Crown Castle
500 West Cummings Park, Suite 3600
Woburn, MA 01801

December 8, 2014

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

RE: **AT&T-Exempt Modification – Crown Castle Site ID: 876341**
AT&T Site ID: CT1023
Located at: 1969 Saybrook Road, Middletown, CT 06457

Dear Ms. Bachman:

This letter and exhibits are submitted on behalf of AT&T. AT&T is making modifications to certain existing sites in its Connecticut system in order to maintain their LTE technology. Please accept this letter and exhibits as notification, pursuant to § 16-50j-73 of the Regulations of Connecticut State Agencies ("R.C.S.A."), of construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In compliance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to The Honorable Daniel T. Drew, Mayor for the Town of Middletown, and Thomas and Mieke Crider, Property Owners.

Crown Castle is responsible for this wireless facility located at **1969 Saybrook Road, Middletown, CT 06457**. AT&T proposes to modify their existing antenna array to include the addition of three (3) antennas, three (3) remote radio heads, and one (1) fiber cable. Attached are a compound plan and elevation depicting the planned changes (Exhibit-1), and documentation of the structural sufficiency of the structure to accommodate the revised antenna configuration (Exhibit-2). Also included is a power density table report reflecting the modification to AT&T's operations at the site (Exhibit-3).

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

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

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

3. The proposed modifications will not increase noise levels at the facility by six decibels or more.
4. A Structural Modification Report confirming that the tower and foundation can support AT&T's proposed modifications is included as Exhibit-2.

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

For the foregoing reasons, AT&T respectfully submits the proposed modifications to the above-reference telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Jeffrey Barbadora
Real Estate Specialist
Telephone: 781-970-0053
Email: jeff.barbadora@crowncastle.com

Enclosures

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

cc: The Honorable Daniel T. Drew, Town Mayor
245 deKoven Drive
Middletown, CT 06457

Thomas and Mieke Crider
100 Russian Village Road
A/K/A Mieke Maas
Southbury, CT 06488

PROJECT INFORMATION

SCOPE OF WORK:
- REMOVE EXISTING GSM & LTE ANTENNAS; EXISTING SECTOR MOUNTING PLATFORM AND UMTS ANTENNAS TO REMAIN.
- AT&T ANTENNAS: (2) NEW LTE ANTENNAS PER SECTOR WITH (3) SECTORS, FOR A TOTAL OF (6) NEW LTE ANTENNAS; (3) EXISTING UMTS ANTENNAS & TMAs TO BE RE-USED (1 PER SECTOR)
- 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 MODULES PER SECTOR WITH (3) SECTORS, FOR A TOTAL OF (3) A2 MODULES.
- (1) NEW AT&T DC6 SURGE SUPPRESSORS; (1) EXISTING DC6 TO BE REUSED.
- NEW POWER PLANT.
- NEW LTE RBS-6601 & DC-DC CONVERTER INSTALLED IN EXISTING LTE RACK
- (2) NEW FIBER TRUNKS & (4) NEW DC TRUNKS TOTAL.
- (12) EXISTING IDEN ANTENNAS AND MOUNTING PLATFORM AT ±100' AGL TO BE REMOVED. ALL ASSOCIATED IDEN TRANSMISSION LINES & CABLES TO BE REMOVED.

SITE ADDRESS: 1969 SAYBROOK ROAD
MIDDLETOWN, CT 06457

LATITUDE: 41.510631 41° 30' 38.27"N
LONGITUDE: -72.593360 -72° 35' 36.09"W

USID: 59342

TOWER OWNER: CROWN CASTLE
2000 CORPORATE DRIVE
CANONSBURG, PA 15317

TYPE OF SITE: MONOPOLE/INDOOR EQUIPMENT

MONOPOLE HEIGHT: 150'-0"±
RAD CENTER: 132'-0"±

CURRENT USE: UNMANNED WIRELESS TELECOMMUNICATIONS FACILITY
PROPOSED USE: UNMANNED WIRELESS TELECOMMUNICATIONS FACILITY

at&t MOBILITY

FA CODE: 10035294
SITE NUMBER: CT1023
SITE NAME:
MIDDLETOWN - SAYBROOK RD.

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: CROWN CASTLE
ADDRESS: 2000 CORPORATE DRIVE
CANONSBURG, PA 15317
CONTACT: TO BE PROVIDED
PHONE: TO BE PROVIDED
EMAIL: TO BE PROVIDED

ZONING:
COMPANY: CROWN CASTLE
ADDRESS: 2000 CORPORATE DRIVE
CANONSBURG, PA 15317
CONTACT: TO BE PROVIDED
PHONE: TO BE PROVIDED
EMAIL: TO BE PROVIDED

ENGINEERING:
COMPANY: COM-EX CONSULTANTS, LLC
ADDRESS: 4 SECOND AVENUE
SUITE 204
DENVILLE, NJ 07834
CONTACT: NICHOLAS D. BARILE, P.E.
PHONE: 862-209-4300
EMAIL: nbarile@comexconsultants.com

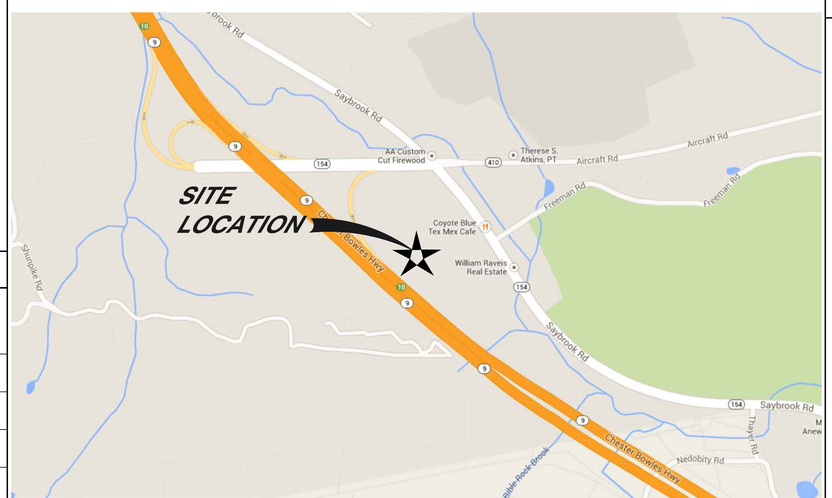
RF ENGINEER:
COMPANY: AT&T MOBILITY - NEW ENGLAND
ADDRESS: 550 COCHITUATE ROAD
SUITE 550 13 & 14
FRAMINGHAM, MA 01701
CONTACT: CAMERON SYME
PHONE: 508-596-7146
EMAIL: cs6970@att.com

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

DRAWING INDEX

VICINITY MAP

1. HEAD WEST ON COCHITUATE RD TOWARD BURR ST (0.3 MI). 2. TURN LEFT ONTO SHOPPERS WORLD DR (230 FT). 3. MAKE A U-TURN AT RING RD (138 FT). 4. TAKE THE 1ST RIGHT ONTO COCHITUATE RD (0.3 MI). 5. TAKE THE RAMP TO I-90 E/MASSPIKE W/SPRINGFIELD/BOSTON (0.6 MI). 6. KEEP LEFT AT THE FORK, FOLLOW SIGNS FOR INTERSTATE 90 W/MASSACHUSETTS TURNPIKE/WORCESTER/SPRINGFIELD AND MERGE ONTO I-90 W/MASSACHUSETTS TURNPIKE (38.3 MI). 7. TAKE EXIT 9 TO MERGE ONTO I-84 TOWARD US-20/HARTFORD/NEW YORK CITY (41.7 MI). 8. KEEP LEFT TO CONTINUE ON CT-15 S, FOLLOW SIGNS FOR I-91 S/CHARTER OAK BRIDGE/N Y. CITY (1.1 MI). 9. CONTINUE ONTO CT-15 S/US-5 S (0.8 MI). 10. TAKE EXIT 86 TO MERGE ONTO I-91 S TOWARD NEW HAVEN/NEW YORK CITY (8.9 MI). 11. TAKE EXIT 22S ON THE LEFT TO MERGE ONTO CT-9 S TOWARD MIDDLETOWN/OLD SAYBROOK (5.5 MI). 12. CONTINUE ONTO CT-17 S/CT-9 S (0.8 MI). 13. CONTINUE ONTO CT-9 S (7.5 MI). 14. TAKE EXIT 9 FOR CT-81 TOWARD KILLINGWORTH/CLINTON (0.2 MI). 15. TURN LEFT ONTO CT-81 N/KILLINGWORTH RD (0.1 MI). 16. SLIGHT RIGHT TO MERGE ONTO CT-9 N TOWARD MIDDLETOWN (3.4 MI). 17. TAKE EXIT 10 FOR AIRCRAFT RD/CT-154 S - DESTINATION WILL BE ON THE RIGHT (36 FT).



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.

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:	DATE:
SITE ACQUISITION:		
CONSTRUCTION MANAGER:		
AT&T PROJECT MANAGER:		

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
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MIDDLESEX COUNTY

at&t MOBILITY
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NO.	DATE	REVISIONS	BY	CHK	APP'D
0	12/08/14	INITIAL SUBMISSION	CJT	NDB	NDB

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

SEAL: STATE OF CONNECTICUT NICHOLAS D. BARILE No. 28643 LICENSED PROFESSIONAL ENGINEER
12/05/14

AT&T

DRAWING TITLE: TITLE SHEET

JOB NUMBER	DRAWING NUMBER	REV
14015-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.

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.

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DENVILLE, NJ 07834
PHONE: 862.209.4300
FAX: 862.209.4301

EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01821

SITE NUMBER: CT1023
SITE NAME: MIDDLETOWN-SAYBROOK RD.

1969 SAYBROOK ROAD
MIDDLETOWN, CT 06457
MIDDLESEX COUNTY

at&t MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	12/08/14	INITIAL SUBMISSION	CJT	NDB	NDB

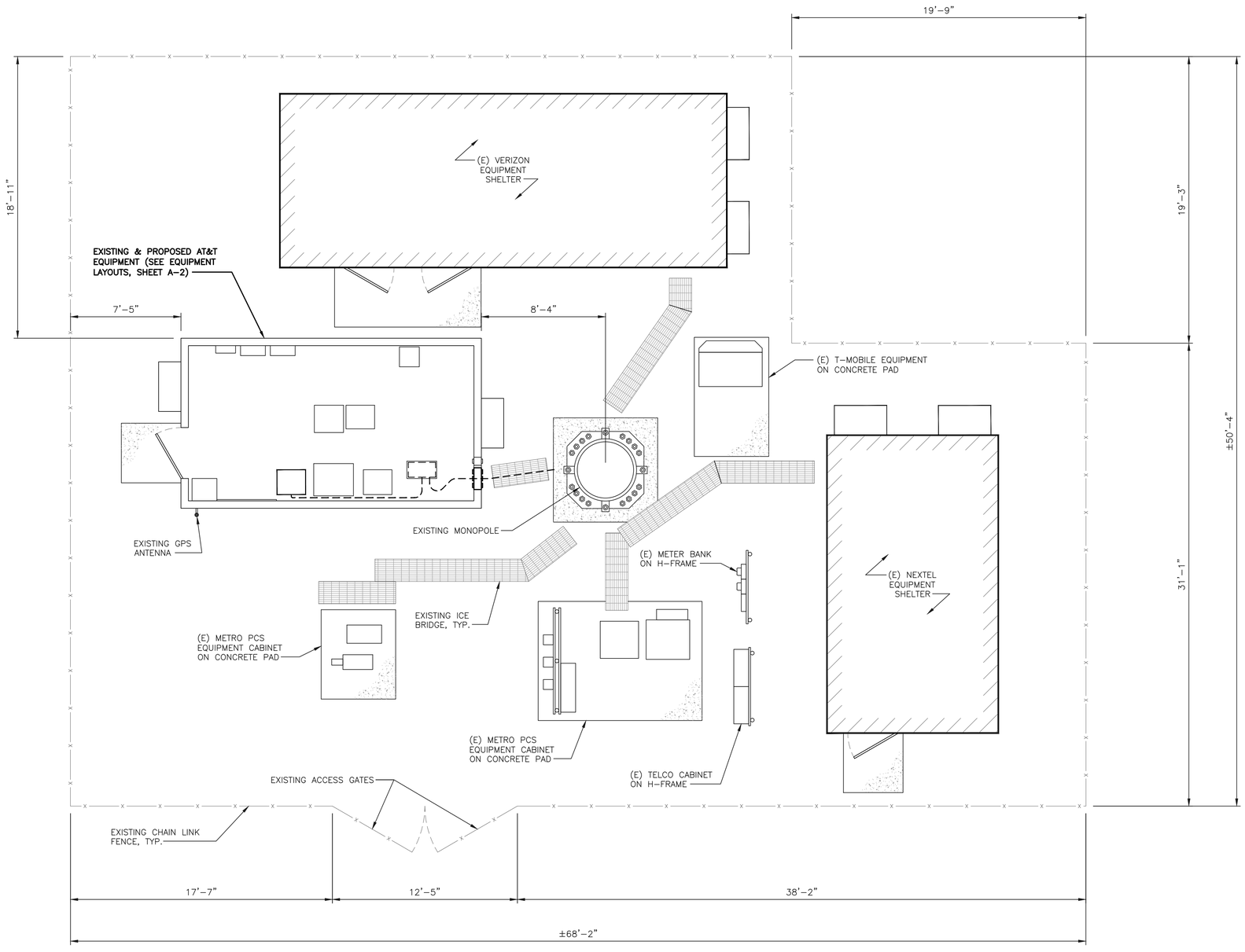
SCALE: AS SHOWN | DESIGNED BY: CJT | DRAWN BY: DAB

SEAL: STATE OF CONNECTICUT · DOUGLAS C. DUBOIS · No. 28634 · LICENSED PROFESSIONAL ENGINEER
12/05/14

AT&T

DRAWING TITLE: GROUNDING NOTES & GENERAL NOTES

JOB NUMBER	DRAWING NUMBER	REV
14015-EMP	GN-1	0



COMPOUND LAYOUT

SCALE: 1" = 4'-0"

4 0 2 4 8 16

(IN FEET)
1/4 inch = 1 Foot

14.13° W

NORTH

COM-EX Consultants
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SUITE 204
DENVILLE, NJ 07834
PHONE: 862.209.4300
FAX: 862.209.4301

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BILLERICA, MA 01821

SITE NUMBER: CT1023
SITE NAME: MIDDLETOWN-SAYBROOK RD.

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MIDDLESEX COUNTY

at&t MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	12/08/14	INITIAL SUBMISSION	CJT	NDB	NDB

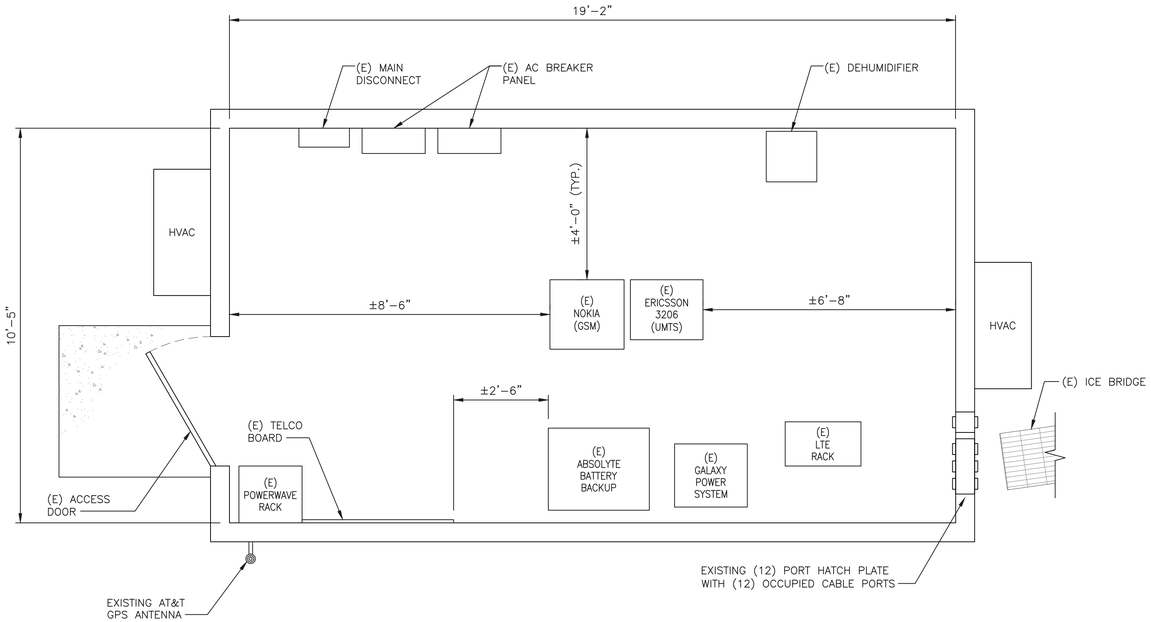
SCALE: AS SHOWN | DESIGNED BY: CJT | DRAWN BY: DAB

SEAL:
STATE OF CONNECTICUT
NICHOLAS D. BARBA
No. 28643
LICENSED PROFESSIONAL ENGINEER
12/05/14

AT&T

DRAWING TITLE: COMPOUND LAYOUT

JOB NUMBER	DRAWING NUMBER	REV
14015-EMP	A-1	0



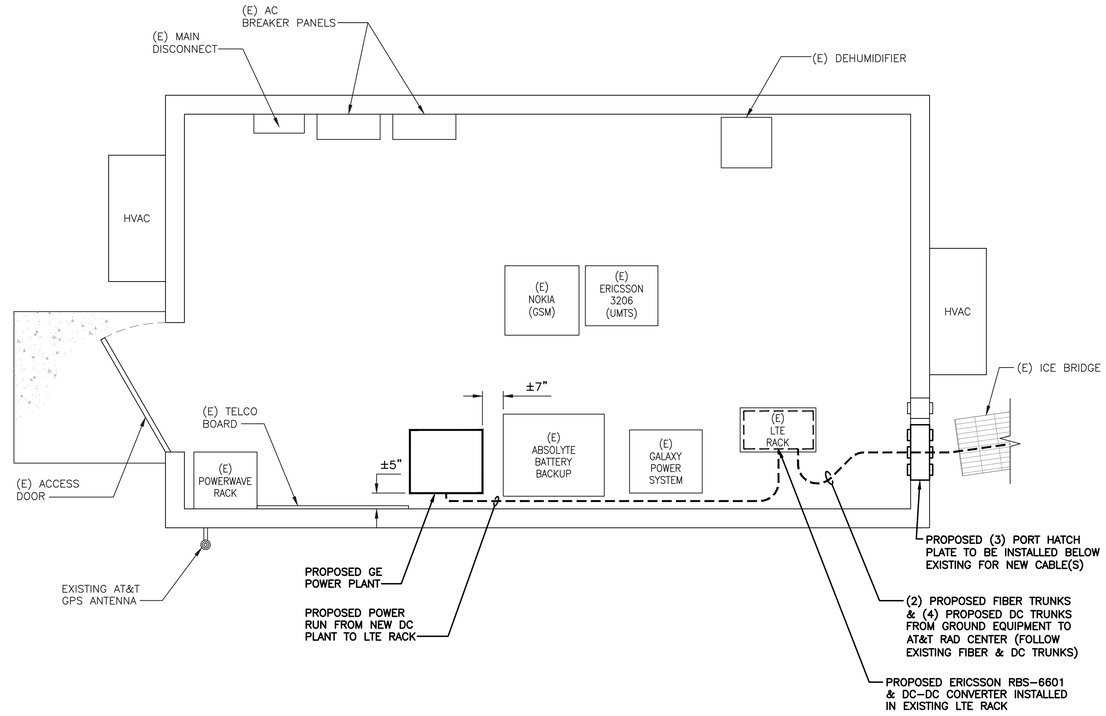
EXISTING EQUIPMENT LAYOUT

SCALE: 1" = 2'-0"

2 0 1 2 4 8

(IN FEET)
1/2 Inch = 1 Foot

NORTH

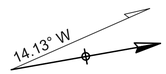


PROPOSED EQUIPMENT LAYOUT

SCALE: 1" = 2'-0"

2 0 1 2 4 8

(IN FEET)
1/2 Inch = 1 Foot



NORTH

COM-EX Consultants
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FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	12/08/14	INITIAL SUBMISSION	CJT	NDB	NDB

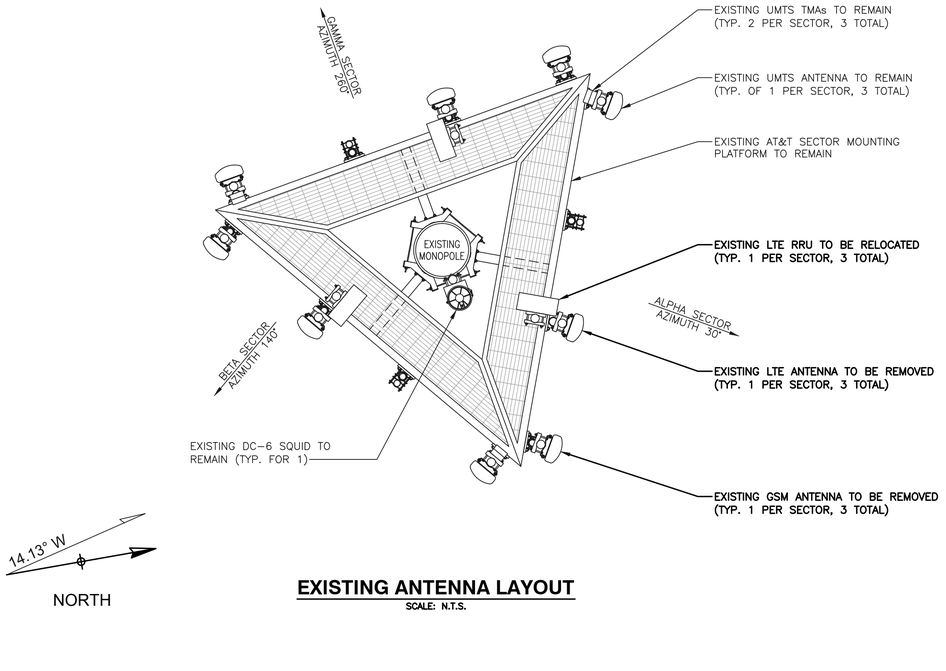
SCALE: AS SHOWN | DESIGNED BY: CJT | DRAWN BY: DAB

SEAL: STATE OF CONNECTICUT · NICHOLAS D. BARNES · No. 28643 · LICENSED PROFESSIONAL ENGINEER
12/05/14

AT&T

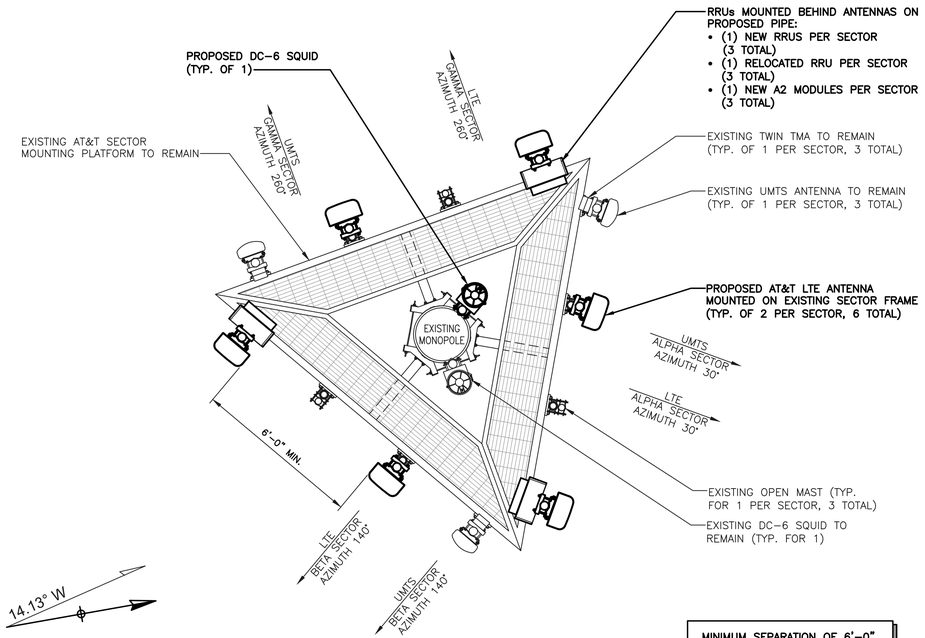
DRAWING TITLE: EQUIPMENT LAYOUTS

JOB NUMBER	DRAWING NUMBER	REV
14015-EMP	A-2	0



EXISTING ANTENNA LAYOUT

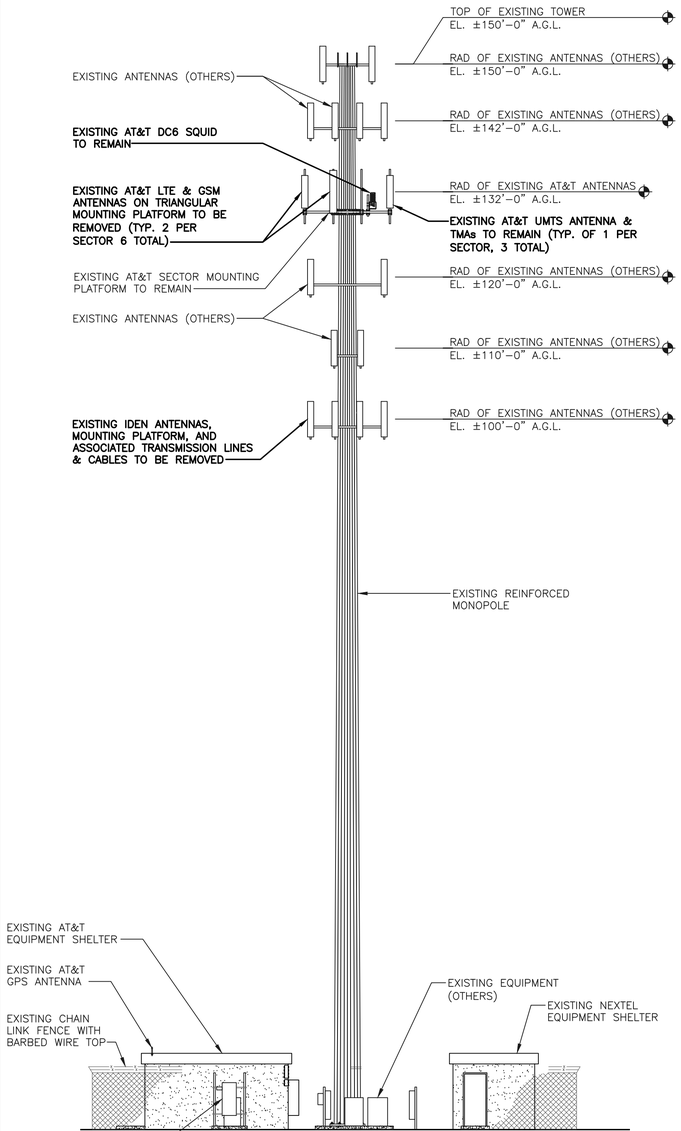
SCALE: N.T.S.



PROPOSED ANTENNA LAYOUT

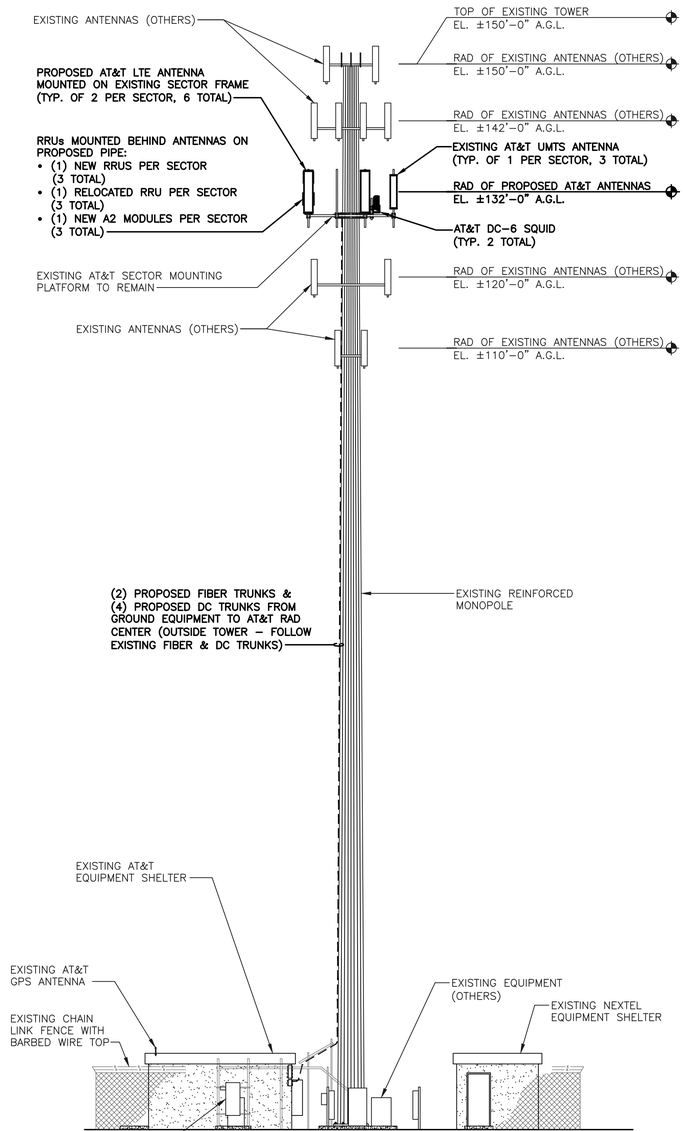
SCALE: N.T.S.

MINIMUM SEPARATION OF 6'-0" TO BE MAINTAINED BETWEEN ALL PROPOSED AT&T LTE ANTENNAS



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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SEAL: STATE OF CONNECTICUT — NICHOLAS D. BARBER — No. 29643 — LICENSED PROFESSIONAL ENGINEER — 12/05/14

AT&T

DRAWING TITLE:
ANTENNA LAYOUTS & ELEVATIONS

JOB NUMBER	DRAWING NUMBER	REV
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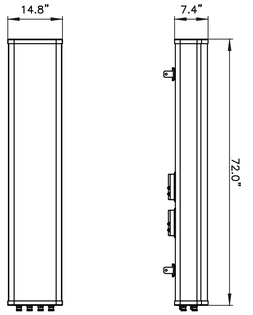


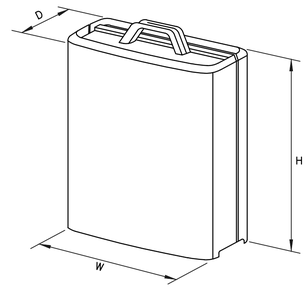
FRONT VIEW SIDE VIEW

BOTTOM VIEW

MANUFACTURER	CCI
MODEL	OPA-65R-LCUU-H6
WEIGHT	73.0 LBS

LTE ANTENNA DETAIL

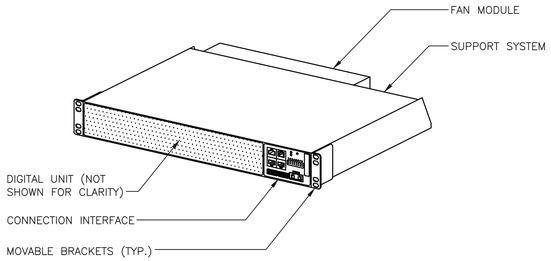
SCALE: N.T.S.



MODEL	L x W x H	WEIGHT
RRUS-11	19.69" x 16.97" x 7.17"	50.7 LBS
RRUS-12	20.4" x 18.5" x 7.5"	58 LBS
RRUS-32	29.9" x 13.3" x 9.5"	77 LBS
RRUS-E2	20.4" x 18.5" x 7.5"	58 LBS
A2 MODULE	16.4" x 15.2" x 3.4"	22 LBS

RRUS DETAIL

SCALE: N.T.S.

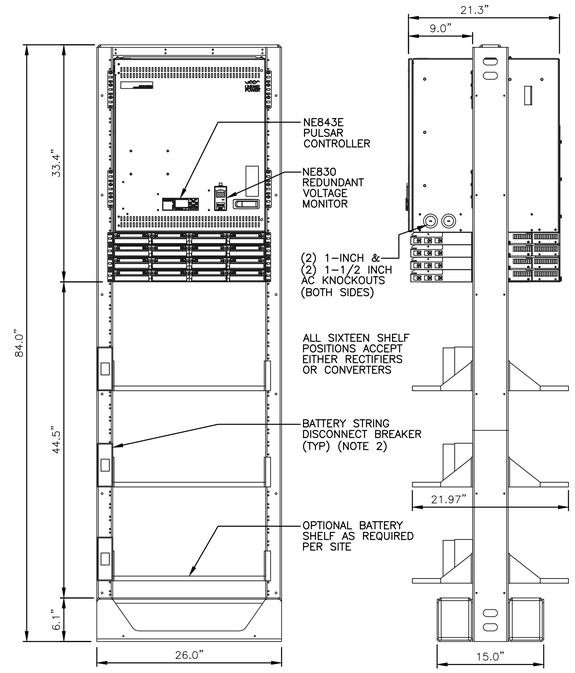


PHYSICAL CHARACTERISTICS	
HEIGHT	2.59" (1.5 U)
WIDTH	19"
DEPTH	13.77"
WEIGHT (FULLY EQUIPPED)	<22 LBS.
COLOR	WHITE

DC POWER SUPPLY	
NOMINAL VOLTAGE	-48VDC
OPERATING VOLTAGE RANGE	-40.0 TO -57.6 VDC
NON-DESTRUCTIVE VOLTAGE RANGE	0 TO -60 VDC

RBS 6601 DETAIL

SCALE: N.T.S.



FRONT VIEW SIDE VIEW

WEIGHT:
FRAME W/DC POWER SYSTEM AND W/O BATTERIES = 435lbs

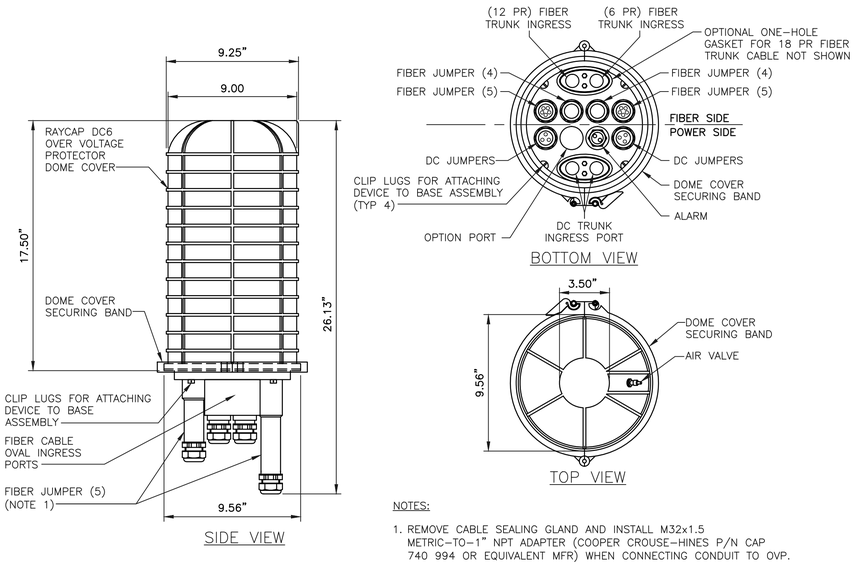
BATTERY SHELF (W/(4) 155AH BATTERIES = APPROXIMATELY 500lbs PER SHELF

CLEARANCE:
FRONT = 36"
REAR = 6"
SIDES = 2"

NOTES:
1. GE/LINEAGE FLOOR ANCHOR KIT (847135688) MAY BE USED UNLESS LOCAL REQUIREMENTS GOVERN.
2. DISCONNECT MAY BE MOUNTED TO EITHER SIDE OF TRAY OR DIRECTLY TO FRAMEWORK
3. PER MANUFACTURER, FRAME IS SEISMIC COMPLIANT UP TO 3 BATTERY SHELVES.

POWER PLANT DETAIL

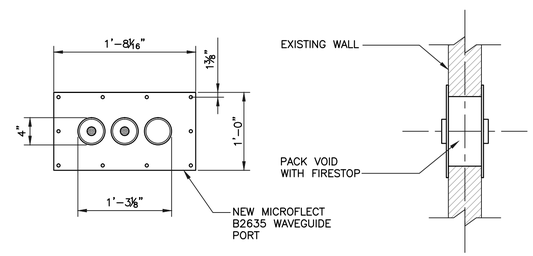
SCALE: N.T.S.



NOTES:
1. REMOVE CABLE SEALING GLAND AND INSTALL M32x1.5 METRIC-TO-1" NPT ADAPTER (COOPER CROUSE-HINES P/N CAP 740 994 OR EQUIVALENT MFR) WHEN CONNECTING CONDUIT TO OVP.

DC-6 SURGE SUPPRESSOR DETAIL

SCALE: N.T.S.



HATCH PLATE DETAIL

SCALE: N.T.S.

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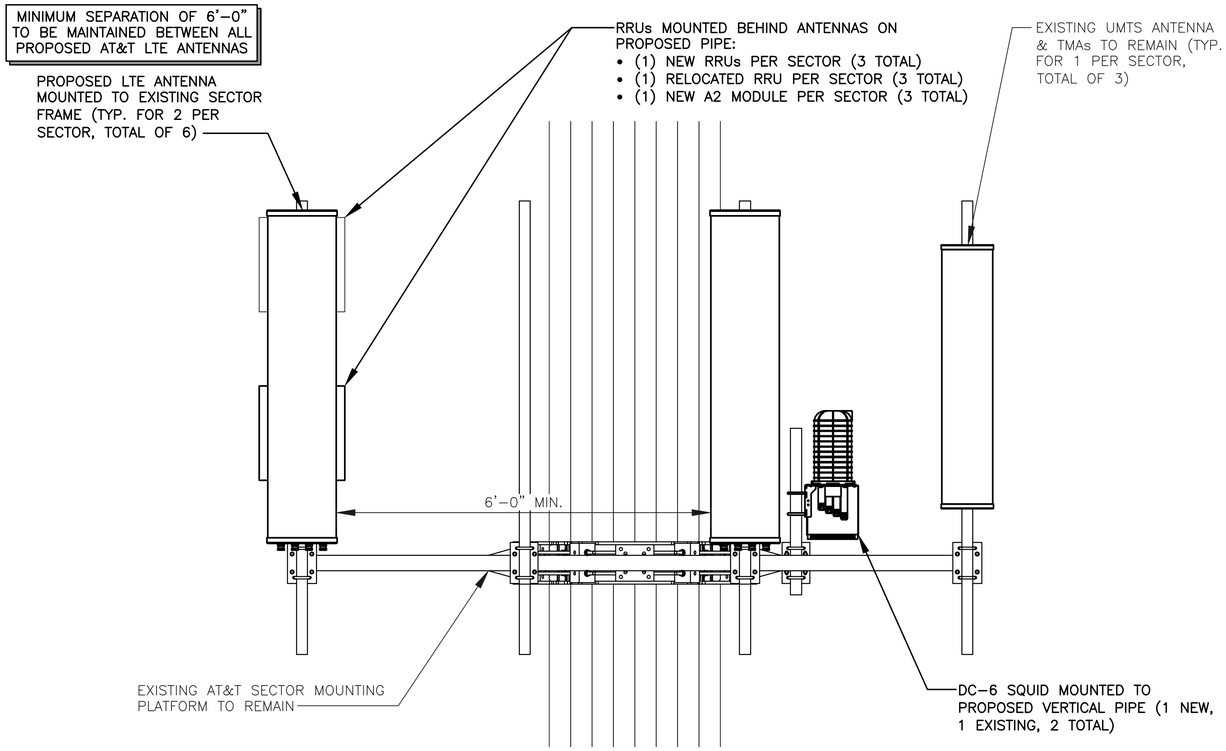
SCALE: AS SHOWN | DESIGNED BY: CJT | DRAWN BY: DAB

SEAL: STATE OF CONNECTICUT NICHOLAS B. PARKER No. 28643 LICENSED PROFESSIONAL ENGINEER 12/05/14

AT&T

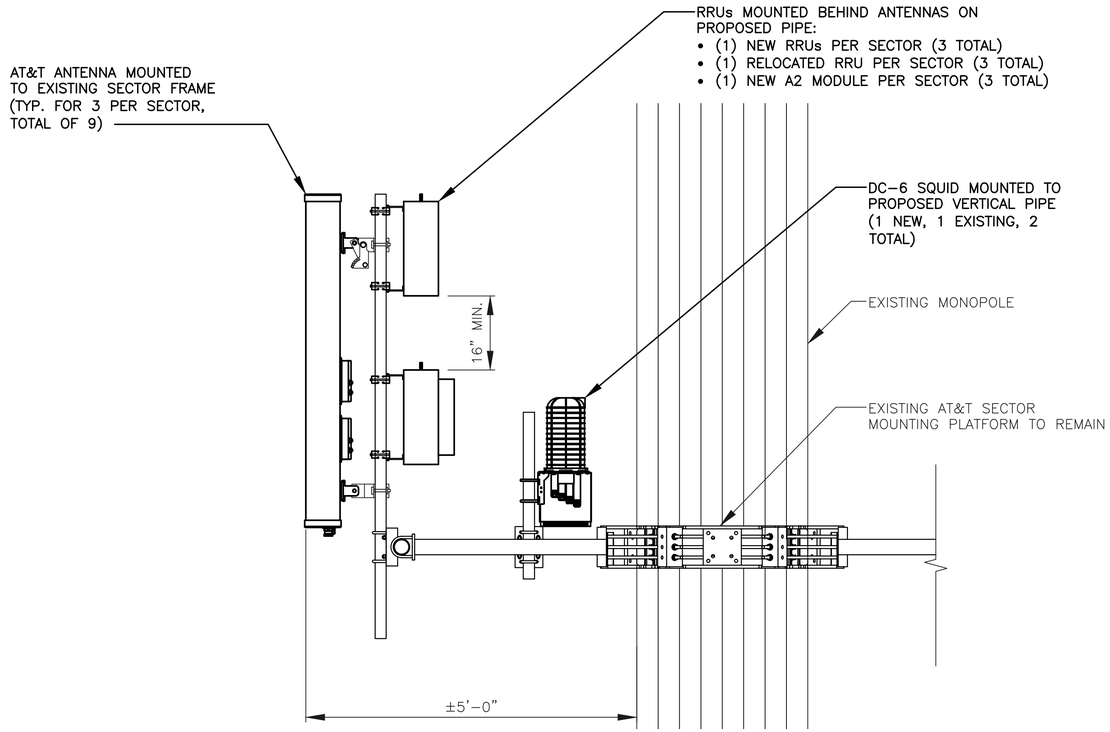
DRAWING TITLE: DETAILS

JOB NUMBER	DRAWING NUMBER	REV
14015-EMP	A-4	0



PROPOSED ANTENNA MOUNTING DETAIL (FRONT VIEW)

SCALE: N.T.S.



PROPOSED ANTENNA MOUNTING DETAIL (SIDE VIEW)

SCALE: N.T.S.

EXISTING ANTENNA SCHEDULE

	SECTOR	MAKE	MODEL	SIZE (INCHES)
ALPHA	A1	POWERWAVE	7770	55"x11"x5"
	A2	–	–	–
	A3	KMW	AM–X–CD–16–65–00T–RET	72"x11.8"x9.0"
	A4	POWERWAVE	7770	55"x11"x5"
BETA	B1	POWERWAVE	7770	55"x11"x5"
	B2	–	–	–
	B3	KMW	AM–X–CD–16–65–00T–RET	72"x11.8"x9.0"
	B4	POWERWAVE	7770	55"x11"x5"
GAMMA	G1	POWERWAVE	7770	55"x11"x5"
	G2	–	–	–
	G3	KMW	AM–X–CD–16–65–00T–RET	72"x11.8"x9.0"
	G4	POWERWAVE	7770	55"x11"x5"

PROPOSED ANTENNA SCHEDULE

SECTOR	POSITION	MAKE	MODEL	SIZE (INCHES)
ALPHA	A1	POWERWAVE	7770	55"x11"x5"
	A2	CCI	OPA–65R–LCUU–H6	72"x14.8"x7.4"
	A3	–	–	–
	A4	CCI	OPA–65R–LCUU–H6	72"x14.8"x7.4"
BETA	B1	POWERWAVE	7770	55"x11"x5"
	B2	CCI	OPA–65R–LCUU–H6	72"x14.8"x7.4"
	B3	–	–	–
	B4	CCI	OPA–65R–LCUU–H6	72"x14.8"x7.4"
GAMMA	G1	POWERWAVE	7770	55"x11"x5"
	G2	CCI	OPA–65R–LCUU–H6	72"x14.8"x7.4"
	G3	–	–	–
	G4	CCI	OPA–65R–LCUU–H6	72"x14.8"x7.4"

PROPOSED RRH SCHEDULE

SECTOR	MAKE	MODEL	SIZE (INCHES)	ADDITIONAL COMPONENT	SIZE (INCHES)
ALPHA	ERICSSON	RRUS–12	20.4"x18.5"x7.5"	ERICSSON A2 MODULE	16.4"x15.2"x3.4"
	ERICSSON	RRUS–11 (RELOCATED)	19.7"x16.9"x7.2"		
BETA	ERICSSON	RRUS–12	20.4"x18.5"x7.5"	ERICSSON A2 MODULE	16.4"x15.2"x3.4"
	ERICSSON	RRUS–11 (RELOCATED)	19.7"x16.9"x7.2"		
GAMMA	ERICSSON	RRUS–12	20.4"x18.5"x7.5"	ERICSSON A2 MODULE	16.4"x15.2"x3.4"
	ERICSSON	RRUS–11 (RELOCATED)	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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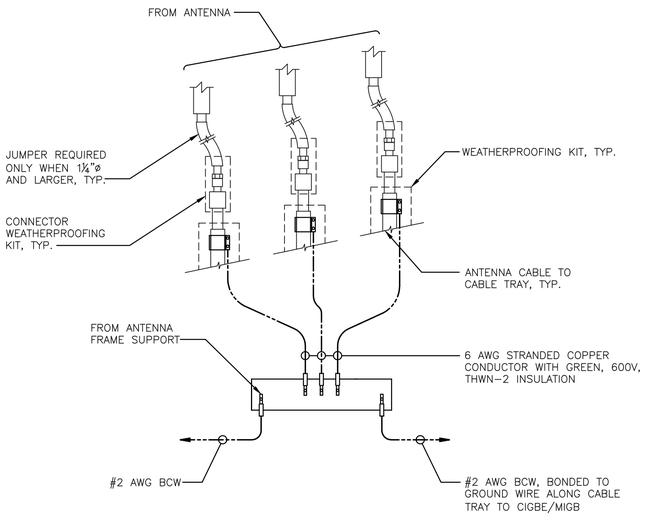
SCALE: AS SHOWN | DESIGNED BY: CJT | DRAWN BY: DAB

SEAL: STATE OF CONNECTICUT · NICHOLAS B. WARNER · No. 28648 · LICENSED PROFESSIONAL ENGINEER · 12/05/14

AT&T

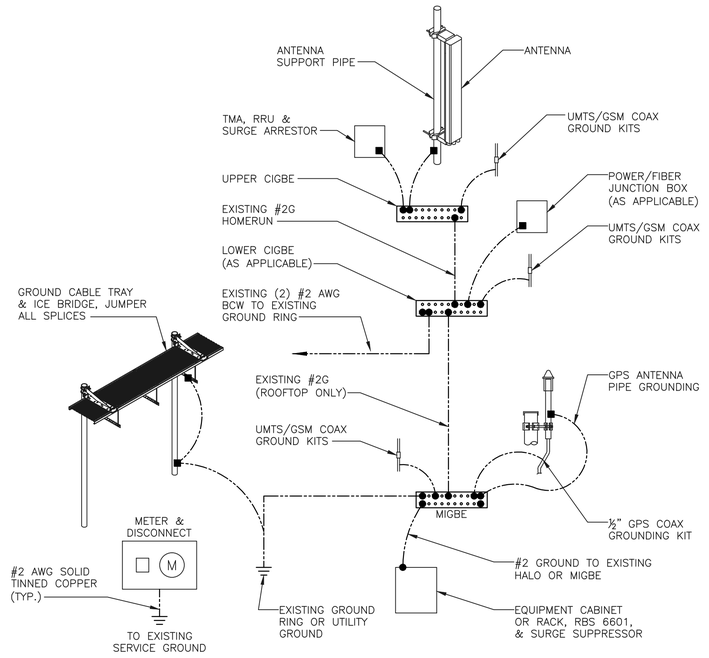
DRAWING TITLE:
ANTENNA MOUNTING DETAILS

JOB NUMBER	DRAWING NUMBER	REV
14015–EMP	A–5	0



GROUND WIRE TO GROUND BAR CONNECTION DETAIL

SCALE: N.T.S.



GROUNDING RISER DIAGRAM

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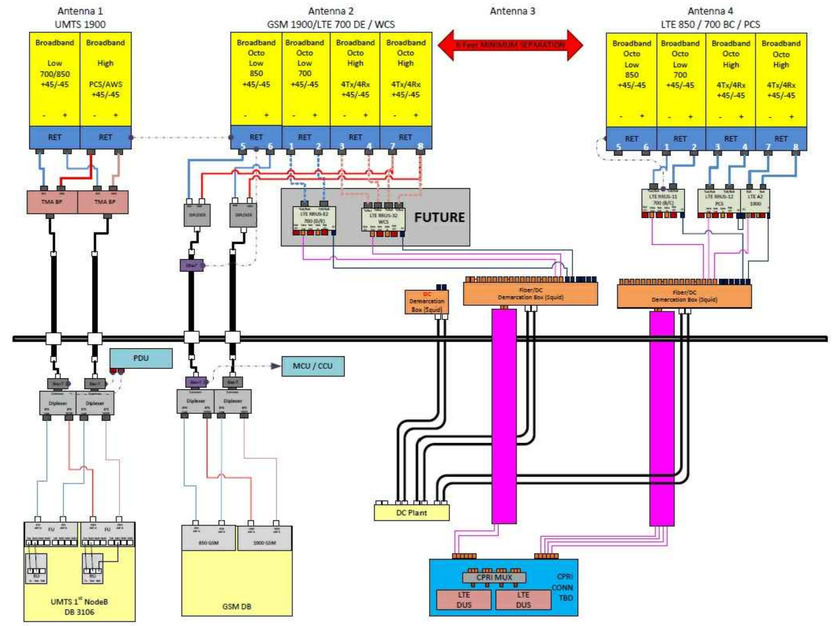

PLUMBING DIAGRAM

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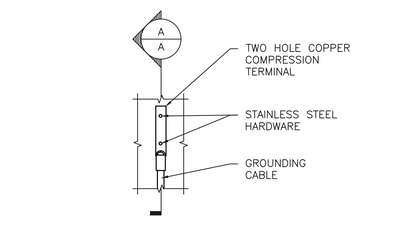
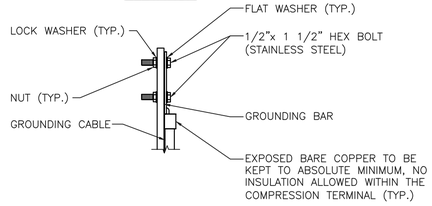


ELEVATION



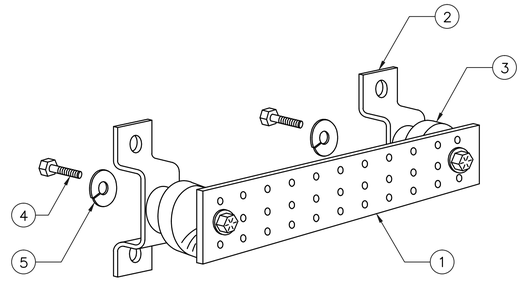
SECTION "A–A"

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.

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

SEAL: STATE OF CONNECTICUT — NICHOLAS B. WARNER — No. 28648 — LICENSED PROFESSIONAL ENGINEER — 12/05/14

AT&T

DRAWING TITLE: GROUNDING, ONE-LINE DIAGRAM & DETAILS

JOB NUMBER	DRAWING NUMBER	REV
14015-EMP	G-1	0

Date: **December 5, 2014**

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

FDH Engineering, Inc.
6521 Meridien Drive, Suite 107
Raleigh, North Carolina
(919) 755-1012

Subject: **Structural Analysis Report**

Carrier Designation:	***AT&T Mobility* Co-Locate**	
	Carrier Site Number:	CT1023
Crown Castle Designation:	**Crown Castle BU Number:**	876341
	Crown Castle Site Name:	MIDDLETOWN 2 - MARINO PROPERTY
	Crown Castle JDE Job Number:	312306
	Crown Castle Work Order Number:	976675
	Crown Castle Application Number:	246814 Rev. 2
Engineering Firm Designation:	**FDH Engineering, Inc. Project Number:**	146HVM1400
Site Data:	**1969 Saybrook Road, MIDDLETOWN, Middlesex County, CT**	
	Latitude *41° 30' 38.3"*, Longitude *-72° 35' 36.1"*	
	150 Foot - Monopole Tower	

Dear Timothy Howell,

FDH Engineering, Inc. 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 736336, in accordance with application 246814, 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: Modified Structure w/ Existing + Reserved + Proposed **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 Connecticut State Building Code based upon a wind speed of 85 mph fastest mile.

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

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

Respectfully submitted by:

Jeffrey B. Ray, EI
Project Engineer

Reviewed by:

J. Darrin Holt, Ph.D. PE
Principal
CT PE License No.22988

STATE OF CONNECTICUT J. DARRIN HOLT No. 22988 LICENSED PROFESSIONAL ENGINEER

12/5/14

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 150 ft Monopole tower designed by SUMMIT in March of 1997. The tower was originally designed for a wind speed of 90 mph per TIA/EIA-222-F. The tower has been modified multiple times in the past to accommodate additional loading.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a fastest mile wind speed of 85 mph with no ice, 37.6 mph with 0.75 inch ice thickness and 50 mph under service loads.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
129.0	132.0	6	cci antennas	OPA-65R-LCUU-H6 w/ Mount Pipe	2 1	3/4 3/8	-
		3	ericsson	RRUS A2 MODULE			
		3	ericsson	RRUS-11 1900MHz			
		1	raycap	DC6-48-60-18-8F			

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
150.0	150.0	1	crown mounts	Platform Mount [LP 712-1]	6	1 5/8	1
		6	decibel	DB980H90E-M w/ Mount Pipe			
141.0	145.0	1	lucent	KS24019-L112A	12 1	1 5/8 1/2	1
	142.0	3	antel	BXA-171085-8BF-EDIN-2 w/ Mount Pipe			
		6	rfs celwave	APL868013-42T0 w/ Mount Pipe			
		3	antel	BXA-70063-6CF-EDIN-0 w/ Mount Pipe	1	1 5/8	2
		3	kathrein	742 213 w/ Mount Pipe			
		1	rfs celwave	DB-T1-6Z-8AB-0Z			
		3	alcatel lucent	RRH2x40-AWS			
	141.0	1	crown mounts	Platform Mount [LP 712-1]	-	-	1
		6	rfs celwave	FD9R6004/2C-3L			

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	132.0	3	kmw communications	AM-X-CD-16-65-00T-RET w/ Mount Pipe	--	--	3
		3	powerwave technologies	7770.00 w/ Mount Pipe			
		3	powerwave technologies	7770.00 w/ Mount Pipe	12 2 1	1 5/8 3/4 3/8	1
		1	raycap	DC6-48-60-18-8F			
	129.0	1	crown mounts	Platform Mount [LP 712-1]			
		3	ericsson	RRU-11			
		6	powerwave technologies	LGP21401			
		6	powerwave technologies	LGP21903	--	--	3
122.0	122.0	1	crown mounts	Pipe Mount [PM 601-3]	6	1 5/8	1
		3	rfs celwave	APXV18-206517S-C			
111.0	111.0	2	crown mounts	T-Arm Mount [TA 602-1]	8	1 5/8	1
		4	remec	S20057A1			
	110.0	4	ems wireless	RR65-18-02DP w/ Mount Pipe			
104.0	104.0	1	crown mounts	Side Arm Mount[SO701-1]	1	1/2	1
		1	lucent	KS24019-L112A			
100.0	100.0	12	decibel	DB844H90E-XY w/ Mount Pipe	12	1 1/4	3
		1	crown mounts	Platform Mount [LP 303-1]			

Notes:
1) Existing Equipment
2) Reserved Equipment
3) Existing Equipment to be Removed, was not considered in this analysis.

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
150	150	12	generic	DB980H90	-	-
130	130	12	generic	DB980H90	-	-
110	110	12	generic	DB980H90	-	-
100	100	1	generic	GPS Antenna	-	-

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Clough, Harbour & Associates LLP	1532967	CCISITES
4-POST-MODIFICATION INSPECTION	IETS Engineering Services	2504220	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Summit Manufacturing, Inc.	1613596	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Summit Manufacturing, Inc.	1614554	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	IETS Engineering Services	1595639	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	FDH Engineering, Inc.	5069317	CCISITES
4-POST-MODIFICATION INSPECTION	SGS, Inc.	5311239	CCISITES

3.1) Analysis Method

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

3.2) Assumptions

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

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

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
150 - 145	Pole	TP23x22x0.25	Pole	3.7%	Pass
145 - 140	Pole	TP24x23x0.25	Pole	9.5%	Pass
140 - 135	Pole	TP25x24x0.25	Pole	18.3%	Pass
135 - 130	Pole	TP26x25x0.25	Pole	26.2%	Pass
130 - 125	Pole	TP27.001x26x0.25	Pole	39.7%	Pass
125 - 120	Pole	TP28.001x27.001x0.25	Pole	50.9%	Pass
120 - 115	Pole	TP29.001x28.001x0.25	Pole	61.2%	Pass
115 - 111.75	Pole	TP30.401x29.001x0.25	Pole	67.4%	Pass
111.75 - 106.75	Pole	TP30.151x29.151x0.3125	Pole	64.0%	Pass

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
106.75 - 101.75	Pole	TP31.151x30.151x0.3125	Pole	71.2%	Pass
101.75 - 96.75	Pole	TP32.152x31.151x0.3125	Pole	77.8%	Pass
96.75 - 91.75	Pole	TP33.152x32.152x0.3125	Pole	83.7%	Pass
91.75 - 89.5	Pole	TP33.602x33.152x0.3125	Pole	86.2%	Pass
89.5 - 89.25	Pole + Reinf.	TP33.652x33.602x0.5	Reinf. 3 Compression	62.5%	Pass
89.25 - 84.25	Pole + Reinf.	TP34.652x33.652x0.4938	Reinf. 3 Compression	65.9%	Pass
84.25 - 79.25	Pole + Reinf.	TP35.653x34.652x0.4875	Reinf. 3 Compression	71.2%	Pass
79.25 - 74.5	Pole + Reinf.	TP37.553x35.653x0.4813	Reinf. 3 Compression	75.0%	Pass
74.5 - 68.75	Pole	TP37.128x35.978x0.375	Pole	84.3%	Pass
68.75 - 63.75	Pole	TP38.128x37.128x0.375	Pole	87.2%	Pass
63.75 - 58.75	Pole	TP39.128x38.128x0.375	Pole	89.9%	Pass
58.75 - 57.5	Pole	TP39.378x39.128x0.375	Pole	90.5%	Pass
57.5 - 57.25	Pole + Reinf.	TP39.428x39.378x0.5875	Reinf. 2 Compression	72.2%	Pass
57.25 - 52.25	Pole + Reinf.	TP40.428x39.428x0.575	Reinf. 2 Compression	74.8%	Pass
52.25 - 47.25	Pole + Reinf.	TP41.429x40.428x0.575	Reinf. 2 Compression	77.2%	Pass
47.25 - 42.25	Pole + Reinf.	TP42.429x41.429x0.5688	Reinf. 2 Compression	79.6%	Pass
42.25 - 38	Pole + Reinf.	TP44.379x42.429x0.5625	Reinf. 2 Compression	81.4%	Pass
38 - 31.5	Pole + Reinf.	TP43.829x42.529x0.625	Reinf. 2 Compression	78.2%	Pass
31.5 - 30	Pole + Reinf.	TP44.129x43.829x0.625	Reinf. 2 Compression	78.7%	Pass
30 - 29.75	Pole + Reinf.	TP44.179x44.129x0.6875	Reinf. 1 Bolt Shear	71.6%	Pass
29.75 - 24.75	Pole + Reinf.	TP45.179x44.179x0.6875	Reinf. 1 Compression	71.8%	Pass
24.75 - 19.75	Pole + Reinf.	TP46.179x45.179x0.6875	Reinf. 1 Compression	73.7%	Pass
19.75 - 14.75	Pole + Reinf.	TP47.18x46.179x0.675	Reinf. 1 Compression	75.2%	Pass
14.75 - 9.75	Pole + Reinf.	TP48.18x47.18x0.675	Reinf. 1 Compression	76.7%	Pass
9.75 - 4.75	Pole + Reinf.	TP49.18x48.18x0.6625	Reinf. 1 Compression	78.0%	Pass
4.75 - 0	Pole + Reinf.	TP50.13x49.18x0.6625	Reinf. 1 Compression	79.3%	Pass
				Summary	
			Pole	90.5%	Pass
			Reinforcement	81.5%	Pass
			Overall	**90.5%**	**Pass**

Table 6 - Tower Component Stresses vs. Capacity - LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	73.3	Pass
1	Base Plate	0	92.1	Pass
1	Base Foundation	0	51.6	Pass
1	Base Foundation Soil Interaction	0	67.6	Pass

Structure Rating (max from all components) =	92.1%

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

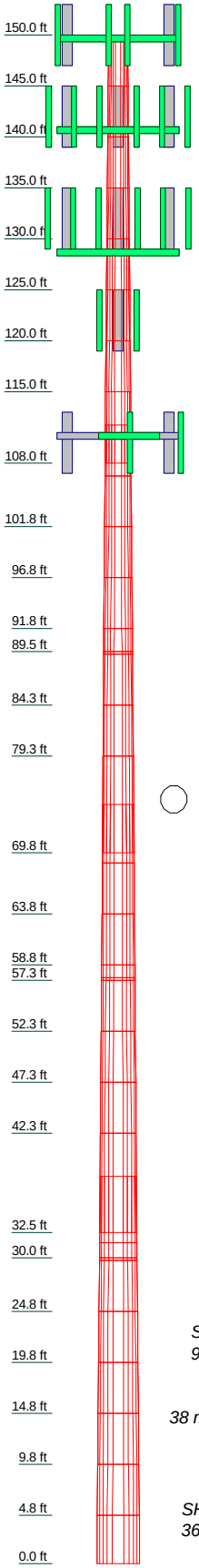
4.1) Recommendations

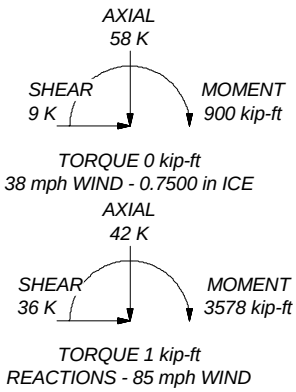
The tower and its foundation have sufficient capacity to carry the existing, reserved, and proposed loads. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	5.00	12	0.2500		22.0000	23.0001		0.3
2	5.00	12	0.2500		23.0001	24.0002		0.3
3	5.00	12	0.2500		24.0002	25.0004		0.3
4	5.00	12	0.2500		25.0004	26.0005		0.3
5	5.00	12	0.2500		26.0005	27.0006		0.4
6	5.00	12	0.2500		27.0006	28.0007		0.4
7	5.00	12	0.2500		28.0007	29.0008		0.4
8	5.00	12	0.2500	3.75	29.0008	30.4010	A607-60	0.6
9	5.00	12	0.3125		30.1512	31.1514		0.5
10	5.00	12	0.3125		31.1514	32.1517		0.5
11	5.00	12	0.3125		32.1517	33.1519		0.6
12	5.00	12	0.3125		33.1519	34.1522		0.6
13	5.00	12	0.3125		34.1522	35.1525		0.6
14	5.00	12	0.3125		35.1525	36.1527		0.6
15	5.00	12	0.4375		36.1527	37.1530		0.9
16	5.00	12	0.4375		37.1530	38.1532		0.9
17	9.50	12	0.4375		38.1532	39.1535		1.8
18	5.75	12	0.3750	4.75	39.1535	40.1537		0.9
19	5.00	12	0.3750		40.1537	41.1540		0.8
20	5.00	12	0.3750		41.1540	42.1542		0.8
21	5.00	12	0.3750		42.1542	43.1545		0.8
22	5.00	12	0.3750		43.1545	44.1547		0.8
23	5.00	12	0.5000		44.1547	45.1550		1.2
24	5.00	12	0.5000		45.1550	46.1552		1.2
25	5.00	12	0.5000		46.1552	47.1555		1.3
26	9.75	12	0.5000	5.50	47.1555	48.1557	A607-65	2.5
27	6.50	12	0.5000		48.1557	49.1560		1.6
28	5.00	12	0.5000		49.1560	50.1562		1.4
29	5.00	12	0.5000		50.1562	51.1565		1.4
30	5.00	12	0.6875		51.1565	52.1567		1.6
31	5.00	12	0.6875		52.1567	53.1570		1.6
32	5.00	12	0.6750		53.1570	54.1572		1.7
33	5.00	12	0.6750		54.1572	55.1575		1.7
34	5.00	12	0.6625		55.1575	56.1577		1.7
35	4.75	12	0.6625		56.1577	57.1580		1.6





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
(2) DB980H90E-M w/ Mount Pipe	150	7770.00 w/ Mount Pipe	129
(2) DB980H90E-M w/ Mount Pipe	150	7770.00 w/ Mount Pipe	129
(2) DB980H90E-M w/ Mount Pipe	150	(2) LGP21401	129
Platform Mount [LP 712-1]	150	(2) LGP21401	129
(3) Empty Pipe Mount	150	(2) LGP21401	129
(3) Empty Pipe Mount	150	RRU-11	129
(3) Empty Pipe Mount	150	RRU-11	129
(2) APL868013-42T0 w/ Mount Pipe	141	RRU-11	129
(2) APL868013-42T0 w/ Mount Pipe	141	DC6-48-60-18-8F	129
(2) APL868013-42T0 w/ Mount Pipe	141	(2) OPA-65R-LCUU-H6 w/ Mount Pipe	129
BXA-171085-8BF-EDIN-2 w/ Mount Pipe	141	(2) OPA-65R-LCUU-H6 w/ Mount Pipe	129
		(2) OPA-65R-LCUU-H6 w/ Mount Pipe	129
BXA-171085-8BF-EDIN-2 w/ Mount Pipe	141	RRUS A2 MODULE	129
		RRUS A2 MODULE	129
BXA-171085-8BF-EDIN-2 w/ Mount Pipe	141	RRUS A2 MODULE	129
KS24019-L112A	141	RRUS-11 1900MHz	129
(2) FD9R6004/2C-3L	141	RRUS-11 1900MHz	129
(2) FD9R6004/2C-3L	141	RRUS-11 1900MHz	129
(2) FD9R6004/2C-3L	141	DC6-48-60-18-8F	129
BXA-70063-6CF-EDIN-0 w/ Mount Pipe	141	Platform Mount [LP 712-1]	129
		Empty Pipe Mount	129
BXA-70063-6CF-EDIN-0 w/ Mount Pipe	141	Empty Pipe Mount	129
		Empty Pipe Mount	129
BXA-70063-6CF-EDIN-0 w/ Mount Pipe	141	APXV18-206517S-C	122
		APXV18-206517S-C	122
742 213 w/ Mount Pipe	141	APXV18-206517S-C	122
742 213 w/ Mount Pipe	141	Pipe Mount [PM 601-3]	122
742 213 w/ Mount Pipe	141	(2) RR65-18-02DP w/ Mount Pipe	111
DB-T1-6Z-8AB-0Z	141	(2) RR65-18-02DP w/ Mount Pipe	111
RRH2x40-AWS	141	(2) S20057A1	111
RRH2x40-AWS	141	(2) S20057A1	111
RRH2x40-AWS	141	T-Arm Mount [TA 602-1]	111
Platform Mount [LP 712-1]	141	T-Arm Mount [TA 602-1]	111
7770.00 w/ Mount Pipe	129	KS24019-L112A	104
		Side Arm Mount [SO 701-1]	104

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A607-60	60 ksi	75 ksi	A607-65	65 ksi	80 ksi

TOWER DESIGN NOTES

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

FDH Engineering, Inc.
6521 Meridien Drive, Suite 107
Raleigh, North Carolina
Phone: 9197551012
FAX: 9197551031
Tower Analysis

Job: 876341 - Middletown 2			
Project: 146HVM1400			
Client: Crown Castle	Drawn by: Jeffrey B. Ray	App'd:	
Code: TIA/EIA-222-F	Date: 12/05/14	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:

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

Options

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

Tapered Pole Section Geometry

Section	*Elevation* *ft*	*Section Length* *ft*	*Splice Length* *ft*	*Number of Sides*	*Top Diameter* *in*	*Bottom Diameter* *in*	*Wall Thickness* *in*	*Bend Radius* *in*	*Pole Grade*
L1	150.00-145.00	5.00	0.00	12	22.0000	23.0001	0.2500	1.0000	A607-60 (60 ksi)
L2	145.00-140.00	5.00	0.00	12	23.0001	24.0002	0.2500	1.0000	A607-60 (60 ksi)
L3	140.00-135.00	5.00	0.00	12	24.0002	25.0004	0.2500	1.0000	A607-60 (60 ksi)
L4	135.00-130.00	5.00	0.00	12	25.0004	26.0005	0.2500	1.0000	A607-60 (60 ksi)
L5	130.00-125.00	5.00	0.00	12	26.0005	27.0006	0.2500	1.0000	A607-60

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L6	125.00-120.00	5.00	0.00	12	27.0006	28.0007	0.2500	1.0000	(60 ksi) A607-60 (60 ksi)
L7	120.00-115.00	5.00	0.00	12	28.0007	29.0008	0.2500	1.0000	A607-60 (60 ksi)
L8	115.00-108.00	7.00	3.75	12	29.0008	30.4010	0.2500	1.0000	A607-60 (60 ksi)
L9	108.00-106.75	5.00	0.00	12	29.1509	30.1512	0.3125	1.2500	A607-60 (60 ksi)
L10	106.75-101.75	5.00	0.00	12	30.1512	31.1514	0.3125	1.2500	A607-60 (60 ksi)
L11	101.75-96.75	5.00	0.00	12	31.1514	32.1517	0.3125	1.2500	A607-60 (60 ksi)
L12	96.75-91.75	5.00	0.00	12	32.1517	33.1519	0.3125	1.2500	A607-60 (60 ksi)
L13	91.75-89.50	2.25	0.00	12	33.1519	33.6020	0.3125	1.2500	A607-60 (60 ksi)
L14	89.50-89.25	0.25	0.00	12	33.6020	33.6520	0.5000	2.0000	A607-60 (60 ksi)
L15	89.25-84.25	5.00	0.00	12	33.6520	34.6523	0.4938	1.9750	A607-60 (60 ksi)
L16	84.25-79.25	5.00	0.00	12	34.6523	35.6525	0.4875	1.9500	A607-60 (60 ksi)
L17	79.25-69.75	9.50	4.75	12	35.6525	37.5530	0.4813	1.9250	A607-60 (60 ksi)
L18	69.75-68.75	5.75	0.00	12	35.9778	37.1279	0.3750	1.5000	A607-65 (65 ksi)
L19	68.75-63.75	5.00	0.00	12	37.1279	38.1281	0.3750	1.5000	A607-65 (65 ksi)
L20	63.75-58.75	5.00	0.00	12	38.1281	39.1282	0.3750	1.5000	A607-65 (65 ksi)
L21	58.75-57.50	1.25	0.00	12	39.1282	39.3783	0.3750	1.5000	A607-65 (65 ksi)
L22	57.50-57.25	0.25	0.00	12	39.3783	39.4283	0.5875	2.3500	A607-65 (65 ksi)
L23	57.25-52.25	5.00	0.00	12	39.4283	40.4284	0.5750	2.3000	A607-65 (65 ksi)
L24	52.25-47.25	5.00	0.00	12	40.4284	41.4286	0.5750	2.3000	A607-65 (65 ksi)
L25	47.25-42.25	5.00	0.00	12	41.4286	42.4287	0.5687	2.2750	A607-65 (65 ksi)
L26	42.25-32.50	9.75	5.50	12	42.4287	44.3790	0.5625	2.2500	A607-65 (65 ksi)
L27	32.50-31.50	6.50	0.00	12	42.5288	43.8290	0.6250	2.5000	A607-65 (65 ksi)
L28	31.50-30.00	1.50	0.00	12	43.8290	44.1291	0.6250	2.5000	A607-65 (65 ksi)
L29	30.00-29.75	0.25	0.00	12	44.1291	44.1791	0.6875	2.7500	A607-65 (65 ksi)
L30	29.75-24.75	5.00	0.00	12	44.1791	45.1792	0.6875	2.7500	A607-65 (65 ksi)
L31	24.75-19.75	5.00	0.00	12	45.1792	46.1794	0.6875	2.7500	A607-65 (65 ksi)
L32	19.75-14.75	5.00	0.00	12	46.1794	47.1795	0.6750	2.7000	A607-65 (65 ksi)
L33	14.75-9.75	5.00	0.00	12	47.1795	48.1797	0.6750	2.7000	A607-65 (65 ksi)
L34	9.75-4.75	5.00	0.00	12	48.1797	49.1799	0.6625	2.6500	A607-65 (65 ksi)
L35	4.75-0.00	4.75		12	49.1799	50.1300	0.6625	2.6500	A607-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	22.7761	17.5087	1057.2060	7.7865	11.3960	92.7699	2142.1860	8.6173	5.2260	20.904
	23.8115	18.3138	1209.8537	8.1445	11.9141	101.5484	2451.4916	9.0135	5.4940	21.976
L2	23.8115	18.3138	1209.8537	8.1445	11.9141	101.5484	2451.4916	9.0135	5.4940	21.976
	24.8469	19.1189	1376.5302	8.5026	12.4321	110.7237	2789.2233	9.4098	5.7621	23.048
L3	24.8469	19.1189	1376.5302	8.5026	12.4321	110.7237	2789.2233	9.4098	5.7621	23.048
	25.8823	19.9240	1557.8521	8.8606	12.9502	120.2957	3156.6308	9.8060	6.0301	24.12
L4	25.8823	19.9240	1557.8521	8.8606	12.9502	120.2957	3156.6308	9.8060	6.0301	24.12
	26.9177	20.7291	1754.4363	9.2187	13.4682	130.2646	3554.9637	10.2022	6.2981	25.193
L5	26.9177	20.7291	1754.4363	9.2187	13.4682	130.2646	3554.9637	10.2022	6.2981	25.193
	27.9531	21.5342	1966.8995	9.5767	13.9863	140.6304	3985.4716	10.5985	6.5662	26.265
L6	27.9531	21.5342	1966.8995	9.5767	13.9863	140.6304	3985.4716	10.5985	6.5662	26.265
	28.9885	22.3393	2195.8583	9.9348	14.5044	151.3929	4449.4043	10.9947	6.8342	27.337
L7	28.9885	22.3393	2195.8583	9.9348	14.5044	151.3929	4449.4043	10.9947	6.8342	27.337
	30.0239	23.1444	2441.9295	10.2928	15.0224	162.5522	4948.0113	11.3910	7.1022	28.409
L8	30.0239	23.1444	2441.9295	10.2928	15.0224	162.5522	4948.0113	11.3910	7.1022	28.409
	31.4734	24.2716	2816.3524	10.7941	15.7477	178.8419	5706.6935	11.9457	7.4775	29.91
L9	30.9559	29.0187	3080.3908	10.3242	15.1002	203.9971	6241.7070	14.2821	6.9749	22.32
	31.2148	30.0252	3412.1628	10.6822	15.6183	218.4721	6913.9670	14.7775	7.2430	23.178
L10	31.2148	30.0252	3412.1628	10.6822	15.6183	218.4721	6913.9670	14.7775	7.2430	23.178
	32.2503	31.0317	3766.9410	11.0403	16.1364	233.4433	7632.8437	15.2728	7.5111	24.035
L11	32.2503	31.0317	3766.9410	11.0403	16.1364	233.4433	7632.8437	15.2728	7.5111	24.035
	33.2858	32.0382	4145.4962	11.3984	16.6546	248.9106	8399.8993	15.7682	7.7791	24.893
L12	33.2858	32.0382	4145.4962	11.3984	16.6546	248.9106	8399.8993	15.7682	7.7791	24.893
	34.3214	33.0447	4548.5997	11.7565	17.1727	264.8741	9216.6963	16.2636	8.0472	25.751
L13	34.3214	33.0447	4548.5997	11.7565	17.1727	264.8741	9216.6963	16.2636	8.0472	25.751
	34.7874	33.4976	4738.2107	11.9176	17.4058	272.2195	9600.8994	16.4865	8.1678	26.137
L14	34.7874	53.2942	7453.7571	11.8505	17.4058	428.2330	15103.3328	26.2298	7.6653	15.331
	34.8391	53.3748	7487.5926	11.8684	17.4318	429.5376	15171.8926	26.2694	7.6787	15.357
L15	34.8391	52.7175	7398.1804	11.8707	17.4318	424.4083	14990.7191	25.9460	7.6955	15.586
	35.8747	54.3078	8088.0981	12.2288	17.9499	450.5934	16388.6796	26.7286	7.9636	16.129
L16	35.8747	53.6302	7990.1014	12.2310	17.9499	445.1340	16190.1116	26.3951	7.9803	16.37
	36.9102	55.2003	8712.6307	12.5891	18.4680	471.7688	17654.1520	27.1679	8.2484	16.92
L17	36.9102	54.5023	8605.5172	12.5913	18.4680	465.9689	17437.1109	26.8244	8.2651	17.174
	38.8777	57.4473	10077.2452	13.2717	19.4525	518.0449	20419.2309	28.2738	8.7745	18.233
L18	38.2306	42.9903	6955.4340	12.7458	18.6365	373.2160	14093.5951	21.1585	8.6370	23.032
	38.4377	44.3792	7651.5443	13.1576	19.2323	397.8493	15504.1032	21.8421	8.9453	23.854
L19	38.4377	44.3792	7651.5443	13.1576	19.2323	397.8493	15504.1032	21.8421	8.9453	23.854
	39.4731	45.5868	8293.3550	13.5156	19.7503	419.9094	16804.5856	22.4365	9.2133	24.569
L20	39.4731	45.5868	8293.3550	13.5156	19.7503	419.9094	16804.5856	22.4365	9.2133	24.569
	40.5085	46.7945	8970.0881	13.8737	20.2684	442.5647	18175.8303	23.0308	9.4814	25.284
L21	40.5085	46.7945	8970.0881	13.8737	20.2684	442.5647	18175.8303	23.0308	9.4814	25.284
	40.7674	47.0964	9144.8365	13.9632	20.3979	448.3216	18529.9181	23.1794	9.5484	25.462
L22	40.7674	73.3824	14094.0138	13.8871	20.3979	690.9528	28558.2931	36.1166	8.9789	15.283
	40.8191	73.4770	14148.5919	13.9050	20.4238	692.7487	28668.8830	36.1632	8.9923	15.306
L23	40.8191	71.9368	13860.9319	13.9095	20.4238	678.6642	28086.0058	35.4051	9.0258	15.697
	41.8546	73.7886	14959.1330	14.2675	20.9419	714.3152	30311.2590	36.3165	9.2938	16.163
L24	41.8546	73.7886	14959.1330	14.2675	20.9419	714.3152	30311.2590	36.3165	9.2938	16.163
	42.8900	75.6404	16113.8598	14.6256	21.4600	750.8789	32651.0485	37.2279	9.5619	16.629
L25	42.8900	74.8296	15946.0254	14.6278	21.4600	743.0581	32310.9706	36.8289	9.5786	16.842
	43.9254	76.6613	17145.8789	14.9859	21.9781	780.1357	34742.1991	37.7304	9.8466	17.313
L26	43.9254	75.8302	16965.0594	14.9881	21.9781	771.9084	34375.8098	37.3213	9.8634	17.535
	45.9445	79.3626	19448.1099	15.6863	22.9883	845.9995	39407.1433	39.0599	10.3861	18.464
L27	45.1681	84.3315	18900.9331	15.0016	22.0299	857.9658	38298.4148	41.5054	9.7227	15.556
	45.3752	86.9481	20715.4717	15.4670	22.7034	912.4375	41975.1619	42.7932	10.0712	16.114
L28	45.3752	86.9481	20715.4717	15.4670	22.7034	912.4375	41975.1619	42.7932	10.0712	16.114

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
	45.6858	87.5520	21150.0742	15.5745	22.8589	925.2460	42855.7844	43.0904	10.1516	16.243
L29	45.6858	96.1688	23164.9545	15.5521	22.8589	1013.3904	46938.4782	47.3314	9.9841	14.522
	45.7376	96.2795	23245.0444	15.5700	22.8848	1015.7430	47100.7620	47.3858	9.9975	14.542
L30	45.7376	96.2795	23245.0444	15.5700	22.8848	1015.7430	47100.7620	47.3858	9.9975	14.542
	46.7730	98.4936	24885.8675	15.9280	23.4028	1063.3692	50425.5144	48.4756	10.2655	14.932
L31	46.7730	98.4936	24885.8675	15.9280	23.4028	1063.3692	50425.5144	48.4756	10.2655	14.932
	47.8084	100.7077	26602.1438	16.2861	23.9209	1112.0867	53903.1556	49.5653	10.5336	15.322
L32	47.8084	98.9038	26140.0045	16.2906	23.9209	1092.7672	52966.7359	48.6774	10.5671	15.655
	48.8439	101.0776	27901.7797	16.6486	24.4390	1141.6904	56536.5702	49.7473	10.8351	16.052
L33	48.8439	101.0776	27901.7797	16.6486	24.4390	1141.6904	56536.5702	49.7473	10.8351	16.052
	49.8793	103.2515	29740.9878	17.0067	24.9571	1191.6851	60263.3045	50.8172	11.1032	16.449
L34	49.8793	101.3661	29213.2775	17.0112	24.9571	1170.5404	59194.0203	49.8893	11.1367	16.81
	50.9147	103.4996	31097.0401	17.3692	25.4752	1220.6806	63011.0342	50.9394	11.4047	17.215
L35	50.9147	103.4996	31097.0401	17.3692	25.4752	1220.6806	63011.0342	50.9394	11.4047	17.215
	51.8984	105.5265	32960.0295	17.7094	25.9673	1269.2879	66785.9557	51.9370	11.6593	17.599

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 150.00-145.00				1	1	1		
L2 145.00-140.00				1	1	1		
L3 140.00-135.00				1	1	1		
L4 135.00-130.00				1	1	1		
L5 130.00-125.00				1	1	1		
L6 125.00-120.00				1	1	1		
L7 120.00-115.00				1	1	1		
L8 115.00-108.00				1	1	1		
L9 108.00-106.75				1	1	1		
L10 106.75-101.75				1	1	1		
L11 101.75-96.75				1	1	1		
L12 96.75-91.75				1	1	1		
L13 91.75-89.50				1	1	1		
L14 89.50-89.25				1	1	0.966256		
L15 89.25-84.25				1	1	0.968189		
L16 84.25-79.25				1	1	0.970768		
L17 79.25-69.75				1	1	0.974419		
L18 69.75-68.75				1	1	1		
L19 68.75-63.75				1	1	1		
L20 63.75-58.75				1	1	1		

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
L21 58.75-57.50				1	1	1		
L22 57.50-57.25				1	1	0.968891		
L23 57.25-52.25				1	1	0.981167		
L24 52.25-47.25				1	1	0.973112		
L25 47.25-42.25				1	1	0.975907		
L26 42.25-32.50				1	1	0.980236		
L27 32.50-31.50				1	1	0.97946		
L28 31.50-30.00				1	1	0.977533		
L29 30.00-29.75				1	1	0.978064		
L30 29.75-24.75				1	1	0.970383		
L31 24.75-19.75				1	1	0.96304		
L32 19.75-14.75				1	1	0.973454		
L33 14.75-9.75				1	1	0.966605		
L34 9.75-4.75				1	1	0.977901		
L35 4.75-0.00				1	1	0.971802		

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)	150.00 - 0.00	1	1	0.250 0.260	0.3750		0.22
*** *** *** *C Face*									
AVA7-50(1-5/8)	C	Surface Ar (CaAa)	122.00 - 0.00	6	1	0.100 0.250	2.0100		0.70
*** *Flat Plate Mod*									
6.5" x 1.25" Flat Plate (F)	A	Surface Af (CaAa)	30.00 - 0.00	1	1	0.400 0.500	1.2500	15.5000	0.00
6.5" x 1.25" Flat Plate (F)	B	Surface Af (CaAa)	30.00 - 0.00	1	1	0.100 0.200	1.2500	15.5000	0.00
6.5" x 1.25" Flat Plate (F)	C	Surface Af (CaAa)	30.00 - 0.00	1	1	0.400 0.500	1.2500	15.5000	0.00
6.5" x 1.25" Flat Plate (F)	C	Surface Af (CaAa)	30.00 - 0.00	1	1	-0.200 -0.100	1.2500	15.5000	0.00
** 6" x 1" Flat Plate (F)	A	Surface Af (CaAa)	60.00 - 30.00	1	1	0.400 0.500	1.0000	14.0000	0.00
6" x 1" Flat Plate (F)	B	Surface Af	60.00 - 30.00	1	1	0.100	1.0000	14.0000	0.00

Description	Sector	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
		(CaAa)				0.200			
6" x 1" Flat Plate (F)	C	Surface Af (CaAa)	60.00 - 30.00	1	1	0.400 0.500	1.0000	14.0000	0.00
6" x 1" Flat Plate (F)	C	Surface Af (CaAa)	60.00 - 30.00	1	1	-0.200 -0.100	1.0000	14.0000	0.00
**									
6" x 1" Flat Plate (F)	A	Surface Af (CaAa)	92.00 - 72.00	1	1	0.400 0.500	1.0000	14.0000	0.00
6" x 1" Flat Plate (F)	B	Surface Af (CaAa)	92.00 - 72.00	1	1	0.400 0.500	1.0000	14.0000	0.00
6" x 1" Flat Plate (F)	C	Surface Af (CaAa)	92.00 - 72.00	1	1	0.400 0.500	1.0000	14.0000	0.00

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
***								
A Face								
LDF4-50A(1/2")	A	No	Inside Pole	141.00 - 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
LDF7-50A(1-5/8")	A	No	Inside Pole	141.00 - 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
HB158-1-08U8-S8J18(1-5/8)	A	No	Inside Pole	141.00 - 0.00	1	No Ice	0.00	1.30
						1/2" Ice	0.00	1.30
						1" Ice	0.00	1.30
						2" Ice	0.00	1.30
						4" Ice	0.00	1.30
***								
B Face								
LDF7-50A(1-5/8")	B	No	Inside Pole	111.00 - 0.00	8	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
						2" Ice	0.00	0.82
						4" Ice	0.00	0.82
**								
**								
LDF7-50A(1-5/8")	B	No	Inside Pole	150.00 - 0.00	6	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
						2" Ice	0.00	0.82
						4" Ice	0.00	0.82
LDF4-50A(1/2")	B	No	Inside Pole	104.00 - 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
***								
**								
FXL 1873 PE(1 5/8")	C	No	Inside Pole	129.00 - 0.00	12	No Ice	0.00	0.01
						1/2" Ice	0.00	0.01

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
						1" Ice	0.00	0.01
						2" Ice	0.00	0.01
						4" Ice	0.00	0.01
FB-L98B-002-50000(3/8)	C	No	Inside Pole	129.00 - 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-VG86ST-BRD(3/4)	C	No	Inside Pole	129.00 - 0.00	2	No Ice	0.00	0.58
						1/2" Ice	0.00	0.58
						1" Ice	0.00	0.58
						2" Ice	0.00	0.58
						4" Ice	0.00	0.58
FB-L98B-034-XXXXXX (3/8")	C	No	Inside Pole	129.00 - 0.00	1	No Ice	0.00	0.05
						1/2" Ice	0.00	0.05
						1" Ice	0.00	0.05
						2" Ice	0.00	0.05
						4" Ice	0.00	0.05
WR-VG86ST-BRD(3/4)	C	No	Inside Pole	129.00 - 0.00	2	No Ice	0.00	0.58
						1/2" Ice	0.00	0.58
						1" Ice	0.00	0.58
						2" Ice	0.00	0.58
						4" Ice	0.00	0.58
2" Rigid Conduit	C	No	Inside Pole	129.00 - 0.00	1	No Ice	0.00	2.80
						1/2" Ice	0.00	2.80
						1" Ice	0.00	2.80
						2" Ice	0.00	2.80
						4" Ice	0.00	2.80
***								

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	150.00-145.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.02
		C	0.000	0.000	0.188	0.000	0.00
L2	145.00-140.00	A	0.000	0.000	0.000	0.000	0.01
		B	0.000	0.000	0.000	0.000	0.02
		C	0.000	0.000	0.188	0.000	0.00
L3	140.00-135.00	A	0.000	0.000	0.000	0.000	0.06
		B	0.000	0.000	0.000	0.000	0.02
		C	0.000	0.000	0.188	0.000	0.00
L4	135.00-130.00	A	0.000	0.000	0.000	0.000	0.06
		B	0.000	0.000	0.000	0.000	0.02
		C	0.000	0.000	0.188	0.000	0.00
L5	130.00-125.00	A	0.000	0.000	0.000	0.000	0.06
		B	0.000	0.000	0.000	0.000	0.02
		C	0.000	0.000	0.188	0.000	0.02
L6	125.00-120.00	A	0.000	0.000	0.000	0.000	0.06
		B	0.000	0.000	0.000	0.000	0.02
		C	0.000	0.000	0.590	0.000	0.04
L7	120.00-115.00	A	0.000	0.000	0.000	0.000	0.06
		B	0.000	0.000	0.000	0.000	0.02
		C	0.000	0.000	1.192	0.000	0.05
L8	115.00-108.00	A	0.000	0.000	0.000	0.000	0.08
		B	0.000	0.000	0.000	0.000	0.05

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C	0.000	0.000	1.670	0.000	0.07
L9	108.00-106.75	A	0.000	0.000	0.000	0.000	0.01
		B	0.000	0.000	0.000	0.000	0.01
		C	0.000	0.000	0.298	0.000	0.01
L10	106.75-101.75	A	0.000	0.000	0.000	0.000	0.06
		B	0.000	0.000	0.000	0.000	0.06
		C	0.000	0.000	1.192	0.000	0.05
L11	101.75-96.75	A	0.000	0.000	0.000	0.000	0.06
		B	0.000	0.000	0.000	0.000	0.06
		C	0.000	0.000	1.192	0.000	0.05
L12	96.75-91.75	A	0.000	0.000	0.042	0.000	0.06
		B	0.000	0.000	0.042	0.000	0.06
		C	0.000	0.000	1.234	0.000	0.05
L13	91.75-89.50	A	0.000	0.000	0.375	0.000	0.03
		B	0.000	0.000	0.375	0.000	0.03
		C	0.000	0.000	0.912	0.000	0.02
L14	89.50-89.25	A	0.000	0.000	0.042	0.000	0.00
		B	0.000	0.000	0.042	0.000	0.00
		C	0.000	0.000	0.101	0.000	0.00
L15	89.25-84.25	A	0.000	0.000	0.833	0.000	0.06
		B	0.000	0.000	0.833	0.000	0.06
		C	0.000	0.000	2.026	0.000	0.05
L16	84.25-79.25	A	0.000	0.000	0.833	0.000	0.06
		B	0.000	0.000	0.833	0.000	0.06
		C	0.000	0.000	2.026	0.000	0.05
L17	79.25-69.75	A	0.000	0.000	1.208	0.000	0.11
		B	0.000	0.000	1.208	0.000	0.11
		C	0.000	0.000	3.474	0.000	0.09
L18	69.75-68.75	A	0.000	0.000	0.000	0.000	0.01
		B	0.000	0.000	0.000	0.000	0.01
		C	0.000	0.000	0.238	0.000	0.01
L19	68.75-63.75	A	0.000	0.000	0.000	0.000	0.06
		B	0.000	0.000	0.000	0.000	0.06
		C	0.000	0.000	1.192	0.000	0.05
L20	63.75-58.75	A	0.000	0.000	0.208	0.000	0.06
		B	0.000	0.000	0.208	0.000	0.06
		C	0.000	0.000	1.609	0.000	0.05
L21	58.75-57.50	A	0.000	0.000	0.208	0.000	0.01
		B	0.000	0.000	0.208	0.000	0.01
		C	0.000	0.000	0.715	0.000	0.01
L22	57.50-57.25	A	0.000	0.000	0.042	0.000	0.00
		B	0.000	0.000	0.042	0.000	0.00
		C	0.000	0.000	0.143	0.000	0.00
L23	57.25-52.25	A	0.000	0.000	0.833	0.000	0.06
		B	0.000	0.000	0.833	0.000	0.06
		C	0.000	0.000	2.859	0.000	0.05
L24	52.25-47.25	A	0.000	0.000	0.833	0.000	0.06
		B	0.000	0.000	0.833	0.000	0.06
		C	0.000	0.000	2.859	0.000	0.05
L25	47.25-42.25	A	0.000	0.000	0.833	0.000	0.06
		B	0.000	0.000	0.833	0.000	0.06
		C	0.000	0.000	2.859	0.000	0.05
L26	42.25-32.50	A	0.000	0.000	1.625	0.000	0.11
		B	0.000	0.000	1.625	0.000	0.11
		C	0.000	0.000	5.575	0.000	0.10
L27	32.50-31.50	A	0.000	0.000	0.167	0.000	0.01
		B	0.000	0.000	0.167	0.000	0.01
		C	0.000	0.000	0.572	0.000	0.01
L28	31.50-30.00	A	0.000	0.000	0.250	0.000	0.02
		B	0.000	0.000	0.250	0.000	0.02
		C	0.000	0.000	0.858	0.000	0.01

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
L29	30.00-29.75	A	0.000	0.000	0.052	0.000	0.00
		B	0.000	0.000	0.052	0.000	0.00
		C	0.000	0.000	0.164	0.000	0.00
L30	29.75-24.75	A	0.000	0.000	1.042	0.000	0.06
		B	0.000	0.000	1.042	0.000	0.06
		C	0.000	0.000	3.276	0.000	0.05
L31	24.75-19.75	A	0.000	0.000	1.042	0.000	0.06
		B	0.000	0.000	1.042	0.000	0.06
		C	0.000	0.000	3.276	0.000	0.05
L32	19.75-14.75	A	0.000	0.000	1.042	0.000	0.06
		B	0.000	0.000	1.042	0.000	0.06
		C	0.000	0.000	3.276	0.000	0.05
L33	14.75-9.75	A	0.000	0.000	1.042	0.000	0.06
		B	0.000	0.000	1.042	0.000	0.06
		C	0.000	0.000	3.276	0.000	0.05
L34	9.75-4.75	A	0.000	0.000	1.042	0.000	0.06
		B	0.000	0.000	1.042	0.000	0.06
		C	0.000	0.000	3.276	0.000	0.05
L35	4.75-0.00	A	0.000	0.000	0.990	0.000	0.05
		B	0.000	0.000	0.990	0.000	0.06
		C	0.000	0.000	3.112	0.000	0.05

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	150.00-145.00	A	0.898	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.02
		C		0.000	0.000	1.085	0.000	0.01
L2	145.00-140.00	A	0.894	0.000	0.000	0.000	0.000	0.01
		B		0.000	0.000	0.000	0.000	0.02
		C		0.000	0.000	1.081	0.000	0.01
L3	140.00-135.00	A	0.890	0.000	0.000	0.000	0.000	0.06
		B		0.000	0.000	0.000	0.000	0.02
		C		0.000	0.000	1.078	0.000	0.01
L4	135.00-130.00	A	0.886	0.000	0.000	0.000	0.000	0.06
		B		0.000	0.000	0.000	0.000	0.02
		C		0.000	0.000	1.074	0.000	0.01
L5	130.00-125.00	A	0.882	0.000	0.000	0.000	0.000	0.06
		B		0.000	0.000	0.000	0.000	0.02
		C		0.000	0.000	1.070	0.000	0.03
L6	125.00-120.00	A	0.878	0.000	0.000	0.000	0.000	0.06
		B		0.000	0.000	0.000	0.000	0.02
		C		0.000	0.000	1.818	0.000	0.08
L7	120.00-115.00	A	0.873	0.000	0.000	0.000	0.000	0.06
		B		0.000	0.000	0.000	0.000	0.02
		C		0.000	0.000	2.939	0.000	0.15
L8	115.00-108.00	A	0.868	0.000	0.000	0.000	0.000	0.08
		B		0.000	0.000	0.000	0.000	0.05
		C		0.000	0.000	4.100	0.000	0.21
L9	108.00-106.75	A	0.864	0.000	0.000	0.000	0.000	0.01
		B		0.000	0.000	0.000	0.000	0.01
		C		0.000	0.000	0.732	0.000	0.04
L10	106.75-101.75	A	0.861	0.000	0.000	0.000	0.000	0.06
		B		0.000	0.000	0.000	0.000	0.06
		C		0.000	0.000	2.914	0.000	0.15
L11	101.75-96.75	A	0.856	0.000	0.000	0.000	0.000	0.06

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
		B		0.000	0.000	0.000	0.000	0.06
		C		0.000	0.000	2.904	0.000	0.15
L12	96.75-91.75	A	0.851	0.000	0.000	0.113	0.000	0.06
		B		0.000	0.000	0.113	0.000	0.06
		C		0.000	0.000	3.006	0.000	0.15
L13	91.75-89.50	A	0.847	0.000	0.000	1.010	0.000	0.04
		B		0.000	0.000	1.010	0.000	0.04
		C		0.000	0.000	2.309	0.000	0.08
L14	89.50-89.25	A	0.845	0.000	0.000	0.112	0.000	0.00
		B		0.000	0.000	0.112	0.000	0.00
		C		0.000	0.000	0.256	0.000	0.01
L15	89.25-84.25	A	0.842	0.000	0.000	2.237	0.000	0.08
		B		0.000	0.000	2.237	0.000	0.09
		C		0.000	0.000	5.114	0.000	0.17
L16	84.25-79.25	A	0.836	0.000	0.000	2.227	0.000	0.08
		B		0.000	0.000	2.227	0.000	0.09
		C		0.000	0.000	5.092	0.000	0.17
L17	79.25-69.75	A	0.827	0.000	0.000	3.207	0.000	0.15
		B		0.000	0.000	3.207	0.000	0.15
		C		0.000	0.000	8.615	0.000	0.31
L18	69.75-68.75	A	0.820	0.000	0.000	0.000	0.000	0.01
		B		0.000	0.000	0.000	0.000	0.01
		C		0.000	0.000	0.569	0.000	0.03
L19	68.75-63.75	A	0.815	0.000	0.000	0.000	0.000	0.06
		B		0.000	0.000	0.000	0.000	0.06
		C		0.000	0.000	2.823	0.000	0.14
L20	63.75-58.75	A	0.808	0.000	0.000	0.545	0.000	0.06
		B		0.000	0.000	0.545	0.000	0.06
		C		0.000	0.000	3.898	0.000	0.15
L21	58.75-57.50	A	0.803	0.000	0.000	0.543	0.000	0.02
		B		0.000	0.000	0.543	0.000	0.02
		C		0.000	0.000	1.785	0.000	0.05
L22	57.50-57.25	A	0.801	0.000	0.000	0.108	0.000	0.00
		B		0.000	0.000	0.108	0.000	0.00
		C		0.000	0.000	0.357	0.000	0.01
L23	57.25-52.25	A	0.797	0.000	0.000	2.162	0.000	0.08
		B		0.000	0.000	2.162	0.000	0.08
		C		0.000	0.000	7.110	0.000	0.19
L24	52.25-47.25	A	0.788	0.000	0.000	2.146	0.000	0.08
		B		0.000	0.000	2.146	0.000	0.08
		C		0.000	0.000	7.061	0.000	0.19
L25	47.25-42.25	A	0.778	0.000	0.000	2.130	0.000	0.08
		B		0.000	0.000	2.130	0.000	0.08
		C		0.000	0.000	7.008	0.000	0.18
L26	42.25-32.50	A	0.761	0.000	0.000	4.099	0.000	0.16
		B		0.000	0.000	4.099	0.000	0.16
		C		0.000	0.000	13.492	0.000	0.35
L27	32.50-31.50	A	0.750	0.000	0.000	0.420	0.000	0.02
		B		0.000	0.000	0.420	0.000	0.02
		C		0.000	0.000	1.384	0.000	0.04
L28	31.50-30.00	A	0.750	0.000	0.000	0.625	0.000	0.02
		B		0.000	0.000	0.625	0.000	0.02
		C		0.000	0.000	2.058	0.000	0.05
L29	30.00-29.75	A	0.750	0.000	0.000	0.115	0.000	0.00
		B		0.000	0.000	0.115	0.000	0.00
		C		0.000	0.000	0.364	0.000	0.01
L30	29.75-24.75	A	0.750	0.000	0.000	2.292	0.000	0.08
		B		0.000	0.000	2.292	0.000	0.08
		C		0.000	0.000	7.276	0.000	0.18
L31	24.75-19.75	A	0.750	0.000	0.000	2.292	0.000	0.08
		B		0.000	0.000	2.292	0.000	0.08

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	7.276	0.000	0.18
L32	19.75-14.75	A	0.750	0.000	0.000	2.292	0.000	0.08
		B		0.000	0.000	2.292	0.000	0.08
		C		0.000	0.000	7.276	0.000	0.18
L33	14.75-9.75	A	0.750	0.000	0.000	2.292	0.000	0.08
		B		0.000	0.000	2.292	0.000	0.08
		C		0.000	0.000	7.276	0.000	0.18
L34	9.75-4.75	A	0.750	0.000	0.000	2.292	0.000	0.08
		B		0.000	0.000	2.292	0.000	0.08
		C		0.000	0.000	7.276	0.000	0.18
L35	4.75-0.00	A	0.750	0.000	0.000	2.177	0.000	0.08
		B		0.000	0.000	2.177	0.000	0.08
		C		0.000	0.000	6.912	0.000	0.17

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	150.00-145.00	-0.0285	0.0483	-0.1409	0.2383
L2	145.00-140.00	-0.0285	0.0483	-0.1414	0.2391
L3	140.00-135.00	-0.0285	0.0483	-0.1418	0.2398
L4	135.00-130.00	-0.0286	0.0483	-0.1421	0.2403
L5	130.00-125.00	-0.0286	0.0483	-0.1424	0.2407
L6	125.00-120.00	-0.0872	0.2019	-0.2309	0.4782
L7	120.00-115.00	-0.1661	0.4086	-0.3450	0.7841
L8	115.00-108.00	-0.1650	0.4057	-0.3446	0.7826
L9	108.00-106.75	-0.1647	0.4050	-0.3448	0.7827
L10	106.75-101.75	-0.1642	0.4036	-0.3438	0.7804
L11	101.75-96.75	-0.1634	0.4014	-0.3433	0.7788
L12	96.75-91.75	-0.1613	0.3961	-0.3362	0.7621
L13	91.75-89.50	-0.1391	0.3415	-0.2472	0.5602
L14	89.50-89.25	-0.1391	0.3414	-0.2475	0.5609
L15	89.25-84.25	-0.1391	0.3413	-0.2482	0.5623
L16	84.25-79.25	-0.1390	0.3410	-0.2494	0.5648
L17	79.25-69.75	-0.1434	0.3516	-0.2675	0.6054
L18	69.75-68.75	-0.1598	0.3918	-0.3397	0.7686
L19	68.75-63.75	-0.1595	0.3909	-0.3377	0.7641
L20	63.75-58.75	-0.0874	0.3584	-0.1629	0.6564
L21	58.75-57.50	0.0908	0.2807	0.1943	0.4405
L22	57.50-57.25	0.0910	0.2807	0.1946	0.4406
L23	57.25-52.25	0.0914	0.2804	0.1954	0.4410
L24	52.25-47.25	0.0923	0.2800	0.1969	0.4415
L25	47.25-42.25	0.0931	0.2796	0.1982	0.4418
L26	42.25-32.50	0.0942	0.2791	0.1997	0.4417
L27	32.50-31.50	0.0945	0.2789	0.2004	0.4422
L28	31.50-30.00	0.0947	0.2788	0.1997	0.4408
L29	30.00-29.75	0.1476	0.2583	0.2388	0.4218
L30	29.75-24.75	0.1481	0.2582	0.2400	0.4226
L31	24.75-19.75	0.1490	0.2579	0.2423	0.4241
L32	19.75-14.75	0.1499	0.2576	0.2446	0.4256
L33	14.75-9.75	0.1508	0.2573	0.2468	0.4270
L34	9.75-4.75	0.1517	0.2570	0.2489	0.4285
L35	4.75-0.00	0.1525	0.2568	0.2510	0.4298

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
***									
(2) DB980H90E-M w/ Mount Pipe	A	From Leg	3.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.04 4.50 4.95 5.87 8.05	3.62 4.48 5.22 6.74 10.00	0.03 0.07 0.11 0.22 0.55
(2) DB980H90E-M w/ Mount Pipe	B	From Leg	3.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.04 4.50 4.95 5.87 8.05	3.62 4.48 5.22 6.74 10.00	0.03 0.07 0.11 0.22 0.55
(2) DB980H90E-M w/ Mount Pipe	C	From Leg	3.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.04 4.50 4.95 5.87 8.05	3.62 4.48 5.22 6.74 10.00	0.03 0.07 0.11 0.22 0.55
Platform Mount [LP 712-1]	C	None		0.0000	150.00	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
(3) Empty Pipe Mount	A	From Leg	3.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.44 0.63 0.82 1.23 2.32	0.44 0.63 0.82 1.23 2.32	0.02 0.02 0.03 0.05 0.12
(3) Empty Pipe Mount	B	From Leg	3.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.44 0.63 0.82 1.23 2.32	0.44 0.63 0.82 1.23 2.32	0.02 0.02 0.03 0.05 0.12
(3) Empty Pipe Mount	C	From Leg	3.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.44 0.63 0.82 1.23 2.32	0.44 0.63 0.82 1.23 2.32	0.02 0.02 0.03 0.05 0.12
***									
(2) APL868013-42T0 w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.0000	141.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.10 3.48 3.88 4.76 6.66	4.92 5.60 6.28 7.71 10.83	0.02 0.06 0.11 0.22 0.54
(2) APL868013-42T0 w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.0000	141.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.10 3.48 3.88 4.76 6.66	4.92 5.60 6.28 7.71 10.83	0.02 0.06 0.11 0.22 0.54
(2) APL868013-42T0 w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.0000	141.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.10 3.48 3.88 4.76 6.66	4.92 5.60 6.28 7.71 10.83	0.02 0.06 0.11 0.22 0.54

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
BXA-171085-8BF-EDIN-2 w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.0000	141.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.18 3.56 3.96 4.85 6.77	3.35 3.97 4.60 5.89 8.89	0.03 0.06 0.10 0.19 0.49
BXA-171085-8BF-EDIN-2 w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.0000	141.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.18 3.56 3.96 4.85 6.77	3.35 3.97 4.60 5.89 8.89	0.03 0.06 0.10 0.19 0.49
BXA-171085-8BF-EDIN-2 w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.0000	141.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.18 3.56 3.96 4.85 6.77	3.35 3.97 4.60 5.89 8.89	0.03 0.06 0.10 0.19 0.49
KS24019-L112A	A	From Leg	4.00 0.00 4.00	0.0000	141.00	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
(2) FD9R6004/2C-3L	A	From Leg	4.00 0.00 0.00	0.0000	141.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.37 0.45 0.54 0.75 1.28	0.08 0.14 0.20 0.34 0.74	0.00 0.01 0.01 0.02 0.06
(2) FD9R6004/2C-3L	B	From Leg	4.00 0.00 0.00	0.0000	141.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.37 0.45 0.54 0.75 1.28	0.08 0.14 0.20 0.34 0.74	0.00 0.01 0.01 0.02 0.06
(2) FD9R6004/2C-3L	C	From Leg	4.00 0.00 0.00	0.0000	141.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.37 0.45 0.54 0.75 1.28	0.08 0.14 0.20 0.34 0.74	0.00 0.01 0.01 0.02 0.06
BXA-70063-6CF-EDIN-0 w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.0000	141.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.97 8.61 9.22 10.46 13.07	5.80 6.95 7.82 9.60 13.37	0.04 0.10 0.17 0.34 0.80
BXA-70063-6CF-EDIN-0 w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.0000	141.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.97 8.61 9.22 10.46 13.07	5.80 6.95 7.82 9.60 13.37	0.04 0.10 0.17 0.34 0.80
BXA-70063-6CF-EDIN-0 w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.0000	141.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.97 8.61 9.22 10.46 13.07	5.80 6.95 7.82 9.60 13.37	0.04 0.10 0.17 0.34 0.80
742 213 w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.0000	141.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.37 5.95 6.50 7.61 9.93	4.62 6.00 6.98 8.85 12.79	0.05 0.09 0.15 0.28 0.68
742 213 w/ Mount Pipe	B	From Leg	4.00 0.00	0.0000	141.00	No Ice 1/2" Ice	5.37 5.95	4.62 6.00	0.05 0.09

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			1.00			1" Ice	6.50	6.98	0.15
						2" Ice	7.61	8.85	0.28
						4" Ice	9.93	12.79	0.68
742 213 w/ Mount Pipe	C	From Leg	4.00	0.0000	141.00	No Ice	5.37	4.62	0.05
			0.00			1/2" Ice	5.95	6.00	0.09
			1.00			1" Ice	6.50	6.98	0.15
						2" Ice	7.61	8.85	0.28
						4" Ice	9.93	12.79	0.68
DB-T1-6Z-8AB-0Z	A	From Leg	4.00	0.0000	141.00	No Ice	5.60	2.33	0.04
			0.00			1/2" Ice	5.92	2.56	0.08
			1.00			1" Ice	6.24	2.79	0.12
						2" Ice	6.91	3.28	0.21
						4" Ice	8.37	4.37	0.45
RRH2x40-AWS	A	From Leg	4.00	0.0000	141.00	No Ice	2.52	1.59	0.04
			0.00			1/2" Ice	2.75	1.80	0.06
			1.00			1" Ice	2.99	2.01	0.08
						2" Ice	3.50	2.46	0.13
						4" Ice	4.61	3.48	0.28
RRH2x40-AWS	B	From Leg	4.00	0.0000	141.00	No Ice	2.52	1.59	0.04
			0.00			1/2" Ice	2.75	1.80	0.06
			1.00			1" Ice	2.99	2.01	0.08
						2" Ice	3.50	2.46	0.13
						4" Ice	4.61	3.48	0.28
RRH2x40-AWS	C	From Leg	4.00	0.0000	141.00	No Ice	2.52	1.59	0.04
			0.00			1/2" Ice	2.75	1.80	0.06
			1.00			1" Ice	2.99	2.01	0.08
						2" Ice	3.50	2.46	0.13
						4" Ice	4.61	3.48	0.28
Platform Mount [LP 712-1]	C	None		0.0000	141.00	No Ice	24.53	24.53	1.34
						1/2" Ice	29.94	29.94	1.65
						1" Ice	35.35	35.35	1.96
						2" Ice	46.17	46.17	2.58
						4" Ice	67.81	67.81	3.82
***									
7770.00 w/ Mount Pipe	A	From Leg	4.00	0.0000	129.00	No Ice	6.12	4.25	0.06
			0.00			1/2" Ice	6.63	5.01	0.10
			3.00			1" Ice	7.13	5.71	0.16
						2" Ice	8.16	7.16	0.29
						4" Ice	10.36	10.41	0.66
7770.00 w/ Mount Pipe	B	From Leg	4.00	0.0000	129.00	No Ice	6.12	4.25	0.06
			0.00			1/2" Ice	6.63	5.01	0.10
			3.00			1" Ice	7.13	5.71	0.16
						2" Ice	8.16	7.16	0.29
						4" Ice	10.36	10.41	0.66
7770.00 w/ Mount Pipe	C	From Leg	4.00	0.0000	129.00	No Ice	6.12	4.25	0.06
			0.00			1/2" Ice	6.63	5.01	0.10
			3.00			1" Ice	7.13	5.71	0.16
						2" Ice	8.16	7.16	0.29
						4" Ice	10.36	10.41	0.66
(2) LGP21401	A	From Leg	4.00	0.0000	129.00	No Ice	1.29	0.23	0.01
			0.00			1/2" Ice	1.45	0.31	0.02
			0.00			1" Ice	1.61	0.40	0.03
						2" Ice	1.97	0.61	0.05
						4" Ice	2.79	1.12	0.14
(2) LGP21401	B	From Leg	4.00	0.0000	129.00	No Ice	1.29	0.23	0.01
			0.00			1/2" Ice	1.45	0.31	0.02
			0.00			1" Ice	1.61	0.40	0.03

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice	1.97	0.61	0.05
						4" Ice	2.79	1.12	0.14
(2) LGP21401	C	From Leg	4.00	0.0000	129.00	No Ice	1.29	0.23	0.01
			0.00			1/2" Ice	1.45	0.31	0.02
			0.00			1" Ice	1.61	0.40	0.03
						2" Ice	1.97	0.61	0.05
						4" Ice	2.79	1.12	0.14
RRU-11	A	From Leg	4.00	0.0000	129.00	No Ice	1.91	1.47	0.04
			0.00			1/2" Ice	2.10	1.65	0.06
			0.00			1" Ice	2.30	1.83	0.08
						2" Ice	2.72	2.22	0.12
						4" Ice	3.68	3.10	0.25
RRU-11	B	From Leg	4.00	0.0000	129.00	No Ice	1.91	1.47	0.04
			0.00			1/2" Ice	2.10	1.65	0.06
			0.00			1" Ice	2.30	1.83	0.08
						2" Ice	2.72	2.22	0.12
						4" Ice	3.68	3.10	0.25
RRU-11	C	From Leg	4.00	0.0000	129.00	No Ice	1.91	1.47	0.04
			0.00			1/2" Ice	2.10	1.65	0.06
			0.00			1" Ice	2.30	1.83	0.08
						2" Ice	2.72	2.22	0.12
						4" Ice	3.68	3.10	0.25
DC6-48-60-18-8F	C	From Leg	4.00	0.0000	129.00	No Ice	2.57	4.32	0.03
			0.00			1/2" Ice	2.80	4.60	0.06
			0.00			1" Ice	3.04	4.88	0.10
						2" Ice	3.54	5.49	0.18
						4" Ice	4.66	6.80	0.40
(2) OPA-65R-LCUU-H6 w/ Mount Pipe	A	From Leg	4.00	0.0000	129.00	No Ice	10.60	7.18	0.10
			0.00			1/2" Ice	11.27	8.36	0.18
			3.00			1" Ice	11.91	9.26	0.26
						2" Ice	13.21	11.09	0.46
						4" Ice	15.93	15.15	1.00
(2) OPA-65R-LCUU-H6 w/ Mount Pipe	B	From Leg	4.00	0.0000	129.00	No Ice	10.60	7.18	0.10
			0.00			1/2" Ice	11.27	8.36	0.18
			3.00			1" Ice	11.91	9.26	0.26
						2" Ice	13.21	11.09	0.46
						4" Ice	15.93	15.15	1.00
(2) OPA-65R-LCUU-H6 w/ Mount Pipe	C	From Leg	4.00	0.0000	129.00	No Ice	10.60	7.18	0.10
			0.00			1/2" Ice	11.27	8.36	0.18
			3.00			1" Ice	11.91	9.26	0.26
						2" Ice	13.21	11.09	0.46
						4" Ice	15.93	15.15	1.00
RRUS A2 MODULE	A	From Leg	4.00	0.0000	129.00	No Ice	1.87	0.42	0.02
			0.00			1/2" Ice	2.05	0.53	0.03
			3.00			1" Ice	2.24	0.65	0.04
						2" Ice	2.66	0.91	0.08
						4" Ice	3.58	1.54	0.18
RRUS A2 MODULE	B	From Leg	4.00	0.0000	129.00	No Ice	1.87	0.42	0.02
			0.00			1/2" Ice	2.05	0.53	0.03
			3.00			1" Ice	2.24	0.65	0.04
						2" Ice	2.66	0.91	0.08
						4" Ice	3.58	1.54	0.18
RRUS A2 MODULE	C	From Leg	4.00	0.0000	129.00	No Ice	1.87	0.42	0.02
			0.00			1/2" Ice	2.05	0.53	0.03
			3.00			1" Ice	2.24	0.65	0.04
						2" Ice	2.66	0.91	0.08
						4" Ice	3.58	1.54	0.18

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
RRUS-11 1900MHz	A	From Leg	4.00	0.00	0.0000	129.00	No Ice	2.94	1.19	0.04
							1/2" Ice	3.17	1.35	0.06
				3.00			1" Ice	3.41	1.52	0.09
							2" Ice	3.91	1.89	0.14
							4" Ice	5.02	2.72	0.29
RRUS-11 1900MHz	B	From Leg	4.00	0.00	0.0000	129.00	No Ice	2.94	1.19	0.04
							1/2" Ice	3.17	1.35	0.06
				3.00			1" Ice	3.41	1.52	0.09
							2" Ice	3.91	1.89	0.14
							4" Ice	5.02	2.72	0.29
RRUS-11 1900MHz	C	From Leg	4.00	0.00	0.0000	129.00	No Ice	2.94	1.19	0.04
							1/2" Ice	3.17	1.35	0.06
				3.00			1" Ice	3.41	1.52	0.09
							2" Ice	3.91	1.89	0.14
							4" Ice	5.02	2.72	0.29
DC6-48-60-18-8F	A	From Leg	4.00	0.00	0.0000	129.00	No Ice	2.57	4.32	0.03
							1/2" Ice	2.80	4.60	0.06
				3.00			1" Ice	3.04	4.88	0.10
							2" Ice	3.54	5.49	0.18
							4" Ice	4.66	6.80	0.40
Platform Mount [LP 712-1]	C	None			0.0000	129.00	No Ice	24.53	24.53	1.34
							1/2" Ice	29.94	29.94	1.65
							1" Ice	35.35	35.35	1.96
							2" Ice	46.17	46.17	2.58
							4" Ice	67.81	67.81	3.82
Empty Pipe Mount	A	From Leg	3.00	0.00	0.0000	129.00	No Ice	0.44	0.44	0.02
							1/2" Ice	0.63	0.63	0.02
				0.00			1" Ice	0.82	0.82	0.03
							2" Ice	1.23	1.23	0.05
							4" Ice	2.32	2.32	0.12
Empty Pipe Mount	B	From Leg	3.00	0.00	0.0000	129.00	No Ice	0.44	0.44	0.02
							1/2" Ice	0.63	0.63	0.02
				0.00			1" Ice	0.82	0.82	0.03
							2" Ice	1.23	1.23	0.05
							4" Ice	2.32	2.32	0.12
Empty Pipe Mount	C	From Leg	3.00	0.00	0.0000	129.00	No Ice	0.44	0.44	0.02
							1/2" Ice	0.63	0.63	0.02
				0.00			1" Ice	0.82	0.82	0.03
							2" Ice	1.23	1.23	0.05
							4" Ice	2.32	2.32	0.12
***										
APXV18-206517S-C	A	From Leg	1.00	0.00	0.0000	122.00	No Ice	5.17	3.04	0.03
							1/2" Ice	5.62	3.47	0.05
				0.00			1" Ice	6.08	3.91	0.09
							2" Ice	7.02	4.81	0.17
							4" Ice	9.12	6.70	0.40
APXV18-206517S-C	B	From Leg	1.00	0.00	0.0000	122.00	No Ice	5.17	3.04	0.03
							1/2" Ice	5.62	3.47	0.05
				0.00			1" Ice	6.08	3.91	0.09
							2" Ice	7.02	4.81	0.17
							4" Ice	9.12	6.70	0.40
APXV18-206517S-C	C	From Leg	1.00	0.00	0.0000	122.00	No Ice	5.17	3.04	0.03
							1/2" Ice	5.62	3.47	0.05
				0.00			1" Ice	6.08	3.91	0.09
							2" Ice	7.02	4.81	0.17
							4" Ice	9.12	6.70	0.40
Pipe Mount [PM 601-3]	C	From Leg	0.50	0.00	0.0000	122.00	No Ice	4.39	4.39	0.20

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1/2" Ice	5.48	5.48	0.24
			0.00			1" Ice	6.57	6.57	0.28
						2" Ice	8.75	8.75	0.36
						4" Ice	13.11	13.11	0.53
***									
(2) RR65-18-02DP w/ Mount Pipe	A	From Leg	3.00	0.0000	111.00	No Ice	4.59	3.32	0.03
			0.00			1/2" Ice	5.09	4.09	0.07
			-1.00			1" Ice	5.58	4.78	0.12
						2" Ice	6.59	6.23	0.22
						4" Ice	8.73	9.31	0.56
(2) RR65-18-02DP w/ Mount Pipe	B	From Leg	3.00	0.0000	111.00	No Ice	4.59	3.32	0.03
			0.00			1/2" Ice	5.09	4.09	0.07
			-1.00			1" Ice	5.58	4.78	0.12
						2" Ice	6.59	6.23	0.22
						4" Ice	8.73	9.31	0.56
(2) S20057A1	A	From Leg	3.00	0.0000	111.00	No Ice	0.82	0.39	0.01
			0.00			1/2" Ice	0.95	0.49	0.02
			0.00			1" Ice	1.09	0.61	0.02
						2" Ice	1.40	0.87	0.04
						4" Ice	2.11	1.50	0.11
(2) S20057A1	B	From Leg	3.00	0.0000	111.00	No Ice	0.82	0.39	0.01
			0.00			1/2" Ice	0.95	0.49	0.02
			0.00			1" Ice	1.09	0.61	0.02
						2" Ice	1.40	0.87	0.04
						4" Ice	2.11	1.50	0.11
T-Arm Mount [TA 602-1]	A	From Leg	0.00	0.0000	111.00	No Ice	7.28	3.02	0.26
			0.00			1/2" Ice	9.52	4.20	0.33
			0.00			1" Ice	11.76	5.38	0.40
						2" Ice	16.24	7.74	0.55
						4" Ice	25.20	12.46	0.83
T-Arm Mount [TA 602-1]	B	From Leg	0.00	0.0000	111.00	No Ice	7.28	3.02	0.26
			0.00			1/2" Ice	9.52	4.20	0.33
			0.00			1" Ice	11.76	5.38	0.40
						2" Ice	16.24	7.74	0.55
						4" Ice	25.20	12.46	0.83
***									
KS24019-L112A	B	From Leg	3.00	0.0000	104.00	No Ice	0.16	0.16	0.01
			0.00			1/2" Ice	0.22	0.22	0.01
			0.00			1" Ice	0.30	0.30	0.01
						2" Ice	0.48	0.48	0.02
						4" Ice	0.95	0.95	0.06
Side Arm Mount [SO 701-1]	B	From Leg	1.50	0.0000	104.00	No Ice	0.85	1.67	0.07
			0.00			1/2" Ice	1.14	2.34	0.08
			0.00			1" Ice	1.43	3.01	0.09
						2" Ice	2.01	4.35	0.12
						4" Ice	3.17	7.03	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
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	150 - 145	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-3.22	0.00	-0.01
			Max. Mx	11	-1.76	14.33	0.01
			Max. My	8	-1.76	-0.00	-14.34
			Max. Vy	11	-3.12	14.33	0.01
			Max. Vx	2	-3.12	0.00	14.34
			Max. Torque	25			0.00
L2	145 - 140	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-7.75	0.01	0.59
			Max. Mx	11	-3.64	40.02	0.19
			Max. My	2	-3.61	0.01	40.57
			Max. Vy	11	-8.72	40.02	0.19
			Max. Vx	2	-8.88	0.01	40.57
			Max. Torque	5			0.60
L3	140 - 135	Pole	Max Tension	1	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	14	-8.31	0.01	0.58
			Max. Mx	11	-4.01	84.95	0.20
			Max. My	2	-3.99	0.02	86.28
			Max. Vy	11	-9.25	84.95	0.20
			Max. Vx	2	-9.41	0.02	86.28
			Max. Torque	5			0.60
L4	135 - 130	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-8.89	0.02	0.57
			Max. Mx	11	-4.41	132.57	0.22
			Max. My	2	-4.39	0.03	134.70
			Max. Vy	11	-9.80	132.57	0.22
			Max. Vx	2	-9.96	0.03	134.70
			Max. Torque	5			0.60
L5	130 - 125	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-14.29	0.42	0.80
			Max. Mx	11	-6.98	217.91	0.41
			Max. My	2	-6.95	0.25	220.37
			Max. Vy	11	-16.18	217.91	0.41
			Max. Vx	2	-16.30	0.25	220.37
			Max. Torque	10			-1.42
L6	125 - 120	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-15.48	0.84	0.50
			Max. Mx	11	-7.69	302.06	0.45
			Max. My	2	-7.67	0.70	304.67
			Max. Vy	5	17.53	-301.22	-0.29
			Max. Vx	2	-17.65	0.70	304.67
			Max. Torque	9			-1.52
L7	120 - 115	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-16.26	0.91	0.31
			Max. Mx	11	-8.23	391.25	0.62
			Max. My	2	-8.20	0.90	394.41
			Max. Vy	5	18.15	-390.38	-0.50
			Max. Vx	2	-18.27	0.90	394.41
			Max. Torque	9			-1.52
L8	115 - 108	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-16.78	0.96	0.18
			Max. Mx	11	-8.60	450.87	0.73
			Max. My	2	-8.57	1.03	454.39
			Max. Vy	5	18.54	-449.98	-0.64
			Max. Vx	2	-18.67	1.03	454.39
			Max. Torque	9			-1.51
L9	108 - 106.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-19.40	-0.30	0.76
			Max. Mx	5	-10.14	-549.45	-1.16
			Max. My	2	-10.11	1.34	554.86
			Max. Vy	5	20.43	-549.45	-1.16
			Max. Vx	2	-20.72	1.34	554.86
			Max. Torque	5			1.66
L10	106.75 - 101.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-20.44	-0.47	0.43
			Max. Mx	5	-10.94	-653.42	-2.18
			Max. My	2	-10.90	2.08	660.03
			Max. Vy	5	21.11	-653.42	-2.18
			Max. Vx	2	-21.42	2.08	660.03
			Max. Torque	5			1.66
L11	101.75 - 96.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-21.41	-0.39	0.23
			Max. Mx	5	-11.69	-760.50	-3.06
			Max. My	2	-11.66	2.95	768.63
			Max. Vy	5	21.74	-760.50	-3.06

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	2	-22.05	2.95	768.63
			Max. Torque	5			1.52
L12	96.75 - 91.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-22.41	-0.31	0.03
			Max. Mx	5	-12.47	-870.72	-3.95
			Max. My	2	-12.44	3.81	880.37
			Max. Vy	5	22.37	-870.72	-3.95
			Max. Vx	2	-22.68	3.81	880.37
			Max. Torque	5			1.50
L13	91.75 - 89.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-22.90	-0.27	-0.06
			Max. Mx	5	-12.82	-921.40	-4.35
			Max. My	2	-12.79	4.20	931.74
			Max. Vy	5	22.70	-921.40	-4.35
			Max. Vx	2	-23.01	4.20	931.74
			Max. Torque	5			1.48
L14	89.5 - 89.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-22.97	-0.27	-0.07
			Max. Mx	5	-12.89	-927.07	-4.39
			Max. My	2	-12.86	4.25	937.49
			Max. Vy	5	22.73	-927.07	-4.39
			Max. Vx	2	-23.04	4.25	937.49
			Max. Torque	5			1.47
L15	89.25 - 84.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-24.38	-0.19	-0.28
			Max. Mx	5	-13.96	-1042.63	-5.28
			Max. My	2	-13.93	5.11	1054.56
			Max. Vy	5	23.50	-1042.63	-5.28
			Max. Vx	2	-23.81	5.11	1054.56
			Max. Torque	5			1.47
L16	84.25 - 79.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-25.81	-0.11	-0.49
			Max. Mx	5	-15.06	-1162.01	-6.17
			Max. My	2	-15.03	5.98	1175.47
			Max. Vy	5	24.27	-1162.01	-6.17
			Max. Vx	2	-24.58	5.98	1175.47
			Max. Torque	5			1.45
L17	79.25 - 69.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-27.16	-0.03	-0.69
			Max. Mx	5	-16.13	-1278.88	-7.01
			Max. My	2	-16.10	6.81	1293.79
			Max. Vy	5	24.96	-1278.88	-7.01
			Max. Vx	2	-25.27	6.81	1293.79
			Max. Torque	5			1.42
L18	69.75 - 68.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-29.67	0.07	-0.93
			Max. Mx	5	-18.10	-1424.98	-8.04
			Max. My	8	-18.07	-8.16	-1441.71
			Max. Vy	5	25.84	-1424.98	-8.04
			Max. Vx	2	-26.16	7.81	1441.63
			Max. Torque	5			1.38
L19	68.75 - 63.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-30.89	0.15	-1.15
			Max. Mx	5	-19.12	-1555.67	-8.93
			Max. My	8	-19.10	-8.99	-1574.01
			Max. Vy	5	26.46	-1555.67	-8.93
			Max. Vx	2	-26.77	8.68	1573.84
			Max. Torque	5			1.38
L20	63.75 - 58.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-32.15	0.22	-1.36
			Max. Mx	5	-20.17	-1689.47	-9.83

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	8	-20.15	-9.83	-1709.42
			Max. Vy	5	27.09	-1689.47	-9.83
			Max. Vx	2	-27.40	9.54	1709.17
			Max. Torque	5			1.36
L21	58.75 - 57.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-32.49	0.23	-1.41
			Max. Mx	5	-20.43	-1723.43	-10.05
			Max. My	8	-20.41	-10.04	-1743.78
			Max. Vy	5	27.28	-1723.43	-10.05
			Max. Vx	8	27.58	-10.04	-1743.78
			Max. Torque	5			1.33
L22	57.5 - 57.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-32.58	0.24	-1.42
			Max. Mx	5	-20.51	-1730.25	-10.09
			Max. My	8	-20.50	-10.08	-1750.68
			Max. Vy	5	27.30	-1730.25	-10.09
			Max. Vx	2	-27.62	9.80	1750.40
			Max. Torque	5			1.33
L23	57.25 - 52.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-34.36	0.27	-1.63
			Max. Mx	5	-21.95	-1868.63	-10.99
			Max. My	8	-21.93	-10.91	-1890.66
			Max. Vy	5	28.07	-1868.63	-10.99
			Max. Vx	2	-28.37	10.67	1890.30
			Max. Torque	5			1.33
L24	52.25 - 47.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-36.15	0.31	-1.84
			Max. Mx	5	-23.42	-2010.76	-11.88
			Max. My	8	-23.40	-11.75	-2034.40
			Max. Vy	5	28.81	-2010.76	-11.88
			Max. Vx	2	-29.12	11.54	2033.94
			Max. Torque	5			1.31
L25	47.25 - 42.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-37.97	0.34	-2.05
			Max. Mx	5	-24.91	-2156.56	-12.78
			Max. My	8	-24.90	-12.58	-2181.80
			Max. Vy	5	29.54	-2156.56	-12.78
			Max. Vx	2	-29.84	12.41	2181.25
			Max. Torque	5			1.29
L26	42.25 - 32.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-39.53	0.37	-2.23
			Max. Mx	5	-26.20	-2283.28	-13.53
			Max. My	8	-26.19	-13.28	-2309.88
			Max. Vy	5	30.12	-2283.28	-13.53
			Max. Vx	2	-30.43	13.14	2309.25
			Max. Torque	5			1.27
L27	32.5 - 31.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-43.77	0.42	-2.50
			Max. Mx	5	-29.76	-2482.22	-14.70
			Max. My	8	-29.75	-14.36	-2510.90
			Max. Vy	11	-31.10	2482.13	13.93
			Max. Vx	2	-31.41	14.27	2510.15
			Max. Torque	5			1.24
L28	31.5 - 30	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-44.38	0.43	-2.57
			Max. Mx	5	-30.26	-2529.01	-14.96
			Max. My	8	-30.25	-14.61	-2558.17
			Max. Vy	11	-31.31	2528.93	14.17
			Max. Vx	8	31.61	-14.61	-2558.17
			Max. Torque	5			1.24
L29	30 - 29.75	Pole	Max Tension	1	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	14	-44.48	0.43	-2.58
			Max. Mx	5	-30.37	-2536.83	-15.01
			Max. My	8	-30.36	-14.65	-2566.07
			Max. Vy	11	-31.33	2536.75	14.21
			Max. Vx	2	-31.64	14.57	2565.29
			Max. Torque	5			1.23
L30	29.75 - 24.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-46.66	0.46	-2.79
			Max. Mx	5	-32.20	-2695.22	-15.90
			Max. My	8	-32.20	-15.48	-2726.06
			Max. Vy	11	-32.04	2695.18	15.01
			Max. Vx	2	-32.35	15.43	2725.17
			Max. Torque	5			1.23
L31	24.75 - 19.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-48.86	0.49	-3.00
			Max. Mx	5	-34.08	-2857.16	-16.80
			Max. My	8	-34.07	-16.30	-2889.59
			Max. Vy	11	-32.76	2857.16	15.80
			Max. Vx	2	-33.06	16.30	2888.61
			Max. Torque	5			1.21
L32	19.75 - 14.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-51.09	0.53	-3.22
			Max. Mx	11	-35.98	3022.71	16.59
			Max. My	8	-35.97	-17.12	-3056.70
			Max. Vy	11	-33.47	3022.71	16.59
			Max. Vx	2	-33.78	17.16	3055.62
			Max. Torque	5			1.20
L33	14.75 - 9.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-53.35	0.56	-3.45
			Max. Mx	11	-37.91	3191.85	17.38
			Max. My	8	-37.90	-17.94	-3227.39
			Max. Vy	11	-34.20	3191.85	17.38
			Max. Vx	2	-34.50	18.02	3226.21
			Max. Torque	5			1.18
L34	9.75 - 4.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-55.63	0.59	-3.67
			Max. Mx	11	-39.86	3364.59	18.17
			Max. My	8	-39.86	-18.76	-3401.69
			Max. Vy	11	-34.92	3364.59	18.17
			Max. Vx	2	-35.22	18.87	3400.40
			Max. Torque	6			1.17
L35	4.75 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-57.83	0.62	-3.89
			Max. Mx	11	-41.75	3532.06	18.91
			Max. My	8	-41.75	-19.53	-3570.62
			Max. Vy	11	-35.61	3532.06	18.91
			Max. Vx	8	35.91	-19.53	-3570.62
			Max. Torque	6			1.16

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	14	57.83	0.00	0.00
	Max. H_x	11	41.76	35.60	0.17
	Max. H_z	2	41.76	0.17	35.90

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Max. M_x	2	3569.23	0.17	35.90
	Max. M_z	5	3531.91	-35.60	-0.17
	Max. Torsion	6	1.15	-30.91	-18.09
	Min. Vert	1	41.76	0.00	0.00
	Min. H_x	5	41.76	-35.60	-0.17
	Min. H_z	8	41.76	-0.17	-35.90
	Min. M_x	8	-3570.62	-0.17	-35.90
	Min. M_z	11	-3532.06	35.60	0.17
	Min. Torsion	12	-1.12	30.91	18.09

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	41.76	0.00	0.00	0.69	0.08	0.00
Dead+Wind 0 deg - No Ice	41.76	-0.17	-35.90	-3569.23	19.68	0.34
Dead+Wind 30 deg - No Ice	41.76	17.66	-31.01	-3081.19	-1748.92	-0.26
Dead+Wind 60 deg - No Ice	41.76	30.75	-17.81	-1767.33	-3048.92	-0.80
Dead+Wind 90 deg - No Ice	41.76	35.60	0.17	20.31	-3531.91	-1.13
Dead+Wind 120 deg - No Ice	41.76	30.91	18.09	1802.66	-3068.47	-1.15
Dead+Wind 150 deg - No Ice	41.76	17.94	31.17	3102.14	-1782.85	-0.85
Dead+Wind 180 deg - No Ice	41.76	0.17	35.90	3570.62	-19.53	-0.32
Dead+Wind 210 deg - No Ice	41.76	-17.66	31.01	3082.58	1749.07	0.29
Dead+Wind 240 deg - No Ice	41.76	-30.75	17.81	1768.73	3049.07	0.81
Dead+Wind 270 deg - No Ice	41.76	-35.60	-0.17	-18.91	3532.06	1.11
Dead+Wind 300 deg - No Ice	41.76	-30.91	-18.09	-1801.26	3068.63	1.12
Dead+Wind 330 deg - No Ice	41.76	-17.94	-31.17	-3100.75	1783.01	0.84
Dead+Ice+Temp	57.83	0.00	0.00	3.89	0.62	0.00
Dead+Wind 0 deg+Ice+Temp	57.83	-0.03	-8.91	-891.77	4.79	0.14
Dead+Wind 30 deg+Ice+Temp	57.83	4.39	-7.70	-769.69	-439.37	0.03
Dead+Wind 60 deg+Ice+Temp	57.83	7.64	-4.42	-440.30	-765.62	-0.09
Dead+Wind 90 deg+Ice+Temp	57.83	8.84	0.03	8.14	-886.56	-0.18
Dead+Wind 120 deg+Ice+Temp	57.83	7.67	4.48	455.47	-769.77	-0.23
Dead+Wind 150 deg+Ice+Temp	57.83	4.45	7.73	781.82	-446.55	-0.21
Dead+Wind 180 deg+Ice+Temp	57.83	0.03	8.91	899.76	-3.50	-0.14
Dead+Wind 210 deg+Ice+Temp	57.83	-4.39	7.70	777.68	440.65	-0.03
Dead+Wind 240 deg+Ice+Temp	57.83	-7.64	4.42	448.29	766.91	0.09
Dead+Wind 270 deg+Ice+Temp	57.83	-8.84	-0.03	-0.15	887.84	0.18
Dead+Wind 300 deg+Ice+Temp	57.83	-7.67	-4.48	-447.48	771.05	0.23
Dead+Wind 330 deg+Ice+Temp	57.83	-4.45	-7.73	-773.83	447.83	0.21
Dead+Wind 0 deg - Service	41.76	-0.06	-12.42	-1235.68	6.87	0.11
Dead+Wind 30 deg - Service	41.76	6.11	-10.73	-1066.65	-605.65	-0.09
Dead+Wind 60 deg - Service	41.76	10.64	-6.16	-611.62	-1055.86	-0.28
Dead+Wind 90 deg - Service	41.76	12.32	0.06	7.48	-1223.13	-0.39
Dead+Wind 120 deg - Service	41.76	10.70	6.26	624.76	-1062.65	-0.40
Dead+Wind 150 deg - Service	41.76	6.21	10.79	1074.82	-617.41	-0.29
Dead+Wind 180 deg - Service	41.76	0.06	12.42	1237.07	-6.71	-0.11
Dead+Wind 210 deg - Service	41.76	-6.11	10.73	1068.03	605.80	0.10
Dead+Wind 240 deg - Service	41.76	-10.64	6.16	613.00	1056.01	0.28
Dead+Wind 270 deg - Service	41.76	-12.32	-0.06	-6.09	1223.29	0.39
Dead+Wind 300 deg - Service	41.76	-10.70	-6.26	-623.37	1062.80	0.39
Dead+Wind 330 deg - Service	41.76	-6.21	-10.79	-1073.43	617.56	0.29

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.00	-41.76	0.00	0.00	41.76	0.00	0.000%
2	-0.17	-41.76	-35.90	0.17	41.76	35.90	0.000%
3	17.66	-41.76	-31.01	-17.66	41.76	31.01	0.000%
4	30.75	-41.76	-17.81	-30.75	41.76	17.81	0.000%
5	35.60	-41.76	0.17	-35.60	41.76	-0.17	0.000%
6	30.91	-41.76	18.09	-30.91	41.76	-18.09	0.000%
7	17.94	-41.76	31.17	-17.94	41.76	-31.17	0.000%
8	0.17	-41.76	35.90	-0.17	41.76	-35.90	0.000%
9	-17.66	-41.76	31.01	17.66	41.76	-31.01	0.000%
10	-30.75	-41.76	17.81	30.75	41.76	-17.81	0.000%
11	-35.60	-41.76	-0.17	35.60	41.76	0.17	0.000%
12	-30.91	-41.76	-18.09	30.91	41.76	18.09	0.000%
13	-17.94	-41.76	-31.17	17.94	41.76	31.17	0.000%
14	0.00	-57.83	0.00	0.00	57.83	0.00	0.000%
15	-0.03	-57.83	-8.91	0.03	57.83	8.91	0.000%
16	4.39	-57.83	-7.70	-4.39	57.83	7.70	0.000%
17	7.64	-57.83	-4.42	-7.64	57.83	4.42	0.000%
18	8.84	-57.83	0.03	-8.84	57.83	-0.03	0.000%
19	7.67	-57.83	4.48	-7.67	57.83	-4.48	0.000%
20	4.45	-57.83	7.73	-4.45	57.83	-7.73	0.000%
21	0.03	-57.83	8.91	-0.03	57.83	-8.91	0.000%
22	-4.39	-57.83	7.70	4.39	57.83	-7.70	0.000%
23	-7.64	-57.83	4.42	7.64	57.83	-4.42	0.000%
24	-8.84	-57.83	-0.03	8.84	57.83	0.03	0.000%
25	-7.67	-57.83	-4.48	7.67	57.83	4.48	0.000%
26	-4.45	-57.83	-7.73	4.45	57.83	7.73	0.000%
27	-0.06	-41.76	-12.42	0.06	41.76	12.42	0.000%
28	6.11	-41.76	-10.73	-6.11	41.76	10.73	0.000%
29	10.64	-41.76	-6.16	-10.64	41.76	6.16	0.000%
30	12.32	-41.76	0.06	-12.32	41.76	-0.06	0.000%
31	10.70	-41.76	6.26	-10.70	41.76	-6.26	0.000%
32	6.21	-41.76	10.79	-6.21	41.76	-10.79	0.000%
33	0.06	-41.76	12.42	-0.06	41.76	-12.42	0.000%
34	-6.11	-41.76	10.73	6.11	41.76	-10.73	0.000%
35	-10.64	-41.76	6.16	10.64	41.76	-6.16	0.000%
36	-12.32	-41.76	-0.06	12.32	41.76	0.06	0.000%
37	-10.70	-41.76	-6.26	10.70	41.76	6.26	0.000%
38	-6.21	-41.76	-10.79	6.21	41.76	10.79	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00072790
3	Yes	6	0.00000001	0.00004314
4	Yes	6	0.00000001	0.00004452
5	Yes	5	0.00000001	0.00005149
6	Yes	6	0.00000001	0.00004326
7	Yes	6	0.00000001	0.00004519
8	Yes	5	0.00000001	0.00003845
9	Yes	6	0.00000001	0.00004405
10	Yes	6	0.00000001	0.00004263

11	Yes	5	0.00000001	0.00009228
12	Yes	6	0.00000001	0.00004551
13	Yes	6	0.00000001	0.00004362
14	Yes	4	0.00000001	0.00000001
15	Yes	5	0.00000001	0.00082636
16	Yes	5	0.00000001	0.00092162
17	Yes	5	0.00000001	0.00091939
18	Yes	5	0.00000001	0.00082012
19	Yes	5	0.00000001	0.00093056
20	Yes	5	0.00000001	0.00093677
21	Yes	5	0.00000001	0.00083005
22	Yes	5	0.00000001	0.00092706
23	Yes	5	0.00000001	0.00092238
24	Yes	5	0.00000001	0.00082101
25	Yes	5	0.00000001	0.00093037
26	Yes	5	0.00000001	0.00093105
27	Yes	4	0.00000001	0.00033480
28	Yes	5	0.00000001	0.00012270
29	Yes	5	0.00000001	0.00013025
30	Yes	4	0.00000001	0.00050685
31	Yes	5	0.00000001	0.00012288
32	Yes	5	0.00000001	0.00013387
33	Yes	4	0.00000001	0.00035443
34	Yes	5	0.00000001	0.00012773
35	Yes	5	0.00000001	0.00011971
36	Yes	4	0.00000001	0.00057886
37	Yes	5	0.00000001	0.00013530
38	Yes	5	0.00000001	0.00012482

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	150 - 145	29.048	32	1.7604	0.0037
L2	145 - 140	27.208	32	1.7574	0.0037
L3	140 - 135	25.374	32	1.7484	0.0036
L4	135 - 130	23.555	32	1.7271	0.0033
L5	130 - 125	21.765	32	1.6943	0.0031
L6	125 - 120	20.015	32	1.6471	0.0028
L7	120 - 115	18.322	32	1.5850	0.0025
L8	115 - 108	16.701	32	1.5108	0.0022
L9	111.75 - 106.75	15.691	32	1.4571	0.0021
L10	106.75 - 101.75	14.187	32	1.4066	0.0019
L11	101.75 - 96.75	12.758	32	1.3232	0.0016
L12	96.75 - 91.75	11.418	32	1.2341	0.0013
L13	91.75 - 89.5	10.175	32	1.1405	0.0011
L14	89.5 - 89.25	9.648	32	1.0971	0.0010
L15	89.25 - 84.25	9.590	32	1.0940	0.0010
L16	84.25 - 79.25	8.478	32	1.0305	0.0009
L17	79.25 - 69.75	7.433	32	0.9645	0.0008
L18	74.5 - 68.75	6.506	32	0.8999	0.0007
L19	68.75 - 63.75	5.450	32	0.8437	0.0006
L20	63.75 - 58.75	4.616	32	0.7502	0.0005
L21	58.75 - 57.5	3.879	32	0.6562	0.0004
L22	57.5 - 57.25	3.710	32	0.6329	0.0004
L23	57.25 - 52.25	3.677	32	0.6299	0.0004
L24	52.25 - 47.25	3.050	32	0.5674	0.0003
L25	47.25 - 42.25	2.489	32	0.5050	0.0003
L26	42.25 - 32.5	1.993	32	0.4421	0.0002

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L27	38 - 31.5	1.624	32	0.3881	0.0002
L28	31.5 - 30	1.123	32	0.3423	0.0002
L29	30 - 29.75	1.018	32	0.3245	0.0002
L30	29.75 - 24.75	1.001	32	0.3218	0.0002
L31	24.75 - 19.75	0.693	32	0.2675	0.0001
L32	19.75 - 14.75	0.441	32	0.2136	0.0001
L33	14.75 - 9.75	0.246	32	0.1592	0.0001
L34	9.75 - 4.75	0.107	32	0.1054	0.0000
L35	4.75 - 0	0.025	32	0.0511	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
150.00	(2) DB980H90E-M w/ Mount Pipe	32	29.048	1.7604	0.0037	48997
141.00	(2) APL868013-42T0 w/ Mount Pipe	32	25.740	1.7510	0.0036	22715
129.00	7770.00 w/ Mount Pipe	32	21.411	1.6862	0.0031	6749
122.00	APXV18-206517S-C	32	18.992	1.6112	0.0026	4565
111.00	(2) RR65-18-02DP w/ Mount Pipe	32	15.461	1.4479	0.0020	4704
104.00	KS24019-L112A	32	13.391	1.3646	0.0017	3563

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	150 - 145	83.704	7	5.0755	0.0107
L2	145 - 140	78.406	7	5.0669	0.0107
L3	140 - 135	73.125	7	5.0409	0.0106
L4	135 - 130	67.889	7	4.9801	0.0098
L5	130 - 125	62.732	7	4.8859	0.0091
L6	125 - 120	57.694	7	4.7502	0.0081
L7	120 - 115	52.819	7	4.5717	0.0072
L8	115 - 108	48.149	7	4.3579	0.0064
L9	111.75 - 106.75	45.240	7	4.2029	0.0059
L10	106.75 - 101.75	40.909	7	4.0574	0.0054
L11	101.75 - 96.75	36.790	7	3.8170	0.0045
L12	96.75 - 91.75	32.931	7	3.5601	0.0038
L13	91.75 - 89.5	29.347	7	3.2901	0.0032
L14	89.5 - 89.25	27.827	7	3.1651	0.0029
L15	89.25 - 84.25	27.662	7	3.1562	0.0029
L16	84.25 - 79.25	24.455	7	2.9730	0.0026
L17	79.25 - 69.75	21.443	7	2.7828	0.0023
L18	74.5 - 68.75	18.769	7	2.5963	0.0020
L19	68.75 - 63.75	15.725	7	2.4344	0.0018
L20	63.75 - 58.75	13.318	7	2.1648	0.0015
L21	58.75 - 57.5	11.194	7	1.8937	0.0012
L22	57.5 - 57.25	10.707	7	1.8264	0.0011
L23	57.25 - 52.25	10.612	7	1.8176	0.0011
L24	52.25 - 47.25	8.803	7	1.6375	0.0010

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L25	47.25 - 42.25	7.183	7	1.4574	0.0008
L26	42.25 - 32.5	5.752	7	1.2757	0.0007
L27	38 - 31.5	4.686	7	1.1202	0.0006
L28	31.5 - 30	3.241	7	0.9878	0.0005
L29	30 - 29.75	2.939	7	0.9366	0.0005
L30	29.75 - 24.75	2.890	7	0.9287	0.0005
L31	24.75 - 19.75	1.999	7	0.7719	0.0004
L32	19.75 - 14.75	1.273	7	0.6164	0.0003
L33	14.75 - 9.75	0.709	7	0.4596	0.0002
L34	9.75 - 4.75	0.310	7	0.3041	0.0001
L35	4.75 - 0	0.073	7	0.1474	0.0001

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
150.00	(2) DB980H90E-M w/ Mount Pipe	7	83.704	5.0755	0.0107	17254
141.00	(2) APL868013-42T0 w/ Mount Pipe	7	74.179	5.0485	0.0106	8044
129.00	7770.00 w/ Mount Pipe	7	61.714	4.8624	0.0090	2380
122.00	APXV18-206517S-C	7	54.747	4.6471	0.0075	1605
111.00	(2) RR65-18-02DP w/ Mount Pipe	7	44.579	4.1764	0.0059	1649
104.00	KS24019-L112A	7	38.614	3.9361	0.0049	1247

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	150 - 149	TP23.0001x22x0.25	5.00	0.00	0.0	36.000	17.6698	-1.53	636.11	0.002
	149 - 148					36.000	17.8308	-1.58	641.91	0.002
	148 - 147					36.000	17.9918	-1.64	647.71	0.003
	147 - 146					36.000	18.1528	-1.70	653.50	0.003
	146 - 145					36.000	18.3138	-1.76	659.30	0.003
L2	145 - 144	TP24.0002x23.0001x0.25	5.00	0.00	0.0	36.000	18.4749	-1.82	665.10	0.003
	144 - 143					36.000	18.6359	-1.88	670.89	0.003
	143 - 142					36.000	18.7969	-1.94	676.69	0.003
	142 - 141					36.000	18.9579	-2.01	682.49	0.003
	141 - 140					36.000	19.1189	-3.61	688.28	0.005
L3	140 - 139	TP25.0004x24.0002x0.25	5.00	0.00	0.0	36.000	19.2800	-3.69	694.08	0.005
	139 - 138					36.000	19.4410	-3.76	699.88	0.005
	138 - 137					36.000	19.6020	-3.84	705.67	0.005
	137 - 136					36.000	19.7630	-3.91	711.47	0.006
	136 - 135					36.000	19.9240	-3.99	717.26	0.006
L4	135 - 134	TP26.0005x25.0004x0.25	5.00	0.00	0.0	36.000	20.0851	-4.07	723.06	0.006
	134 - 133					36.000	20.2461	-4.15	728.86	0.006
	133 - 132					36.000	20.4071	-4.23	734.65	0.006

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 $\frac{P}{P_a}$
	132 - 131					36.000	20.5681	-4.31	740.45	0.006
	131 - 130					36.000	20.7291	-4.39	746.25	0.006
L5	130 - 129	TP27.0006x26.0005x0.25	5.00	0.00	0.0	36.000	20.8902	-4.47	752.05	0.006
	129 - 128					36.000	21.0512	-6.68	757.84	0.009
	128 - 127					36.000	21.2122	-6.77	763.64	0.009
	127 - 126					36.000	21.3732	-6.86	769.44	0.009
	126 - 125					36.000	21.5342	-6.95	775.23	0.009
L6	125 - 124	TP28.0007x27.0006x0.25	5.00	0.00	0.0	36.000	21.6952	-7.05	781.03	0.009
	124 - 123					36.000	21.8563	-7.15	786.83	0.009
	123 - 122					36.000	22.0173	-7.24	792.62	0.009
	122 - 121					36.000	22.1783	-7.57	798.42	0.009
	121 - 120					36.000	22.3393	-7.67	804.22	0.010
L7	120 - 119	TP29.0008x28.0007x0.25	5.00	0.00	0.0	36.000	22.5003	-7.77	810.01	0.010
	119 - 118					36.000	22.6614	-7.88	815.81	0.010
	118 - 117					36.000	22.8224	-7.99	821.61	0.010
	117 - 116					36.000	22.9834	-8.09	827.40	0.010
	116 - 115					36.000	23.1444	-8.20	833.20	0.010
L8	115 - 113.917	TP30.401x29.0008x0.25	7.00	0.00	0.0	36.000	23.3189	-8.32	839.48	0.010
	113.917 - 112.833					36.000	23.4933	-8.45	845.76	0.010
	112.833 - 111.75					36.000	23.6677	-8.57	852.04	0.010
	111.75 - 108					36.000	24.2716	-4.54	873.78	0.005
L9	111.75 - 108	TP30.1512x29.1509x0.3125	5.00	0.00	0.0	36.000	29.7735	-5.38	1071.85	0.005
	108 - 106.75					36.000	30.0252	-10.11	1080.91	0.009
L10	106.75 - 105.75	TP31.1514x30.1512x0.3125	5.00	0.00	0.0	36.000	30.2264	-10.25	1088.15	0.009
	105.75 - 104.75					36.000	30.4278	-10.39	1095.40	0.009
	104.75 - 103.75					36.000	30.6291	-10.60	1102.65	0.010
	103.75 - 102.75					36.000	30.8304	-10.75	1109.89	0.010
	102.75 - 101.75					36.000	31.0317	-10.89	1117.14	0.010
L11	101.75 - 100.75	TP32.1517x31.1514x0.3125	5.00	0.00	0.0	36.000	31.2330	-11.04	1124.39	0.010
	100.75 - 99.75					36.000	31.4343	-11.19	1131.63	0.010
	99.75 - 98.75					36.000	31.6356	-11.34	1138.88	0.010
	98.75 - 97.75					36.000	31.8369	-11.50	1146.13	0.010
	97.75 - 96.75					36.000	32.0382	-11.65	1153.37	0.010
L12	96.75 - 95.75	TP33.1519x32.1517x0.3125	5.00	0.00	0.0	36.000	32.2395	-11.80	1160.62	0.010
	95.75 - 94.75					36.000	32.4408	-11.96	1167.87	0.010
	94.75 - 93.75					36.000	32.6421	-12.11	1175.11	0.010
	93.75 - 92.75					36.000	32.8434	-12.27	1182.36	0.010
	92.75 - 91.75					36.000	33.0447	-12.43	1189.61	0.010
L13	91.75 - 90.625	TP33.602x33.1519x0.3125	2.25	0.00	0.0	36.000	33.2711	-12.61	1197.76	0.011
	90.625 - 89.5					36.000	33.4976	-12.79	1205.91	0.011
L14	89.5 - 89.25 (14)	TP33.652x33.602x0.5	0.25	0.00	0.0	36.000	53.3748	-12.85	1921.49	0.007
L15	89.25 - 88.25	TP34.6523x33.652x0.4938	5.00	0.00	0.0	36.000	53.0356	-13.06	1909.28	0.007
	88.25 - 87.25					36.000	53.3536	-13.27	1920.73	0.007
	87.25 - 86.25					36.000	53.6717	-13.49	1932.18	0.007
	86.25 - 85.25					36.000	53.9897	-13.71	1943.63	0.007
	85.25 - 84.25					36.000	54.3078	-13.92	1955.08	0.007
L16	84.25 - 83.25	TP35.6525x34.6523x0.4875	5.00	0.00	0.0	36.000	53.9442	-14.14	1941.99	0.007
	83.25 - 82.25					36.000	54.2582	-14.36	1953.30	0.007
	82.25 - 81.25					36.000	54.5722	-14.58	1964.60	0.007
	81.25 - 80.25					36.000	54.8863	-14.80	1975.91	0.007
	80.25 - 79.25					36.000	55.2003	-15.03	1987.21	0.008
L17	79.25 - 78.0625	TP37.553x35.6525x0.4813	9.50	0.00	0.0	36.000	54.8704	-15.29	1975.34	0.008
	78.0625 - 76.875					36.000	55.2385	-15.56	1988.59	0.008
	76.875 - 75.6875					36.000	55.6067	-15.83	2001.84	0.008
	75.6875 - 74.5					36.000	55.9748	-16.10	2015.09	0.008
	74.5 - 69.75					36.000	57.4473	-10.12	2068.10	0.005

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 $\frac{P}{P_a}$
L18	74.5 - 69.75	TP37.1279x35.9778x0.375	5.75	0.00	0.0	39.000	44.1376	-7.73	1721.37	0.004
	69.75 - 68.75					39.000	44.3792	-18.06	1730.79	0.010
L19	68.75 - 67.75	TP38.1281x37.1279x0.375	5.00	0.00	0.0	39.000	44.6207	-18.27	1740.21	0.010
	67.75 - 66.75					39.000	44.8622	-18.47	1749.63	0.011
	66.75 - 65.75					39.000	45.1038	-18.68	1759.05	0.011
	65.75 - 64.75					39.000	45.3453	-18.88	1768.47	0.011
	64.75 - 63.75					39.000	45.5868	-19.09	1777.89	0.011
L20	63.75 - 62.75	TP39.1282x38.1281x0.375	5.00	0.00	0.0	39.000	45.8284	-19.30	1787.31	0.011
	62.75 - 61.75					39.000	46.0699	-19.51	1796.73	0.011
	61.75 - 60.75					39.000	46.3115	-19.72	1806.15	0.011
	60.75 - 59.75					39.000	46.5530	-19.93	1815.57	0.011
	59.75 - 58.75					39.000	46.7945	-20.14	1824.99	0.011
L21	58.75 - 57.5 (21)	TP39.3783x39.1282x0.375	1.25	0.00	0.0	39.000	47.0964	-20.41	1836.76	0.011
L22	57.5 - 57.25 (22)	TP39.4283x39.3783x0.5875	0.25	0.00	0.0	39.000	73.4770	-20.49	2865.60	0.007
L23	57.25 - 56.25	TP40.4284x39.4283x0.575	5.00	0.00	0.0	39.000	72.3072	-20.77	2819.98	0.007
	56.25 - 55.25					39.000	72.6775	-21.06	2834.42	0.007
	55.25 - 54.25					39.000	73.0479	-21.35	2848.87	0.007
	54.25 - 53.25					39.000	73.4183	-21.64	2863.31	0.008
	53.25 - 52.25					39.000	73.7886	-21.93	2877.76	0.008
L24	52.25 - 51.25	TP41.4286x40.4284x0.575	5.00	0.00	0.0	39.000	74.1590	-22.22	2892.20	0.008
	51.25 - 50.25					39.000	74.5293	-22.51	2906.64	0.008
	50.25 - 49.25					39.000	74.8997	-22.81	2921.09	0.008
	49.25 - 48.25					39.000	75.2700	-23.10	2935.53	0.008
	48.25 - 47.25					39.000	75.6404	-23.40	2949.97	0.008
L25	47.25 - 46.25	TP42.4287x41.4286x0.5688	5.00	0.00	0.0	39.000	75.1960	-23.69	2932.64	0.008
	46.25 - 45.25					39.000	75.5623	-23.99	2946.93	0.008
	45.25 - 44.25					39.000	75.9286	-24.29	2961.22	0.008
	44.25 - 43.25					39.000	76.2950	-24.59	2975.50	0.008
	43.25 - 42.25					39.000	76.6613	-24.89	2989.79	0.008
L26	42.25 - 41.1875	TP44.379x42.4287x0.5625	9.75	0.00	0.0	39.000	76.2151	-25.21	2972.39	0.008
	41.1875 - 40.125					39.000	76.6001	-25.54	2987.40	0.009
	40.125 - 39.0625					39.000	76.9850	-25.86	3002.42	0.009
	39.0625 - 38					39.000	77.3700	-26.19	3017.43	0.009
	38 - 32.5					39.000	79.3626	-14.10	3095.14	0.005
L27	38 - 32.5	TP43.829x42.5288x0.625	6.50	0.00	0.0	39.000	86.5456	-15.29	3375.28	0.005
	32.5 - 31.5					39.000	86.9481	-29.74	3390.98	0.009
L28	31.5 - 30 (28)	TP44.1291x43.829x0.625	1.50	0.00	0.0	39.000	87.5520	-30.25	3414.53	0.009
L29	30 - 29.75 (29)	TP44.1791x44.1291x0.6875	0.25	0.00	0.0	39.000	96.2795	-30.35	3754.90	0.008
L30	29.75 - 28.75	TP45.1792x44.1791x0.6875	5.00	0.00	0.0	39.000	96.7223	-30.71	3772.17	0.008
	28.75 - 27.75					39.000	97.1651	-31.08	3789.44	0.008
	27.75 - 26.75					39.000	97.6080	-31.45	3806.71	0.008
	26.75 - 25.75					39.000	98.0508	-31.82	3823.98	0.008
	25.75 - 24.75					39.000	98.4936	-32.19	3841.25	0.008
L31	24.75 - 23.75	TP46.1794x45.1792x0.6875	5.00	0.00	0.0	39.000	98.9364	-32.57	3858.52	0.008
	23.75 - 22.75					39.000	99.3792	-32.94	3875.79	0.008
	22.75 - 21.75					39.000	99.8221	-33.31	3893.06	0.009
	21.75 - 20.75					39.000	100.2650	-33.69	3910.33	0.009
	20.75 - 19.75					39.000	100.7080	-34.07	3927.60	0.009
L32	19.75 - 18.75	TP47.1795x46.1794x0.675	5.00	0.00	0.0	39.000	99.3386	-34.45	3874.20	0.009
	18.75 - 17.75					39.000	99.7733	-34.82	3891.16	0.009
	17.75 - 16.75					39.000	100.2080	-35.21	3908.12	0.009
	16.75 - 15.75					39.000	100.6430	-35.59	3925.07	0.009
	15.75 - 14.75					39.000	101.0780	-35.97	3942.03	0.009
L33	14.75 - 13.75	TP48.1797x47.1795x0.675	5.00	0.00	0.0	39.000	101.5120	-36.35	3958.98	0.009
	13.75 - 12.75					39.000	101.9470	-36.74	3975.94	0.009
	12.75 - 11.75					39.000	102.3820	-37.13	3992.90	0.009
	11.75 - 10.75					39.000	102.8170	-37.51	4009.85	0.009
	10.75 - 9.75					39.000	103.2510	-37.90	4026.81	0.009

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
L34	9.75 - 8.75	TP49.1799x48.1797x0.6625	5.00	0.00	0.0	39.000	101.7930	-38.29	3969.92	0.010
	8.75 - 7.75					39.000	102.2200	-38.68	3986.56	0.010
	7.75 - 6.75					39.000	102.6460	-39.07	4003.20	0.010
	6.75 - 5.75					39.000	103.0730	-39.47	4019.84	0.010
	5.75 - 4.75					39.000	103.5000	-39.86	4036.49	0.010
L35	4.75 - 3.5625	TP50.13x49.1799x0.6625	4.75	0.00	0.0	39.000	104.0060	-40.33	4056.25	0.010
	3.5625 - 2.375					39.000	104.5130	-40.80	4076.01	0.010
	2.375 - 1.1875					39.000	105.0200	-41.27	4095.77	0.010
	1.1875 - 0					39.000	105.5270	-41.75	4115.54	0.010

Pole Bending Design Data

Section No.	Elevation ft	Size	Actual M_x kip-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y kip-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
L1	150 - 149	TP23.0001x22x0.25	2.67	0.339	36.000	0.009	0.00	0.000	36.000	0.000
	149 - 148		5.44	0.678	36.000	0.019	0.00	0.000	36.000	0.000
	148 - 147		8.30	1.017	36.000	0.028	0.00	0.000	36.000	0.000
	147 - 146		11.27	1.356	36.000	0.038	0.00	0.000	36.000	0.000
	146 - 145		14.34	1.694	36.000	0.047	0.00	0.000	36.000	0.000
L2	145 - 144	TP24.0002x23.0001x0.25	17.51	2.033	36.000	0.056	0.00	0.000	36.000	0.000
	144 - 143		20.78	2.371	36.000	0.066	0.00	0.000	36.000	0.000
	143 - 142		24.16	2.709	36.000	0.075	0.00	0.000	36.000	0.000
	142 - 141		27.63	3.046	36.000	0.085	0.00	0.000	36.000	0.000
	141 - 140		40.57	4.396	36.000	0.122	0.00	0.000	36.000	0.000
L3	140 - 139	TP25.0004x24.0002x0.25	49.50	5.275	36.000	0.147	0.00	0.000	36.000	0.000
	139 - 138		58.53	6.134	36.000	0.170	0.00	0.000	36.000	0.000
	138 - 137		67.68	6.976	36.000	0.194	0.00	0.000	36.000	0.000
	137 - 136		76.93	7.800	36.000	0.217	0.00	0.000	36.000	0.000
	136 - 135		86.28	8.607	36.000	0.239	0.00	0.000	36.000	0.000
L4	135 - 134	TP26.0005x25.0004x0.25	95.75	9.398	36.000	0.261	0.00	0.000	36.000	0.000
	134 - 133		105.32	10.173	36.000	0.283	0.00	0.000	36.000	0.000
	133 - 132		115.00	10.933	36.000	0.304	0.00	0.000	36.000	0.000
	132 - 131		124.80	11.678	36.000	0.324	0.00	0.000	36.000	0.000
	131 - 130		134.70	12.408	36.000	0.345	0.00	0.000	36.000	0.000
L5	130 - 129	TP27.0006x26.0005x0.25	144.71	13.125	36.000	0.365	0.00	0.000	36.000	0.000
	129 - 128		171.99	15.361	36.000	0.427	0.00	0.000	36.000	0.000
	128 - 127		188.01	16.536	36.000	0.459	0.00	0.000	36.000	0.000
	127 - 126		204.13	17.683	36.000	0.491	0.00	0.000	36.000	0.000
	126 - 125		220.37	18.804	36.000	0.522	0.00	0.000	36.000	0.000
L6	125 - 124	TP28.0007x27.0006x0.25	236.72	19.899	36.000	0.553	0.00	0.000	36.000	0.000
	124 - 123		253.18	20.969	36.000	0.582	0.00	0.000	36.000	0.000
	123 - 122		269.76	22.015	36.000	0.612	0.00	0.000	36.000	0.000
	122 - 121		287.08	23.088	36.000	0.641	0.00	0.000	36.000	0.000
	121 - 120		304.67	24.149	36.000	0.671	0.00	0.000	36.000	0.000
L7	120 - 119	TP29.0008x28.0007x0.25	322.37	25.186	36.000	0.700	0.00	0.000	36.000	0.000
	119 - 118		340.20	26.201	36.000	0.728	0.00	0.000	36.000	0.000
	118 - 117		358.15	27.194	36.000	0.755	0.00	0.000	36.000	0.000
	117 - 116		376.22	28.166	36.000	0.782	0.00	0.000	36.000	0.000
	116 - 115		394.41	29.116	36.000	0.809	0.00	0.000	36.000	0.000
L8	115 - 113.917	TP30.401x29.0008x0.25	414.26	30.124	36.000	0.837	0.00	0.000	36.000	0.000
	113.917 - 112.833		434.25	31.109	36.000	0.864	0.00	0.000	36.000	0.000
	112.833 - 111.75		454.39	32.071	36.000	0.891	0.00	0.000	36.000	0.000
	111.75 - 108		242.86	16.296	36.000	0.453	0.00	0.000	36.000	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 $\frac{f_{by}}{F_{by}}$
L9	111.75 - 108	TP30.1512x29.1509x0.3125	286.21	15.989	36.000	0.444	0.00	0.000	36.000	0.000
	108 - 106.75		554.86	30.477	36.000	0.847	0.00	0.000	36.000	0.000
L10	106.75 - 105.75	TP31.1514x30.1512x0.3125	575.63	31.196	36.000	0.867	0.00	0.000	36.000	0.000
	105.75 - 104.75		596.56	31.901	36.000	0.886	0.00	0.000	36.000	0.000
	104.75 - 103.75		617.51	32.587	36.000	0.905	0.00	0.000	36.000	0.000
	103.75 - 102.75		638.80	33.270	36.000	0.924	0.00	0.000	36.000	0.000
	102.75 - 101.75		660.22	33.938	36.000	0.943	0.00	0.000	36.000	0.000
L11	101.75 - 100.75	TP32.1517x31.1514x0.3125	681.76	34.593	36.000	0.961	0.00	0.000	36.000	0.000
	100.75 - 99.75		703.43	35.234	36.000	0.979	0.00	0.000	36.000	0.000
	99.75 - 98.75		725.22	35.863	36.000	0.996	0.00	0.000	36.000	0.000
	98.75 - 97.75		747.14	36.479	36.000	1.013	0.00	0.000	36.000	0.000
	97.75 - 96.75		769.18	37.082	36.000	1.030	0.00	0.000	36.000	0.000
L12	96.75 - 95.75	TP33.1519x32.1517x0.3125	791.35	37.674	36.000	1.046	0.00	0.000	36.000	0.000
	95.75 - 94.75		813.64	38.254	36.000	1.063	0.00	0.000	36.000	0.000
	94.75 - 93.75		836.07	38.822	36.000	1.078	0.00	0.000	36.000	0.000
	93.75 - 92.75		858.61	39.380	36.000	1.094	0.00	0.000	36.000	0.000
	92.75 - 91.75		881.28	39.926	36.000	1.109	0.00	0.000	36.000	0.000
L13	91.75 - 90.625	TP33.602x33.1519x0.3125	906.96	40.529	36.000	1.126	0.00	0.000	36.000	0.000
	90.625 - 89.5		932.83	41.121	36.000	1.142	0.00	0.000	36.000	0.000
L14	89.5 - 89.25 (14)	TP33.652x33.602x0.5	938.60	26.222	36.000	0.728	0.00	0.000	36.000	0.000
L15	89.25 - 88.25	TP34.6523x33.652x0.4938	961.79	26.867	36.000	0.746	0.00	0.000	36.000	0.000
	88.25 - 87.25		985.14	27.189	36.000	0.755	0.00	0.000	36.000	0.000
	87.25 - 86.25		1008.63	27.507	36.000	0.764	0.00	0.000	36.000	0.000
	86.25 - 85.25		1032.28	27.819	36.000	0.773	0.00	0.000	36.000	0.000
	85.25 - 84.25		1056.09	28.125	36.000	0.781	0.00	0.000	36.000	0.000
L16	84.25 - 83.25	TP35.6525x34.6523x0.4875	1080.05	28.776	36.000	0.799	0.00	0.000	36.000	0.000
	83.25 - 82.25		1104.17	29.076	36.000	0.808	0.00	0.000	36.000	0.000
	82.25 - 81.25		1128.43	29.372	36.000	0.816	0.00	0.000	36.000	0.000
	81.25 - 80.25		1152.84	29.663	36.000	0.824	0.00	0.000	36.000	0.000
	80.25 - 79.25		1177.42	29.949	36.000	0.832	0.00	0.000	36.000	0.000
L17	79.25 - 78.0625	TP37.553x35.6525x0.4813	1206.78	30.660	36.000	0.852	0.00	0.000	36.000	0.000
	78.0625 - 76.875		1236.37	30.991	36.000	0.861	0.00	0.000	36.000	0.000
	76.875 - 75.6875		1266.15	31.316	36.000	0.870	0.00	0.000	36.000	0.000
	75.6875 - 74.5		1296.13	31.635	36.000	0.879	0.00	0.000	36.000	0.000
	74.5 - 69.75		812.18	18.813	36.000	0.523	0.00	0.000	36.000	0.000
L18	74.5 - 69.75	TP37.1279x35.9778x0.375	606.13	18.484	39.000	0.474	0.00	0.000	39.000	0.000
	69.75 - 68.75		1444.47	43.568	39.000	1.117	0.00	0.000	39.000	0.000
L19	68.75 - 67.75	TP38.1281x37.1279x0.375	1470.75	43.880	39.000	1.125	0.00	0.000	39.000	0.000
	67.75 - 66.75		1497.15	44.185	39.000	1.133	0.00	0.000	39.000	0.000
	66.75 - 65.75		1523.68	44.485	39.000	1.141	0.00	0.000	39.000	0.000
	65.75 - 64.75		1550.33	44.780	39.000	1.148	0.00	0.000	39.000	0.000
	64.75 - 63.75		1577.10	45.070	39.000	1.156	0.00	0.000	39.000	0.000
L20	63.75 - 62.75	TP39.1282x38.1281x0.375	1603.99	45.354	39.000	1.163	0.00	0.000	39.000	0.000
	62.75 - 61.75		1631.02	45.633	39.000	1.170	0.00	0.000	39.000	0.000
	61.75 - 60.75		1658.17	45.908	39.000	1.177	0.00	0.000	39.000	0.000
	60.75 - 59.75		1685.44	46.178	39.000	1.184	0.00	0.000	39.000	0.000
	59.75 - 58.75		1712.85	46.443	39.000	1.191	0.00	0.000	39.000	0.000
L21	58.75 - 57.5 (21)	TP39.3783x39.1282x0.375	1747.29	46.769	39.000	1.199	0.00	0.000	39.000	0.000
L22	57.5 - 57.25	TP39.4283x39.3783x0.5875	1754.21	30.387	39.000	0.779	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 $\frac{f_{by}}{F_{by}}$
	(22)									
L23	57.25 - 56.25	TP40.4284x39.4283x0.575	1781.97	31.184	39.000	0.800	0.00	0.000	39.000	0.000
	56.25 - 55.25		1809.88	31.348	39.000	0.804	0.00	0.000	39.000	0.000
	55.25 - 54.25		1837.95	31.510	39.000	0.808	0.00	0.000	39.000	0.000
	54.25 - 53.25		1866.16	31.670	39.000	0.812	0.00	0.000	39.000	0.000
	53.25 - 52.25		1894.53	31.827	39.000	0.816	0.00	0.000	39.000	0.000
L24	52.25 - 51.25	TP41.4286x40.4284x0.575	1923.05	31.982	39.000	0.820	0.00	0.000	39.000	0.000
	51.25 - 50.25		1951.71	32.134	39.000	0.824	0.00	0.000	39.000	0.000
	50.25 - 49.25		1980.53	32.285	39.000	0.828	0.00	0.000	39.000	0.000
	49.25 - 48.25		2009.48	32.433	39.000	0.832	0.00	0.000	39.000	0.000
	48.25 - 47.25		2038.60	32.579	39.000	0.835	0.00	0.000	39.000	0.000
L25	47.25 - 46.25	TP42.4287x41.4286x0.5688	2067.86	33.068	39.000	0.848	0.00	0.000	39.000	0.000
	46.25 - 45.25		2097.26	33.212	39.000	0.852	0.00	0.000	39.000	0.000
	45.25 - 44.25		2126.81	33.353	39.000	0.855	0.00	0.000	39.000	0.000
	44.25 - 43.25		2156.50	33.493	39.000	0.859	0.00	0.000	39.000	0.000
	43.25 - 42.25		2186.33	33.630	39.000	0.862	0.00	0.000	39.000	0.000
L26	42.25 - 41.1875	TP44.379x42.4287x0.5625	2218.19	34.134	39.000	0.875	0.00	0.000	39.000	0.000
	41.1875 - 40.125		2250.21	34.277	39.000	0.879	0.00	0.000	39.000	0.000
	40.125 - 39.0625		2282.38	34.418	39.000	0.883	0.00	0.000	39.000	0.000
	39.0625 - 38		2314.70	34.557	39.000	0.886	0.00	0.000	39.000	0.000
	38 - 32.5		1212.45	17.198	39.000	0.441	0.00	0.000	39.000	0.000
L27	38 - 32.5	TP43.829x42.5288x0.625	1272.31	16.890	39.000	0.433	0.00	0.000	39.000	0.000
	32.5 - 31.5		2516.16	33.092	39.000	0.849	0.00	0.000	39.000	0.000
L28	31.5 - 30 (28)	TP44.1291x43.829x0.625	2563.53	33.248	39.000	0.853	0.00	0.000	39.000	0.000
L29	30 - 29.75 (29)	TP44.1791x44.1291x0.6875	2571.44	30.379	39.000	0.779	0.00	0.000	39.000	0.000
L30	29.75 - 28.75	TP45.1792x44.1791x0.6875	2603.22	30.471	39.000	0.781	0.00	0.000	39.000	0.000
	28.75 - 27.75		2635.15	30.562	39.000	0.784	0.00	0.000	39.000	0.000
	27.75 - 26.75		2667.21	30.652	39.000	0.786	0.00	0.000	39.000	0.000
	26.75 - 25.75		2699.42	30.741	39.000	0.788	0.00	0.000	39.000	0.000
	25.75 - 24.75		2731.77	30.828	39.000	0.790	0.00	0.000	39.000	0.000
L31	24.75 - 23.75	TP46.1794x45.1792x0.6875	2764.25	30.914	39.000	0.793	0.00	0.000	39.000	0.000
	23.75 - 22.75		2796.88	30.998	39.000	0.795	0.00	0.000	39.000	0.000
	22.75 - 21.75		2829.66	31.082	39.000	0.797	0.00	0.000	39.000	0.000
	21.75 - 20.75		2862.57	31.164	39.000	0.799	0.00	0.000	39.000	0.000
	20.75 - 19.75		2895.63	31.245	39.000	0.801	0.00	0.000	39.000	0.000
L32	19.75 - 18.75	TP47.1795x46.1794x0.675	2928.83	31.879	39.000	0.817	0.00	0.000	39.000	0.000
	18.75 - 17.75		2962.18	31.960	39.000	0.819	0.00	0.000	39.000	0.000
	17.75 - 16.75		2995.67	32.039	39.000	0.822	0.00	0.000	39.000	0.000
	16.75 - 15.75		3029.29	32.118	39.000	0.824	0.00	0.000	39.000	0.000
	15.75 - 14.75		3063.07	32.195	39.000	0.826	0.00	0.000	39.000	0.000
L33	14.75 - 13.75	TP48.1797x47.1795x0.675	3096.98	32.271	39.000	0.827	0.00	0.000	39.000	0.000
	13.75 - 12.75		3131.04	32.347	39.000	0.829	0.00	0.000	39.000	0.000
	12.75 - 11.75		3165.25	32.421	39.000	0.831	0.00	0.000	39.000	0.000
	11.75 - 10.75		3199.60	32.494	39.000	0.833	0.00	0.000	39.000	0.000
	10.75 - 9.75		3234.09	32.567	39.000	0.835	0.00	0.000	39.000	0.000
L34	9.75 - 8.75	TP49.1799x48.1797x0.6625	3268.72	33.228	39.000	0.852	0.00	0.000	39.000	0.000
	8.75 - 7.75		3303.51	33.300	39.000	0.854	0.00	0.000	39.000	0.000
	7.75 - 6.75		3338.43	33.371	39.000	0.856	0.00	0.000	39.000	0.000
	6.75 - 5.75		3373.50	33.441	39.000	0.857	0.00	0.000	39.000	0.000
	5.75 - 4.75		3408.72	33.510	39.000	0.859	0.00	0.000	39.000	0.000
L35	4.75 - 3.5625	TP50.13x49.1799x0.6625	3450.72	33.591	39.000	0.861	0.00	0.000	39.000	0.000
	3.5625 - 2.375		3492.93	33.670	39.000	0.863	0.00	0.000	39.000	0.000
	2.375 - 1.1875		3535.34	33.749	39.000	0.865	0.00	0.000	39.000	0.000
	1.1875 - 0		3577.96	33.827	39.000	0.867	0.00	0.000	39.000	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V K	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
L1	150 - 149	TP23.0001x22x0.25	2.72	0.154	24.000	0.013	0.00	0.000	24.000	0.000
	149 - 148		2.82	0.158	24.000	0.013	0.00	0.000	24.000	0.000
	148 - 147		2.92	0.162	24.000	0.014	0.00	0.000	24.000	0.000
	147 - 146		3.02	0.166	24.000	0.014	0.00	0.000	24.000	0.000
	146 - 145		3.12	0.170	24.000	0.014	0.00	0.000	24.000	0.000
L2	145 - 144	TP24.0002x23.0001x0.25	3.22	0.174	24.000	0.015	0.00	0.000	24.000	0.000
	144 - 143		3.32	0.178	24.000	0.015	0.00	0.000	24.000	0.000
	143 - 142		3.43	0.182	24.000	0.015	0.00	0.000	24.000	0.000
	142 - 141		3.53	0.186	24.000	0.016	0.00	0.000	24.000	0.000
	141 - 140		8.88	0.464	24.000	0.039	0.00	0.000	24.000	0.000
L3	140 - 139	TP25.0004x24.0002x0.25	8.98	0.466	24.000	0.039	0.00	0.000	24.000	0.000
	139 - 138		9.09	0.468	24.000	0.040	0.00	0.000	24.000	0.000
	138 - 137		9.20	0.469	24.000	0.040	0.00	0.000	24.000	0.000
	137 - 136		9.30	0.471	24.000	0.040	0.00	0.000	24.000	0.000
	136 - 135		9.41	0.472	24.000	0.040	0.00	0.000	24.000	0.000
L4	135 - 134	TP26.0005x25.0004x0.25	9.52	0.474	24.000	0.040	0.00	0.000	24.000	0.000
	134 - 133		9.63	0.476	24.000	0.040	0.00	0.000	24.000	0.000
	133 - 132		9.74	0.477	24.000	0.040	0.00	0.000	24.000	0.000
	132 - 131		9.85	0.479	24.000	0.041	0.00	0.000	24.000	0.000
	131 - 130		9.96	0.480	24.000	0.041	0.00	0.000	24.000	0.000
L5	130 - 129	TP27.0006x26.0005x0.25	10.07	0.482	24.000	0.041	0.00	0.000	24.000	0.000
	129 - 128		15.96	0.758	24.000	0.064	0.89	0.037	24.000	0.002
	128 - 127		16.07	0.758	24.000	0.064	0.89	0.037	24.000	0.002
	127 - 126		16.18	0.757	24.000	0.064	0.89	0.036	24.000	0.002
	126 - 125		16.30	0.757	24.000	0.064	0.89	0.036	24.000	0.001
L6	125 - 124	TP28.0007x27.0006x0.25	16.41	0.756	24.000	0.064	0.89	0.035	24.000	0.001
	124 - 123		16.53	0.756	24.000	0.064	0.89	0.035	24.000	0.001
	123 - 122		16.64	0.756	24.000	0.064	0.89	0.034	24.000	0.001
	122 - 121		17.54	0.791	24.000	0.067	1.20	0.045	24.000	0.002
	121 - 120		17.65	0.790	24.000	0.067	1.20	0.045	24.000	0.002
L7	120 - 119	TP29.0008x28.0007x0.25	17.78	0.790	24.000	0.067	1.20	0.044	24.000	0.002
	119 - 118		17.90	0.790	24.000	0.067	1.20	0.044	24.000	0.002
	118 - 117		18.02	0.790	24.000	0.067	1.20	0.043	24.000	0.002
	117 - 116		18.14	0.789	24.000	0.067	1.20	0.043	24.000	0.002
	116 - 115		18.27	0.789	24.000	0.067	1.20	0.042	24.000	0.002
L8	115 - 113.917	TP30.401x29.0008x0.25	18.40	0.789	24.000	0.067	1.21	0.041	24.000	0.002
	113.917 - 112.833		18.53	0.789	24.000	0.067	1.21	0.041	24.000	0.002
	112.833 - 111.75		18.67	0.789	24.000	0.067	1.21	0.040	24.000	0.002
	111.75 - 108		9.70	0.400	24.000	0.034	1.14	0.036	24.000	0.002
L9	111.75 - 108	TP30.1512x29.1509x0.3125	10.87	0.365	24.000	0.031	0.07	0.002	24.000	0.000
	108 - 106.75		20.72	0.690	24.000	0.058	0.13	0.003	24.000	0.000
L10	106.75 - 105.75	TP31.1514x30.1512x0.3125	20.85	0.690	24.000	0.058	0.13	0.003	24.000	0.000
	105.75 - 104.75		21.06	0.692	24.000	0.059	0.92	0.023	24.000	0.001
	104.75 - 103.75		21.24	0.693	24.000	0.059	1.02	0.025	24.000	0.001
	103.75 - 102.75		21.36	0.693	24.000	0.059	1.02	0.025	24.000	0.001
	102.75 - 101.75		21.49	0.693	24.000	0.059	1.02	0.025	24.000	0.001
L11	101.75 - 100.75	TP32.1517x31.1514x0.3125	21.61	0.692	24.000	0.059	1.02	0.024	24.000	0.001
	100.75 - 99.75		21.74	0.692	24.000	0.059	1.01	0.024	24.000	0.001
	99.75 - 98.75		21.86	0.691	24.000	0.059	1.01	0.024	24.000	0.001
	98.75 - 97.75		21.99	0.691	24.000	0.058	1.00	0.023	24.000	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 $\frac{f_{vt}}{F_{vt}}$
	97.75 - 96.75		22.12	0.690	24.000	0.058	1.00	0.023	24.000	0.001
L12	96.75 - 95.75	TP33.1519x32.1517x0.3125	22.24	0.690	24.000	0.058	1.00	0.022	24.000	0.001
	95.75 - 94.75		22.37	0.690	24.000	0.058	0.99	0.022	24.000	0.001
	94.75 - 93.75		22.49	0.689	24.000	0.058	0.99	0.022	24.000	0.001
	93.75 - 92.75		22.62	0.689	24.000	0.058	0.99	0.021	24.000	0.001
	92.75 - 91.75		22.75	0.688	24.000	0.058	0.98	0.021	24.000	0.001
L13	91.75 - 90.625	TP33.602x33.1519x0.3125	22.91	0.689	24.000	0.058	0.99	0.021	24.000	0.001
	90.625 - 89.5		23.08	0.689	24.000	0.058	0.99	0.021	24.000	0.001
L14	89.5 - 89.25 (14)	TP33.652x33.602x0.5	23.11	0.433	24.000	0.037	0.98	0.013	24.000	0.001
L15	89.25 - 88.25	TP34.6523x33.652x0.4938	23.27	0.439	24.000	0.037	0.98	0.013	24.000	0.001
	88.25 - 87.25		23.42	0.439	24.000	0.037	0.98	0.013	24.000	0.001
	87.25 - 86.25		23.57	0.439	24.000	0.037	0.97	0.012	24.000	0.001
	86.25 - 85.25		23.73	0.439	24.000	0.037	0.97	0.012	24.000	0.001
	85.25 - 84.25		23.88	0.440	24.000	0.037	0.97	0.012	24.000	0.001
L16	84.25 - 83.25	TP35.6525x34.6523x0.4875	24.03	0.446	24.000	0.038	0.96	0.012	24.000	0.001
	83.25 - 82.25		24.19	0.446	24.000	0.038	0.96	0.012	24.000	0.000
	82.25 - 81.25		24.34	0.446	24.000	0.038	0.95	0.012	24.000	0.000
	81.25 - 80.25		24.49	0.446	24.000	0.038	0.95	0.011	24.000	0.000
	80.25 - 79.25		24.65	0.447	24.000	0.038	0.95	0.011	24.000	0.000
L17	79.25 - 78.0625	TP37.553x35.6525x0.4813	24.82	0.452	24.000	0.038	0.94	0.011	24.000	0.000
	78.0625 - 76.875		24.99	0.452	24.000	0.038	0.94	0.011	24.000	0.000
	76.875 - 75.6875		25.17	0.453	24.000	0.038	0.93	0.011	24.000	0.000
	75.6875 - 74.5		25.34	0.453	24.000	0.038	0.93	0.011	24.000	0.000
	74.5 - 69.75		15.10	0.263	24.000	0.022	0.53	0.006	24.000	0.000
L18	74.5 - 69.75	TP37.1279x35.9778x0.375	11.01	0.249	26.000	0.019	0.39	0.006	26.000	0.000
	69.75 - 68.75		26.23	0.591	26.000	0.046	0.91	0.013	26.000	0.000
L19	68.75 - 67.75	TP38.1281x37.1279x0.375	26.35	0.590	26.000	0.046	0.90	0.013	26.000	0.000
	67.75 - 66.75		26.47	0.590	26.000	0.046	0.90	0.013	26.000	0.000
	66.75 - 65.75		26.59	0.590	26.000	0.046	0.90	0.012	26.000	0.000
	65.75 - 64.75		26.71	0.589	26.000	0.046	0.89	0.012	26.000	0.000
	64.75 - 63.75		26.84	0.589	26.000	0.046	0.89	0.012	26.000	0.000
L20	63.75 - 62.75	TP39.1282x38.1281x0.375	26.96	0.588	26.000	0.046	0.89	0.012	26.000	0.000
	62.75 - 61.75		27.09	0.588	26.000	0.046	0.88	0.012	26.000	0.000
	61.75 - 60.75		27.22	0.588	26.000	0.046	0.88	0.011	26.000	0.000
	60.75 - 59.75		27.34	0.587	26.000	0.046	0.88	0.011	26.000	0.000
	59.75 - 58.75		27.47	0.587	26.000	0.046	0.87	0.011	26.000	0.000
L21	58.75 - 57.5 (21)	TP39.3783x39.1282x0.375	27.65	0.587	26.000	0.046	0.87	0.011	26.000	0.000
L22	57.5 - 57.25 (22)	TP39.4283x39.3783x0.5875	27.68	0.377	26.000	0.029	0.87	0.007	26.000	0.000
L23	57.25 - 56.25	TP40.4284x39.4283x0.575	27.84	0.385	26.000	0.030	0.87	0.007	26.000	0.000
	56.25 - 55.25		27.99	0.385	26.000	0.030	0.87	0.007	26.000	0.000
	55.25 - 54.25		28.14	0.385	26.000	0.030	0.87	0.007	26.000	0.000
	54.25 - 53.25		28.29	0.385	26.000	0.030	0.87	0.007	26.000	0.000
	53.25 - 52.25		28.44	0.385	26.000	0.030	0.87	0.007	26.000	0.000
L24	52.25 - 51.25	TP41.4286x40.4284x0.575	28.59	0.386	26.000	0.030	0.87	0.007	26.000	0.000
	51.25 - 50.25		28.74	0.386	26.000	0.030	0.86	0.007	26.000	0.000
	50.25 - 49.25		28.89	0.386	26.000	0.030	0.86	0.007	26.000	0.000
	49.25 - 48.25		29.04	0.386	26.000	0.030	0.86	0.007	26.000	0.000
	48.25 - 47.25		29.19	0.386	26.000	0.030	0.86	0.006	26.000	0.000
L25	47.25 - 46.25	TP42.4287x41.4286x0.5688	29.33	0.390	26.000	0.030	0.86	0.006	26.000	0.000
	46.25 - 45.25		29.48	0.390	26.000	0.030	0.86	0.006	26.000	0.000
	45.25 - 44.25		29.62	0.390	26.000	0.030	0.86	0.006	26.000	0.000
	44.25 - 43.25		29.77	0.390	26.000	0.030	0.86	0.006	26.000	0.000
	43.25 - 42.25		29.91	0.390	26.000	0.030	0.86	0.006	26.000	0.000
L26	42.25 -	TP44.379x42.4287x0.5625	30.06	0.394	26.000	0.031	0.86	0.006	26.000	0.000

Section No.	Elevation ft	Size	Actual V K	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
	41.1875									
	41.1875 - 40.125		30.21	0.394	26.000	0.031	0.86	0.006	26.000	0.000
	40.125 - 39.0625		30.35	0.394	26.000	0.031	0.86	0.006	26.000	0.000
	39.0625 - 38		30.50	0.394	26.000	0.031	0.85	0.006	26.000	0.000
	38 - 32.5		15.51	0.195	26.000	0.015	0.42	0.003	26.000	0.000
L27	38 - 32.5	TP43.829x42.5288x0.625	15.85	0.183	26.000	0.014	0.44	0.003	26.000	0.000
	32.5 - 31.5		31.48	0.362	26.000	0.028	0.85	0.005	26.000	0.000
L28	31.5 - 30 (28)	TP44.1291x43.829x0.625	31.68	0.362	26.000	0.028	0.85	0.005	26.000	0.000
L29	30 - 29.75 (29)	TP44.1791x44.1291x0.6875	31.71	0.329	26.000	0.026	0.85	0.005	26.000	0.000
L30	29.75 - 28.75	TP45.1792x44.1791x0.6875	31.85	0.329	26.000	0.026	0.85	0.005	26.000	0.000
	28.75 - 27.75		31.99	0.329	26.000	0.026	0.85	0.005	26.000	0.000
	27.75 - 26.75		32.14	0.329	26.000	0.026	0.85	0.005	26.000	0.000
	26.75 - 25.75		32.28	0.329	26.000	0.026	0.85	0.005	26.000	0.000
	25.75 - 24.75		32.42	0.329	26.000	0.026	0.85	0.004	26.000	0.000
L31	24.75 - 23.75	TP46.1794x45.1792x0.6875	32.56	0.329	26.000	0.026	0.85	0.004	26.000	0.000
	23.75 - 22.75		32.70	0.329	26.000	0.026	0.85	0.004	26.000	0.000
	22.75 - 21.75		32.85	0.329	26.000	0.026	0.85	0.004	26.000	0.000
	21.75 - 20.75		32.99	0.329	26.000	0.026	0.85	0.004	26.000	0.000
	20.75 - 19.75		33.13	0.329	26.000	0.026	0.85	0.004	26.000	0.000
L32	19.75 - 18.75	TP47.1795x46.1794x0.675	33.28	0.335	26.000	0.026	0.85	0.004	26.000	0.000
	18.75 - 17.75		33.42	0.335	26.000	0.026	0.85	0.004	26.000	0.000
	17.75 - 16.75		33.56	0.335	26.000	0.026	0.85	0.004	26.000	0.000
	16.75 - 15.75		33.70	0.335	26.000	0.026	0.85	0.004	26.000	0.000
	15.75 - 14.75		33.85	0.335	26.000	0.026	0.85	0.004	26.000	0.000
L33	14.75 - 13.75	TP48.1797x47.1795x0.675	33.99	0.335	26.000	0.026	0.85	0.004	26.000	0.000
	13.75 - 12.75		34.14	0.335	26.000	0.026	0.85	0.004	26.000	0.000
	12.75 - 11.75		34.28	0.335	26.000	0.026	0.85	0.004	26.000	0.000
	11.75 - 10.75		34.42	0.335	26.000	0.026	0.85	0.004	26.000	0.000
	10.75 - 9.75		34.57	0.335	26.000	0.026	0.85	0.004	26.000	0.000
L34	9.75 - 8.75	TP49.1799x48.1797x0.6625	34.71	0.341	26.000	0.027	0.85	0.004	26.000	0.000
	8.75 - 7.75		34.86	0.341	26.000	0.027	0.85	0.004	26.000	0.000
	7.75 - 6.75		35.00	0.341	26.000	0.027	0.85	0.004	26.000	0.000
	6.75 - 5.75		35.15	0.341	26.000	0.027	0.85	0.004	26.000	0.000
	5.75 - 4.75		35.29	0.341	26.000	0.027	0.85	0.004	26.000	0.000
L35	4.75 - 3.5625	TP50.13x49.1799x0.6625	35.46	0.341	26.000	0.027	0.85	0.004	26.000	0.000
	3.5625 - 2.375		35.64	0.341	26.000	0.027	0.85	0.004	26.000	0.000
	2.375 - 1.1875		35.81	0.341	26.000	0.027	0.85	0.004	26.000	0.000
	1.1875 - 0		35.98	0.341	26.000	0.027	0.85	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	150 - 149	0.002	0.009	0.000	0.013	0.000	0.012 ✔	1.333	H1-3+VT ✔
	149 - 148	0.002	0.019	0.000	0.013	0.000	0.021 ✔	1.333	H1-3+VT ✔
	148 - 147	0.003	0.028	0.000	0.014	0.000	0.031 ✔	1.333	H1-3+VT ✔
	147 - 146	0.003	0.038	0.000	0.014	0.000	0.040 ✔	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
	146 - 145	0.003	0.047	0.000	0.014	0.000	0.050 ✔	1.333	H1-3+VT ✔
L2	145 - 144	0.003	0.056	0.000	0.015	0.000	0.059 ✔	1.333	H1-3+VT ✔
	144 - 143	0.003	0.066	0.000	0.015	0.000	0.069 ✔	1.333	H1-3+VT ✔
	143 - 142	0.003	0.075	0.000	0.015	0.000	0.078 ✔	1.333	H1-3+VT ✔
	142 - 141	0.003	0.085	0.000	0.016	0.000	0.088 ✔	1.333	H1-3+VT ✔
	141 - 140	0.005	0.122	0.000	0.039	0.000	0.128 ✔	1.333	H1-3+VT ✔
L3	140 - 139	0.005	0.147	0.000	0.039	0.000	0.152 ✔	1.333	H1-3+VT ✔
	139 - 138	0.005	0.170	0.000	0.040	0.000	0.176 ✔	1.333	H1-3+VT ✔
	138 - 137	0.005	0.194	0.000	0.040	0.000	0.200 ✔	1.333	H1-3+VT ✔
	137 - 136	0.006	0.217	0.000	0.040	0.000	0.223 ✔	1.333	H1-3+VT ✔
	136 - 135	0.006	0.239	0.000	0.040	0.000	0.245 ✔	1.333	H1-3+VT ✔
L4	135 - 134	0.006	0.261	0.000	0.040	0.000	0.267 ✔	1.333	H1-3+VT ✔
	134 - 133	0.006	0.283	0.000	0.040	0.000	0.289 ✔	1.333	H1-3+VT ✔
	133 - 132	0.006	0.304	0.000	0.040	0.000	0.310 ✔	1.333	H1-3+VT ✔
	132 - 131	0.006	0.324	0.000	0.041	0.000	0.331 ✔	1.333	H1-3+VT ✔
	131 - 130	0.006	0.345	0.000	0.041	0.000	0.351 ✔	1.333	H1-3+VT ✔
L5	130 - 129	0.006	0.365	0.000	0.041	0.000	0.371 ✔	1.333	H1-3+VT ✔
	129 - 128	0.009	0.427	0.000	0.064	0.002	0.437 ✔	1.333	H1-3+VT ✔
	128 - 127	0.009	0.459	0.000	0.064	0.002	0.469 ✔	1.333	H1-3+VT ✔
	127 - 126	0.009	0.491	0.000	0.064	0.002	0.501 ✔	1.333	H1-3+VT ✔
	126 - 125	0.009	0.522	0.000	0.064	0.001	0.532 ✔	1.333	H1-3+VT ✔
L6	125 - 124	0.009	0.553	0.000	0.064	0.001	0.563 ✔	1.333	H1-3+VT ✔
	124 - 123	0.009	0.582	0.000	0.064	0.001	0.593 ✔	1.333	H1-3+VT ✔
	123 - 122	0.009	0.612	0.000	0.064	0.001	0.622 ✔	1.333	H1-3+VT ✔
	122 - 121	0.009	0.641	0.000	0.067	0.002	0.652 ✔	1.333	H1-3+VT ✔
	121 - 120	0.010	0.671	0.000	0.067	0.002	0.682 ✔	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
L7	120 - 119	0.010	0.700	0.000	0.067	0.002	0.710 ✔	1.333	H1-3+VT ✔
	119 - 118	0.010	0.728	0.000	0.067	0.002	0.739 ✔	1.333	H1-3+VT ✔
	118 - 117	0.010	0.755	0.000	0.067	0.002	0.766 ✔	1.333	H1-3+VT ✔
	117 - 116	0.010	0.782	0.000	0.067	0.002	0.793 ✔	1.333	H1-3+VT ✔
	116 - 115	0.010	0.809	0.000	0.067	0.002	0.820 ✔	1.333	H1-3+VT ✔
L8	115 - 113.917	0.010	0.837	0.000	0.067	0.002	0.848 ✔	1.333	H1-3+VT ✔
	113.917 - 112.833	0.010	0.864	0.000	0.067	0.002	0.875 ✔	1.333	H1-3+VT ✔
	112.833 - 111.75	0.010	0.891	0.000	0.067	0.002	0.902 ✔	1.333	H1-3+VT ✔
	111.75 - 108	0.005	0.453	0.000	0.034	0.002	0.458 ✔	1.333	H1-3+VT ✔
L9	111.75 - 108	0.005	0.444	0.000	0.031	0.000	0.449 ✔	1.333	H1-3+VT ✔
	108 - 106.75	0.009	0.847	0.000	0.058	0.000	0.857 ✔	1.333	H1-3+VT ✔
L10	106.75 - 105.75	0.009	0.867	0.000	0.058	0.000	0.877 ✔	1.333	H1-3+VT ✔
	105.75 - 104.75	0.009	0.886	0.000	0.059	0.001	0.897 ✔	1.333	H1-3+VT ✔
	104.75 - 103.75	0.010	0.905	0.000	0.059	0.001	0.916 ✔	1.333	H1-3+VT ✔
	103.75 - 102.75	0.010	0.924	0.000	0.059	0.001	0.935 ✔	1.333	H1-3+VT ✔
	102.75 - 101.75	0.010	0.943	0.000	0.059	0.001	0.953 ✔	1.333	H1-3+VT ✔
L11	101.75 - 100.75	0.010	0.961	0.000	0.059	0.001	0.972 ✔	1.333	H1-3+VT ✔
	100.75 - 99.75	0.010	0.979	0.000	0.059	0.001	0.990 ✔	1.333	H1-3+VT ✔
	99.75 - 98.75	0.010	0.996	0.000	0.059	0.001	1.007 ✔	1.333	H1-3+VT ✔
	98.75 - 97.75	0.010	1.013	0.000	0.058	0.001	1.024 ✔	1.333	H1-3+VT ✔
	97.75 - 96.75	0.010	1.030	0.000	0.058	0.001	1.041 ✔	1.333	H1-3+VT ✔
L12	96.75 - 95.75	0.010	1.046	0.000	0.058	0.001	1.058 ✔	1.333	H1-3+VT ✔
	95.75 - 94.75	0.010	1.063	0.000	0.058	0.001	1.074 ✔	1.333	H1-3+VT ✔
	94.75 - 93.75	0.010	1.078	0.000	0.058	0.001	1.090 ✔	1.333	H1-3+VT ✔
	93.75 - 92.75	0.010	1.094	0.000	0.058	0.001	1.105 ✔	1.333	H1-3+VT ✔
	92.75 - 91.75	0.010	1.109	0.000	0.058	0.001	1.120 ✔	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
L13	91.75 - 90.625	0.011	1.126	0.000	0.058	0.001	1.137 ✔	1.333	H1-3+VT ✔
	90.625 - 89.5	0.011	1.142	0.000	0.058	0.001	1.154 ✔	1.333	H1-3+VT ✔
L14	89.5 - 89.25 (14)	0.007	0.728	0.000	0.037	0.001	0.735 ✔	1.333	H1-3+VT ✔
L15	89.25 - 88.25	0.007	0.746	0.000	0.037	0.001	0.753 ✔	1.333	H1-3+VT ✔
	88.25 - 87.25	0.007	0.755	0.000	0.037	0.001	0.763 ✔	1.333	H1-3+VT ✔
	87.25 - 86.25	0.007	0.764	0.000	0.037	0.001	0.771 ✔	1.333	H1-3+VT ✔
	86.25 - 85.25	0.007	0.773	0.000	0.037	0.001	0.780 ✔	1.333	H1-3+VT ✔
	85.25 - 84.25	0.007	0.781	0.000	0.037	0.001	0.789 ✔	1.333	H1-3+VT ✔
L16	84.25 - 83.25	0.007	0.799	0.000	0.038	0.001	0.807 ✔	1.333	H1-3+VT ✔
	83.25 - 82.25	0.007	0.808	0.000	0.038	0.000	0.815 ✔	1.333	H1-3+VT ✔
	82.25 - 81.25	0.007	0.816	0.000	0.038	0.000	0.824 ✔	1.333	H1-3+VT ✔
	81.25 - 80.25	0.007	0.824	0.000	0.038	0.000	0.832 ✔	1.333	H1-3+VT ✔
	80.25 - 79.25	0.008	0.832	0.000	0.038	0.000	0.840 ✔	1.333	H1-3+VT ✔
L17	79.25 - 78.0625	0.008	0.852	0.000	0.038	0.000	0.860 ✔	1.333	H1-3+VT ✔
	78.0625 - 76.875	0.008	0.861	0.000	0.038	0.000	0.869 ✔	1.333	H1-3+VT ✔
	76.875 - 75.6875	0.008	0.870	0.000	0.038	0.000	0.878 ✔	1.333	H1-3+VT ✔
	75.6875 - 74.5	0.008	0.879	0.000	0.038	0.000	0.887 ✔	1.333	H1-3+VT ✔
	74.5 - 69.75	0.005	0.523	0.000	0.022	0.000	0.528 ✔	1.333	H1-3+VT ✔
L18	74.5 - 69.75	0.004	0.474	0.000	0.019	0.000	0.479 ✔	1.333	H1-3+VT ✔
	69.75 - 68.75	0.010	1.117	0.000	0.046	0.000	1.128 ✔	1.333	H1-3+VT ✔
L19	68.75 - 67.75	0.010	1.125	0.000	0.046	0.000	1.136 ✔	1.333	H1-3+VT ✔
	67.75 - 66.75	0.011	1.133	0.000	0.046	0.000	1.144 ✔	1.333	H1-3+VT ✔
	66.75 - 65.75	0.011	1.141	0.000	0.046	0.000	1.152 ✔	1.333	H1-3+VT ✔
	65.75 - 64.75	0.011	1.148	0.000	0.046	0.000	1.159 ✔	1.333	H1-3+VT ✔
	64.75 - 63.75	0.011	1.156	0.000	0.046	0.000	1.167 ✔	1.333	H1-3+VT ✔
L20	63.75 - 62.75	0.011	1.163	0.000	0.046	0.000	1.174 ✔	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
	62.75 - 61.75	0.011	1.170	0.000	0.046	0.000	1.181 ✔	1.333	H1-3+VT ✔
	61.75 - 60.75	0.011	1.177	0.000	0.046	0.000	1.189 ✔	1.333	H1-3+VT ✔
	60.75 - 59.75	0.011	1.184	0.000	0.046	0.000	1.196 ✔	1.333	H1-3+VT ✔
	59.75 - 58.75	0.011	1.191	0.000	0.046	0.000	1.202 ✔	1.333	H1-3+VT ✔
L21	58.75 - 57.5 (21)	0.011	1.199	0.000	0.046	0.000	1.211 ✔	1.333	H1-3+VT ✔
L22	57.5 - 57.25 (22)	0.007	0.779	0.000	0.029	0.000	0.787 ✔	1.333	H1-3+VT ✔
L23	57.25 - 56.25	0.007	0.800	0.000	0.030	0.000	0.807 ✔	1.333	H1-3+VT ✔
	56.25 - 55.25	0.007	0.804	0.000	0.030	0.000	0.811 ✔	1.333	H1-3+VT ✔
	55.25 - 54.25	0.007	0.808	0.000	0.030	0.000	0.816 ✔	1.333	H1-3+VT ✔
	54.25 - 53.25	0.008	0.812	0.000	0.030	0.000	0.820 ✔	1.333	H1-3+VT ✔
	53.25 - 52.25	0.008	0.816	0.000	0.030	0.000	0.824 ✔	1.333	H1-3+VT ✔
L24	52.25 - 51.25	0.008	0.820	0.000	0.030	0.000	0.828 ✔	1.333	H1-3+VT ✔
	51.25 - 50.25	0.008	0.824	0.000	0.030	0.000	0.832 ✔	1.333	H1-3+VT ✔
	50.25 - 49.25	0.008	0.828	0.000	0.030	0.000	0.836 ✔	1.333	H1-3+VT ✔
	49.25 - 48.25	0.008	0.832	0.000	0.030	0.000	0.840 ✔	1.333	H1-3+VT ✔
	48.25 - 47.25	0.008	0.835	0.000	0.030	0.000	0.844 ✔	1.333	H1-3+VT ✔
L25	47.25 - 46.25	0.008	0.848	0.000	0.030	0.000	0.856 ✔	1.333	H1-3+VT ✔
	46.25 - 45.25	0.008	0.852	0.000	0.030	0.000	0.860 ✔	1.333	H1-3+VT ✔
	45.25 - 44.25	0.008	0.855	0.000	0.030	0.000	0.864 ✔	1.333	H1-3+VT ✔
	44.25 - 43.25	0.008	0.859	0.000	0.030	0.000	0.867 ✔	1.333	H1-3+VT ✔
	43.25 - 42.25	0.008	0.862	0.000	0.030	0.000	0.871 ✔	1.333	H1-3+VT ✔
L26	42.25 - 41.1875	0.008	0.875	0.000	0.031	0.000	0.884 ✔	1.333	H1-3+VT ✔
	41.1875 - 40.125	0.009	0.879	0.000	0.031	0.000	0.888 ✔	1.333	H1-3+VT ✔
	40.125 - 39.0625	0.009	0.883	0.000	0.031	0.000	0.891 ✔	1.333	H1-3+VT ✔
	39.0625 - 38	0.009	0.886	0.000	0.031	0.000	0.895 ✔	1.333	H1-3+VT ✔
	38 - 32.5	0.005	0.441	0.000	0.015	0.000	0.446 ✔	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
L27	38 - 32.5	0.005	0.433	0.000	0.014	0.000	0.438 ✔	1.333	H1-3+VT ✔
	32.5 - 31.5	0.009	0.849	0.000	0.028	0.000	0.857 ✔	1.333	H1-3+VT ✔
L28	31.5 - 30 (28)	0.009	0.853	0.000	0.028	0.000	0.862 ✔	1.333	H1-3+VT ✔
L29	30 - 29.75 (29)	0.008	0.779	0.000	0.026	0.000	0.787 ✔	1.333	H1-3+VT ✔
L30	29.75 - 28.75	0.008	0.781	0.000	0.026	0.000	0.790 ✔	1.333	H1-3+VT ✔
	28.75 - 27.75	0.008	0.784	0.000	0.026	0.000	0.792 ✔	1.333	H1-3+VT ✔
	27.75 - 26.75	0.008	0.786	0.000	0.026	0.000	0.794 ✔	1.333	H1-3+VT ✔
	26.75 - 25.75	0.008	0.788	0.000	0.026	0.000	0.797 ✔	1.333	H1-3+VT ✔
	25.75 - 24.75	0.008	0.790	0.000	0.026	0.000	0.799 ✔	1.333	H1-3+VT ✔
L31	24.75 - 23.75	0.008	0.793	0.000	0.026	0.000	0.801 ✔	1.333	H1-3+VT ✔
	23.75 - 22.75	0.008	0.795	0.000	0.026	0.000	0.803 ✔	1.333	H1-3+VT ✔
	22.75 - 21.75	0.009	0.797	0.000	0.026	0.000	0.806 ✔	1.333	H1-3+VT ✔
	21.75 - 20.75	0.009	0.799	0.000	0.026	0.000	0.808 ✔	1.333	H1-3+VT ✔
	20.75 - 19.75	0.009	0.801	0.000	0.026	0.000	0.810 ✔	1.333	H1-3+VT ✔
L32	19.75 - 18.75	0.009	0.817	0.000	0.026	0.000	0.826 ✔	1.333	H1-3+VT ✔
	18.75 - 17.75	0.009	0.819	0.000	0.026	0.000	0.829 ✔	1.333	H1-3+VT ✔
	17.75 - 16.75	0.009	0.822	0.000	0.026	0.000	0.831 ✔	1.333	H1-3+VT ✔
	16.75 - 15.75	0.009	0.824	0.000	0.026	0.000	0.833 ✔	1.333	H1-3+VT ✔
	15.75 - 14.75	0.009	0.826	0.000	0.026	0.000	0.835 ✔	1.333	H1-3+VT ✔
L33	14.75 - 13.75	0.009	0.827	0.000	0.026	0.000	0.837 ✔	1.333	H1-3+VT ✔
	13.75 - 12.75	0.009	0.829	0.000	0.026	0.000	0.839 ✔	1.333	H1-3+VT ✔
	12.75 - 11.75	0.009	0.831	0.000	0.026	0.000	0.841 ✔	1.333	H1-3+VT ✔
	11.75 - 10.75	0.009	0.833	0.000	0.026	0.000	0.843 ✔	1.333	H1-3+VT ✔
	10.75 - 9.75	0.009	0.835	0.000	0.026	0.000	0.845 ✔	1.333	H1-3+VT ✔
L34	9.75 - 8.75	0.010	0.852	0.000	0.027	0.000	0.862 ✔	1.333	H1-3+VT ✔
	8.75 - 7.75	0.010	0.854	0.000	0.027	0.000	0.864 ✔	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
	7.75 - 6.75	0.010	0.856	0.000	0.027	0.000	0.866 ✔	1.333	H1-3+VT ✔
	6.75 - 5.75	0.010	0.857	0.000	0.027	0.000	0.867 ✔	1.333	H1-3+VT ✔
	5.75 - 4.75	0.010	0.859	0.000	0.027	0.000	0.869 ✔	1.333	H1-3+VT ✔
L35	4.75 - 3.5625	0.010	0.861	0.000	0.027	0.000	0.871 ✔	1.333	H1-3+VT ✔
	3.5625 - 2.375	0.010	0.863	0.000	0.027	0.000	0.874 ✔	1.333	H1-3+VT ✔
	2.375 - 1.1875	0.010	0.865	0.000	0.027	0.000	0.876 ✔	1.333	H1-3+VT ✔
	1.1875 - 0	0.010	0.867	0.000	0.027	0.000	0.878 ✔	1.333	H1-3+VT ✔

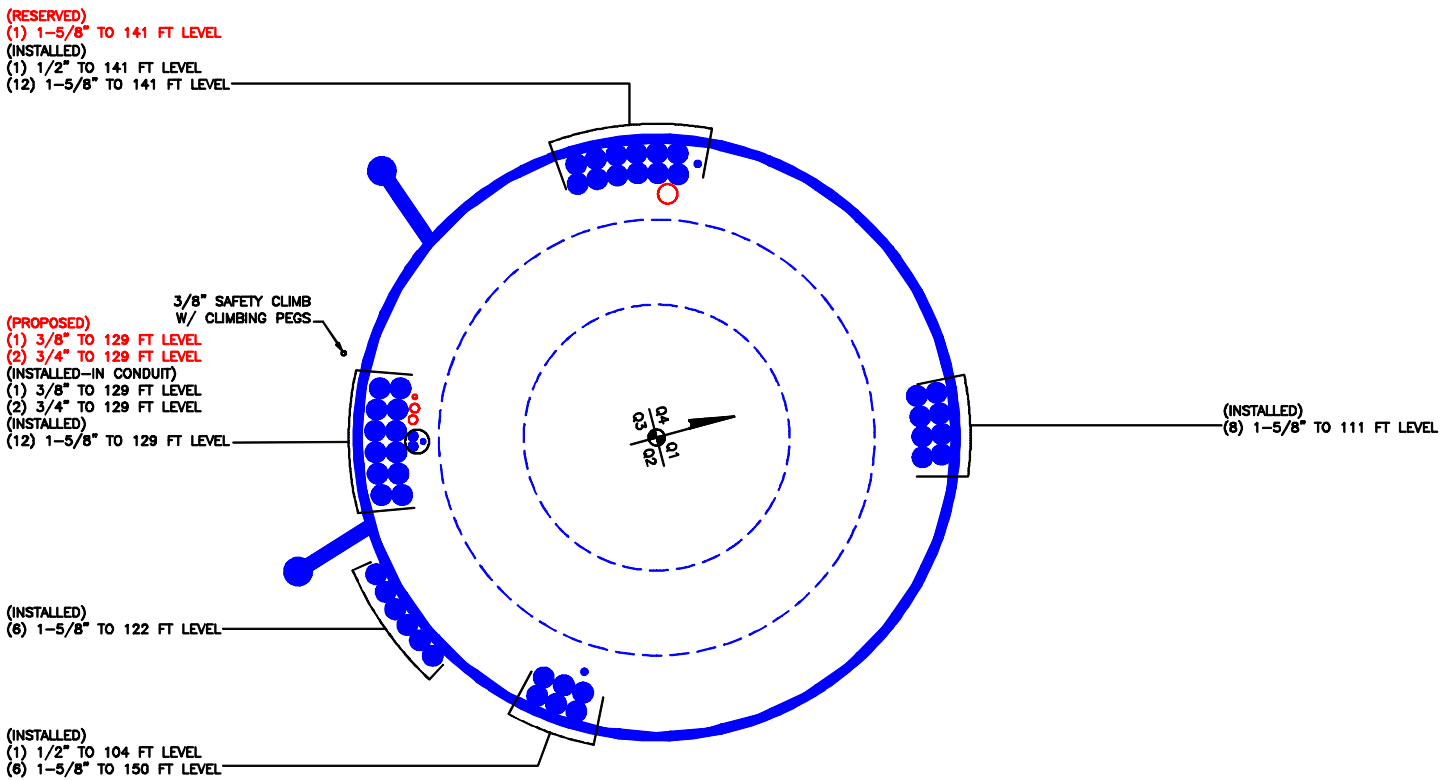
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
L1	150 - 145	Pole	TP23.0001x22x0.25	1	-1.76	878.84	3.7	Pass
L2	145 - 140	Pole	TP24.0002x23.0001x0.25	2	-3.61	917.48	9.6	Pass
L3	140 - 135	Pole	TP25.0004x24.0002x0.25	3	-3.99	956.11	18.4	Pass
L4	135 - 130	Pole	TP26.0005x25.0004x0.25	4	-4.39	994.75	26.3	Pass
L5	130 - 125	Pole	TP27.0006x26.0005x0.25	5	-6.95	1033.38	39.9	Pass
L6	125 - 120	Pole	TP28.0007x27.0006x0.25	6	-7.67	1072.02	51.1	Pass
L7	120 - 115	Pole	TP29.0008x28.0007x0.25	7	-8.20	1110.65	61.5	Pass
L8	115 - 108	Pole	TP30.401x29.0008x0.25	8	-8.57	1135.77	67.7	Pass
L9	108 - 106.75	Pole	TP30.1512x29.1509x0.3125	9	-10.11	1440.85	64.3	Pass
L10	106.75 - 101.75	Pole	TP31.1514x30.1512x0.3125	10	-10.89	1489.15	71.5	Pass
L11	101.75 - 96.75	Pole	TP32.1517x31.1514x0.3125	11	-11.65	1537.44	78.1	Pass
L12	96.75 - 91.75	Pole	TP33.1519x32.1517x0.3125	12	-12.43	1585.75	84.1	Pass
L13	91.75 - 89.5	Pole	TP33.602x33.1519x0.3125	13	-12.79	1607.48	86.6	Pass
L14	89.5 - 89.25	Pole	TP33.652x33.602x0.5	14	-12.85	2561.35	55.2	Pass
L15	89.25 - 84.25	Pole	TP34.6523x33.652x0.4938	15	-13.92	2606.12	59.2	Pass
L16	84.25 - 79.25	Pole	TP35.6525x34.6523x0.4875	16	-15.03	2648.95	63.0	Pass
L17	79.25 - 69.75	Pole	TP37.553x35.6525x0.4813	17	-16.10	2686.11	66.5	Pass
L18	69.75 - 68.75	Pole	TP37.1279x35.9778x0.375	18	-18.06	2307.14	84.6	Pass
L19	68.75 - 63.75	Pole	TP38.1281x37.1279x0.375	19	-19.09	2369.93	87.5	Pass
L20	63.75 - 58.75	Pole	TP39.1282x38.1281x0.375	20	-20.14	2432.71	90.2	Pass
L21	58.75 - 57.5	Pole	TP39.3783x39.1282x0.375	21	-20.41	2448.40	90.8	Pass
L22	57.5 - 57.25	Pole	TP39.4283x39.3783x0.5875	22	-20.49	3819.84	59.0	Pass
L23	57.25 - 52.25	Pole	TP40.4284x39.4283x0.575	23	-21.93	3836.05	61.8	Pass
L24	52.25 - 47.25	Pole	TP41.4286x40.4284x0.575	24	-23.40	3932.31	63.3	Pass
L25	47.25 - 42.25	Pole	TP42.4287x41.4286x0.5688	25	-24.89	3985.39	65.3	Pass
L26	42.25 - 32.5	Pole	TP44.379x42.4287x0.5625	26	-26.19	4022.23	67.1	Pass
L27	32.5 - 31.5	Pole	TP43.829x42.5288x0.625	27	-29.74	4520.18	64.3	Pass
L28	31.5 - 30	Pole	TP44.1291x43.829x0.625	28	-30.25	4551.57	64.6	Pass
L29	30 - 29.75	Pole	TP44.1791x44.1291x0.6875	29	-30.35	5005.28	59.1	Pass
L30	29.75 - 24.75	Pole	TP45.1792x44.1791x0.6875	30	-32.19	5120.39	59.9	Pass
L31	24.75 - 19.75	Pole	TP46.1794x45.1792x0.6875	31	-34.07	5235.49	60.8	Pass
L32	19.75 - 14.75	Pole	TP47.1795x46.1794x0.675	32	-35.97	5254.73	62.6	Pass
L33	14.75 - 9.75	Pole	TP48.1797x47.1795x0.675	33	-37.90	5367.74	63.4	Pass
L34	9.75 - 4.75	Pole	TP49.1799x48.1797x0.6625	34	-39.86	5380.64	65.2	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
L35	4.75 - 0	Pole	TP50.13x49.1799x0.6625	35	-41.75	5486.01	65.8	Pass
							Summary	
						Pole (L21)	90.8	Pass
						RATING =	**90.8**	**Pass**

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 876341 TOWER ID: C_BASELEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

CCIpole

per TIA-222- F

Site BU: 876341

Work Order: 955831

Pole Geometry

	Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
1	150	42	3.75	12	22	30.401	0.25	1	A607-60
2	111.75	42	4.75	12	29.15	37.553	0.3125	1.25	A607-60
3	74.5	42	5.5	12	35.98	44.379	0.375	1.5	A607-65
4	38	38	0	12	42.53	50.13	0.4375	1.75	A607-65

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number	1	2	3	4	5	6	7	8	9	10	11	12
1	0	30	plate	CCI-WSFP-065125	4		x			x			x			x	
2	30	57.5	plate	CCI-AFP-060100	4		x			x			x			x	
3	74.5	89.5	plate	CCI-AFP-060100	3			x				x				x	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Reinforcement Details

	B (in)	H (in)	Gross Area (in^2)	Pole Face to Centroid (in)	Bottom Termination Length (in)	Top Termination Length (in)	L_u (in)	Net Area (in^2)	Bolt Hole Size (in)	Reinforcement Material
1	6.5	1.25	8.125	0.625	n/a	33.000	19.000	6.563	1.1875	A572-65
2	6	1	6	0.5	30.000	30.000	16.000	4.750	1.1875	A572-65
3	6	1	6	0.5	30.000	30.000	16.000	4.750	1.1875	A572-65

TNX Geometry Input

Increment (ft): 5

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	150 - 145	5		12	22.000	23.000	0.25	A607-60	1.000
2	145 - 140	5		12	23.000	24.000	0.25	A607-60	1.000
3	140 - 135	5		12	24.000	25.000	0.25	A607-60	1.000
4	135 - 130	5		12	25.000	26.000	0.25	A607-60	1.000
5	130 - 125	5		12	26.000	27.001	0.25	A607-60	1.000
6	125 - 120	5		12	27.001	28.001	0.25	A607-60	1.000
7	120 - 115	5		12	28.001	29.001	0.25	A607-60	1.000
8	115 - 111.75	7	3.75	12	29.001	30.401	0.25	A607-60	1.000
9	111.75 - 106.75	5		12	29.151	30.151	0.3125	A607-60	1.000
10	106.75 - 101.75	5		12	30.151	31.151	0.3125	A607-60	1.000
11	101.75 - 96.75	5		12	31.151	32.152	0.3125	A607-60	1.000
12	96.75 - 91.75	5		12	32.152	33.152	0.3125	A607-60	1.000
13	91.75 - 89.5	2.25		12	33.152	33.602	0.3125	A607-60	1.000
14	89.5 - 89.25	0.25		12	33.602	33.652	0.5	A607-60	0.966
15	89.25 - 84.25	5		12	33.652	34.652	0.49375	A607-60	0.968
16	84.25 - 79.25	5		12	34.652	35.653	0.4875	A607-60	0.971
17	79.25 - 74.5	9.5	4.75	12	35.653	37.553	0.48125	A607-60	0.974
18	74.5 - 68.75	5.75		12	35.978	37.128	0.375	A607-65	1.000
19	68.75 - 63.75	5		12	37.128	38.128	0.375	A607-65	1.000
20	63.75 - 58.75	5		12	38.128	39.128	0.375	A607-65	1.000
21	58.75 - 57.5	1.25		12	39.128	39.378	0.375	A607-65	1.000
22	57.5 - 57.25	0.25		12	39.378	39.428	0.5875	A607-65	0.969
23	57.25 - 52.25	5		12	39.428	40.428	0.575	A607-65	0.981
24	52.25 - 47.25	5		12	40.428	41.429	0.575	A607-65	0.973
25	47.25 - 42.25	5		12	41.429	42.429	0.56875	A607-65	0.976
26	42.25 - 38	9.75	5.5	12	42.429	44.379	0.5625	A607-65	0.980
27	38 - 31.5	6.5		12	42.529	43.829	0.625	A607-65	0.979
28	31.5 - 30	1.5		12	43.829	44.129	0.625	A607-65	0.978
29	30 - 29.75	0.25		12	44.129	44.179	0.6875	A607-65	0.978
30	29.75 - 24.75	5		12	44.179	45.179	0.6875	A607-65	0.970
31	24.75 - 19.75	5		12	45.179	46.179	0.6875	A607-65	0.963
32	19.75 - 14.75	5		12	46.179	47.180	0.675	A607-65	0.973
33	14.75 - 9.75	5		12	47.180	48.180	0.675	A607-65	0.967
34	9.75 - 4.75	5		12	48.180	49.180	0.6625	A607-65	0.978
35	4.75 - 0	4.75		12	49.180	50.130	0.6625	A607-65	0.972

TNX Section Forces

Increment (ft):	5	TNX Output		
	Section Height (ft)	P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	150 - 145	1.7568	14.339	3.1191
2	145 - 140	3.6135	40.566	8.879
3	140 - 135	3.9914	86.283	9.4124
4	135 - 130	4.3887	134.7	9.9582
5	130 - 125	6.9515	220.37	16.296
6	125 - 120	7.6685	304.67	17.654
7	120 - 115	8.2026	394.41	18.267
8	115 - 111.75	8.5731	454.39	18.666
9	111.75 - 106.75	10.109	554.86	20.722
10	106.75 - 101.75	10.894	660.22	21.49
11	101.75 - 96.75	11.649	769.18	22.117
12	96.75 - 91.75	12.431	881.29	22.749
13	91.75 - 89.5	12.787	932.83	23.079
14	89.5 - 89.25	12.852	938.6	23.111
15	89.25 - 84.25	13.924	1056.1	23.882
16	84.25 - 79.25	15.026	1177.4	24.648
17	79.25 - 74.5	16.097	1296.1	25.342
18	74.5 - 68.75	18.065	1444.5	26.225
19	68.75 - 63.75	19.091	1577.1	26.837
20	63.75 - 58.75	20.143	1712.8	27.471
21	58.75 - 57.5	20.406	1747.3	27.654
22	57.5 - 57.25	20.492	1754.2	27.682
23	57.25 - 52.25	21.928	1894.5	28.444
24	52.25 - 47.25	23.398	2038.6	29.187
25	47.25 - 42.25	24.893	2186.3	29.913
26	42.25 - 38	26.186	2314.7	30.499
27	38 - 31.5	29.745	2516.2	31.477
28	31.5 - 30	30.249	2563.5	31.682
29	30 - 29.75	30.353	2571.4	31.706
30	29.75 - 24.75	32.194	2731.8	32.42
31	24.75 - 19.75	34.068	2895.6	33.133
32	19.75 - 14.75	35.971	3063.1	33.848
33	14.75 - 9.75	37.902	3234.1	34.568
34	9.75 - 4.75	39.862	3408.7	35.29
35	4.75 - 0	41.747	3578	35.982

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
150 - 145	Pole	TP23x22x0.25	Pole	3.7%	Pass
145 - 140	Pole	TP24x23x0.25	Pole	9.5%	Pass
140 - 135	Pole	TP25x24x0.25	Pole	18.3%	Pass
135 - 130	Pole	TP26x25x0.25	Pole	26.2%	Pass
130 - 125	Pole	TP27.001x26x0.25	Pole	39.7%	Pass
125 - 120	Pole	TP28.001x27.001x0.25	Pole	50.9%	Pass
120 - 115	Pole	TP29.001x28.001x0.25	Pole	61.2%	Pass
115 - 111.75	Pole	TP30.401x29.001x0.25	Pole	67.4%	Pass
111.75 - 106.75	Pole	TP30.151x29.151x0.3125	Pole	64.0%	Pass
106.75 - 101.75	Pole	TP31.151x30.151x0.3125	Pole	71.2%	Pass
101.75 - 96.75	Pole	TP32.152x31.151x0.3125	Pole	77.8%	Pass
96.75 - 91.75	Pole	TP33.152x32.152x0.3125	Pole	83.7%	Pass
91.75 - 89.5	Pole	TP33.602x33.152x0.3125	Pole	86.2%	Pass
89.5 - 89.25	Pole + Reinf.	TP33.652x33.602x0.5	Reinf. 3 Compression	62.5%	Pass
89.25 - 84.25	Pole + Reinf.	TP34.652x33.652x0.4938	Reinf. 3 Compression	65.9%	Pass
84.25 - 79.25	Pole + Reinf.	TP35.653x34.652x0.4875	Reinf. 3 Compression	71.2%	Pass
79.25 - 74.5	Pole + Reinf.	TP37.553x35.653x0.4813	Reinf. 3 Compression	75.0%	Pass
74.5 - 68.75	Pole	TP37.128x35.978x0.375	Pole	84.3%	Pass
68.75 - 63.75	Pole	TP38.128x37.128x0.375	Pole	87.2%	Pass
63.75 - 58.75	Pole	TP39.128x38.128x0.375	Pole	89.9%	Pass
58.75 - 57.5	Pole	TP39.378x39.128x0.375	Pole	90.5%	Pass
57.5 - 57.25	Pole + Reinf.	TP39.428x39.378x0.5875	Reinf. 2 Compression	72.2%	Pass
57.25 - 52.25	Pole + Reinf.	TP40.428x39.428x0.575	Reinf. 2 Compression	74.8%	Pass
52.25 - 47.25	Pole + Reinf.	TP41.429x40.428x0.575	Reinf. 2 Compression	77.2%	Pass
47.25 - 42.25	Pole + Reinf.	TP42.429x41.429x0.5688	Reinf. 2 Compression	79.6%	Pass
42.25 - 38	Pole + Reinf.	TP44.379x42.429x0.5625	Reinf. 2 Compression	81.4%	Pass
38 - 31.5	Pole + Reinf.	TP43.829x42.529x0.625	Reinf. 2 Compression	78.2%	Pass
31.5 - 30	Pole + Reinf.	TP44.129x43.829x0.625	Reinf. 2 Compression	78.7%	Pass
30 - 29.75	Pole + Reinf.	TP44.179x44.129x0.6875	Reinf. 1 Bolt Shear	71.6%	Pass
29.75 - 24.75	Pole + Reinf.	TP45.179x44.179x0.6875	Reinf. 1 Compression	71.8%	Pass
24.75 - 19.75	Pole + Reinf.	TP46.179x45.179x0.6875	Reinf. 1 Compression	73.7%	Pass
19.75 - 14.75	Pole + Reinf.	TP47.18x46.179x0.675	Reinf. 1 Compression	75.2%	Pass
14.75 - 9.75	Pole + Reinf.	TP48.18x47.18x0.675	Reinf. 1 Compression	76.7%	Pass
9.75 - 4.75	Pole + Reinf.	TP49.18x48.18x0.6625	Reinf. 1 Compression	78.0%	Pass
4.75 - 0	Pole + Reinf.	TP50.13x49.18x0.6625	Reinf. 1 Compression	79.3%	Pass
				Summary	
			Pole	90.5%	Pass
			Reinforcement	81.5%	Pass
			Overall	90.5%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in^4)			Area (in^2)			% Capacity			
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3
150 - 145	1211	n/a	1211	18.29	n/a	18.29	3.7%			
145 - 140	1378	n/a	1378	19.09	n/a	19.09	9.5%			
140 - 135	1560	n/a	1560	19.90	n/a	19.90	18.3%			
135 - 130	1757	n/a	1757	20.70	n/a	20.70	26.2%			
130 - 125	1970	n/a	1970	21.50	n/a	21.50	39.7%			
125 - 120	2199	n/a	2199	22.31	n/a	22.31	50.9%			
120 - 115	2445	n/a	2445	23.11	n/a	23.11	61.2%			
115 - 111.75	2615	n/a	2615	23.63	n/a	23.63	67.4%			
111.75 - 106.75	3417	n/a	3417	29.98	n/a	29.98	64.0%			
106.75 - 101.75	3772	n/a	3772	30.99	n/a	30.99	71.2%			
101.75 - 96.75	4151	n/a	4151	31.99	n/a	31.99	77.8%			
96.75 - 91.75	4555	n/a	4555	33.00	n/a	33.00	83.7%			
91.75 - 89.5	4745	n/a	4745	33.45	n/a	33.45	86.2%			
89.5 - 89.25	4766	2729	7495	33.50	18.00	51.50	53.2%			62.4%
89.25 - 84.25	5208	2888	8096	34.50	18.00	52.50	58.8%			66.9%
84.25 - 79.25	5676	3050	8727	35.51	18.00	53.51	60.7%			71.2%
79.25 - 74.5	6147	3209	9356	36.46	18.00	54.46	64.0%			75.0%
74.5 - 68.75	7662	n/a	7662	44.32	n/a	44.32	84.3%			
68.75 - 63.75	8305	n/a	8305	45.52	n/a	45.52	87.2%			
63.75 - 58.75	8982	n/a	8982	46.73	n/a	46.73	89.9%			
58.75 - 57.5	9157	n/a	9157	47.03	n/a	47.03	90.5%			
57.5 - 57.25	9192	4940	14133	47.09	24.00	71.09	57.1%		72.2%	
57.25 - 52.25	9917	5186	15103	48.30	24.00	72.30	59.1%		74.8%	
52.25 - 47.25	10679	5438	16116	49.50	24.00	73.50	61.1%		77.2%	
47.25 - 42.25	11478	5695	17173	50.71	24.00	74.71	63.0%		79.6%	
42.25 - 38	12188	5919	18107	51.73	24.00	75.73	64.5%		81.5%	
38 - 31.5	14710	6066	20776	61.04	24.00	85.04	62.0%		78.2%	
31.5 - 30	15018	6147	21165	61.46	24.00	85.46	62.4%		78.7%	
30 - 29.75	15069	8444	23513	61.53	32.50	94.03	56.4%	71.6%		
29.75 - 24.75	16127	8817	24943	62.94	32.50	95.44	58.9%	72.1%		
24.75 - 19.75	17233	9198	26431	64.35	32.50	96.85	59.1%	73.7%		
19.75 - 14.75	18388	9588	27975	65.75	32.50	98.25	60.4%	75.2%		
14.75 - 9.75	19594	9985	29579	67.16	32.50	99.66	61.6%	76.7%		
9.75 - 4.75	20851	10391	31242	68.57	32.50	101.07	62.7%	78.1%		
4.75 - 0	22094	10784	32878	69.90	32.50	102.40	63.8%	79.3%		

Note: Section capacity checked in 5 degree increments.

FDH ENGINEERING INNOVATION
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Anchor Rod Design

Site Name:	
Job No. :	
Elevation:	
	Input Cells in Yellow

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

Legend
Input
Output/ Notes

Code (F or G):	F	Pull Down
Anchor Bolts (Yes or No)	Yes	Pull Down
P (from RISA)	42	kips
V (from RISA)	36	kips
M (from RISA)	3578	ft-kips

Existing Rods		
y	29	in
No. Bolts	16	
BC	58	in
I	26777.44	in^4
Bolt Grade	A615-75	Pull Down
Thread Form	Non-Upset	-
d (in)	2.25	Pull Down
Ag	3.98	in^2
Ae	3.25	in^2
Fy	75	ksi
Fu	100	ksi

Itot	34182.23	in^4

T	142.878	kips
V	1.800	kips

New Rods		
y new	30.5	in
No. Bolts new	4	
BC new	61	in
Inew	7,405	in^4
Bolt Grade	A615-75	Pull Down
Thread Form	Non-Upset	Pull Down
d new (in)	2.25	Pull Down
Ag new	3.98	in^2
Ae new	3.25	in^2
Fy new	75	ksi
Fu new	100	ksi

Tnew	150.377	kips
Vnew	1.800	kips

Capacity (%)					Pullout Test Value
Tn/Ω	194.5	kips	OK	**73.46**	**152 kips**
Tn/Ω, new	194.5	kips	OK	**77.31**	
øTn	260	kips			
øTn, new	260	kips			

Equations:

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

Tn/Ω = 0.33*Fu*Ag*(4/3)

f_t = 0.8*Fu*Ae (anchor bolts only) **øTn = 0.75*Fu*Ae (non anchor 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**

Interaction Equation Checks (Rev. G: Section 4.9.9)		
Detail Type (hover for detail)	d	Pull Down
η	0.5	
l_{ar}, for Detail Type d only	0	in
øRnt	194.5	kips
øRnv	119.4	kips
øRnm	94.922	kip-in
Mu	0	kip-in
(Pu+Vu/η)/øRnt < 1?	**0.753**	**OK**
$(Vu/øRnv)^2$ + $((Pu/øRnt)+(Mu/øRnm))^2$	**0.540**	**OK**

(works for Rev F also)

(top of concrete to bottom of leveling nut)

(only applicable for Detail Type d)

Req'd Embedment Length for New Rods		
f'c, caisson's concrete strength	3000	psi
fy, rebar yield strength	60000	psi
d_b, diameter of vertical rebar	1.41	in
vertical rebar cage BC ø	76	in
vertical rebar top cover distance	3	in
τ, Ultimate Hilti Bond Resistance	1.8	ksi

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

l_d (vertical rebar dev. Length)	46.337	in
l_{dH} (Hilti dev. length)	61.304	in
G/1.5	5.000	in

Total Embed. Length of New Bolts	**69.66**	in
	5.81	ft

Bearing Strength Check of Anchor Rod Pipe Sleeve		
New Anchor Rod Diameter	2.25	in
Selected Pipe Sleeve Area	5.16	in^2
Selected Pipe Sleeve Fy	42	ksi
Rn/Ω (Rev F) or øRn (Rev G)	260.06	k
% Capacity (Analysis)	**57.82%**	**OK**
% Capacity (Design)	**74.79%**	**OK**

Equivalent BC		
No. Existing Rebar		
Existing Rebar BC		in
Area rebar		in^2
Irebar	0	in^4
Itot	7,405	in^4
Equivalent Area	3.980	in^2
Equivalent BC	**61.000**	in
Total Area	**15.92**	in^2

(assuming new bolts are reinforcement)

$l_d = [(fy*ψ_t ψ_e λ)/(20*\sqrt{f'c})]*d_b$ **PER ACI 12.2.2**

$l_{dH} = (øTn*FS)/(τ*pi*d_{new})$

See Worksheet "New (Design Procedure)"

Square, Stiffened / Unstiffened Base Plate, Any Rod Material - Rev. F /G

Assumptions: 1) Rod groups at corners. Total # rods divisible by 4. Maximum total # of rods = 48 (12 per Corner).
2) Rod Spacing = Straight Center-to-Center distance between any (2) adjacent rods (same corner)
3) Clear space between bottom of leveling nut and top of concrete **not** exceeding (1)*(Rod Diameter)

Site Data

BU #: *876341*
Site Name: *Middletown 2*
App #:

Anchor Rod Data		
Qty:	16	
Diam:	2.25	in
Rod Material:	A615-J	
Yield, Fy:	75	ksi
Strength, Fu:	100	ksi
Bolt Circle:	58	in
Anchor Spacing:	4	in

Plate Data		
W=Side:	57	in
Thick:	3	in
Grade:	50	ksi
Clip Distance:	6	in

Stiffener Data (Welding at both sides)		
Configuration:	Unstiffened	
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:	50.13	in
Thick:	0.4375	in
Grade:	65	ksi
# of Sides:	12	"0" IF Round

Stress Increase Factor		
ASD ASIF:	1.333	

Base Reactions		
TIA Revision:	F	
Unfactored Moment, M:	2814	ft-kips*
Unfactored Axial, P:	42	kips
Unfactored Shear, V:	36	kips

Moment adjusted to account for anchor rod mods.

Anchor Rod Results

TIA F --> Maximum Rod Tension	142.9 Kips
Allowable Tension:	195.0 Kips
Anchor Rod Stress Ratio:	73.3% **Pass**

Base Plate Results	Flexural Check
Base Plate Stress:	46.0 ksi
Allowable PL Bending Stress:	50.0 ksi
Base Plate Stress Ratio:	92.1% **Pass**

PL Ref. Data
Yield Line (in):
30.48
Max PL Length:
30.48

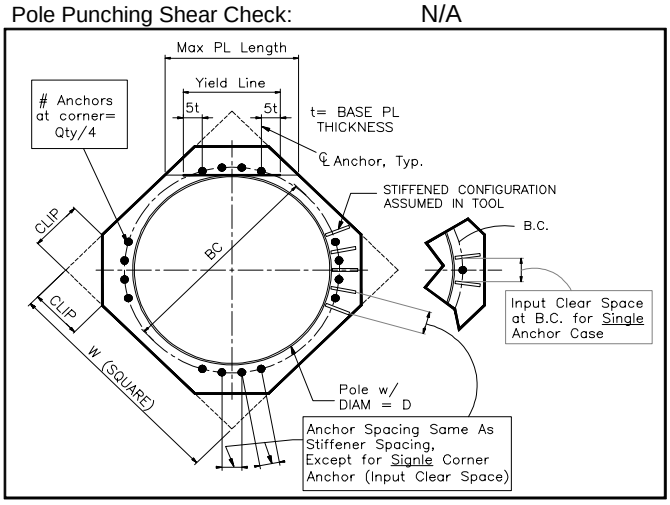
N/A - Unstiffened

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



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

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Eccentric Weld Check

Site Name:	Middletown 2
Job No. :	876341
Elevation:	0

Legend
Input
Output
Notes

Code	F	F or G

Pu	142.9	k

Eccentric Weld Properties		
Weld Size	4	No. of 1/16ths (whole number)
L_{weld}	29.5	in
e_x	5.435	in
a	0.184237	use in Table 8-4, pg 8-66 AISC
C	3.541525	From Table 8-4, pg. 8-66 AISC
C1	1	70 ksi weld = 1, 80 ksi = 1.1

Check Eccentric Weld		
Pu	142.90	k
Rn/Ω	278.60	k
%Capacity	51.29%	Pass

Project Title: BU 876341
Project Notes: Middletown 2

Calculation Method: Full 8CD

******* I N P U T D A T A

Pier Properties

Diameter (ft)	Distance of Top of Pier above Ground (ft)	Concrete Strength (ksi)	Steel Yield Strength (ksi)
7.00	0.50	3.00	60.00

Soil Properties

Layer	Type	Thickness (ft)	Depth at Top of Layer (ft)	Density (lbs/ft^3)	CU (psf)	KP	PHI (deg)
1	Clay	3.50	0.00	120.0			
2	Sand	0.50	3.50	120.0		3.255	32.00
3	Clay	20.00	4.00	125.0	4000.0		

Design (Factored) Loads at Top of Pier

Moment (ft-k)	Axial Load (kips)	Shear Load (kips)	Additional Safety Factor Against Soil Failure	
3578.0	42.0	36.00	2.96	Soil Capacity = 2/2.96 = 67.6%

******* R E S U L T S

Calculated Pier Properties

Length (ft)	Weight (kips)	Pressure Due To Axial Load (psf)	Pressure Due To Weight (psf)	Total End-Bearing Pressure (psf)
19.000	109.681	1091.3	2850.0	3941.4

Ultimate Resisting Forces Along Pier

Type	Distance of Top of Layer to Top of Pier (ft)	Thickness (ft)	Density (lbs/ft^3)	CU (psf)	KP	Force (kips)	Arm (ft)
Clay	0.50	3.50	120.0			0.00	2.25
Sand	4.00	0.50	120.0		3.255	15.38	4.26
Clay	4.50	7.45	125.0	4000.0		1669.87	8.23
Clay	11.95	7.05	125.0	4000.0		-1578.13	15.48

Shear and Moments Along Pier

Distance below Top of Pier (ft)	Shear (with Safety Factor) (kips)	Moment (with Safety Factor) (ft-k)	Shear (without Safety Factor) (kips)	Moment (without Safety Factor) (ft-k)
0.00	107.1	10621.2	36.2	3588.2
1.90	107.1	10824.7	36.2	3657.0
3.80	107.1	11028.2	36.2	3725.7
5.70	-177.1	11048.3	-59.8	3732.5
7.60	-602.7	10307.5	-203.6	3482.3
9.50	-1028.3	8758.2	-347.4	2958.8
11.40	-1453.9	6400.2	-491.2	2162.2
13.30	-1276.8	3638.9	-431.4	1229.3
15.20	-851.2	1617.3	-287.6	546.4
17.10	-425.6	404.3	-143.8	136.6
19.00	-0.0	-0.0	-0.0	-0.0

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#: *876341*
Site Name: *Middletown 2*
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**=	4.48	in*
Horiz. **Tie** Bar Size=	5	
Vert. Cage Diameter =	6.03	ft
Vert. Cage Diameter =	72.38	in
Vertical Bar Size =	11	*
Bar Diameter =	1.41	in
Bar Area =	1.56	in^2
Number of Bars =	42	*
As Total=	65.52	in^2
A s/ Aconc, Rho:	0.0118	1.18%

ACI 10.5 , ACI 21.10.4, and IBC 1810.
Min As for Flexural, Tension Controlled, Shafts:
(3)*(Sqrt(f'c)/Fy: 0.0027
200 / Fy: 0.0033

*Adjusted to account for anchor rod mods as foundation reinforcment.

Minimum Rho Check:

Actual Req'd Min. Rho:	0.33%	Flexural
Provided Rho:	1.18%	**OK**

Ref. Shaft Max Axial Capacities, ϕ Max(Pn or Tn):		
Max Pu = (φ=0.65) Pn.		
Pn per ACI 318 (10-2)	9305.73	kips
at Mu=(ϕ=0.65)Mn=	5518.55	ft-kips
Max Tu, (φ=0.9) Tn =	3538.08	kips
at Mu=ϕ=(0.90)Mn=	0.00	ft-kips

Maximum Shaft Superimposed Forces

TIA Revision:	F	
Max. Service Shaft M:	3732.5	ft-kips **(* Note)**
Max. Service Shaft P:	42	kips
Max Axial Force Type:	Comp.	

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

Load Factor	Shaft Factored Loads		
1.30	Mu:	4852.25	ft-kips
1.30	Pu:	54.6	kips

Material Properties

Concrete Comp. strength, f'c =	3000	psi
Reinforcement yield strength, Fy =	60	ksi
Reinforcing Modulus of Elasticity, E =	29000	ksi
Reinforcement yield strain =	0.00207	
Limiting compressive strain =	0.003	

ACI 318 Code

Select Analysis ACI Code= 2002

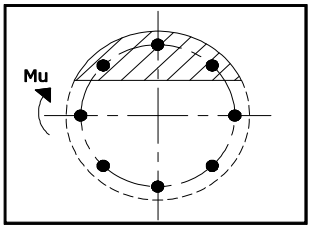
Seismic Properties

Seismic Design Category =	B
Seismic Risk =	**Low**

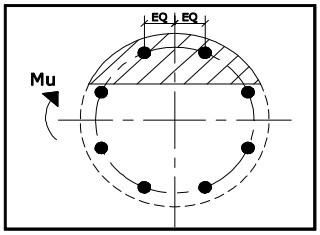
Solve (Run) <-- Press Upon Completing All Input

Results:

Governing Orientation Case: **1**



Case 1



Case 2

Dist. From Edge to Neutral Axis:	**19.13**	in
Extreme Steel Strain, ϵt:	**0.0093**	
	ϵt > 0.0050, Tension Controlled	
Reduction Factor,φ:	**0.900**	

Output Note: Negative Pu=Tension

For Axial Compression, φ Pn = Pu:	54.60	kips
Drilled Shaft Moment Capacity, φMn:	**9411.13**	ft-kips
Drilled Shaft Superimposed Mu:	**4852.25**	ft-kips

(Mu/φMn, Drilled Shaft Flexure CSR:	**51.6%**

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

AT&T Existing Facility

Site ID: CT1023

Middletown - Saybrook Road
1969 Saybrook Road
Middletown, CT 06457

November 20, 2014

EBI Project Number: 62146233

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	54.79 %

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

EBI Consulting
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November 20, 2014

AT&T Mobility – New England
Attn: Cameron Syme
550 Cochituate Road
Suite 550 – 13&14
Framingham, MA 01701

Emissions Analysis for Site: **CT1023 – Middletown - Saybrook Road**

EBI Consulting was directed to analyze the proposed AT&T facility located at **1969 Saybrook Road, Middletown, 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 MHz and 800 MHz Bands are 467 $\mu W/cm^2$ and 567 $\mu W/cm^2$ respectively. The general population exposure limit for the PCS and AWS bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed AT&T Wireless antenna facility located at **1969 Saybrook Road, Middletown, 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 GSM channels (PCS Band -1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

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

3) 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.

4) 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.

5) 2 LTE channels (WCS Band – 2300 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

6) 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.

7) 4 LTE channel (700 MHz Band) was considered for each sector of the proposed installation. This channel has a transmit power of 60 Watts

8) 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.

9) 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.

10) The antennas used in this modeling are the **Powerwave 7770** for 850 MHz and 1900 MHz (PCS) channels and the **CCI OPA-65R-LCUU-H6** for 700 MHz, 850 MHz, 1900 MHz and 2300 MHz channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The **Powerwave 7770** has a maximum gain of **13.3 dBd for 850 MHz and 15.5 dBd for 1900 MHz** at its main lobe. The **CCI OPA-65R-LCUU-H6** has a maximum gain of **13.9 dBd for 700 MHz, 14.5 dBd for 850 MHz, 15.8 dBd for 2100 MHz and 17.56 dBd for 2300 MHz** at its main lobe. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

11) The antenna mounting height centerline of the proposed antennas is **132 feet** above ground level (AGL).

12) 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.

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:	15.5 / 13.5 dBd	Gain:	15.5 / 13.5 dBd	Gain:	15.5 / 13.5 dBd
Height (AGL):	132 feet	Height (AGL):	132 feet	Height (AGL):	132 feet
Frequency Bands	1900 MHz(PCS) / 850 MHz	Frequency Bands	1900 MHz(PCS) / 850 MHz	Frequency Bands	1900 MHz(PCS) / 850 MHz
Channel Count	8	Channel Count	8	# PCS Channels:	8
Total TX Power:	240	Total TX Power:	240	# AWS Channels:	240
ERP (W):	3,172.53	ERP (W):	3,172.53	ERP (W):	3,172.53
Antenna A1 MPE%	1.18	Antenna B1 MPE%	1.18	Antenna C1 MPE%	1.18
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	CCI OPA-65R-LCUU-H6	Make / Model:	CCI OPA-65R-LCUU-H6	Make / Model:	CCI OPA-65R-LCUU-H6
Gain:	13.5/14.5/15.8/17.56 dBd	Gain:	13.5/14.5/15.8/17.56 dBd	Gain:	13.5/14.5/15.8/17.56 dBd
Height (AGL):	132 feet	Height (AGL):	132 feet	Height (AGL):	132 feet
Frequency Bands	700 MHz / 850 MHz / 1900 MHz (PCS)/ 2300 MHz (WCS)	Frequency Bands	700 MHz / 850 MHz / 1900 MHz (PCS)/ 2300 MHz (WCS)	Frequency Bands	700 MHz / 850 MHz / 1900 MHz (PCS)/ 2300 MHz (WCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power:	240	Total TX Power:	240	Total TX Power:	240
ERP (W):	3,522.41	ERP (W):	3,522.41	ERP (W):	3,522.41
Antenna A2 MPE%	2.14	Antenna B2 MPE%	2.14	Antenna C2 MPE%	2.14
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	CCI OPA-65R-LCUU-H6	Make / Model:	CCI OPA-65R-LCUU-H6	Make / Model:	CCI OPA-65R-LCUU-H6
Gain:	13.9 / 17.2 dBd	Gain:	13.9 / 17.2 dBd	Gain:	13.9 / 17.2 dBd
Height (AGL):	132 feet	Height (AGL):	132 feet	Height (AGL):	132 feet
Frequency Bands	700 Mhz / 1900 MHz (PCS)	Frequency Bands	700 Mhz / 1900 MHz (PCS)	Frequency Bands	700 Mhz / 1900 MHz (PCS)
Channel Count	2	Channel Count	2	Channel Count	2
Total TX Power:	120	Total TX Power:	120	Total TX Power:	120
ERP (W):	3,534.37	ERP (W):	3,534.37	ERP (W):	3,522.41
Antenna A3 MPE%	2.12	Antenna B3 MPE%	2.12	Antenna C3 MPE%	2.12

Site Composite MPE%	
Carrier	**MPE%**
AT&T	**16.32 %**
MetroPCS	4.57 %
Nextel	7.31 %
T-Mobile	5.56 %
Verizon Wireless	18.89 %
Sprint	2.14 %
Site Total MPE %:	**54.79 %**

AT&T Sector 1 Total:	5.44 %
AT&T Sector 2 Total:	5.44 %
AT&T Sector 3 Total:	5.44 %
Site Total:	54.79 %

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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:	5.44 %
Sector 2:	5.44 %
Sector 3 :	5.52 %
AT&T Total:	16.32 %
Site Total:	54.79 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **54.79%** 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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