.7280	14.549
	24.8780	14.4690	1080.5242	8.6309	12.4460	86.8170	2162.4702	7.2359	3.9820	21.237
L2	24.8780	19.2424	1429.6167	8.6088	12.4460	114.8656	2861.1145	9.6230	3.8720	15.488
	32.3718	25.0984	3172.3563	11.2287	16.1950	195.8844	6348.8868	12.5516	5.1709	20.684
L3	31.8529	29.4842	3291.4698	10.5526	15.2594	215.7012	6587.2705	14.7449	4.7367	15.158
	44.0898	42.7573	10038.1321	15.3032	22.0574	455.0922	20089.4726	21.3827	7.0919	22.694
L4	43.4538	40.3774	8453.5160	14.4514	20.8385	405.6687	16918.1554	20.1925	6.6696	21.343
	56.3562	54.7391	21062.8220	19.5916	28.1940	747.0675	42153.3590	27.3748	9.2180	29.498

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 138.50-108.50				1	1	1		
L2 108.50-83.75				1	1	1		
L3 83.75-43.00				1	1	1		
L4 43.00-0.00				1	1	1		

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
Safety Line 3/8	C	Surface Ar (CaAa)	138.50 - 0.00	1	1	0.000 0.000	0.3750		0.22
LDF7-50A(1-5/8")	A	Surface Ar (CaAa)	129.00 - 0.00	7	1	0.000 0.250	1.9800		0.82
***									

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
***								
LDF6-50A(1-1/4")	A	No	Inside Pole	138.00 - 0.00	6	No Ice	0.00	0.66
						1/2" Ice	0.00	0.66
						1" Ice	0.00	0.66
						2" Ice	0.00	0.66
						4" Ice	0.00	0.66
LCF114-50J(1-1/4")	A	No	Inside Pole	138.00 - 0.00	6	No Ice	0.00	0.70
						1/2" Ice	0.00	0.70
						1" Ice	0.00	0.70
						2" Ice	0.00	0.70
						4" Ice	0.00	0.70
FB-L98B-002-75000(3/8")	A	No	Inside Pole	138.00 - 0.00	1	No Ice	0.00	0.06
						1/2" Ice	0.00	0.06
						1" Ice	0.00	0.06
						2" Ice	0.00	0.06
						4" Ice	0.00	0.06
WR-VG122ST-BRDA(7/16)	A	No	Inside Pole	138.00 - 0.00	2	No Ice	0.00	0.14
						1/2" Ice	0.00	0.14
						1" Ice	0.00	0.14
						2" Ice	0.00	0.14
						4" Ice	0.00	0.14

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
***								
LDF6-50A(1-1/4")	A	No	Inside Pole	136.00 - 0.00	1	No Ice	0.00	0.66
						1/2" Ice	0.00	0.66
						1" Ice	0.00	0.66
						2" Ice	0.00	0.66
						4" Ice	0.00	0.66
***								
LDF7-50A(1-5/8")	A	No	Inside Pole	129.00 - 0.00	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
						2" Ice	0.00	0.82
						4" Ice	0.00	0.82
***								
***								
HB114-1-0813U4-M5J(1 1/4")	B	No	Inside Pole	104.00 - 0.00	3	No Ice	0.00	1.20
						1/2" Ice	0.00	1.20
						1" Ice	0.00	1.20
						2" Ice	0.00	1.20
						4" Ice	0.00	1.20
***								
LDF7-50A(1-5/8")	B	No	Inside Pole	87.00 - 0.00	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
						2" Ice	0.00	0.82
						4" Ice	0.00	0.82
***								
LDF4-50A(1/2")	B	No	Inside Pole	70.00 - 0.00	1	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
						1" Ice	0.00	0.15
						2" Ice	0.00	0.15
						4" Ice	0.00	0.15

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	138.50-108.50	A	0.000	0.000	4.059	0.000	0.59
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	1.125	0.000	0.01
L2	108.50-83.75	A	0.000	0.000	4.901	0.000	0.61
		B	0.000	0.000	0.000	0.000	0.10
		C	0.000	0.000	0.928	0.000	0.01
L3	83.75-43.00	A	0.000	0.000	8.069	0.000	1.01
		B	0.000	0.000	0.000	0.000	0.55
		C	0.000	0.000	1.528	0.000	0.01
L4	43.00-0.00	A	0.000	0.000	8.514	0.000	1.06
		B	0.000	0.000	0.000	0.000	0.58
		C	0.000	0.000	1.613	0.000	0.01

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	138.50-108.50	A	1.171	0.000	0.000	8.859	0.000	1.23
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	8.149	0.000	0.07
L2	108.50-83.75	A	1.136	0.000	0.000	10.524	0.000	1.36
		B		0.000	0.000	0.000	0.000	0.10
		C		0.000	0.000	6.552	0.000	0.06
L3	83.75-43.00	A	1.080	0.000	0.000	17.328	0.000	2.24
		B		0.000	0.000	0.000	0.000	0.55

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C		0.000	0.000	10.788	0.000	0.09
L4	43.00-0.00	A	1.000	0.000	0.000	17.803	0.000	2.28
		B		0.000	0.000	0.000	0.000	0.58
		C		0.000	0.000	10.902	0.000	0.09

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	138.50-108.50	-0.2240	-0.1720	-0.3740	-0.0854
L2	108.50-83.75	-0.2847	-0.2329	-0.4895	-0.1968
L3	83.75-43.00	-0.2676	-0.2148	-0.4821	-0.1693
L4	43.00-0.00	-0.2546	-0.2010	-0.4665	-0.1490

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
HPA-65R-BUU-H6 w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	10.60 11.27 11.91 13.21 15.93	8.11 9.30 10.21 12.17 16.35	0.08 0.16 0.25 0.46 1.02
SBNHH-1D65A w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.47 6.94 7.41 8.38 10.45	5.19 5.85 6.56 8.08 11.40	0.06 0.12 0.18 0.32 0.73
SBNHH-1D65A w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.47 6.94 7.41 8.38 10.45	5.19 5.85 6.56 8.08 11.40	0.06 0.12 0.18 0.32 0.73
RRUS 12	A	From Leg	4.00 0.00 1.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.67 3.93 4.19 4.75 5.96	1.49 1.67 1.87 2.28 3.21	0.06 0.08 0.11 0.17 0.34
RRUS 12	B	From Leg	4.00 0.00 1.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.67 3.93 4.19 4.75 5.96	1.49 1.67 1.87 2.28 3.21	0.06 0.08 0.11 0.17 0.34
RRUS 12	C	From Leg	4.00 0.00 1.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.67 3.93 4.19 4.75 5.96	1.49 1.67 1.87 2.28 3.21	0.06 0.08 0.11 0.17 0.34
RRUS A2	A	From Leg	4.00	0.0000	138.00	No Ice	2.41	0.53	0.02

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1/2"	2.62	0.67	0.03
			1.00			Ice	2.84	0.81	0.05
						1" Ice	3.30	1.11	0.09
						2" Ice	4.32	1.83	0.20
						4" Ice			
RRUS A2	B	From Leg	4.00	0.0000	138.00	No Ice	2.41	0.53	0.02
			0.00			1/2"	2.62	0.67	0.03
			1.00			Ice	2.84	0.81	0.05
						1" Ice	3.30	1.11	0.09
						2" Ice	4.32	1.83	0.20
						4" Ice			
RRUS A2	C	From Leg	4.00	0.0000	138.00	No Ice	2.41	0.53	0.02
			0.00			1/2"	2.62	0.67	0.03
			1.00			Ice	2.84	0.81	0.05
						1" Ice	3.30	1.11	0.09
						2" Ice	4.32	1.83	0.20
						4" Ice			
DC6-48-60-18-8F	B	From Leg	4.00	0.0000	138.00	No Ice	2.57	4.32	0.03
			0.00			1/2"	2.80	4.60	0.06
			1.00			Ice	3.04	4.88	0.10
						1" Ice	3.54	5.49	0.18
						2" Ice	4.66	6.80	0.40
						4" Ice			
(4) 7020.00	A	From Leg	4.00	0.0000	138.00	No Ice	0.12	0.20	0.00
			0.00			1/2"	0.17	0.28	0.01
			1.00			Ice	0.23	0.36	0.01
						1" Ice	0.38	0.56	0.02
						2" Ice	0.78	1.05	0.07
						4" Ice			
(4) 7020.00	B	From Leg	4.00	0.0000	138.00	No Ice	0.12	0.20	0.00
			0.00			1/2"	0.17	0.28	0.01
			1.00			Ice	0.23	0.36	0.01
						1" Ice	0.38	0.56	0.02
						2" Ice	0.78	1.05	0.07
						4" Ice			
(4) 7020.00	C	From Leg	4.00	0.0000	138.00	No Ice	0.12	0.20	0.00
			0.00			1/2"	0.17	0.28	0.01
			1.00			Ice	0.23	0.36	0.01
						1" Ice	0.38	0.56	0.02
						2" Ice	0.78	1.05	0.07
						4" Ice			
(2) TT19-08BP111-001	A	From Leg	4.00	0.0000	138.00	No Ice	0.64	0.52	0.02
			0.00			1/2"	0.75	0.62	0.02
			1.00			Ice	0.87	0.73	0.03
						1" Ice	1.13	0.98	0.05
						2" Ice	1.77	1.58	0.12
						4" Ice			
(2) TT19-08BP111-001	B	From Leg	4.00	0.0000	138.00	No Ice	0.64	0.52	0.02
			0.00			1/2"	0.75	0.62	0.02
			1.00			Ice	0.87	0.73	0.03
						1" Ice	1.13	0.98	0.05
						2" Ice	1.77	1.58	0.12
						4" Ice			
(2) TT19-08BP111-001	C	From Leg	4.00	0.0000	138.00	No Ice	0.64	0.52	0.02
			0.00			1/2"	0.75	0.62	0.02
			1.00			Ice	0.87	0.73	0.03
						1" Ice	1.13	0.98	0.05
						2" Ice	1.77	1.58	0.12
						4" Ice			
(2) 7770.00 w/ Mount Pipe	A	From Leg	4.00	0.0000	138.00	No Ice	6.12	4.25	0.06
			0.00			1/2"	6.63	5.01	0.10
			1.00			Ice	7.13	5.71	0.16
						1" Ice	8.16	7.16	0.29
						2" Ice	10.36	10.41	0.66
						4" Ice			

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(2) 7770.00 w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.12 6.63 7.13 8.16 10.36	4.25 5.01 5.71 7.16 10.41	0.06 0.10 0.16 0.29 0.66
(2) 7770.00 w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.12 6.63 7.13 8.16 10.36	4.25 5.01 5.71 7.16 10.41	0.06 0.10 0.16 0.29 0.66
Platform Mount [LP 303-1]	C	None		0.0000	138.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	14.66 18.87 23.08 31.50 48.34	14.66 18.87 23.08 31.50 48.34	1.25 1.48 1.71 2.18 3.10
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TME-RRUS-11	A	From Leg	1.00 0.00 3.00	0.0000	137.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.31 3.58 3.85 4.45 5.76	1.72 2.03 2.37 3.13 4.89	0.05 0.08 0.11 0.19 0.40
TME-RRUS-11	B	From Leg	1.00 0.00 3.00	0.0000	137.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.31 3.58 3.85 4.45 5.76	1.72 2.03 2.37 3.13 4.89	0.05 0.08 0.11 0.19 0.40
TME-RRUS-11	C	From Leg	1.00 0.00 3.00	0.0000	137.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.31 3.58 3.85 4.45 5.76	1.72 2.03 2.37 3.13 4.89	0.05 0.08 0.11 0.19 0.40
Side Arm Mount [SO 102-3]	C	None		0.0000	137.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.00 3.48 3.96 4.92 6.84	3.00 3.48 3.96 4.92 6.84	0.08 0.11 0.14 0.20 0.32
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ANT150F6	A	From Leg	1.00 0.00 12.00	0.0000	136.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.80 6.83 8.87 13.01 21.03	4.80 6.83 8.87 13.01 21.03	0.03 0.07 0.11 0.25 0.68
Pipe Mount [PM 601-1]	A	From Leg	0.50 0.00 0.00	0.0000	136.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.00 3.74 4.48 5.96 8.92	0.90 1.12 1.34 1.78 2.66	0.07 0.08 0.09 0.12 0.18
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BXA-70063/6CF-2 W/Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	129.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.75 8.29 8.85 9.97 12.34	5.18 6.11 6.92 8.59 12.13	0.04 0.10 0.16 0.31 0.75
BXA-70063/6CF-2 W/Mount Pipe	B	From Leg	4.00 0.00	0.0000	129.00	No Ice 1/2"	7.75 8.29	5.18 6.11	0.04 0.10

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
			0.00			Ice	8.85	6.92	0.16
						1" Ice	9.97	8.59	0.31
						2" Ice	12.34	12.13	0.75
						4" Ice			
BXA-70063/6CF-2 W/Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	129.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.75 8.29 8.85 9.97 12.34	5.18 6.11 6.92 8.59 12.13	0.04 0.10 0.16 0.31 0.75
(2) HBXX-6517DS-A2M w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	129.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.98 9.65 10.29 11.59 14.32	6.96 8.18 9.14 11.02 15.03	0.07 0.14 0.21 0.40 0.91
(2) HBXX-6517DS-A2M w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	129.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.98 9.65 10.29 11.59 14.32	6.96 8.18 9.14 11.02 15.03	0.07 0.14 0.21 0.40 0.91
(2) HBXX-6517DS-A2M w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	129.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.98 9.65 10.29 11.59 14.32	6.96 8.18 9.14 11.02 15.03	0.07 0.14 0.21 0.40 0.91
LNX-8513DS-A1M w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	129.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.65 9.31 9.93 11.20 13.87	7.08 8.27 9.18 11.02 15.06	0.06 0.13 0.21 0.39 0.90
LNX-8513DS-A1M w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	129.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.65 9.31 9.93 11.20 13.87	7.08 8.27 9.18 11.02 15.06	0.06 0.13 0.21 0.39 0.90
LNX-8513DS-A1M w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	129.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.65 9.31 9.93 11.20 13.87	7.08 8.27 9.18 11.02 15.06	0.06 0.13 0.21 0.39 0.90
DB-B1-6C-12AB-0Z	A	From Leg	4.00 0.00 0.00	0.0000	129.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.92 4.20 4.48 5.07 6.35	2.56 2.79 3.04 3.56 4.70	0.02 0.05 0.08 0.16 0.36
RRH2X60-AWS	A	From Leg	4.00 0.00 0.00	0.0000	129.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.19 2.40 2.61 3.07 4.09	1.43 1.61 1.80 2.21 3.13	0.04 0.06 0.08 0.13 0.26
RRH2X60-AWS	B	From Leg	4.00 0.00 0.00	0.0000	129.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.19 2.40 2.61 3.07 4.09	1.43 1.61 1.80 2.21 3.13	0.04 0.06 0.08 0.13 0.26
RRH2X60-AWS	C	From Leg	4.00	0.0000	129.00	No Ice	2.19	1.43	0.04

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
			0.00 0.00			1/2" Ice 1" Ice 2" Ice 4" Ice	2.40 2.61 3.07 4.09	1.61 1.80 2.21 3.13	0.06 0.08 0.13 0.26
Platform Mount [LP 304-1]	C	None		0.0000	129.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	17.46 22.44 27.42 37.38 57.30	17.46 22.44 27.42 37.38 57.30	1.35 1.62 1.90 2.45 3.55
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TME-1900MHz RRH (65MHz)	A	From Leg	1.00 0.00 0.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.70 2.94 3.18 3.70 4.85	2.77 3.01 3.26 3.78 4.93	0.06 0.08 0.11 0.18 0.35
TME-1900MHz RRH (65MHz)	B	From Leg	1.00 0.00 0.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.70 2.94 3.18 3.70 4.85	2.77 3.01 3.26 3.78 4.93	0.06 0.08 0.11 0.18 0.35
TME-1900MHz RRH (65MHz)	C	From Leg	1.00 0.00 0.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.70 2.94 3.18 3.70 4.85	2.77 3.01 3.26 3.78 4.93	0.06 0.08 0.11 0.18 0.35
Side Arm Mount [SO 102-3]	C	None		0.0000	105.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.00 3.48 3.96 4.92 6.84	3.00 3.48 3.96 4.92 6.84	0.08 0.11 0.14 0.20 0.32
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APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	4.00 0.00 4.00	0.0000	104.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.50 9.15 9.77 11.03 13.68	6.95 8.13 9.02 10.84 14.85	0.08 0.15 0.23 0.41 0.91
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	4.00 0.00 4.00	0.0000	104.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.50 9.15 9.77 11.03 13.68	6.95 8.13 9.02 10.84 14.85	0.08 0.15 0.23 0.41 0.91
APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	4.00 0.00 4.00	0.0000	104.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.50 9.15 9.77 11.03 13.68	6.95 8.13 9.02 10.84 14.85	0.08 0.15 0.23 0.41 0.91
(3) ACU-A20-N	A	From Leg	4.00 0.00 0.00	0.0000	104.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.08 0.12 0.17 0.30 0.67	0.14 0.19 0.25 0.40 0.80	0.00 0.00 0.00 0.01 0.04
(3) ACU-A20-N	B	From Leg	4.00 0.00 0.00	0.0000	104.00	No Ice 1/2" Ice	0.08 0.12 0.17	0.14 0.19 0.25	0.00 0.00 0.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice	0.30	0.40	0.01
						2" Ice	0.67	0.80	0.04
						4" Ice			
(3) ACU-A20-N	C	From Leg	4.00 0.00 0.00	0.0000	104.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.08 0.12 0.17 0.30 0.67	0.14 0.19 0.25 0.40 0.80	0.00 0.00 0.00 0.01 0.04
800 EXTERNAL NOTCH FILTER	A	From Leg	4.00 0.00 0.00	0.0000	104.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.77 0.89 1.02 1.30 1.97	0.37 0.46 0.56 0.79 1.34	0.01 0.02 0.02 0.04 0.11
800 EXTERNAL NOTCH FILTER	B	From Leg	4.00 0.00 0.00	0.0000	104.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.77 0.89 1.02 1.30 1.97	0.37 0.46 0.56 0.79 1.34	0.01 0.02 0.02 0.04 0.11
800 EXTERNAL NOTCH FILTER	C	From Leg	4.00 0.00 0.00	0.0000	104.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.77 0.89 1.02 1.30 1.97	0.37 0.46 0.56 0.79 1.34	0.01 0.02 0.02 0.04 0.11
800MHZ RRH	A	From Leg	1.00 0.00 0.00	0.0000	104.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.49 2.71 2.93 3.41 4.46	2.07 2.27 2.48 2.93 3.93	0.05 0.07 0.10 0.16 0.32
800MHZ RRH	B	From Leg	1.00 0.00 0.00	0.0000	104.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.49 2.71 2.93 3.41 4.46	2.07 2.27 2.48 2.93 3.93	0.05 0.07 0.10 0.16 0.32
800MHZ RRH	C	From Leg	1.00 0.00 0.00	0.0000	104.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.49 2.71 2.93 3.41 4.46	2.07 2.27 2.48 2.93 3.93	0.05 0.07 0.10 0.16 0.32
Platform Mount [LP 712-1]	C	None		0.0000	104.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	24.53 29.94 35.35 46.17 67.81	24.53 29.94 35.35 46.17 67.81	1.34 1.65 1.96 2.58 3.82
Miscellaneous [NA 507-1]	C	None		0.0000	104.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.80 6.70 8.60 12.40 20.00	4.80 6.70 8.60 12.40 20.00	0.25 0.29 0.34 0.44 0.64
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LNX-6515DS-VTM w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	87.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	11.68 12.40 13.14 14.60 17.87	9.84 11.37 12.91 15.27 20.14	0.08 0.17 0.27 0.51 1.15
LNX-6515DS-VTM w/	B	From Leg	4.00	0.0000	87.00	No Ice	11.68	9.84	0.08

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
Mount Pipe			0.00 0.00			1/2" Ice 1" Ice 2" Ice 4" Ice	12.40 13.14 14.60 17.87	11.37 12.91 15.27 20.14	0.17 0.27 0.51 1.15
LNX-6515DS-VTM w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	87.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	11.68 12.40 13.14 14.60 17.87	9.84 11.37 12.91 15.27 20.14	0.08 0.17 0.27 0.51 1.15
ATBT-BOTTOM-24V	A	From Leg	4.00 0.00 0.00	0.0000	87.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.12 0.17 0.23 0.38 0.77	0.08 0.12 0.17 0.30 0.67	0.00 0.00 0.01 0.01 0.04
ATBT-BOTTOM-24V	B	From Leg	4.00 0.00 0.00	0.0000	87.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.12 0.17 0.23 0.38 0.77	0.08 0.12 0.17 0.30 0.67	0.00 0.00 0.01 0.01 0.04
ATBT-BOTTOM-24V	C	From Leg	4.00 0.00 0.00	0.0000	87.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.12 0.17 0.23 0.38 0.77	0.08 0.12 0.17 0.30 0.67	0.00 0.00 0.01 0.01 0.04
ETM19V2S12UB	A	From Leg	4.00 0.00 0.00	0.0000	87.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.84 0.96 1.09 1.39 2.08	0.22 0.31 0.40 0.61 1.14	0.01 0.02 0.02 0.04 0.10
ETM19V2S12UB	B	From Leg	4.00 0.00 0.00	0.0000	87.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.84 0.96 1.09 1.39 2.08	0.22 0.31 0.40 0.61 1.14	0.01 0.02 0.02 0.04 0.10
ETM19V2S12UB	C	From Leg	4.00 0.00 0.00	0.0000	87.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.84 0.96 1.09 1.39 2.08	0.22 0.31 0.40 0.61 1.14	0.01 0.02 0.02 0.04 0.10
APXV18-209014-C w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	87.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.72 4.13 4.56 5.51 7.55	3.31 4.02 4.68 6.07 9.05	0.04 0.07 0.11 0.21 0.52
APXV18-209014-C w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	87.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.72 4.13 4.56 5.51 7.55	3.31 4.02 4.68 6.07 9.05	0.04 0.07 0.11 0.21 0.52
APXV18-209014-C w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	87.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.72 4.13 4.56 5.51 7.55	3.31 4.02 4.68 6.07 9.05	0.04 0.07 0.11 0.21 0.52

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
Pipe Mount	A	From Leg	4.00 0.00 0.00	0.0000	87.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.20 1.50 1.81 2.47 3.93	1.20 1.50 1.81 2.47 3.93	0.02 0.03 0.04 0.08 0.20
Pipe Mount	B	From Leg	4.00 0.00 0.00	0.0000	87.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.20 1.50 1.81 2.47 3.93	1.20 1.50 1.81 2.47 3.93	0.02 0.03 0.04 0.08 0.20
Pipe Mount	C	From Leg	4.00 0.00 0.00	0.0000	87.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.20 1.50 1.81 2.47 3.93	1.20 1.50 1.81 2.47 3.93	0.02 0.03 0.04 0.08 0.20
Platform Mount [LP 305-1]	C	None		0.0000	87.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	18.01 23.33 28.65 39.29 60.57	18.01 23.33 28.65 39.29 60.57	1.12 1.35 1.58 2.05 2.97
***									
KS24019-L112A	A	From Leg	3.00 0.00 1.00	0.0000	70.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.16 0.22 0.30 0.48 0.95	0.16 0.22 0.30 0.48 0.95	0.01 0.01 0.01 0.02 0.06
Side Arm Mount [SO 701-1]	A	From Leg	0.00 0.00 0.00	0.0000	70.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.85 1.14 1.43 2.01 3.17	1.67 2.34 3.01 4.35 7.03	0.07 0.08 0.09 0.12 0.18
***									

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

Comb. No.	Description
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	138.5 - 108.5	Pole	Max Tension	14	0.00	-0.00	-0.00
			Max. Compression	14	-13.99	0.41	1.83
			Max. Mx	11	-5.74	264.55	-0.66
			Max. My	2	-5.71	-0.96	271.29
			Max. Vy	11	-11.13	264.55	-0.66
			Max. Vx	2	-11.37	-0.96	271.29
			Max. Torque	12			-1.27
L2	108.5 - 83.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-21.69	1.38	2.79
			Max. Mx	11	-10.06	553.80	-1.17
			Max. My	2	-10.03	-1.49	565.37
			Max. Vy	11	-15.40	553.80	-1.17
			Max. Vx	2	-15.64	-1.49	565.37
			Max. Torque	12			-1.28
L3	83.75 - 43	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-34.97	3.62	5.12
			Max. Mx	11	-18.54	1309.51	-1.99
			Max. My	2	-18.52	-2.47	1329.99
			Max. Vy	11	-20.73	1309.51	-1.99
			Max. Vx	2	-20.94	-2.47	1329.99
			Max. Torque	12			-1.38
L4	43 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-50.47	6.70	8.00
			Max. Mx	11	-29.83	2407.55	-3.07
			Max. My	2	-29.83	-3.53	2438.11
			Max. Vy	11	-24.10	2407.55	-3.07
			Max. Vx	2	-24.30	-3.53	2438.11
			Max. Torque	12			-1.40

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	138.5 - 108.5	32.271	27	2.3115	0.0107
L2	108.5 - 83.75	18.844	27	1.8173	0.0038
L3	88.25 - 43	12.082	27	1.3663	0.0020
L4	49 - 0	3.568	27	0.6867	0.0007

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
138.00	HPA-65R-BUU-H6 w/ Mount Pipe	27	32.032	2.3043	0.0107	11880
137.00	TME-RRUS-11	27	31.554	2.2899	0.0104	11880
136.00	ANT150F6	27	31.076	2.2754	0.0102	11880
129.00	BXA-70063/6CF-2 W/Mount Pipe	27	27.759	2.1725	0.0083	6252
105.00	TME-1900MHz RRH (65MHz)	27	17.527	1.7432	0.0034	2137
104.00	APXVSPP18-C-A20 w/ Mount Pipe	27	17.163	1.7213	0.0033	2183
87.00	LNX-6515DS-VTM w/ Mount Pipe	27	11.722	1.3395	0.0019	3356
70.00	KS24019-L112A	27	7.394	1.0162	0.0012	3166

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	138.5 - 108.5	82.271	2	5.8908	0.0269
L2	108.5 - 83.75	48.084	2	4.6361	0.0095
L3	88.25 - 43	30.841	2	3.4872	0.0049
L4	49 - 0	9.112	2	1.7537	0.0017

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
138.00	HPA-65R-BUU-H6 w/ Mount Pipe	2	81.663	5.8725	0.0276	4748
137.00	TME-RRUS-11	2	80.446	5.8359	0.0269	4748
136.00	ANT150F6	2	79.231	5.7992	0.0262	4748
129.00	BXA-70063/6CF-2 W/Mount Pipe	2	70.787	5.5382	0.0214	2498
105.00	TME-1900MHz RRH (65MHz)	2	44.726	4.4473	0.0087	849
104.00	APXVSPP18-C-A20 w/ Mount Pipe	2	43.800	4.3916	0.0084	867
87.00	LNX-6515DS-VTM w/ Mount Pipe	2	29.923	3.4190	0.0049	1324
70.00	KS24019-L112A	2	18.878	2.5947	0.0030	1245

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	138.5 - 137	TP24.5x17.375x0.1875	30.00	0.00	0.0	39.000	10.4407	-1.91	407.19	0.005
	137 - 135.5					39.000	10.6527	-2.23	415.46	0.005
	135.5 - 134					39.000	10.8648	-2.31	423.73	0.005
	134 - 132.5					39.000	11.0768	-2.39	431.99	0.006
	132.5 - 131					39.000	11.2888	-2.47	440.26	0.006
	131 - 129.5					39.000	11.5008	-2.56	448.53	0.006
	129.5 - 128					39.000	11.7128	-4.36	456.80	0.010
	128 - 126.5					39.000	11.9248	-4.45	465.07	0.010
	126.5 - 125					39.000	12.1368	-4.54	473.34	0.010
	125 - 123.5					39.000	12.3488	-4.63	481.61	0.010
	123.5 - 122					39.000	12.5609	-4.73	489.87	0.010
	122 - 120.5					39.000	12.7729	-4.83	498.14	0.010
	120.5 - 119					39.000	12.9849	-4.93	506.41	0.010
	119 - 117.5					39.000	13.1969	-5.04	514.68	0.010
	117.5 - 116					39.000	13.4089	-5.15	522.95	0.010
	116 - 114.5					39.000	13.6209	-5.25	531.22	0.010
	114.5 - 113					39.000	13.8329	-5.36	539.49	0.010
	113 - 111.5					39.000	14.0449	-5.48	547.75	0.010
	111.5 - 110					39.000	14.2570	-5.59	556.02	0.010
	110 - 108.5					39.000	14.4690	-5.71	564.29	0.010
L2	108.5 - 107.434	TP31.88x24.5x0.25	24.75	0.00	0.0	39.000	19.4945	-5.82	760.29	0.008
	107.434 - 106.368					39.000	19.7467	-5.93	770.12	0.008
	106.368 - 105.303					39.000	19.9989	-6.04	779.96	0.008
	105.303 - 104.237					39.000	20.2511	-6.37	789.79	0.008
	104.237 - 103.171					39.000	20.5032	-8.31	799.63	0.010
	103.171 - 102.105					39.000	20.7554	-8.42	809.46	0.010
	102.105 - 101.039					39.000	21.0076	-8.54	819.30	0.010
	101.039 - 99.9737					39.000	21.2598	-8.66	829.13	0.010
	99.9737 - 98.9079					39.000	21.5119	-8.78	838.97	0.010
	98.9079 - 97.8421					39.000	21.7641	-8.90	848.80	0.010
	97.8421 - 96.7763					39.000	22.0163	-9.02	858.63	0.011
	96.7763 - 95.7105					39.000	22.2685	-9.14	868.47	0.011
	95.7105 - 94.6447					39.000	22.5206	-9.27	878.30	0.011
	94.6447 - 93.5789					39.000	22.7728	-9.39	888.14	0.011
	93.5789 - 92.5132					39.000	23.0250	-9.52	897.97	0.011
	92.5132 - 91.4474					39.000	23.2772	-9.64	907.81	0.011
	91.4474 - 90.3816					39.000	23.5293	-9.77	917.64	0.011
	90.3816 - 89.3158					39.000	23.7815	-9.90	927.48	0.011
	89.3158 - 88.25					39.000	24.0337	-10.03	937.31	0.011
	88.25 - 83.75					39.000	25.0984	-5.84	978.84	0.006
L3	88.25 - 83.75	TP43.42x30.0382x0.3125	45.25	0.00	0.0	39.000	30.8041	-6.59	1201.36	0.005
	83.75 - 81.8194					39.000	31.3704	-12.74	1223.45	0.010
	81.8194 - 79.8889					39.000	31.9367	-13.04	1245.53	0.010
	79.8889 - 77.9583					39.000	32.5030	-13.35	1267.62	0.011

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 $\frac{P}{P_a}$
	77.9583 - 76.0278					39.000	33.0693	-13.66	1289.70	0.011
	76.0278 - 74.0972					39.000	33.6356	-13.98	1311.79	0.011
	74.0972 - 72.1667					39.000	34.2019	-14.30	1333.87	0.011
	72.1667 - 70.2361					39.000	34.7681	-14.63	1355.96	0.011
	70.2361 - 68.3056					39.000	35.3344	-15.02	1378.04	0.011
	68.3056 - 66.375					39.000	35.9007	-15.36	1400.13	0.011
	66.375 - 64.4444					39.000	36.4670	-15.69	1422.21	0.011
	64.4444 - 62.5139					39.000	37.0333	-16.03	1444.30	0.011
	62.5139 - 60.5833					39.000	37.5996	-16.38	1466.38	0.011
	60.5833 - 58.6528					39.000	38.1659	-16.73	1488.47	0.011
	58.6528 - 56.7222					39.000	38.7321	-17.08	1510.55	0.011
	56.7222 - 54.7917					39.000	39.2984	-17.43	1532.64	0.011
	54.7917 - 52.8611					39.000	39.8647	-17.79	1554.72	0.011
	52.8611 - 50.9306					39.000	40.4310	-18.16	1576.81	0.012
	50.9306 - 49					39.000	40.9973	-18.52	1598.89	0.012
	49 - 43					39.000	42.7573	-10.37	1667.53	0.006
L4	49 - 43	TP55.5x41.0206x0.3125	49.00	0.00	0.0	39.000	42.1359	-10.11	1643.30	0.006
	43 - 40.7368					39.000	42.7993	-20.93	1669.17	0.013
	40.7368 - 38.4737					39.000	43.4626	-21.38	1695.04	0.013
	38.4737 - 36.2105					39.000	44.1259	-21.84	1720.91	0.013
	36.2105 - 33.9474					39.000	44.7892	-22.30	1746.78	0.013
	33.9474 - 31.6842					39.000	45.4526	-22.76	1772.65	0.013
	31.6842 - 29.4211					39.000	46.1159	-23.24	1798.52	0.013
	29.4211 - 27.1579					38.905	46.7792	-23.71	1819.96	0.013
	27.1579 - 24.8947					38.666	47.4425	-24.19	1834.40	0.013
	24.8947 - 22.6316					38.426	48.1059	-24.68	1848.52	0.013
	22.6316 - 20.3684					38.187	48.7692	-25.17	1862.32	0.014
	20.3684 - 18.1053					37.947	49.4325	-25.67	1875.81	0.014
	18.1053 - 15.8421					37.707	50.0958	-26.17	1888.98	0.014
	15.8421 - 13.5789					37.468	50.7592	-26.68	1901.83	0.014
	13.5789 - 11.3158					37.228	51.4225	-27.19	1914.36	0.014
	11.3158 - 9.05263					36.989	52.0858	-27.71	1926.58	0.014
	9.05263 - 6.78947					36.749	52.7491	-28.23	1938.47	0.015
	6.78947 - 4.52632					36.509	53.4125	-28.76	1950.05	0.015
	4.52632 - 2.26316					36.270	54.0758	-29.29	1961.31	0.015
	2.26316 - 0					36.030	54.7391	-29.83	1972.25	0.015

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	138.5 - 137	TP24.5x17.375x0.1875	7.14	1.901	39.000	0.049	0.00	0.000	39.000	0.000
	137 - 135.5		17.54	4.484	39.000	0.115	0.00	0.000	39.000	0.000
	135.5 - 134		24.87	6.112	39.000	0.157	0.00	0.000	39.000	0.000
	134 - 132.5		32.33	7.643	39.000	0.196	0.00	0.000	39.000	0.000
	132.5 - 131		39.92	9.085	39.000	0.233	0.00	0.000	39.000	0.000
	131 - 129.5		47.64	10.442	39.000	0.268	0.00	0.000	39.000	0.000
	129.5 - 128		60.57	12.798	39.000	0.328	0.00	0.000	39.000	0.000
	128 - 126.5		76.03	15.496	39.000	0.397	0.00	0.000	39.000	0.000
	126.5 - 125		91.61	18.022	39.000	0.462	0.00	0.000	39.000	0.000
	125 - 123.5		107.31	20.390	39.000	0.523	0.00	0.000	39.000	0.000
	123.5 - 122		123.14	22.610	39.000	0.580	0.00	0.000	39.000	0.000
	122 - 120.5		139.09	24.694	39.000	0.633	0.00	0.000	39.000	0.000
	120.5 - 119		155.16	26.652	39.000	0.683	0.00	0.000	39.000	0.000
	119 - 117.5		171.36	28.493	39.000	0.731	0.00	0.000	39.000	0.000
	117.5 - 116		187.69	30.225	39.000	0.775	0.00	0.000	39.000	0.000
	116 - 114.5		204.15	31.856	39.000	0.817	0.00	0.000	39.000	0.000
	114.5 - 113		220.74	33.392	39.000	0.856	0.00	0.000	39.000	0.000
	113 - 111.5		237.46	34.841	39.000	0.893	0.00	0.000	39.000	0.000
	111.5 - 110		254.31	36.208	39.000	0.928	0.00	0.000	39.000	0.000
	110 - 108.5		271.29	37.498	39.000	0.961	0.00	0.000	39.000	0.000
L2	108.5 - 107.434	TP31.88x24.5x0.25	283.44	28.846	39.000	0.740	0.00	0.000	39.000	0.000
	107.434 - 106.368		295.66	29.323	39.000	0.752	0.00	0.000	39.000	0.000
	106.368 - 105.303		307.95	29.772	39.000	0.763	0.00	0.000	39.000	0.000
	105.303 - 104.237		320.66	30.230	39.000	0.775	0.00	0.000	39.000	0.000
	104.237 - 103.171		339.26	31.198	39.000	0.800	0.00	0.000	39.000	0.000
	103.171 - 102.105		354.94	31.848	39.000	0.817	0.00	0.000	39.000	0.000
	102.105 - 101.039		370.70	32.464	39.000	0.832	0.00	0.000	39.000	0.000
	101.039 - 99.9737		386.52	33.048	39.000	0.847	0.00	0.000	39.000	0.000
	99.9737 - 98.9079		402.42	33.602	39.000	0.862	0.00	0.000	39.000	0.000
	98.9079 - 97.8421		418.38	34.126	39.000	0.875	0.00	0.000	39.000	0.000
	97.8421 - 96.7763		434.42	34.624	39.000	0.888	0.00	0.000	39.000	0.000
	96.7763 - 95.7105		450.53	35.095	39.000	0.900	0.00	0.000	39.000	0.000
	95.7105 - 94.6447		466.71	35.543	39.000	0.911	0.00	0.000	39.000	0.000
	94.6447 - 93.5789		482.97	35.967	39.000	0.922	0.00	0.000	39.000	0.000
	93.5789 - 92.5132		499.30	36.370	39.000	0.933	0.00	0.000	39.000	0.000
	92.5132 - 91.4474		515.71	36.752	39.000	0.942	0.00	0.000	39.000	0.000
	91.4474 - 90.3816		532.19	37.115	39.000	0.952	0.00	0.000	39.000	0.000
	90.3816 - 89.3158		548.74	37.459	39.000	0.960	0.00	0.000	39.000	0.000
	89.3158 - 88.25		565.38	37.785	39.000	0.969	0.00	0.000	39.000	0.000
	88.25 - 83.75		295.82	18.122	39.000	0.465	0.00	0.000	39.000	0.000
L3	88.25 - 83.75	TP43.42x30.0382x0.3125	348.94	17.776	39.000	0.456	0.00	0.000	39.000	0.000
	83.75 - 81.8194		680.63	33.428	39.000	0.857	0.00	0.000	39.000	0.000
	81.8194 -		716.75	33.959	39.000	0.871	0.00	0.000	39.000	0.000

Section No.	Elevation ft	Size	Actual M_x kip-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y kip-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
	79.8889									
	79.8889 - 77.9583		753.13	34.444	39.000	0.883	0.00	0.000	39.000	0.000
	77.9583 - 76.0278		789.74	34.886	39.000	0.895	0.00	0.000	39.000	0.000
	76.0278 - 74.0972		826.61	35.290	39.000	0.905	0.00	0.000	39.000	0.000
	74.0972 - 72.1667		863.73	35.658	39.000	0.914	0.00	0.000	39.000	0.000
	72.1667 - 70.2361		901.10	35.994	39.000	0.923	0.00	0.000	39.000	0.000
	70.2361 - 68.3056		938.91	36.307	39.000	0.931	0.00	0.000	39.000	0.000
	68.3056 - 66.375		976.86	36.587	39.000	0.938	0.00	0.000	39.000	0.000
	66.375 - 64.4444		1015.06	36.841	39.000	0.945	0.00	0.000	39.000	0.000
	64.4444 - 62.5139		1053.52	37.072	39.000	0.951	0.00	0.000	39.000	0.000
	62.5139 - 60.5833		1092.23	37.280	39.000	0.956	0.00	0.000	39.000	0.000
	60.5833 - 58.6528		1131.21	37.469	39.000	0.961	0.00	0.000	39.000	0.000
	58.6528 - 56.7222		1170.44	37.639	39.000	0.965	0.00	0.000	39.000	0.000
	56.7222 - 54.7917		1209.93	37.791	39.000	0.969	0.00	0.000	39.000	0.000
	54.7917 - 52.8611		1249.69	37.927	39.000	0.972	0.00	0.000	39.000	0.000
	52.8611 - 50.9306		1289.71	38.049	39.000	0.976	0.00	0.000	39.000	0.000
	50.9306 - 49		1329.99	38.157	39.000	0.978	0.00	0.000	39.000	0.000
	49 - 43		744.97	19.644	39.000	0.504	0.00	0.000	39.000	0.000
L4	49 - 43	TP55.5x41.0206x0.3125	712.13	19.337	39.000	0.496	0.00	0.000	39.000	0.000
	43 - 40.7368		1505.76	39.626	39.000	1.016	0.00	0.000	39.000	0.000
	40.7368 - 38.4737		1554.73	39.671	39.000	1.017	0.00	0.000	39.000	0.000
	38.4737 - 36.2105		1604.02	39.703	39.000	1.018	0.00	0.000	39.000	0.000
	36.2105 - 33.9474		1653.62	39.723	39.000	1.019	0.00	0.000	39.000	0.000
	33.9474 - 31.6842		1703.53	39.733	39.000	1.019	0.00	0.000	39.000	0.000
	31.6842 - 29.4211		1753.78	39.733	39.000	1.019	0.00	0.000	39.000	0.000
	29.4211 - 27.1579		1804.35	39.724	38.905	1.021	0.00	0.000	38.905	0.000
	27.1579 - 24.8947		1855.25	39.706	38.666	1.027	0.00	0.000	38.666	0.000
	24.8947 - 22.6316		1906.49	39.682	38.426	1.033	0.00	0.000	38.426	0.000
	22.6316 - 20.3684		1958.07	39.651	38.187	1.038	0.00	0.000	38.187	0.000
	20.3684 - 18.1053		2009.98	39.614	37.947	1.044	0.00	0.000	37.947	0.000
	18.1053 - 15.8421		2062.25	39.571	37.707	1.049	0.00	0.000	37.707	0.000
	15.8421 - 13.5789		2114.87	39.524	37.468	1.055	0.00	0.000	37.468	0.000
	13.5789 - 11.3158		2167.83	39.472	37.228	1.060	0.00	0.000	37.228	0.000
	11.3158 - 9.05263		2221.16	39.417	36.989	1.066	0.00	0.000	36.989	0.000
	9.05263 - 6.78947		2274.85	39.358	36.749	1.071	0.00	0.000	36.749	0.000
	6.78947 - 4.52632		2328.90	39.296	36.509	1.076	0.00	0.000	36.509	0.000

Section No.	Elevation ft	Size	Actual M_x kip-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y kip-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
	4.52632 - 2.26316		2383.32	39.230	36.270	1.082	0.00	0.000	36.270	0.000
	2.26316 - 0		2438.12	39.163	36.030	1.087	0.00	0.000	36.030	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	138.5 - 137	TP24.5x17.375x0.1875	4.00	0.383	26.000	0.029	0.56	0.072	26.000	0.003
	137 - 135.5		4.85	0.455	26.000	0.035	0.56	0.069	26.000	0.003
	135.5 - 134		4.93	0.453	26.000	0.035	0.36	0.043	26.000	0.002
	134 - 132.5		5.02	0.453	26.000	0.035	0.73	0.083	26.000	0.003
	132.5 - 131		5.10	0.452	26.000	0.035	0.72	0.080	26.000	0.003
	131 - 129.5		5.18	0.450	26.000	0.035	0.72	0.077	26.000	0.003
	129.5 - 128		10.26	0.876	26.000	0.067	0.72	0.074	26.000	0.003
	128 - 126.5		10.34	0.867	26.000	0.067	0.72	0.071	26.000	0.003
	126.5 - 125		10.43	0.859	26.000	0.066	0.72	0.069	26.000	0.003
	125 - 123.5		10.51	0.851	26.000	0.065	0.72	0.066	26.000	0.003
	123.5 - 122		10.59	0.843	26.000	0.065	0.72	0.064	26.000	0.002
	122 - 120.5		10.67	0.836	26.000	0.064	0.71	0.062	26.000	0.002
	120.5 - 119		10.76	0.829	26.000	0.064	0.71	0.060	26.000	0.002
	119 - 117.5		10.84	0.822	26.000	0.063	0.71	0.058	26.000	0.002
	117.5 - 116		10.93	0.815	26.000	0.063	0.71	0.056	26.000	0.002
	116 - 114.5		11.02	0.809	26.000	0.062	0.71	0.054	26.000	0.002
	114.5 - 113		11.10	0.803	26.000	0.062	0.71	0.052	26.000	0.002
	113 - 111.5		11.19	0.797	26.000	0.061	0.70	0.050	26.000	0.002
	111.5 - 110		11.28	0.791	26.000	0.061	0.70	0.049	26.000	0.002
	110 - 108.5		11.37	0.786	26.000	0.060	0.70	0.047	26.000	0.002
L2	108.5 - 107.434	TP31.88x24.5x0.25	11.43	0.586	26.000	0.045	0.70	0.035	26.000	0.001
	107.434 - 106.368		11.50	0.582	26.000	0.045	0.70	0.034	26.000	0.001
	106.368 - 105.303		11.56	0.578	26.000	0.044	0.70	0.033	26.000	0.001
	105.303 - 104.237		12.08	0.596	26.000	0.046	0.69	0.032	26.000	0.001
	104.237 - 103.171		14.68	0.716	26.000	0.055	0.69	0.031	26.000	0.001
	103.171 - 102.105		14.75	0.711	26.000	0.055	0.69	0.030	26.000	0.001
	102.105 - 101.039		14.81	0.705	26.000	0.054	0.69	0.029	26.000	0.001
	101.039 - 99.9737		14.88	0.700	26.000	0.054	0.69	0.029	26.000	0.001
	99.9737 - 98.9079		14.94	0.695	26.000	0.053	0.69	0.028	26.000	0.001
	98.9079 - 97.8421		15.01	0.690	26.000	0.053	0.68	0.027	26.000	0.001
	97.8421 - 96.7763		15.08	0.685	26.000	0.053	0.68	0.027	26.000	0.001
	96.7763 - 95.7105		15.15	0.680	26.000	0.052	0.68	0.026	26.000	0.001
	95.7105 - 94.6447		15.22	0.676	26.000	0.052	0.68	0.025	26.000	0.001
	94.6447 - 93.5789		15.29	0.671	26.000	0.052	0.68	0.025	26.000	0.001
	93.5789 - 92.5132		15.36	0.667	26.000	0.051	0.68	0.024	26.000	0.001
	92.5132 - 91.4474		15.43	0.663	26.000	0.051	0.67	0.023	26.000	0.001
	91.4474 - 90.3816		15.50	0.659	26.000	0.051	0.67	0.023	26.000	0.001
	90.3816 -		15.57	0.655	26.000	0.050	0.67	0.022	26.000	0.001

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 $\frac{f_{vt}}{F_{vt}}$
	89.3158									
	89.3158 - 88.25		15.64	0.651	26.000	0.050	0.67	0.022	26.000	0.001
	88.25 - 83.75		8.84	0.352	26.000	0.027	0.31	0.009	26.000	0.000
L3	88.25 - 83.75	TP43.42x30.0382x0.3125	9.69	0.314	26.000	0.024	0.36	0.009	26.000	0.000
	83.75 - 81.8194		18.65	0.595	26.000	0.046	0.66	0.016	26.000	0.001
	81.8194 - 79.8889		18.78	0.588	26.000	0.045	0.66	0.015	26.000	0.001
	79.8889 - 77.9583		18.91	0.582	26.000	0.045	0.65	0.015	26.000	0.001
	77.9583 - 76.0278		19.04	0.576	26.000	0.044	0.65	0.014	26.000	0.001
	76.0278 - 74.0972		19.16	0.570	26.000	0.044	0.65	0.013	26.000	0.001
	74.0972 - 72.1667		19.29	0.564	26.000	0.043	0.64	0.013	26.000	0.000
	72.1667 - 70.2361		19.43	0.559	26.000	0.043	0.64	0.012	26.000	0.000
	70.2361 - 68.3056		19.59	0.555	26.000	0.043	0.64	0.012	26.000	0.000
	68.3056 - 66.375		19.73	0.549	26.000	0.042	0.63	0.012	26.000	0.000
	66.375 - 64.4444		19.86	0.545	26.000	0.042	0.63	0.011	26.000	0.000
	64.4444 - 62.5139		19.99	0.540	26.000	0.042	0.63	0.011	26.000	0.000
	62.5139 - 60.5833		20.13	0.535	26.000	0.041	0.62	0.010	26.000	0.000
	60.5833 - 58.6528		20.26	0.531	26.000	0.041	0.62	0.010	26.000	0.000
	58.6528 - 56.7222		20.39	0.527	26.000	0.040	0.62	0.010	26.000	0.000
	56.7222 - 54.7917		20.53	0.522	26.000	0.040	0.61	0.009	26.000	0.000
	54.7917 - 52.8611		20.67	0.518	26.000	0.040	0.61	0.009	26.000	0.000
	52.8611 - 50.9306		20.80	0.515	26.000	0.040	0.61	0.009	26.000	0.000
	50.9306 - 49		20.94	0.511	26.000	0.039	0.60	0.008	26.000	0.000
	49 - 43		11.08	0.259	26.000	0.020	0.31	0.004	26.000	0.000
L4	49 - 43	TP55.5x41.0206x0.3125	10.37	0.246	26.000	0.019	0.29	0.004	26.000	0.000
	43 - 40.7368		21.58	0.504	26.000	0.039	0.59	0.008	26.000	0.000
	40.7368 - 38.4737		21.71	0.500	26.000	0.038	0.59	0.007	26.000	0.000
	38.4737 - 36.2105		21.85	0.495	26.000	0.038	0.58	0.007	26.000	0.000
	36.2105 - 33.9474		21.99	0.491	26.000	0.038	0.58	0.007	26.000	0.000
	33.9474 - 31.6842		22.14	0.487	26.000	0.037	0.57	0.007	26.000	0.000
	31.6842 - 29.4211		22.28	0.483	26.000	0.037	0.57	0.006	26.000	0.000
	29.4211 - 27.1579		22.43	0.479	26.000	0.037	0.57	0.006	26.000	0.000
	27.1579 - 24.8947		22.57	0.476	26.000	0.037	0.56	0.006	26.000	0.000
	24.8947 - 22.6316		22.72	0.472	26.000	0.036	0.56	0.006	26.000	0.000
	22.6316 - 20.3684		22.87	0.469	26.000	0.036	0.56	0.006	26.000	0.000
	20.3684 - 18.1053		23.03	0.466	26.000	0.036	0.55	0.005	26.000	0.000
	18.1053 - 15.8421		23.18	0.463	26.000	0.036	0.55	0.005	26.000	0.000
	15.8421 - 13.5789		23.34	0.460	26.000	0.035	0.54	0.005	26.000	0.000
	13.5789 - 11.3158		23.49	0.457	26.000	0.035	0.54	0.005	26.000	0.000

Section No.	Elevation ft	Size	Actual V K	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
	11.3158 - 9.05263		23.65	0.454	26.000	0.035	0.54	0.005	26.000	0.000
	9.05263 - 6.78947		23.81	0.451	26.000	0.035	0.53	0.005	26.000	0.000
	6.78947 - 4.52632		23.97	0.449	26.000	0.035	0.53	0.004	26.000	0.000
	4.52632 - 2.26316		24.14	0.446	26.000	0.034	0.52	0.004	26.000	0.000
	2.26316 - 0		24.30	0.444	26.000	0.034	0.52	0.004	26.000	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	138.5 - 137	0.005	0.049	0.000	0.029	0.003	0.054 ✔	1.333	H1-3+VT ✔
	137 - 135.5	0.005	0.115	0.000	0.035	0.003	0.121 ✔	1.333	H1-3+VT ✔
	135.5 - 134	0.005	0.157	0.000	0.035	0.002	0.163 ✔	1.333	H1-3+VT ✔
	134 - 132.5	0.006	0.196	0.000	0.035	0.003	0.202 ✔	1.333	H1-3+VT ✔
	132.5 - 131	0.006	0.233	0.000	0.035	0.003	0.239 ✔	1.333	H1-3+VT ✔
	131 - 129.5	0.006	0.268	0.000	0.035	0.003	0.274 ✔	1.333	H1-3+VT ✔
	129.5 - 128	0.010	0.328	0.000	0.067	0.003	0.339 ✔	1.333	H1-3+VT ✔
	128 - 126.5	0.010	0.397	0.000	0.067	0.003	0.408 ✔	1.333	H1-3+VT ✔
	126.5 - 125	0.010	0.462	0.000	0.066	0.003	0.473 ✔	1.333	H1-3+VT ✔
	125 - 123.5	0.010	0.523	0.000	0.065	0.003	0.534 ✔	1.333	H1-3+VT ✔
	123.5 - 122	0.010	0.580	0.000	0.065	0.002	0.591 ✔	1.333	H1-3+VT ✔
	122 - 120.5	0.010	0.633	0.000	0.064	0.002	0.644 ✔	1.333	H1-3+VT ✔
	120.5 - 119	0.010	0.683	0.000	0.064	0.002	0.694 ✔	1.333	H1-3+VT ✔
	119 - 117.5	0.010	0.731	0.000	0.063	0.002	0.742 ✔	1.333	H1-3+VT ✔
	117.5 - 116	0.010	0.775	0.000	0.063	0.002	0.786 ✔	1.333	H1-3+VT ✔
	116 - 114.5	0.010	0.817	0.000	0.062	0.002	0.828 ✔	1.333	H1-3+VT ✔
	114.5 - 113	0.010	0.856	0.000	0.062	0.002	0.867 ✔	1.333	H1-3+VT ✔
	113 - 111.5	0.010	0.893	0.000	0.061	0.002	0.904 ✔	1.333	H1-3+VT ✔
	111.5 - 110	0.010	0.928	0.000	0.061	0.002	0.940 ✔	1.333	H1-3+VT ✔
	110 - 108.5	0.010	0.961	0.000	0.060	0.002	0.973 ✔	1.333	H1-3+VT ✔
L2	108.5 - 107.434	0.008	0.740	0.000	0.045	0.001	0.748 ✔	1.333	H1-3+VT ✔

Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	107.434 - 106.368	0.008	0.752	0.000	0.045	0.001	0.760 ✔	1.333	H1-3+VT ✔
	106.368 - 105.303	0.008	0.763	0.000	0.044	0.001	0.772 ✔	1.333	H1-3+VT ✔
	105.303 - 104.237	0.008	0.775	0.000	0.046	0.001	0.784 ✔	1.333	H1-3+VT ✔
	104.237 - 103.171	0.010	0.800	0.000	0.055	0.001	0.811 ✔	1.333	H1-3+VT ✔
	103.171 - 102.105	0.010	0.817	0.000	0.055	0.001	0.828 ✔	1.333	H1-3+VT ✔
	102.105 - 101.039	0.010	0.832	0.000	0.054	0.001	0.844 ✔	1.333	H1-3+VT ✔
	101.039 - 99.9737	0.010	0.847	0.000	0.054	0.001	0.859 ✔	1.333	H1-3+VT ✔
	99.9737 - 98.9079	0.010	0.862	0.000	0.053	0.001	0.873 ✔	1.333	H1-3+VT ✔
	98.9079 - 97.8421	0.010	0.875	0.000	0.053	0.001	0.886 ✔	1.333	H1-3+VT ✔
	97.8421 - 96.7763	0.011	0.888	0.000	0.053	0.001	0.899 ✔	1.333	H1-3+VT ✔
	96.7763 - 95.7105	0.011	0.900	0.000	0.052	0.001	0.911 ✔	1.333	H1-3+VT ✔
	95.7105 - 94.6447	0.011	0.911	0.000	0.052	0.001	0.923 ✔	1.333	H1-3+VT ✔
	94.6447 - 93.5789	0.011	0.922	0.000	0.052	0.001	0.934 ✔	1.333	H1-3+VT ✔
	93.5789 - 92.5132	0.011	0.933	0.000	0.051	0.001	0.944 ✔	1.333	H1-3+VT ✔
	92.5132 - 91.4474	0.011	0.942	0.000	0.051	0.001	0.954 ✔	1.333	H1-3+VT ✔
	91.4474 - 90.3816	0.011	0.952	0.000	0.051	0.001	0.963 ✔	1.333	H1-3+VT ✔
	90.3816 - 89.3158	0.011	0.960	0.000	0.050	0.001	0.972 ✔	1.333	H1-3+VT ✔
	89.3158 - 88.25	0.011	0.969	0.000	0.050	0.001	0.980 ✔	1.333	H1-3+VT ✔
	88.25 - 83.75	0.006	0.465	0.000	0.027	0.000	0.471 ✔	1.333	H1-3+VT ✔
L3	88.25 - 83.75	0.005	0.456	0.000	0.024	0.000	0.461 ✔	1.333	H1-3+VT ✔
	83.75 - 81.8194	0.010	0.857	0.000	0.046	0.001	0.868 ✔	1.333	H1-3+VT ✔
	81.8194 - 79.8889	0.010	0.871	0.000	0.045	0.001	0.882 ✔	1.333	H1-3+VT ✔
	79.8889 - 77.9583	0.011	0.883	0.000	0.045	0.001	0.894 ✔	1.333	H1-3+VT ✔
	77.9583 - 76.0278	0.011	0.895	0.000	0.044	0.001	0.906 ✔	1.333	H1-3+VT ✔
	76.0278 - 74.0972	0.011	0.905	0.000	0.044	0.001	0.916 ✔	1.333	H1-3+VT ✔
	74.0972 - 72.1667	0.011	0.914	0.000	0.043	0.000	0.926 ✔	1.333	H1-3+VT ✔
	72.1667 - 70.2361	0.011	0.923	0.000	0.043	0.000	0.934 ✔	1.333	H1-3+VT ✔
	70.2361 - 68.3056	0.011	0.931	0.000	0.043	0.000	0.942 ✔	1.333	H1-3+VT ✔
	68.3056 - 66.375	0.011	0.938	0.000	0.042	0.000	0.950 ✔	1.333	H1-3+VT ✔
	66.375 - 64.4444	0.011	0.945	0.000	0.042	0.000	0.956 ✔	1.333	H1-3+VT ✔

Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	64.4444 - 62.5139	0.011	0.951	0.000	0.042	0.000	0.962 ✔	1.333	H1-3+VT ✔
	62.5139 - 60.5833	0.011	0.956	0.000	0.041	0.000	0.968 ✔	1.333	H1-3+VT ✔
	60.5833 - 58.6528	0.011	0.961	0.000	0.041	0.000	0.972 ✔	1.333	H1-3+VT ✔
	58.6528 - 56.7222	0.011	0.965	0.000	0.040	0.000	0.977 ✔	1.333	H1-3+VT ✔
	56.7222 - 54.7917	0.011	0.969	0.000	0.040	0.000	0.981 ✔	1.333	H1-3+VT ✔
	54.7917 - 52.8611	0.011	0.972	0.000	0.040	0.000	0.984 ✔	1.333	H1-3+VT ✔
	52.8611 - 50.9306	0.012	0.976	0.000	0.040	0.000	0.988 ✔	1.333	H1-3+VT ✔
	50.9306 - 49	0.012	0.978	0.000	0.039	0.000	0.990 ✔	1.333	H1-3+VT ✔
	49 - 43	0.006	0.504	0.000	0.020	0.000	0.510 ✔	1.333	H1-3+VT ✔
L4	49 - 43	0.006	0.496	0.000	0.019	0.000	0.502 ✔	1.333	H1-3+VT ✔
	43 - 40.7368	0.013	1.016	0.000	0.039	0.000	1.029 ✔	1.333	H1-3+VT ✔
	40.7368 - 38.4737	0.013	1.017	0.000	0.038	0.000	1.030 ✔	1.333	H1-3+VT ✔
	38.4737 - 36.2105	0.013	1.018	0.000	0.038	0.000	1.031 ✔	1.333	H1-3+VT ✔
	36.2105 - 33.9474	0.013	1.019	0.000	0.038	0.000	1.032 ✔	1.333	H1-3+VT ✔
	33.9474 - 31.6842	0.013	1.019	0.000	0.037	0.000	1.032 ✔	1.333	H1-3+VT ✔
	31.6842 - 29.4211	0.013	1.019	0.000	0.037	0.000	1.032 ✔	1.333	H1-3+VT ✔
	29.4211 - 27.1579	0.013	1.021	0.000	0.037	0.000	1.034 ✔	1.333	H1-3+VT ✔
	27.1579 - 24.8947	0.013	1.027	0.000	0.037	0.000	1.040 ✔	1.333	H1-3+VT ✔
	24.8947 - 22.6316	0.013	1.033	0.000	0.036	0.000	1.046 ✔	1.333	H1-3+VT ✔
	22.6316 - 20.3684	0.014	1.038	0.000	0.036	0.000	1.052 ✔	1.333	H1-3+VT ✔
	20.3684 - 18.1053	0.014	1.044	0.000	0.036	0.000	1.058 ✔	1.333	H1-3+VT ✔
	18.1053 - 15.8421	0.014	1.049	0.000	0.036	0.000	1.064 ✔	1.333	H1-3+VT ✔
	15.8421 - 13.5789	0.014	1.055	0.000	0.035	0.000	1.069 ✔	1.333	H1-3+VT ✔
	13.5789 - 11.3158	0.014	1.060	0.000	0.035	0.000	1.075 ✔	1.333	H1-3+VT ✔
	11.3158 - 9.05263	0.014	1.066	0.000	0.035	0.000	1.080 ✔	1.333	H1-3+VT ✔
	9.05263 - 6.78947	0.015	1.071	0.000	0.035	0.000	1.086 ✔	1.333	H1-3+VT ✔
	6.78947 - 4.52632	0.015	1.076	0.000	0.035	0.000	1.091 ✔	1.333	H1-3+VT ✔
	4.52632 - 2.26316	0.015	1.082	0.000	0.034	0.000	1.097 ✔	1.333	H1-3+VT ✔
	2.26316 - 0	0.015	1.087	0.000	0.034	0.000	1.102 ✔	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	138.5 - 108.5	Pole	TP24.5x17.375x0.1875	1	-5.71	752.20	73.0	Pass
L2	108.5 - 83.75	Pole	TP31.88x24.5x0.25	2	-10.03	1249.44	73.5	Pass
L3	83.75 - 43	Pole	TP43.42x30.0382x0.3125	3	-18.52	2131.32	74.3	Pass
L4	43 - 0	Pole	TP55.5x41.0206x0.3125	4	-29.83	2629.01	82.7	Pass
							Summary	
						Pole (L4)	82.7	Pass
						RATING =	**82.7**	**Pass**

APPENDIX B

BASE LEVEL DRAWING

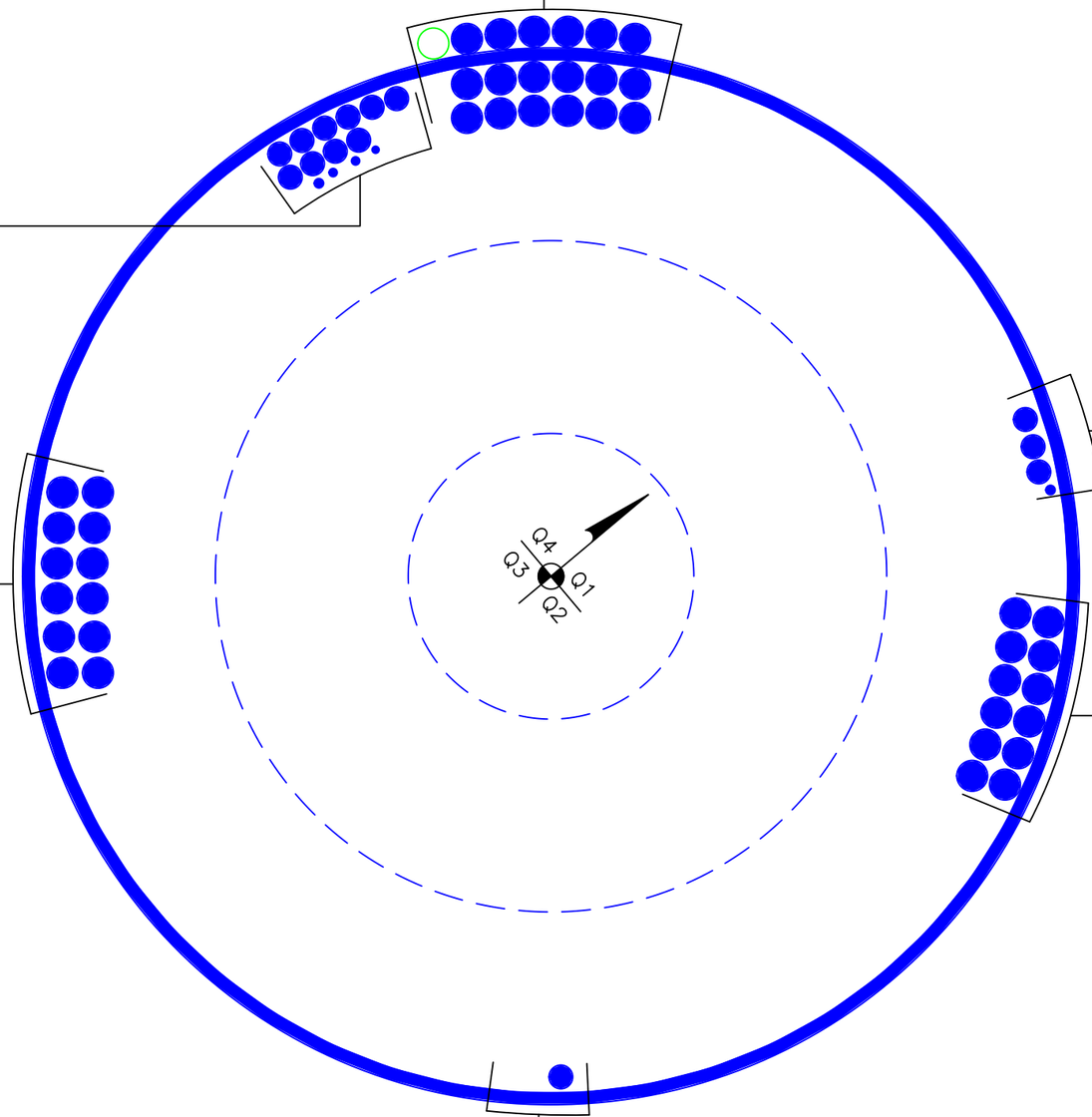
(RESERVED)
(1) 1–5/8" TO 129 FT LEVEL
(INSTALLED)
(18) 1–5/8" TO 129 FT LEVEL

(NOT INSTALLED)
(2) 3/4" TO 138 FT LEVEL
(10) 1–1/4" TO 138 FT LEVEL
(INSTALLED)
(1) 3/8" TO 138 FT LEVEL
(2) 7/16" TO 138 FT LEVEL
(12) 1–1/4" TO 138 FT LEVEL
(TO BE REMOVED)
(1) 1/2" TO 138 FT LEVEL

(TO BE REMOVED)
(12) 1–5/8" TO 119 FT LEVEL

(NOT INSTALLED)
(1) 1–1/4" TO 104 FT LEVEL
(INSTALLED)
(1) 1/2" TO 70 FT LEVEL
(3) 1–1/4" TO 104 FT LEVEL

(INSTALLED)
(12) 1–5/8" TO 87 FT LEVEL



(NOT INSTALLED)
(1) 1/2" TO 136 FT LEVEL
(INSTALLED)
(1) 1–1/4" TO 136 FT LEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

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

Site Data

BU#: *876380*
Site Name: *O&G Woodbury*
App #:

Pole Manufacturer:	Other

Reactions		
Moment:	271.29	ft-kips
Axial:	5.74	kips
Shear:	11.37	kips
Elevation:	108.5	feet

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

Bolt Data			
Qty:	24		
Diameter (in.):	1	Bolt Fu:	120
Bolt Material:	A325	Bolt Fy:	92
N/A:	75	<-- Disregard	Bolt Fty:
N/A:	55	<-- Disregard	44.00
Circle (in.):	28		

Plate Data		
Diam:	31	in
Thick, t:	1.5	in
Grade (Fy):	60	ksi
Strength, Fu:	75	ksi
Single-Rod B-eff:	3.24	in

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

Pole Data		
Diam:	24.5	in
Thick:	0.1875	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0	"0" if None

Stress Increase Factor		
ASIF:	1.333	

Flange Bolt Results

			Rigid
Bolt Tension Capacity, **B**:	46.07	kips	Service, ASD
Max Bolt directly applied T:	19.14	Kips	Fty*ASIF
Min. PL "tc" for **B** cap. **w/o** Pry:	1.340	in	
Min PL "treq" for actual **T w/ Pry**:	0.669	in	
Min PL "t1" for actual **T w/o Pry**:	0.864	in	
T allowable w/o Prying:	46.07	kips	α'<0 case
Prying Force, Q:	0.00	kips	
Total Bolt Tension=T+Q:	19.14	kips	
Non-Prying Bolt Stress Ratio, T/B:	41.5%	**Pass**	

Exterior Flange Plate Results Flexural Check

			Rigid
Compression Side Plate Stress:	17.4	ksi	Service ASD
Allowable Plate Stress:	60.0	ksi	0.75*Fy*ASIF
Compression Plate Stress Ratio:	28.9%	**Pass**	Comp. Y.L. Length:
No Prying			13.56
Tension Side Stress Ratio, (treq/t)^2:	19.9%	**Pass**	

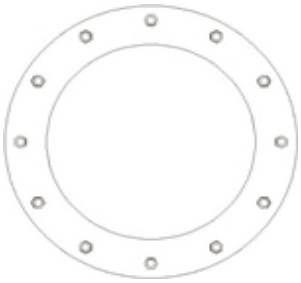
n/a

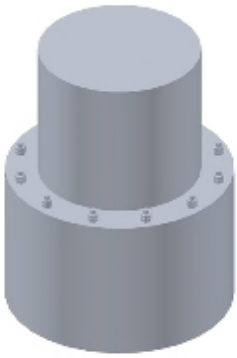
Stiffener Results

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

Pole Results

Pole Punching Shear Check: n/a





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

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

FDH VELOCITEL
ENGINEERING INNOVATION
FDH Velocitel, 6521 Meridien Dr. Raleigh, NC 27616, Ph. 919.755.1012, Fax 919.755.1031

Anchor Rod Design

Site Name:	O&G Woodbury	
Job No. :	876380	
Elevation:	0	
Tower Type:	Monopole	
Code (F or G):	F	
Anchor Bolts (Yes or No)	Yes	
P: Axial Load (TNX)	30	kips
V: Shear Load (TNX)	24	kips
M: Moment Load (TNX)	2438	ft-kips
Pier Diameter	7	ft

Legend
Input
Output/ Notes

Existing Rods		
y	32	in
No. Bolts	12	
BC	64	in
I	24453.12	in^4
Bolt Grade	A615-75	
Thread Form	Non-Upset	
Diameter (in)	2.25	
Ag	3.98	in^2
Ae	3.25	in^2
Fy	75	ksi
Fu	100	ksi

T	111.781	kips
V	2.000	kips
Itot	32604.16	in^4

New Rods		
y new	32	in
No. Bolts new	4	
BC new	64	in
Inew	8,151	in^4
Bolt Grade	A193 B7	
Thread Form	Non-Upset	
Diameter, new (in)	2.25	
Ag new	3.98	in^2
Ae new	3.25	in^2
Fy new	105	ksi
Fu new	125	ksi

Tnew*	114.281	kips
Vnew*		

*It is assumed that all of the Axial and Shear loads will be taken by the existing rods only

Req'd Embedment Length for New Rods		
f'c, caisson's concrete strength	4000	psi
fy, rebar yield strength	60000	psi
d_b, diameter of vertical rebar	1	in
vertical rebar cage BC ø	73	in
vertical rebar top cover distance	3	in
τ, Ultimate Hilti Bond Resistance	1.8	ksi
Clear Cover	5.5	in

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

l_d (vertical rebar dev. Length)	28.460	in
l_{dH} (Hilti dev. length)	51.613	in
G/1.5	3.000	in

Total Embed. Length of New Bolts	**51.61**	in
	4.30	ft

Capacity (%)				
Tn/Ω	194.5	kips	OK	**57.5%**
Tn/Ω, new	218.9	kips	OK	**52.2%**
øTn	260	kips		
øTn, new	325	kips		

Equations:
T = (M*y*Ag)/Itot-P*(Ag/Atotal) for Self Supports
T = (M*y*Ag)/Itot for Monopoles
Tn/Ω = 0.33*Fu*Ag*(4/3) for Rev. F
øTn = 0.8*Fu*Ae (anchor bolts only) for Rev. G **øTn = 0.75*Fu*Ae (non anchor bolts)**
V = V*(Ag/(Ag*No. Bolts))
I = (No. Bolts/8)*BC^2*Ag

Notes:
***Ag and Ae are taken from AISC 13th Ed. Manual (pg. 7-83)**
***I calc. will only work for symmetric bolt group, otherwise use CAD**
***All Axial and Shear Loads for MP are assumed to go to the existing rods**
***Weight of Tower for SST will only be added to the compression load of the existing rods**

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

TIA Rev F

Site Data

BU#: *876380*
Site Name: *O&G Woodbury*
App#:

Pole Manufacturer:	*Other*

Reactions		
*Moment:	3696.992	ft-kips
Axial:	30	kips
Shear:	24	kips

*Anchor Rod quantiy and Moment are modified due to consideration of modifications.

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

Anchor Rod Data		
*Qty:	24	
Diam:	2.25	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	64	in

Plate Data		
Diam:	70	in
Thick:	1.5	in
Grade:	60	ksi
Single-Rod B-eff:	7.34	in

Stiffener Data (Welding at both sides)		
Config:	1	*
Weld Type:	Fillet	
Groove Depth:		<-- Disregard
Groove Angle:		<-- Disregard
Fillet H. Weld:	0.375	in
Fillet V. Weld:	0.25	in
Width:	7	in
Height:	16	in
Thick:	0.5	in
Notch:	0.75	in
Grade:	50	ksi
Weld str.:	70	ksi

Pole Data		
Diam:	55.5	in
Thick:	0.3125	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0	"0" if None

Stress Increase Factor		
ASIF:	1.333	

Anchor Rod Results

		Stiffened
Maximum Rod Tension:	114.3 Kips	Service, ASD
Allowable Tension:	195.0 Kips	Fty*ASIF
Anchor Rod Stress Ratio:	58.6% **Pass**	

Base Plate Results

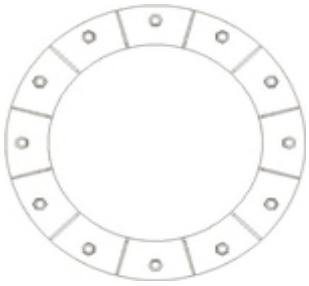
	Flexural Check	Stiffened
Base Plate Stress:	50.5 ksi	Service, ASD
Allowable Plate Stress:	60.0 ksi	0.75*Fy*ASIF
Base Plate Stress Ratio:	84.2% **Pass**	Y.L. Length: N/A, Roark

Stiffener Results

Horizontal Weld :	86.5% **Pass**
Vertical Weld:	60.8% **Pass**
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	30.9% **Pass**
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	71.1% **Pass**
Plate Comp. (AISC Bracket):	83.0% **Pass**

Pole Results

Pole Punching Shear Check:	15.8% **Pass**



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

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

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

Site Data

BU#: *876380*
Site Name: *O&G Woodbury*
App #:

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

Pad & Pier Data		
Base PL Dist. Above Pier:	0	in
Pier Dist. Above Grade:	12	in
Pad Bearing Depth, D:	6.5	ft
Pad Thickness, T:	3	ft
Pad Width=Length, L:	23	ft
Pier Cross Section Shape:	Square	<--Pull Down
Enter Pier Side Width:	7	ft
Concrete Density:	150.0	pcf
Pier Cross Section Area:	49.00	ft^2
Pier Height:	4.50	ft
Soil (above pad) Height:	3.50	ft

Soil Parameters		
Unit Weight, γ:	125.0	pcf
Ultimate Bearing Capacity, qn:	12.00	ksf
Strength Reduct. factor, ϕ:	0.75	
Angle of Friction, Φ:	34.0	degrees
Undrained Shear Strength, Cu:	0.00	ksf
Allowable Bearing: ϕ*qn:	9.00	ksf
Passive Pres. Coeff., Kp	3.54	

Forces/Moments due to Wind and Lateral Soil		
Minimum of (φ*Ultimate Pad Passive Force, Vu):	32.4	kips
Pad Force Location Above D:	1.35	ft
ϕ(Passive Pressure Moment):	43.74	ft-kips
Factored O.T. M(WL), "1.6W":	3534.3	ft-kips
Factored OT (MW-Msoil), M1	3490.56	ft-kips

Resistance due to Foundation Gravity		
Soil Wedge Projection grade, a:	2.36	ft
Sum of Soil Wedges Wt:	27.49	kips
Soil Wedges ecc, K1:	8.45	ft
Ftg+Soil above Pad wt:	481.1	kips
Unfactored (Total ftg-soil Wt):	508.61	kips
1.2D. **No Soil Wedges**.	613.35	kips
0.9D. **With Soil Wedges**	484.75	kips

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

Monopole Base Reaction Forces		
TIA Revision:	F	<--Pull Down
Unfactored DL Axial, PD:	30	kips
Unfactored WL Axial, PW:	0	kips
Unfactored WL Shear, V:	24	kips
Unfactored WL Moment, M:	2438	ft-kips

Load Factor	Shaft Factored Loads		
1.20	1.2D+1.6W, Pu:	36	kips
0.90	0.9D+1.6W, Pu:	27	kips
1.35	Vu:	32.4	kips
	Mu:	3291.3	ft-kips

1.2D+1.6W Load Combination, Bearing Results:

(**No Soil Wedges**) [Reaction+Conc+Soil]	613.35	P1="1.2D+1.6W" (Kips)
Factored "1.6W" Overturning Moment (MW-Msoil), M1	3490.56	ft-kips

Orthogonal Direction:

ecc1 = M1/P1 =	5.69	ft
Orthogonal qu=	2.31	ksf
qu/ϕ*qn Ratio=	**25.63%**	**Pass**

Diagonal Direction:

ecc2 = (0.707M1)/P1 =	4.02	ft
Diagonal qu=	2.74	ksf
qu/ϕ*qn Ratio=	**30.48%**	**Pass**

Run <-- Press Upon Completing All Input

Overturning Stability Check

0.9D+1.6W Load Combination, Bearing Results:

(**w/ Soil Wedges**) [Reaction+Conc+Soil]	484.75	P2="0.9D+1.6W" (Kips)
Factored "1.6W" Overturning Moment (MW-Msoil) - 0.9(M of Wedge + M of Cohesion), M2	3281.56	ft-kips

Orthogonal ecc3 = M2/P2 =	6.77	ft
Ortho Non Bearing Length,NBL=	13.54	ft
Orthogonal qu=	2.23	ksf
Diagonal qu=	2.69	ksf

Max Reaction Moment (ft-kips) so that qu=φ*qn = 100% Capacity Rating			
Actual M:	2438.00		
M Orthogonal:	3733.50	**65.30%**	**Pass**
M Diagonal:	3733.50	**65.30%**	**Pass**

FDH VELOCITEL
ENGINEERING INNOVATION

Verision: 2.1
Version Date: 12/17/2015

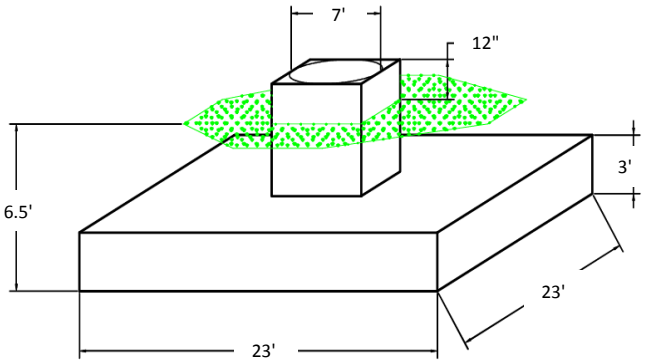
FDH Velocitel -- 6521 Meridien Drive, Raleigh, NC 27616 -- Ph. 919.755.1012 -- Fax 919.755.1031

MONOPOLE PAD AND PIER STEEL CHECKS

Project & Site Details			
Project No.	16BBJO1400	Rev.	2
Project Name	O&G WOODBURY		
Site ID	876380		
Date	Tuesday, January 26, 2016		
Code	TIA/EIA-222-F		
Overstress Capacity	105%		

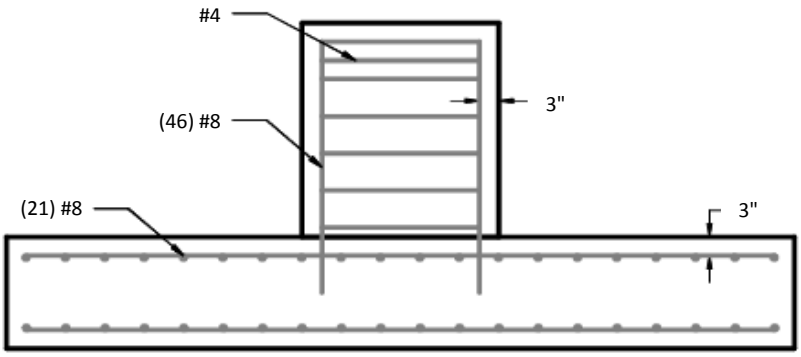
tnx Reactions		
Moment, M	2,438	kip-ft
Shear, V	24	k
Axial, P	30	k

Foundation Details		
Pier Above Grade, E	1.0	ft
Pad Depth Below Grade, D	6.5	ft
Pad Width, W	23.0	ft
Pad Thickness, T	3.0	ft
Pier Shape	Square	-
Pier Diameter, D_p	7.0	ft
Density of Soil, γ_s	0.125	kcf
Density of Concrete, γ_c	0.150	kcf



Pad Steel Details		
Horiz. Bar Size	#8	-
Pad Bar Diameter, d_b	1	in
Number of pad bars, n	21	-
Strength of Concrete, f_c'	4,000	psi
Clear Cover, cc	3.0	in
Yield Strength of Steel, F_y	60	ksi

Pier Steel Details		
Vertical Bar Size	#8	-
Pier Bar Diameter, d_v	1	in
Number of pier bars, n_v	46	-
Tie Size	#4	-
Tie Bar Diameter, d_t	0.5	in
Clear Cover, cc	3.0	in



Pad Steel Checks		
Pad Shear	22.5%	PASS
Two-Way Shear	17.7%	PASS
Pad Flexure	48.1%	PASS
Steel Yielding	OK	

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

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

Site Data

BU#:
Site Name:
App #:

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

Pier Properties

Concrete:

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

Reinforcement:

Clear Cover to **Tie**=	3.00	in
Horiz. **Tie** Bar Size=	4	
Vert. Cage Diameter =	6.33	ft
Vert. Cage Diameter =	76.00	in
Vertical Bar Size =	8	
Bar Diameter =	1.00	in
Bar Area =	0.79	in^2
Number of Bars =	46	
As Total=	36.34	in^2
A s/ Aconc, Rho:	0.0066	0.66%

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

(3)*(Sqrt(f'c)/Fy:	0.0032
200 / Fy:	0.0033

Minimum Rho Check:

Actual Req'd Min. Rho:	0.33%	Flexural
Provided Rho:	0.66%	**OK**

Ref. Shaft Max Axial Capacities, ϕ Max(Pn or Tn):		
Max Pu = (φ=0.65) Pn.		
Pn per ACI 318 (10-2)	10867.41	kips
at Mu=(ϕ=0.65)Mn=	6648.90	ft-kips
Max Tu, (φ=0.9) Tn =	1962.36	kips
at Mu=ϕ=(0.90)Mn=	0.00	ft-kips

Maximum Shaft Superimposed Forces

TIA Revision:	F	
Max. Service Shaft M:	2438	ft-kips **(* Note)**
Max. Service Shaft P:	30	kips
Max Axial Force Type:	Tension	

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

Load Factor	**Shaft Factored Loads**		
1.30	Mu:	3169.4	ft-kips
1.30	Pu:	39	kips

Material Properties

Concrete Comp. strength, f'c =	4000	psi
Reinforcement yield strength, Fy =	60	ksi
Reinforcing Modulus of Elasticity, E =	29000	ksi
Reinforcement yield strain =	0.00207	
Limiting compressive strain =	0.003	

ACI 318 Code

Select Analysis ACI Code=	2002

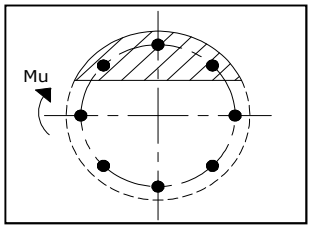
Seismic Properties

Seismic Design Category =	C
Seismic Risk =	**Moderate**

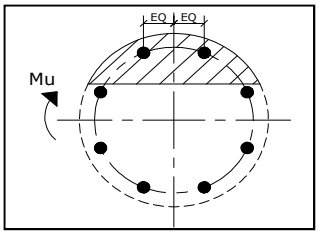
Solve (Run) <-- Press Upon Completing All Input

Results:

Governing Orientation Case: **2**



Case 1



Case 2

Dist. From Edge to Neutral Axis:	**11.96**	in
Extreme Steel Strain, ϵt:	**0.0170**	
	ϵt > 0.0050, Tension Controlled	
Reduction Factor,φ:	**0.900**	

Output Note: Negative Pu=Tension

For Axial Compression, φ Pn = Pu:	-39.00	kips
Drilled Shaft Moment Capacity, φMn:	**5676.60**	ft-kips
Drilled Shaft Superimposed Mu:	**3169.40**	ft-kips

(Mu/φMn, Drilled Shaft Flexure CSR:	**55.8%**

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

AT&T Existing Facility

Site ID: CT2066

Woodbury CT Great Hollow Road
103 Great Hollow Road
Woodbury, CT 06798

January 20, 2016

EBI Project Number: 6216000228

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	12.88 %

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

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January 20, 2016

AT&T Mobility – New England
Attn: Cameron Syme, RF Manager
550 Cochituate Road
Suite 550 – 13&14
Framingham, MA 06040

Emissions Analysis for Site: **CT2066 – Woodbury CT Great Hollow Road**

EBI Consulting was directed to analyze the proposed AT&T facility located at **103 Great Hollow Road, Woodbury, CT**, for the purpose of determining whether the emissions from the Proposed AT&T 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 limits for the 700 and 850 MHz Bands are approximately 467 $\mu W/cm^2$ and 567 $\mu W/cm^2$ respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 2300 MHz (WCS) 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 AT&T Wireless antenna facility located at **103 Great Hollow Road, Woodbury, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T 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 UMTS channels (850 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 (PCS Band – 1900 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 (700 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

4) 2 LTE channels (PCS Band – 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

5) 2 GSM channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

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 Powerwave 7770, CCI HPA-65R-BUU-H6 and the Commscope SBNHH-1D65A for transmission in the 700 MHz, 850 MHz and 1900 MHz (PCS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. 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 **139 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.

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AT&T Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	Powerwave 7770	Make / Model:	Powerwave 7770	Make / Model:	Powerwave 7770
Gain:	11.4 / 13.4 dBd	Gain:	11.4 / 13.4 dBd	Gain:	11.4 / 13.4 dBd
Height (AGL):	139 feet	Height (AGL):	139 feet	Height (AGL):	139 feet
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	120	Total TX Power(W):	120	Total TX Power(W):	120
ERP (W):	2,140.89	ERP (W):	2,140.89	ERP (W):	2,140.89
Antenna A1 MPE%	**0.56**	Antenna B1 MPE%	**0.56**	Antenna C1 MPE%	**0.56**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	CCI HPA-65R-BUU-H6	Make / Model:	Commscope SBNHH-1D65A	Make / Model:	Commscope SBNHH-1D65A
Gain:	13.35 / 15.25 dBd	Gain:	10.85 / 14.65 dBd	Gain:	10.85 / 14.65 dBd
Height (AGL):	139 feet	Height (AGL):	139 feet	Height (AGL):	139 feet
Frequency Bands	700 MHz / 1900 MHz (PCS)	Frequency Bands	700 MHz / 1900 MHz (PCS)	Frequency Bands	700 MHz / 1900 MHz (PCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	240	Total TX Power(W):	240	Total TX Power(W):	240
ERP (W):	6,614.85	ERP (W):	4,960.34	ERP (W):	4,960.34
Antenna A2 MPE%	**1.95**	Antenna B2 MPE%	**1.35**	Antenna C2 MPE%	**1.35**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Powerwave 7770	Make / Model:	Powerwave 7770	Make / Model:	Powerwave 7770
Gain:	11.4 dBd	Gain:	11.4 dBd	Gain:	11.4 dBd
Height (AGL):	139 feet	Height (AGL):	139 feet	Height (AGL):	139 feet
Frequency Bands	850 MHz	Frequency Bands	850 MHz	Frequency Bands	850 MHz
Channel Count	2	Channel Count	2	Channel Count	2
Total TX Power(W):	60	Total TX Power(W):	60	Total TX Power(W):	60
ERP (W):	828.23	ERP (W):	828.23	ERP (W):	828.23
Antenna A3 MPE%	**0.30**	Antenna B3 MPE%	**0.30**	Antenna C3 MPE%	**0.30**

Site Composite MPE%	
Carrier	**MPE%**
AT&T – Max per sector	**2.81 %**
Sprint	1.20 %
Verizon Wireless	3.50 %
Nextel	0.59 %
T-Mobile	4.64 %
CL&P	0.14 %
Site Total MPE %:	**12.88 %**

AT&T Sector 1 Total:	2.81 %
AT&T Sector 2 Total:	2.21 %
AT&T Sector 3 Total:	2.21 %
Site Total:	12.88 %

AT&T _ Per Sector (Max Sector – Sector A)	**# Channels**	**Watts ERP (Per Channel)**	**Height (feet)**	**Total Power Density ($\mu W/cm^2$)**	**Frequency (MHz)**	**Allowable MPE ($\mu W/cm^2$)**	**Calculated % MPE**
AT&T 850 MHz UMTS	2	414.12	139	1.68	850	567	0.30 %
AT&T 1900 MHz (PCS) UMTS	2	656.33	139	2.67	1900	1000	0.27 %
AT&T 700 MHz LTE	2	1297.63	139	5.27	700	467	1.13 %
AT&T 1900 MHz (PCS) LTE	2	2009.79	139	8.17	1900	1000	0.82 %
AT&T 850 MHz GSM	2	414.12	139	1.68	850	567	0.30 %
						Total:	2.81 %

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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 AT&T 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:

AT&T Sector	Power Density Value (%)
Sector 1:	2.81 %
Sector 2:	2.21 %
Sector 3 :	2.21 %
AT&T Maximum Total (per sector):	2.81 %
Site Total:	12.88 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **12.88%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

Scott Heffernan
RF Engineering Director

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