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

February 19, 2016

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

RE: **Notice of Exempt Modification for AT&T/ LTE 3C Crown Site BU: 806361**
AT&T Site ID: CT2030
131 Manor Road, Guilford, CT 06437
Latitude: 41° 19' 48.09" / Longitude: -72° 43' 18.51"

Dear Ms. Bachman:

AT&T currently maintains nine (9) antennas at the 137-foot level of the existing 150-foot monopole at 131 Manor Road in Guilford, CT. The tower is owned by Crown Castle. The property is owned by BW Bishop & Sons, Inc. AT&T now intends to replace three (3) antennas with three (3) new 700 MHz antennas. These antennas would be installed at the 137-foot level of the tower. AT&T also intends to install three (3) RRU's and three (3) A2 modules.

This facility was approved by the by the Connecticut Siting Council in Docket No. 56 on April 14, 1986. This approval included the conditions that:

1. The Guilford tower shall not exceed 160' in height, excluding antennas.

This modification complies with the aforementioned condition(s).

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

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

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

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

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

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

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

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

Sincerely,

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

Attachments:

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

cc: Mr. Joseph S. Mazza, First Selectman
31 Park Street
Guilford, CT 06437

BW Bishop & Sons, Inc
1355 Boston Post Road
Guilford, CT 06437-2399

DOCKET NO. 56

AN APPLICATION OF METRO MOBILE CTS OF NEW HAVEN, INC., FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED FOR THE CONSTRUCTION, MAINTENANCE, AND OPERATION OF FACILITIES TO PROVIDE CELLULAR SERVICE IN NEW HAVEN COUNTY.	:	CONNECTICUT SITING COUNCIL April 14, 1986

D E C I S I O N A N D O R D E R

Pursuant to the foregoing opinion, the Council hereby directs that a certificate of environmental compatibility and public need as required by section 16-50k of the General Statutes of Connecticut (CGS) be issued to Metro Mobile CTS of New Haven, Inc., for the construction, maintenance, and operation of cellular mobile phone telecommunication towers and associated equipment in the towns of Wolcott, Naugatuck, West Haven (existing tower), Milford, Hamden (existing tower), Guilford, and North Branford subject to the conditions below.

1. The proposed and alternate Beacon Falls sites are rejected without prejudice.
2. The Wolcott tower shall be constructed to meet Zone C wind loading with 1" of radial ice and shall not exceed 180' in height excluding antennas.
3. The Naugatuck tower shall not exceed 160' in height, excluding antennas. The certificate holder shall offer to remove the existing privately owned, unused tower now on the site.
4. Any future actions requiring the removal of the existing West Haven or Hamden towers to be shared by the certificate holder shall also apply to the equipment mounted on those towers by the certificate holder, regardless of that equipment's status under Chapter 277a of the CGS.

5. The Milford tower shall be a monopole structure not to exceed 100' in height, excluding antennas.
6. The Guilford tower shall be a monopole structure not to exceed 150' in height, excluding antennas.
7. The North Branford Route 17 site is rejected. The North Branford East Reeds Gap Road tower shall not exceed 160' in height, excluding antennas.
8. The certificate holder shall submit a development and management plan for the Wolcott, Naugatuck, Milford, Hamden, Guilford, and North Branford sites pursuant to sections 16-50j-75 through 16-50j-77 of the RSA, except that irrelevant items in section 16-50j-76 need only be identified as such. In addition to the requirements of section 16-50j-76, the D&M plan shall provide plans for evergreen screening around the fenced perimeter at the Wolcott, Milford, Hamden, Guilford, and North Branford sites. The D&M plan shall include a proposal for painting the approved monopole structures to blend with the sky. Any changes to specifications in the D&M plan must be approved by the Council prior to facility operation.
9. All certified facilities shall be constructed, operated, and maintained as specified in the Council's record and in the site development and management plan required by order 8.
10. The certificate holder shall permit public or private entities to share space on the towers approved herein, for due consideration received, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing. In addition to complying with 16-50j-73, the

certificate holder shall notify the Council of the addition of any equipment to any approved tower.

11. A fence not lower than 8' shall surround each tower and associated equipment.

12. Unless necessary to comply with order 13, below, no lights shall be installed on any of these towers.

13. The facilities' construction and any future tower sharing shall be in accordance with all applicable federal, state, and municipal laws and regulations. Shared uses by entities not subject to jurisdiction pursuant to sections 16-50i and 16-50k of the CGS shall be subject to all applicable federal, state, and municipal laws and regulations.

14. Construction activities shall take place during daylight working hours.

15. This decision and order shall be void and the towers and associated equipment shall be dismantled and removed, or reapplication for any new use shall be made to the CSC before any such new use is made, if the towers do not provide or permanently cease to provide cellular service following completion of construction.

16. This decision and order shall be void if all construction authorized herein is not completed within three years of the issuance of this decision, or within three years of the completion of any appeal if appeal of this decision is taken, unless otherwise approved by the Council.

Pursuant to CGS section 16-50p, we hereby direct that a copy of the decision and order shall be served on each person listed below. A notice

of the issuance shall be published in The Record-Journal, The New Haven Register, The Branford Review, The Evening Sentinel, The Waterbury American, and The Waterbury Republican.

The parties to this proceeding are:

Metro Mobile CTS of New Haven, Inc. (Applicant)
5 Eversley Avenue
Norwalk, Connecticut 06855

ATTN: Armand Mascioli
General Manager

Mr. Kevin B. Sullivan, Esq. (its attorneys)
Byrne, Slater, Sandler, Shulman & Rouse, P.C.
111 Pearl Street
P.O. Box 3216
Hartford, Connecticut 06103

Mr. Richard Rubin, Esq.
Fleischman and Walsh, P.C.
1725 N Street, N.W.
Washington, D.C. 20036

Guilford Conservation Commission represented by:

Mr. David B. Damer
Chairman
Guilford Conservation Commission
440 Great Hill Road
Guilford, Connecticut 06437

Mr. Robert W. Griswold, Jr.
100 Rimmon Hill Road
Beacon Falls, Connecticut 06403

Town of Hamden
Memorial Town Hall
2372 Whitney Avenue
Hamden, Connecticut 06518

ATTN: Shirley Gonzales
Town Planner

Guilford Planning and Zoning Commission — represented by:

Mr. David W. Fisher
Chairman
Town Hall
31 Park Street
Guilford, Connecticut 06437

Town of Hamden — represented by:

John DeNicola, Jr.
Mayor
Town of Hamden
Memorial Town Hall
2372 Whitney Avenue
New Haven, Connecticut 06518

Citizens Park Council of New Haven — represented by:

Mr. John J. Ciarleglio
President
Citizens Park Council
of New Haven
36 Elmwood Road
New Haven, Connecticut 06515

Mr. Thomas V. Keating
343 Rimmon Hill Road
Beacon Falls, Connecticut 06403

Ms. Evelyn M. Sirowich
245 Rimmon Hill Road
Beacon Falls, Connecticut 06403

Mr. Jack B. Levine
11 White Birch Lane
Beacon Falls, Connecticut 06403

Southern New England Telephone Company — represented by:

Mr. Peter J. Tyrrell, Esq.
227 Church Street
New Haven, Connecticut 06506

Mr. Dennis Bialecki
96 West Road
Beacon Falls, Connecticut 06403

Brittany Woods Homeowner's Association

represented by:

Mr. Stephen P. Del Sole, Esq.
Del Sole & Del Sole
152 Temple Street
P.O. Box 405
New Haven, Connecticut 06502-0405

Ms. Barbara G. Schlein
Box 2993 Westville Station
New Haven, Connecticut 06515

Mr. & Mrs. Joseph T. Farrell, Jr.
334 Rimmon Hill Road
Beacon Falls, Connecticut 06403

Town of Beacon Falls

represented by:

The Honorable Leonard F. D'Amico
First Selectman
10 Maple Avenue
Beacon Falls, Connecticut 06403

West Rock Ridge Park Association

represented by:

Mr. William L. Doheny Jr., D.D.S.
President
220 Mountain Road
Hamden, Connecticut 06514

Department of Parks,
Recreation & Trees

represented by:

Mr. Robert G. Sheeley
Director
Parks, Recreation & Trees
P.O. Box 1416
New Haven, Connecticut 06506

Town of Wallingford

represented by:

William W. Dickinson, Jr.
Mayor
Municipal Building
350 Center Street
P.O. Box 427
Wallingford, Connecticut 06492

New Haven Sierra Club

represented by:

Ms. Laurie Klein
270 Edgewood Avenue
New Haven, Connecticut 06511

Peter M. Lerner
State Representative
8 Merritt Avenue
Woodbridge, Connecticut 06525

Carleton J. Benson
State Representative
161 Scott Road
Prospect, Connecticut 06712

Dr. Stephen Collins (service waived)
Vice Chairman
West Rock State Park
Advisory Council
Bethany, Connecticut

Mr. Louis Melillo (service wavied)
985 Wintergreen Avenue
Hamden, Connecticut

Mr. John McGeever (service waived)
339 Rimmon Hill
Beacon Falls, Connecticut 06403

Senator John Consoli (service waived)
51 Luke Hill Road
Bethany, Connecticut 06525

Representative George P. Bassing (service waived)
14 Oakwood Drive
Seymour, Connecticut 06483

Dr. George D. Whitney (service waived)
858 Oakwood Road
Orange, Connecticut

Mr. Steve Molnar (service waived)
205 West Road
Beacon Falls, Connecticut

Mr. James W. Grandy (service waived)
President
Hamden Land Conservation Trust
Hamden, Connecticut

Senator Richard S. Eaton (service waived)
269 Mulberry Point Road
Guilford, Connecticut 06437

Representative Robert M. Ward
719 Totoket Road
Northford, Connecticut 06472

Town of North Branford — represented by:

John Gesmonde, Esquire
3127 Whitney Avenue
Hamden, Connecticut 06518

Regina Smith
1887 Middletown Avenue
Northford, Connecticut 06472 — (service waived)

Richard A. Nizolek
The Restland Farm Corporation
Route 17
Northford, Connecticut 06472

Mary Liska
83 Reeds Gap Road
Northford, Connecticut 06472

Ben Bullard
50 Christmas Hill Road
Guilford, Connecticut 06437 — (service waived)

Roland Robichaud
31 Berncliff Drive
North Branford, Connecticut 06471 — (service waived)

Irene Flynn
1926 Middletown Avenue
Northford, Connecticut 06472 — (service waived)

Charles Pope
199 Donalds Road
Guilford, Connecticut 06437

Richard Abate
131 Manor Road
Guilford, Connecticut 06437 — (service waived)

City of Milford — represented by:

Mayor Alberta Jagoe
Alderman Maurice Condon
Alderman Frederick Lisman
City Hall
River Street
Milford, Connecticut 06460

Thomas Scelfo
81 Berncliff Drive
North Branford, Connecticut 06471 — (service waived)

Senator Thomas Scott (service waived)
22 Meyers Court
Milford, Connecticut 06460

Helen Moore (service waived)
385 Oronoque Road
Milford, Connecticut 06460

William Barberi (service waived)
298 Oronoque Road
Milford, Connecticut 06460

C E R T I F I C A T I O N

The undersigned members of the Connecticut Siting Council hereby certify that they have heard this case or read the record thereof, and that we voted as follows:

Dated at New Britain, Connecticut, this 14th day of April, 1986.

Council Members	Vote Cast
Gloria Dibble Pond Chairperson	Yes
Commissioner John Downey Designee: Commissioner Peter G. Boucher	Absent
Commissioner Stanley Pac Designee: Christopher Cooper	No
Owen L. Clark	Yes
Mortimer A. Gelston	Yes
James G. Horsfall	Yes
Pamela B. Katz	Yes
William H. Smith	No
Colin C. Tait	No

STATE OF CONNECTICUT)
: ss. New Britain, April 14, 1986
COUNTY OF HARTFORD)

I hereby certify that the foregoing is a true and correct copy of the decision and order issued by the Connecticut Siting Council, State of Connecticut.

ATTEST:

Christopher S. Wood

Christopher S. Wood, Executive Director
Connecticut Siting Council

PROJECT INFORMATION

SCOPE OF WORK:
- AT&T ANTENNAS: REPLACE (1) ANTENNA PER SECTOR, FOR A TOTAL (3) NEW ANTENNAS. (2) EXISTING ANTENNAS TO REMAIN PER SECTOR FOR 3 SECTORS, FOR A TOTAL OF (6) EXISTING ANTENNAS.
- AT&T RRUs: (1) NEW RRU PER SECTOR FOR A TOTAL OF (3) NEW RRUs. (1) NEW A2 MODULE PER SECTOR FOR (3) SECTORS, FOR A TOTAL OF (3) NEW A2 MODULES. (2) EXISTING RRU PER SECTOR TO REMAIN, FOR A TOTAL OF (6) EXISTING RRUs.
- AT&T SQUID: (1) EXISTING DC-6 SQUID TO REMAIN.

SITE ADDRESS:	131 MANOR ROAD GUILFORD, CT 06437
LATITUDE:	41.3300200 41° 19' 48.07"N
LONGITUDE:	-72.7218050 -72° 43' 18.498"W
USID:	61163
TOWER OWNER:	AT&T MOBILITY
TYPE OF SITE:	MONOPOLE/OUTDOOR EQUIPMENT
MONOPOLE HEIGHT:	150'-0"±
RAD CENTER:	137'-0"±
CURRENT USE:	UNMANNED WIRELESS TELECOMMUNICATIONS FACILITY
PROPOSED USE:	UNMANNED WIRELESS TELECOMMUNICATIONS FACILITY

DRAWING INDEX

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

APPROVALS

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

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

at&t MOBILITY

FA CODE: 10035042
SITE NUMBER: CT2030
SITE NAME: GUILFORD CENTRAL

VICINITY MAP

FROM ROCKY HILL, HEAD SOUTHWEST ON CONCRIB LN. TURN LEFT ONTO SOLO DR. TURN RIGHT ONTO GILBERT AVE. TURN RIGHT ONTO STATE HWY 411. TURN LEFT TO MERGE ONTO I-91 S. TAKE EXIT 22S TO MERGE ONTO CT-9S. TAKE EXIT 13 FOR STATE ROUTE 17 S. SLIGHT LEFT ONTO CT-77 S/GUILFORD RD. TURN RIGHT ONTO CT-80 W. TURN LEFT ONTO LONG HILL RD. TURN RIGHT ONTO HAHN RD. TURN LEFT ONTO MANOR RD. SITE WILL BE ON RIGHT.

PROJECT TEAM

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

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

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

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

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

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

GENERAL NOTES

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY, AND COPYRIGHTED WORK OF AT&T. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.
2. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE AT&T REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

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

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

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

EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01821

SITE NUMBER: CT2030
SITE NAME: GUILFORD CENTRAL
131 MANOR ROAD
GUILFORD, CT 06437
NEW HAVEN COUNTY

at&t MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	02/17/16	ISSUED AS FINAL	KCD	NDB	NDB

SCALE: AS SHOWN | DESIGNED BY: JW | DRAWN BY: JW

SEAL: STATE OF CONNECTICUT, DOUGLAS D. BELL, LICENSED PROFESSIONAL ENGINEER, CT PROFESSIONAL ENGINEER NO. 28643

AT&T

DRAWING TITLE: TITLE SHEET

JOB NUMBER	DRAWING NUMBER	REV
16001-EMP	T-1	0

GROUNDING NOTES:

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.

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

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

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

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

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

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

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

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

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

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

12. GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G., NON-METALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.

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

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

GENERAL NOTES:

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

2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR (EMPIRE TELECOM).

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

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

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

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

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

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

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

10. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OFF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

11. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

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

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

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

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

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

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

18. SINCE THE CELL SITE MAY BE ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE REQUIRED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

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

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

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

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

23. INFORMATION SHOWN ON THIS SET OF PLANS TAKEN FROM DRAWINGS PREPARED BY CENTEK FOR A RECENT UPGRADE DATED 11/21/2012. CONTRACTOR TO NOTIFY DESIGN ENGINEER OF ANY DISCREPANCIES PRIOR TO COMMENCEMENT OF CONSTRUCTION.

COM-EX Consultants
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PHONE: 862.209.4300
FAX: 862.209.4301

EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01821

SITE NUMBER: CT2030
SITE NAME: GUILFORD CENTRAL
131 MANOR ROAD
GUILFORD, CT 06437
NEW HAVEN COUNTY

at&t MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	02/17/16	ISSUED AS FINAL	KCD	NDB	NDB

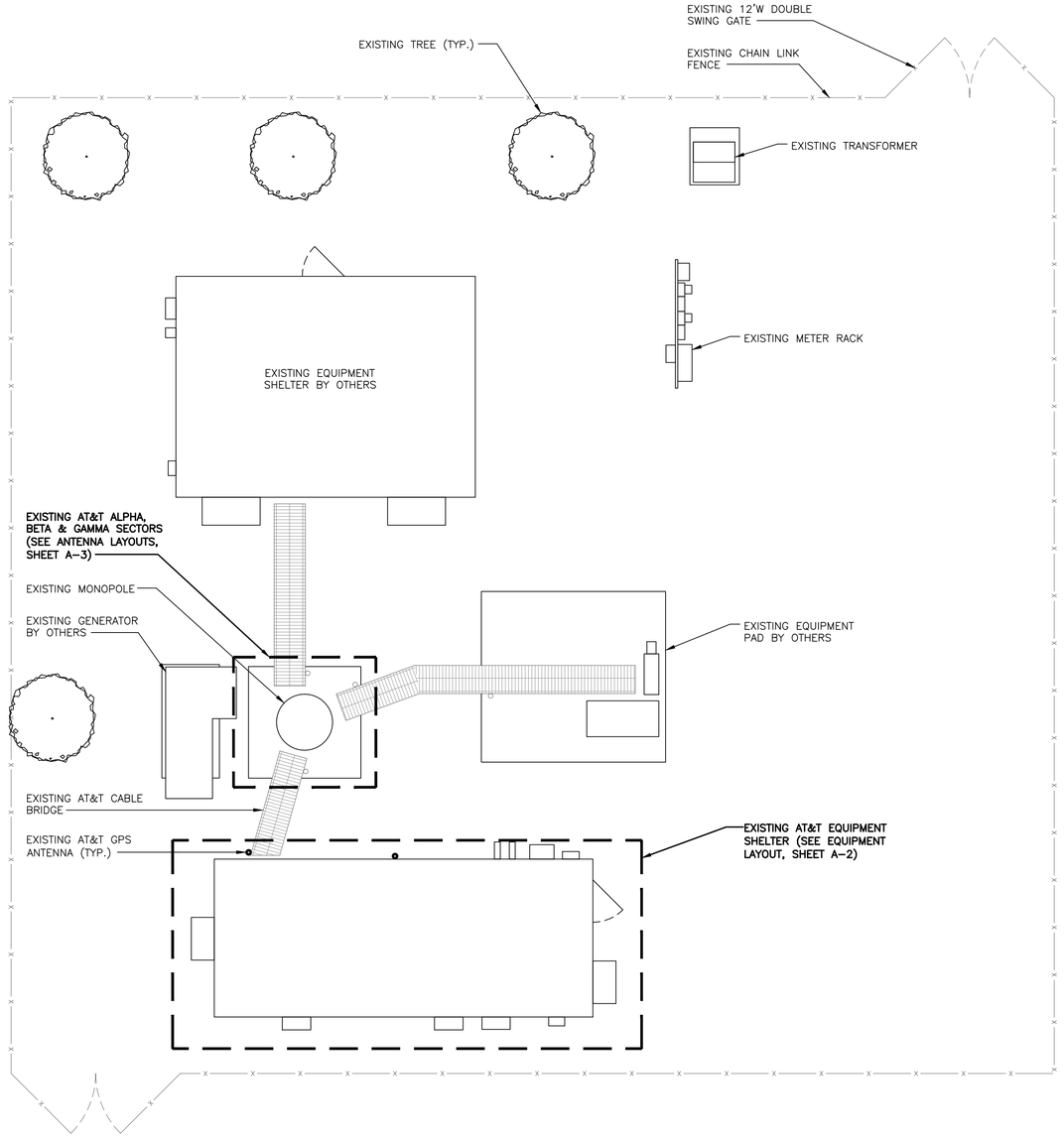
SCALE: AS SHOWN | DESIGNED BY: JW | DRAWN BY: JW

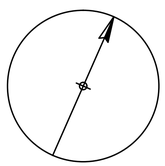
SEAL:
STATE OF CONNECTICUT
DOUGLAS G. BALL
REGISTERED
PROFESSIONAL ENGINEER
PRELIMINARY
PROFESSIONAL ENGINEER
CT LICENSE NO. 23643

AT&T

DRAWING TITLE:
GROUNDING & GENERAL NOTES

JOB NUMBER	DRAWING NUMBER	REV
16001-EMP	GN-1	0





NORTH

COMPOUND LAYOUT

SCALE: 3/16" = 1'-0"

0 2'-8" 5'-4" 10'-8"

GRAPHIC SCALE: 3/16"=1'-0"

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

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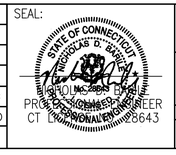
SCALE: AS SHOWN | DESIGNED BY: JW | DRAWN BY: JW

SEAL:



PROFESSIONAL ENGINEER
CT LICENSE NO. 28643

AT&T

DRAWING TITLE:
COMPOUND LAYOUT

JOB NUMBER	DRAWING NUMBER	REV
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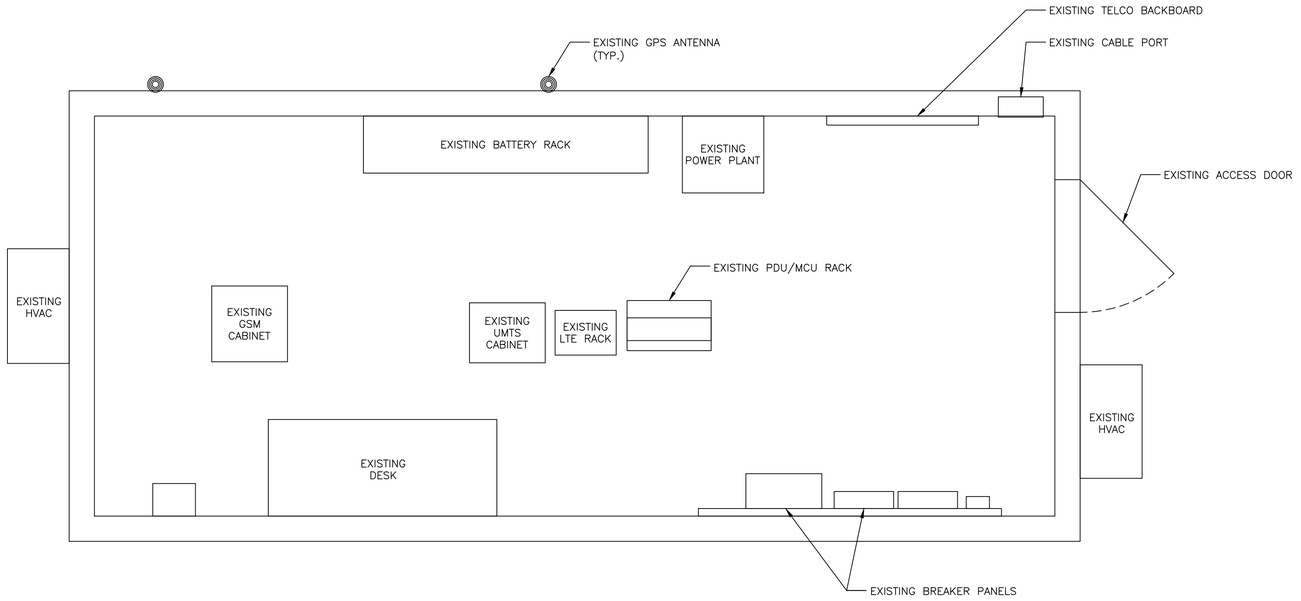
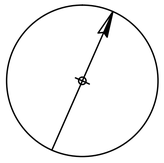


EXISTING EQUIPMENT LAYOUT

SCALE: N.T.S.



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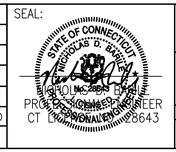
SCALE: AS SHOWN | DESIGNED BY: JW | DRAWN BY: JW

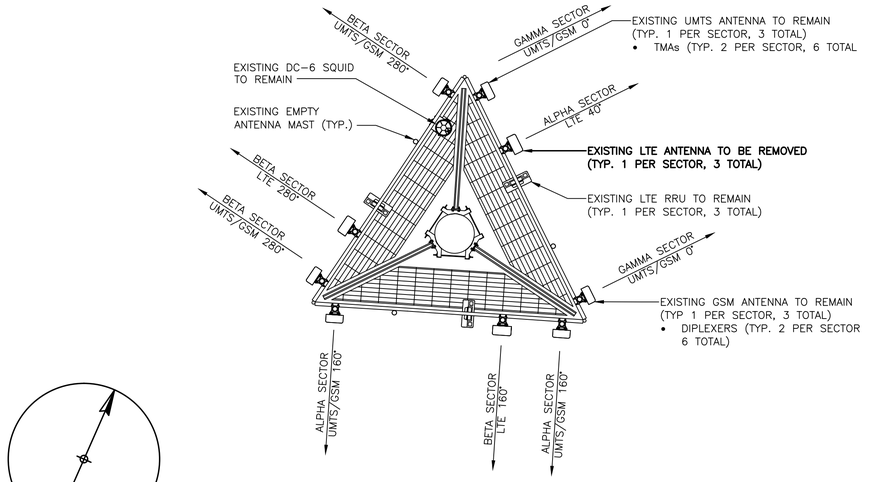
SEAL:



AT&T

DRAWING TITLE:
EQUIPMENT LAYOUT

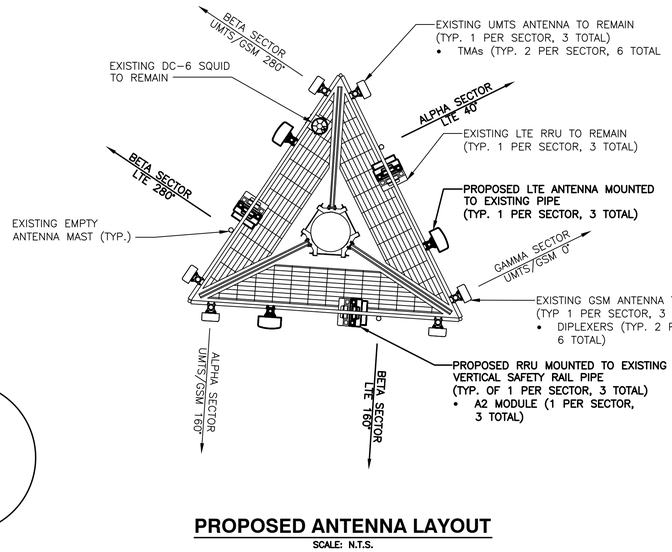
JOB NUMBER	DRAWING NUMBER	REV
16001-EMP	A-2	0



NORTH

EXISTING ANTENNA LAYOUT

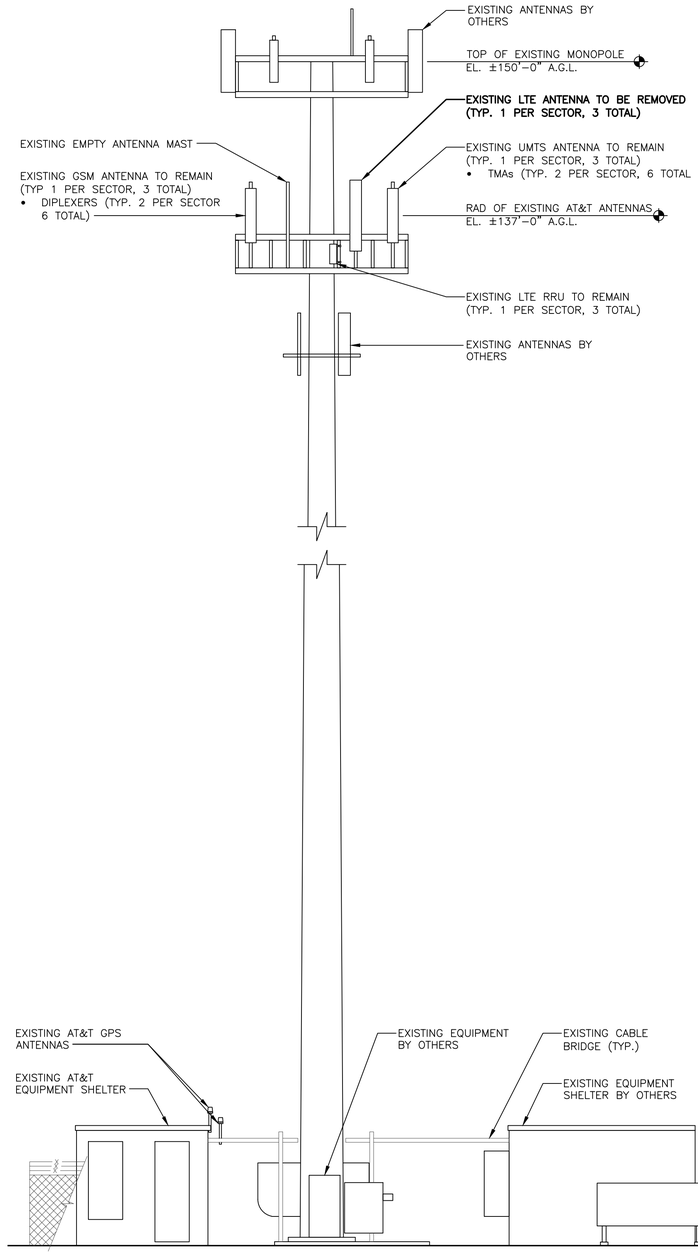
SCALE: N.T.S.



NORTH

PROPOSED ANTENNA LAYOUT

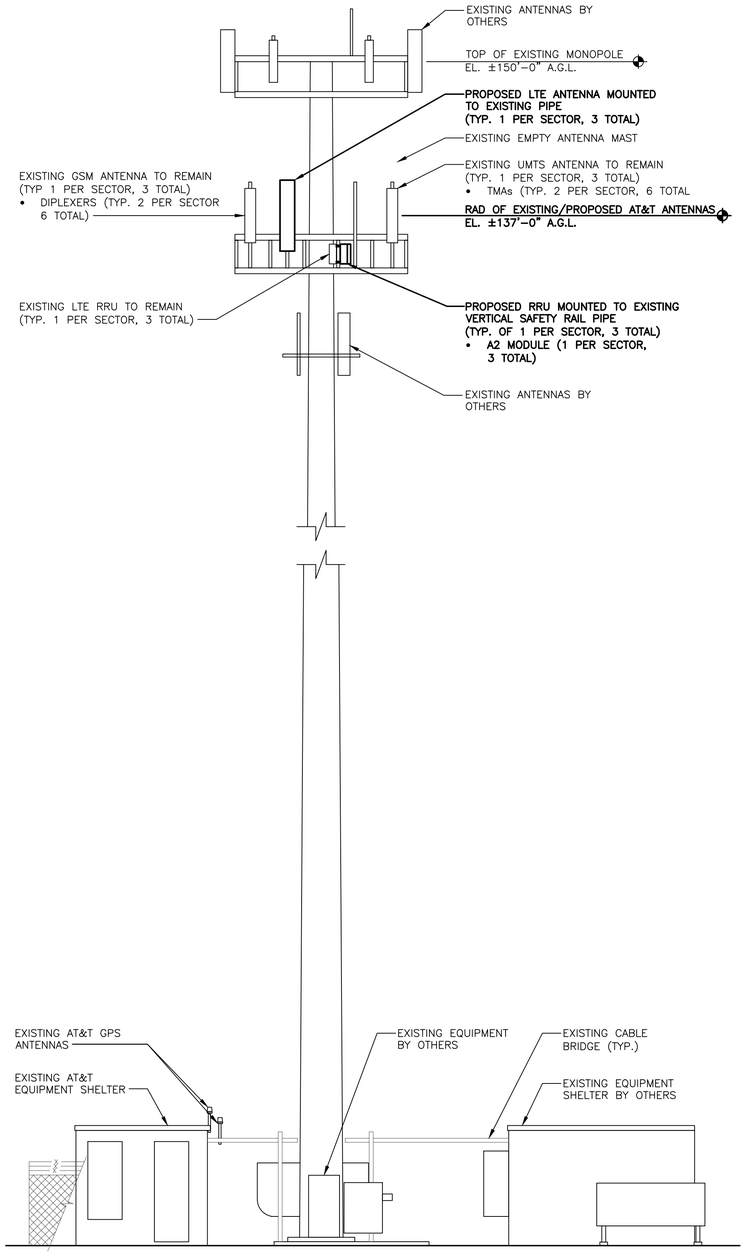
SCALE: N.T.S.



EXISTING 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.



PROPOSED TOWER ELEVATION

SCALE: NTS

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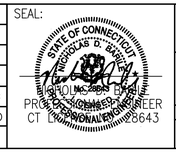
SCALE: AS SHOWN | DESIGNED BY: JW | DRAWN BY: JW

SEAL:

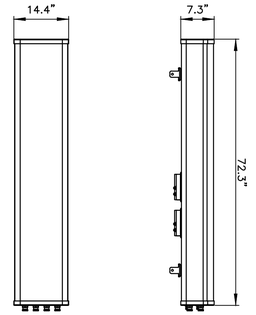


PROFESSIONAL ENGINEER
CT LICENSE NO. 28643

AT&T

DRAWING TITLE:
ANTENNA LAYOUTS & ELEVATIONS

JOB NUMBER	DRAWING NUMBER	REV
16001-EMP	A-3	0

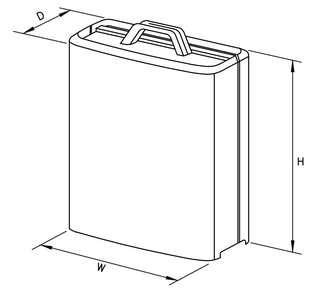


FRONT VIEW SIDE VIEW

BOTTOM VIEW

MANUFACTURER	CCI
MODEL	HPA-65R-BUU-H6
WEIGHT	42.9 LBS

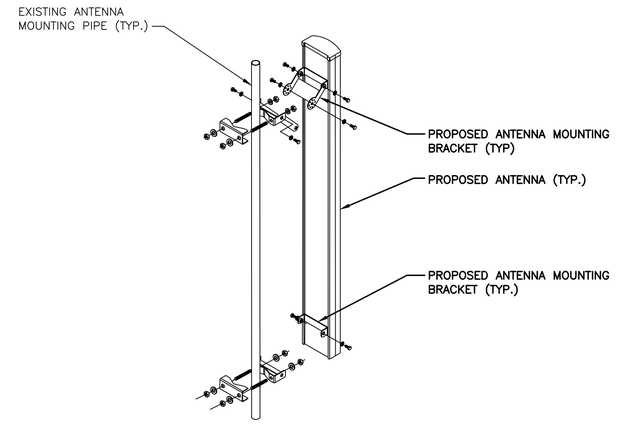
LTE ANTENNA DETAIL
SCALE: N.T.S.



MODEL	H x W x D	WEIGHT
*RRUS-11	19.69" x 16.97" x 7.17"	50.7 LBS
RRUS-12	20.4"x18.5"x7.5"	58 LBS
A2 MODULE	16.4" x 15.2" x 3.4"	22 LBS

*DENOTES EXISTING.

RRUS DETAIL
SCALE: N.T.S.



ANTENNA AND RRU MOUNTING DETAIL
SCALE: N.T.S.

EXISTING ANTENNA SCHEDULE

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

FINAL ANTENNA SCHEDULE

SECTOR	POSITION	MAKE	MODEL	SIZE (INCHES)
ALPHA	A1	POWERWAVE	7770	55"x11"x5"
	A2	**CCI**	**HPA-65R-BUU-H6**	**72.3"x14.4"x7.3"**
	A3	–	–	–
	A4	POWERWAVE	7770	55"x11"x5"
BETA	B1	POWERWAVE	7770	55"x11"x5"
	B2	**CCI**	**HPA-65R-BUU-H6**	**72.3"x14.4"x7.3"**
	B3	–	–	–
	B4	POWERWAVE	7770	55"x11"x5"
GAMMA	G1	POWERWAVE	7770	55"x11"x5"
	G2	**CCI**	**HPA-65R-BUU-H6**	**72.3"x14.4"x7.3"**
	G3	–	–	–
	G4	POWERWAVE	7770	55"x11"x5"

PROPOSED RRU SCHEDULE

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

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

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NO.	DATE	REVISIONS	BY	CHK	APP'D
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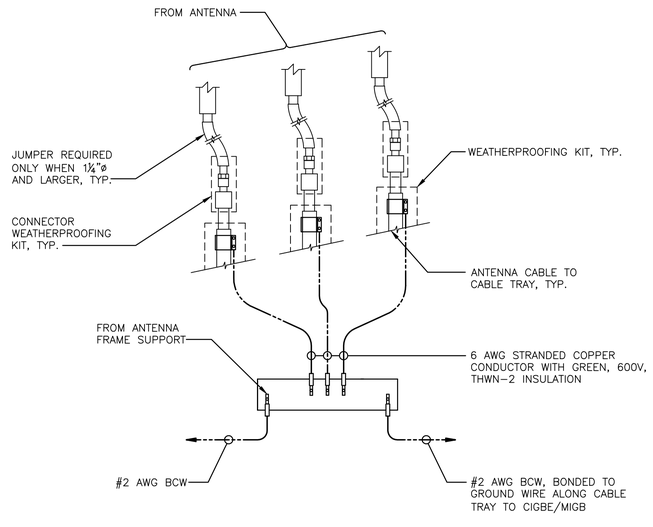
SCALE: AS SHOWN | DESIGNED BY: JW | DRAWN BY: JW

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

AT&T

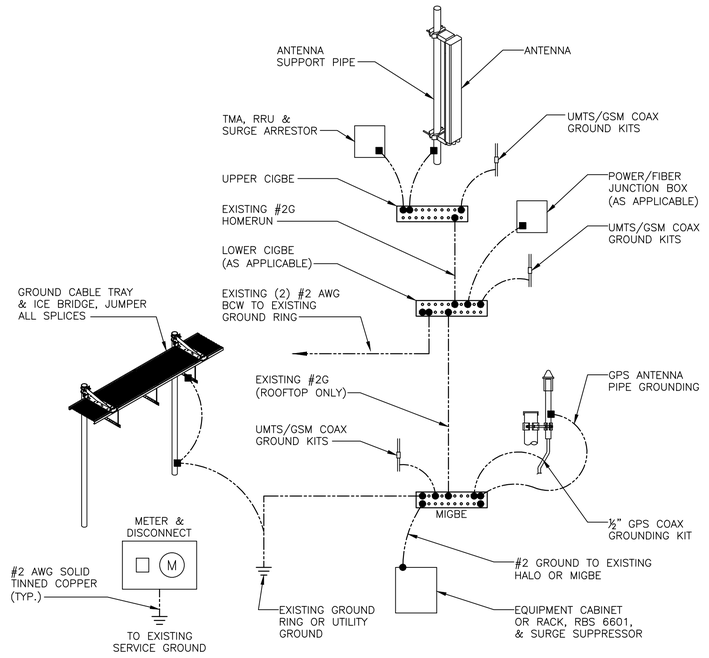
DRAWING TITLE:
DETAILS

JOB NUMBER	DRAWING NUMBER	REV
16001-EMP	A-4	0



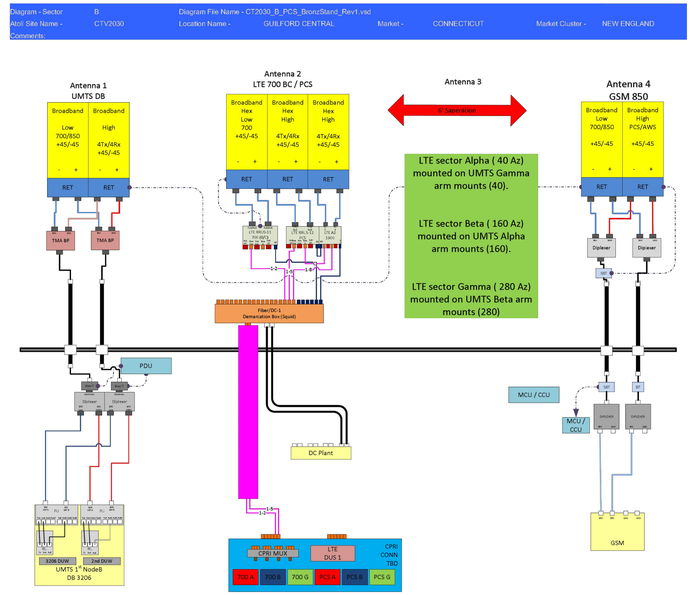
GROUND WIRE TO GROUND BAR CONNECTION DETAIL

SCALE: N.T.S.



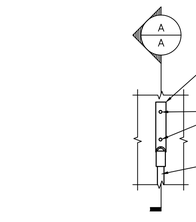
GROUNDING RISER DIAGRAM

SCALE: N.T.S.

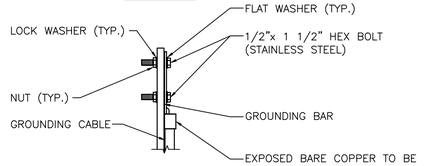


TYPICAL PLUMBING DIAGRAM (PER SECTOR)

SCALE: N.T.S.



ELEVATION



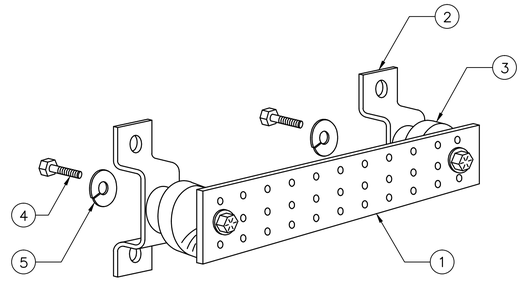
SECTION "A–A"

NOTE:

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

TYPICAL GROUND BAR CONNECTION DETAIL

SCALE: N.T.S.



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

NOTES:

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

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

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

GROUND BAR DETAIL

SCALE: N.T.S.

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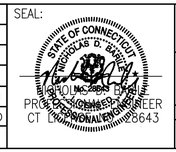

AT&T

DRAWING TITLE: GROUNDING, ONE-LINE DIAGRAM & DETAILS

JOB NUMBER	DRAWING NUMBER	REV
16001-EMP	G-1	0

PJF PAUL J. FORD & COMPANY

Date: **December 23, 2015**

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

Paul J Ford and Company
250 E. Broad Street, Suite 600
Columbus, OH 43215
614.221.6679

Subject: **Structural Analysis Report**

Carrier Designation:	***AT&T Mobility* Co-Locate**	
	Carrier Site Number:	CT2030
	Carrier Site Name:	Guilford Central
Crown Castle Designation:	**Crown Castle BU Number:**	806361
	Crown Castle Site Name:	NHV 102 943127
	Crown Castle JDE Job Number:	360004
	Crown Castle Work Order Number:	1168271
	Crown Castle Application Number:	326006 Rev. 1
Engineering Firm Designation:	**Paul J Ford and Company Project Number:**	37515-0830.005.7805 (Revised)
Site Data:	**131 Manor Rd, GUILFORD, New Haven County, CT** **Latitude *41° 19' 48.09"*, Longitude *-72° 43' 18.51"*** **150 Foot - Monopole Tower**	

Dear Marianne Dunst,

Paul J Ford and Company 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 856445, in accordance with application 326006, revision 1.

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

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

The 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 and the 2005 Connecticut Building Code with 2009 Amendment 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.

We at *Paul J Ford and Company* 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:

Kyle Thorpe, E.I.
Structural Designer

STATE OF CONNECTICUT
JUSTIN T. KLINE
No. 30301
LICENSED
PROFESSIONAL ENGINEER

12-23-15

PJF PAUL J. FORD & COMPANY

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Respectfully submitted by:

Kyle Thorpe, E.I.
Structural Designer

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 150 ft Monopole tower designed by VALMONT in August of 1986. The tower was originally designed for a wind speed of 20 mph per EIA-222-C. 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 and the 2005 Connecticut Building Code with 2009 Amendment 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
132.0	137.0	3	cci antennas	HPA-65R-BUU-H6 w/ Mount Pipe	-	-	1
		3	ericsson	RRUS12/RRUS A2			

Notes:
1) Proposed Equipment

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
147.0	150.0	3	antel	BXA-171085-12BF-2 w/ Mount Pipe	-	-	3
		6	alcatel lucent	RRH2x60-AWS	1 (E)	1-5/8	2
		6	commscope	HBXX-6517DS-A2M w/ Mount Pipe			
		1	rfs celwave	DB-T1-6Z-8AB-0Z			
		3	antel	BXA-70063-6CF-2 w/ Mount Pipe	1 (I) 12 (I)	1/2 7/8	1
		6	antel	LPA-80063/6CFx5 w/ Mount Pipe			
		6	rfs celwave	FD9R6004/2C-3L			
	147.0	1	lucent	KS24019-L112A			
		1	tower mounts	Platform Mount [LP 713-1]			
132.0	137.0	3	kmw communications	AM-X-CD-16-65-00T-RET w/ Mount Pipe	-	-	3
		6	powerwave technologies	7770.00 w/ Mount Pipe	1 (I) 2 (I) 12 (I)	3/8 3/4 1-1/4	1
	132.0	3	ericsson	RRUS-11			
		6	powerwave technologies	LGP21401			
		6	powerwave technologies	LGP21903			
		1	raycap	DC6-48-60-18-8F			
		1	tower mounts	Platform Mount [LP 713-1]			
126.0	128.0	6	ericsson	KRY 112 71	6 (I)	1-5/8	2
		3	rfs celwave	APX16DWV-16DWV-S-E-ACU w/ Mount Pipe			
	126.0	1	tower mounts	Side Arm Mount [SO 101-3]	6 (I)	1-5/8	1
	125.0	6	remec	S20057A-1	1 (I)	5/16	3
		3	rfs celwave	APXV18-206516S-C-ACU w/ Mount Pipe			

Notes:
1) Existing Equipment
2) Reserved Equipment
3) Equipment to be Removed
(E) Coax mounted externally and exposed to the wind. See coax layout in Appendix B.
(I) Coax mounted internally and shielded from the wind. See coax layout in Appendix B.

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Dr. Clarence Welti, 10/02/02	780506	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Valmont, 1983-14, 10/86	217669	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Valmont, 10565-86, 08/13/86	217668	CCISITES
4-TOWER STRUCTURAL ANALYSIS REPORTS	PJF, 37601-0022, 3/8/2001	812778	CCISITES
4-POST-MODIFICATION INSPECTION	Vertical Solutions, 06240.01, 09/12/06	2045675	CCISITES
4-POST-MODIFICATION INSPECTION	PJF, 37511-1727, 02/10/12	3099221	CCISITES
4-POST-MODIFICATION INSPECTION	TEP, 127277, 10/2/12	3335575	CCISITES
4-POST-MODIFICATION INSPECTION	TEP, 25593, 9/24/2013	4037923	CCISITES
4-POST-MODIFICATION INSPECTION	TEP, 25593.31879, 08/04/2015	5823375	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) Anchor rod bolt circle is 50.62 inches.
5) The installed base plate stiffeners were ignored in this analysis.
6) Monopole was reinforced in conformance with the referenced modification drawings.

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	150 - 133.83	Pole	TP19.0315x16x0.1875	1	-2.23	591.46	66.9	Pass
L2	133.83 - 123.5	Pole	TP20.9682x19.0315x0.422	2	-5.95	1059.49	76.4	Pass
L3	123.5 - 118.75	Pole	TP21.8587x20.9682x0.7535	3	-6.89	1945.69	52.0	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L4	118.75 - 95.167	Pole	TP26.28x21.8587x0.6518	4	-10.69	1992.30	82.0	Pass
L5	95.167 - 93.75	Pole	TP26.1715x24.1641x0.7755	5	-12.49	2381.70	76.6	Pass
L6	93.75 - 92.75	Pole	TP26.3591x26.1715x0.9049	6	-13.11	2704.88	70.2	Pass
L7	92.75 - 92	Pole	TP26.4998x26.3591x1.1119	7	-13.37	3315.86	58.9	Pass
L8	92 - 86.5	Pole	TP27.5317x26.4998x0.7925	8	-14.81	2491.96	82.9	Pass
L9	86.5 - 85.75	Pole	TP27.6724x27.5317x1.1823	9	-15.10	3681.12	58.3	Pass
L10	85.75 - 68.0833	Pole	TP30.9868x27.6724x0.7796	10	-20.08	2921.26	87.7	Pass
L11	68.0833 - 66.75	Pole	TP31.237x30.9868x0.8295	11	-20.50	3425.29	76.0	Pass
L12	66.75 - 63.25	Pole	TP31.8936x31.237x1.0345	12	-21.84	4302.11	63.4	Pass
L13	63.25 - 62.75	Pole	TP31.9874x31.8936x1.2477	13	-22.07	4688.77	59.3	Pass
L14	62.75 - 56.25	Pole	TP33.2069x31.9874x0.8881	14	-24.32	3514.99	81.9	Pass
L15	56.25 - 44.667	Pole	TP35.38x33.2069x0.8131	15	-26.42	3714.54	81.2	Pass
L16	44.667 - 35.5	Pole	TP36.4734x32.7534x0.8462	16	-29.84	3840.23	85.2	Pass
L17	35.5 - 34.25	Pole	TP36.7078x36.4734x0.8425	17	-33.62	4119.70	83.8	Pass
L18	34.25 - 33.25	Pole	TP36.8953x36.7078x1.0917	18	-34.09	5333.87	66.0	Pass
L19	33.25 - 26.25	Pole	TP38.2079x36.8953x0.7663	19	-36.57	3918.53	92.2	Pass
L20	26.25 - 25.25	Pole	TP38.3954x38.2079x1.0944	20	-37.06	5574.94	66.4	Pass
L21	25.25 - 12.25	Pole	TP40.833x38.3954x0.8201	21	-42.19	4487.38	87.5	Pass
L22	12.25 - 9.25	Pole	TP41.3955x40.833x0.7657	22	-43.35	4469.04	89.0	Pass
L23	9.25 - 3	Pole	TP42.5675x41.3955x0.7648	23	-45.81	4552.11	90.1	Pass
L24	3 - 0	Pole	TP43.13x42.5675x0.828	24	-47.10	4663.30	89.6	Pass
							Summary	
						Pole (L19)	92.2	Pass
						RATING =	92.2	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	93.7	Pass
1	Base Plate	0	87.4	Pass
1	Base Foundation Structural Steel	0	78.5	Pass
1	Base Foundation Soil Interaction	0	30.1	Pass

Structure Rating (max from all components) =	93.7%

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

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 New Haven 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 56.00 pcf.
A wind speed of 38 mph is used in combination with ice.
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	150.0000-133.8300	16.1700	0.00	12	16.0000	19.0315	0.1875	0.7500	A572-65 (65 ksi)
L2	133.8300-123.5000	10.3300	0.00	12	19.0315	20.9682	0.4220	1.6879	Reinf 47.45 ksi (47 ksi)
L3	123.5000-118.7500	4.7500	0.00	12	20.9682	21.8587	0.7535	3.0138	Reinf 47.51 ksi (48 ksi)
L4	118.7500-95.1670	23.5830	4.33	12	21.8587	26.2800	0.6518	2.6070	Reinf 47.83 ksi (48 ksi)
L5	95.1670-93.7500	5.7500	0.00	12	24.1641	26.1715	0.7755	3.1020	Reinf 47.89 ksi (48 ksi)
L6	93.7500-92.7500	1.0000	0.00	12	26.1715	26.3591	0.9049	3.6195	Reinf 45.60 ksi (46 ksi)
L7	92.7500-92.0000	0.7500	0.00	12	26.3591	26.4998	1.1119	4.4477	Reinf 45.61 ksi (46 ksi)
L8	92.0000-	5.5000	0.00	12	26.4998	27.5316	0.7925	3.1702	Reinf 45.66 ksi

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
	86.5000								(46 ksi)
L9	86.5000-85.7500	0.7500	0.00	12	27.5316	27.6724	1.1823	4.7290	Reinf 45.64 ksi (46 ksi)
L10	85.7500-68.0833	17.6667	0.00	12	27.6724	30.9868	0.7795	3.1182	Reinf 48.17 ksi (48 ksi)
L11	68.0833-66.7500	1.3333	0.00	12	30.9868	31.2370	0.8295	3.3180	Reinf 52.73 ksi (53 ksi)
L12	66.7500-63.2500	3.5000	0.00	12	31.2370	31.8936	1.0345	4.1378	Reinf 52.33 ksi (52 ksi)
L13	63.2500-62.7500	0.5000	0.00	12	31.8936	31.9874	1.2477	4.9907	Reinf 47.47 ksi (47 ksi)
L14	62.7500-56.2500	6.5000	0.00	12	31.9874	33.2069	0.8881	3.5526	Reinf 47.55 ksi (48 ksi)
L15	56.2500-44.6670	11.5830	5.33	12	33.2069	35.3800	0.8131	3.2522	Reinf 52.85 ksi (53 ksi)
L16	44.6670-35.5000	14.5000	0.00	12	32.7534	36.4734	0.8461	3.3846	Reinf 52.96 ksi (53 ksi)
L17	35.5000-34.2500	1.2500	0.00	12	36.4734	36.7078	0.8425	3.3700	Reinf 52.94 ksi (53 ksi)
L18	34.2500-33.2500	1.0000	0.00	12	36.7078	36.8953	1.0917	4.3666	Reinf 52.99 ksi (53 ksi)
L19	33.2500-26.2500	7.0000	0.00	12	36.8953	38.2079	0.7663	3.0653	Reinf 53.03 ksi (53 ksi)
L20	26.2500-25.2500	1.0000	0.00	12	38.2079	38.3954	1.0944	4.3774	Reinf 53.03 ksi (53 ksi)
L21	25.2500-12.2500	13.0000	0.00	12	38.3954	40.8330	0.8201	3.2804	Reinf 53.10 ksi (53 ksi)
L22	12.2500-9.2500	3.0000	0.00	12	40.8330	41.3955	0.7657	3.0628	Reinf 55.78 ksi (56 ksi)
L23	9.2500-3.0000	6.2500	0.00	12	41.3955	42.5675	0.7648	3.0590	Reinf 55.29 ksi (55 ksi)
L24	3.0000-0.0000	3.0000		12	42.5675	43.1300	0.8279	3.3118	Reinf 51.70 ksi (52 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	16.5644	9.5468	304.6805	5.6609	8.2880	36.7616	617.3654	4.6986	3.7855	20.189
	19.7029	11.3771	515.6604	6.7462	9.8583	52.3071	1044.8677	5.5995	4.5979	24.522
L2	19.7029	25.2862	1117.7395	6.6622	9.8583	113.3802	2264.8433	12.4451	3.9695	9.407
	21.7079	27.9177	1504.2784	7.3555	10.8615	138.4962	3048.0759	13.7402	4.4886	10.637
L3	21.7079	49.0438	2558.0275	7.2369	10.8615	235.5129	5183.2573	24.1378	3.6002	4.778
	22.6298	51.2043	2911.2058	7.5557	11.3228	257.1099	5898.8922	25.2012	3.8389	5.095
L4	22.6298	44.5063	2554.8391	7.5921	11.3228	225.6366	5176.7966	21.9047	4.1114	6.308
	27.2071	53.7851	4509.0585	9.1749	13.6130	331.2308	9136.5750	26.4714	5.2963	8.126
L5	26.5826	58.4040	4077.9132	8.3731	12.5170	325.7895	8262.9577	28.7447	4.3976	5.671
	27.0947	63.4165	5220.5714	9.0918	13.5568	385.0882	10578.2930	31.2117	4.9356	6.364
L6	27.0947	73.6188	5998.8559	9.0454	13.5568	442.4972	12155.3083	36.2329	4.5889	5.071
	27.2889	74.1655	6133.4790	9.1126	13.6540	449.2074	12428.0912	36.5020	4.6392	5.127
L7	27.2889	90.3945	7354.4968	9.0385	13.6540	538.6330	14902.2043	44.4894	4.0843	3.673
	27.4346	90.8983	7478.1498	9.0889	13.7269	544.7810	15152.7589	44.7374	4.1220	3.707
L8	27.4346	65.6044	5533.8818	9.2032	13.7269	403.1417	11213.1448	32.2885	4.9779	6.281
	28.5029	68.2376	6227.3583	9.5726	14.2614	436.6584	12618.3163	33.5845	5.2545	6.63
L9	28.5029	100.3089	8889.2785	9.4331	14.2614	623.3106	18012.0883	49.3690	4.2100	3.561
	28.6485	100.8446	9032.4509	9.4835	14.3343	630.1293	18302.1944	49.6326	4.2477	3.593

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
L10	28.6485	67.5050	6231.5251	9.6276	14.3343	434.7288	12626.7593	33.2239	5.3270	6.833
	32.0799	75.8248	8831.2191	10.8142	16.0512	550.1913	17894.4442	37.3187	6.2153	7.973
L11	32.0799	80.5509	9350.6474	10.7963	16.0512	582.5521	18946.9467	39.6447	6.0814	7.331
	32.3389	81.2190	9585.2691	10.8859	16.1808	592.3870	19422.3538	39.9735	6.1484	7.412
L12	32.3389	100.6025	11713.3548	10.8125	16.1808	723.9065	23734.4325	49.5135	5.5992	5.413
	33.0187	102.7897	12494.0733	11.0476	16.5209	756.2589	25316.3798	50.5900	5.7752	5.583
L13	33.0187	123.1210	14759.2360	10.9712	16.5209	893.3678	29906.2135	60.5964	5.2037	4.171
	33.1158	123.4978	14895.1748	11.0048	16.5695	898.9523	30181.6625	60.7819	5.2288	4.191
L14	33.1158	88.9381	10979.2900	11.1335	16.5695	662.6211	22247.0181	43.7726	6.1924	6.972
	34.3783	92.4255	12322.1735	11.5701	17.2012	716.3565	24968.0643	45.4890	6.5192	7.34
L15	34.3783	84.8078	11359.1746	11.5970	17.2012	660.3720	23016.7674	41.7398	6.7205	8.266
	36.6281	90.4970	13802.0075	12.3750	18.3268	753.1035	27966.6092	44.5399	7.3029	8.982
L16	35.3253	86.9345	11296.8167	11.4228	16.9662	665.8407	22890.4133	42.7865	6.5102	7.694
	37.7600	97.0701	15726.6450	12.7546	18.8932	832.3962	31866.4465	47.7750	7.5072	8.872
L17	37.7600	96.6613	15663.6189	12.7559	18.8932	829.0603	31738.7385	47.5737	7.5170	8.922
	38.0027	97.2971	15974.7624	12.8398	19.0146	840.1301	32369.1997	47.8867	7.5798	8.997
L18	38.0027	125.1947	20270.5450	12.7506	19.0146	1066.0499	41073.6197	61.6170	6.9121	6.332
	38.1968	125.8538	20592.3915	12.8177	19.1118	1077.4723	41725.7680	61.9414	6.9623	6.378
L19	38.1968	89.1501	14853.1554	12.9342	19.1118	777.1736	30096.5196	43.8769	7.8342	10.223
	39.5557	92.3889	16531.5316	13.4041	19.7917	835.2772	33497.3650	45.4710	8.1860	10.682
L20	39.5557	130.7820	22993.1128	13.2866	19.7917	1161.7570	46590.2803	64.3669	7.3068	6.677
	39.7498	131.4428	23343.3836	13.3538	19.8888	1173.6948	47300.0239	64.6921	7.3571	6.723
L21	39.7498	99.2247	17881.7498	13.4520	19.8888	899.0863	36233.2731	48.8354	8.0921	9.867
	42.2734	105.6617	21592.5408	14.3246	21.1515	1020.8518	43752.3418	52.0035	8.7454	10.664
L22	42.2734	98.7868	20242.5563	14.3441	21.1515	957.0273	41016.9071	48.6199	8.8912	11.612
	42.8558	100.1738	21107.1761	14.5455	21.4429	984.3441	42768.8612	49.3025	9.0420	11.809
L23	42.8558	100.0544	21082.9872	14.5458	21.4429	983.2160	42719.8479	49.2437	9.0444	11.827
	44.0691	102.9403	22960.4449	14.9654	22.0499	1041.2924	46524.0862	50.6641	9.3585	12.237
L24	44.0691	111.2775	24745.0470	14.9427	22.0499	1122.2269	50140.1740	54.7674	9.1892	11.099
	44.6515	112.7772	25759.0697	15.1441	22.3413	1152.9778	52194.8589	55.5055	9.3399	11.281

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 150.0000-133.8300				1	1	1		
L2 133.8300-				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
123.5000								
L3 123.5000-118.7500				1	1	1		
L4 118.7500-95.1670				1	1	1		
L5 95.1670-93.7500				1	1	1		
L6 93.7500-92.7500				1	1	1		
L7 92.7500-92.0000				1	1	1		
L8 92.0000-86.5000				1	1	1		
L9 86.5000-85.7500				1	1	1		
L10 85.7500-68.0833				1	1	1		
L11 68.0833-66.7500				1	1	1		
L12 66.7500-63.2500				1	1	1		
L13 63.2500-62.7500				1	1	1		
L14 62.7500-56.2500				1	1	1		
L15 56.2500-44.6670				1	1	1		
L16 44.6670-35.5000				1	1	1		
L17 35.5000-34.2500				1	1	1		
L18 34.2500-33.2500				1	1	1		
L19 33.2500-26.2500				1	1	1		
L20 26.2500-25.2500				1	1	1		
L21 25.2500-12.2500				1	1	1		
L22 12.2500-9.2500				1	1	1		
L23 9.2500-3.0000				1	1	1		
L24 3.0000-0.0000				1	1	1		

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
***								
HB158-1-08U8-S8J18(1-5/8)	C	No	CaAa (Out Of Face)	147.0000 - 0.0000	1	No Ice	0.1980	1.30
						1/2" Ice	0.2980	2.81
						1" Ice	0.3980	4.94
						2" Ice	0.5980	11.02
						4" Ice	0.9980	30.52
LDF4-50A(1/2")	C	No	Inside Pole	147.0000 - 0.0000	1	No Ice	0.0000	0.15
						1/2" Ice	0.0000	0.15
						1" Ice	0.0000	0.15
						2" Ice	0.0000	0.15
						4" Ice	0.0000	0.15
LDF5-50A(7/8")	C	No	Inside Pole	147.0000 - 0.0000	12	No Ice	0.0000	0.33

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
						1/2" Ice	0.0000	0.33
						1" Ice	0.0000	0.33
						2" Ice	0.0000	0.33
						4" Ice	0.0000	0.33
***								
FB-L98B-002-75000(3/8")	C	No	Inside Pole	132.0000 - 0.0000	1	No Ice	0.0000	0.06
						1/2" Ice	0.0000	0.06
						1" Ice	0.0000	0.06
						2" Ice	0.0000	0.06
						4" Ice	0.0000	0.06
WR-VG86ST-BRD(3/4)	C	No	Inside Pole	132.0000 - 0.0000	2	No Ice	0.0000	0.59
						1/2" Ice	0.0000	0.59
						1" Ice	0.0000	0.59
						2" Ice	0.0000	0.59
						4" Ice	0.0000	0.59
LCF114-50J(1-1/4")	C	No	Inside Pole	132.0000 - 0.0000	12	No Ice	0.0000	0.70
						1/2" Ice	0.0000	0.70
						1" Ice	0.0000	0.70
						2" Ice	0.0000	0.70
						4" Ice	0.0000	0.70
***								
LDF7-50A(1-5/8")	C	No	Inside Pole	126.0000 - 0.0000	6	No Ice	0.0000	0.82
						1/2" Ice	0.0000	0.82
						1" Ice	0.0000	0.82
						2" Ice	0.0000	0.82
						4" Ice	0.0000	0.82
LCF158-50J-P7(1 5/8")	C	No	Inside Pole	126.0000 - 0.0000	6	No Ice	0.0000	0.85
						1/2" Ice	0.0000	0.85
						1" Ice	0.0000	0.85
						2" Ice	0.0000	0.85
						4" Ice	0.0000	0.85
***								
1 1/4" Flat Reinforcement	C	No	CaAa (Out Of Face)	125.0000 - 0.0000	1	No Ice	0.2083	0.00
						1/2" Ice	0.3194	0.00
						1" Ice	0.4306	0.00
						2" Ice	0.6528	0.00
						4" Ice	1.0972	0.00
1 1/4" Flat Reinforcement	C	No	CaAa (Out Of Face)	37.2500 - 22.2500	1	No Ice	0.2083	0.00
						1/2" Ice	0.3194	0.00
						1" Ice	0.4306	0.00
						2" Ice	0.6528	0.00
						4" Ice	1.0972	0.00
1" Flat Reinforcement	C	No	CaAa (Out Of Face)	22.2500 - 0.0000	1	No Ice	0.1667	0.00
						1/2" Ice	0.2778	0.00
						1" Ice	0.3889	0.00
						2" Ice	0.6111	0.00
						4" Ice	1.0556	0.00
1" Flat Reinforcement	C	No	CaAa (Out Of Face)	135.0000 - 37.2500	1	No Ice	0.1667	0.00
						1/2" Ice	0.2778	0.00
						1" Ice	0.3889	0.00
						2" Ice	0.6111	0.00
						4" Ice	1.0556	0.00

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) HBXX-6517DS-A2M w/ Mount Pipe	A	From Leg	4.0000 0.00 3.00	0.0000	147.0000	No Ice	8.9758	6.9629	0.07
						1/2" Ice	9.6473	8.1817	0.14
						1" Ice	10.2909	9.1436	0.21
						2" Ice	11.5946	11.0219	0.40
						4" Ice	14.3212	15.0267	0.91

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
						4" Ice			
(2) HBXX-6517DS-A2M w/ Mount Pipe	B	From Leg	4.0000 0.00 3.00	0.0000	147.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.9758 9.6473 10.2909 11.5946 14.3212	6.9629 8.1817 9.1436 11.0219 15.0267	0.07 0.14 0.21 0.40 0.91
(2) HBXX-6517DS-A2M w/ Mount Pipe	C	From Leg	4.0000 0.00 3.00	0.0000	147.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.9758 9.6473 10.2909 11.5946 14.3212	6.9629 8.1817 9.1436 11.0219 15.0267	0.07 0.14 0.21 0.40 0.91
(2) RRH2x60-AWS	A	From Leg	4.0000 0.00 3.00	0.0000	147.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.1904 2.3976 2.6134 3.0710 4.0899	1.4290 1.6109 1.8015 2.2085 3.1263	0.04 0.06 0.08 0.13 0.26
(2) RRH2x60-AWS	B	From Leg	4.0000 0.00 3.00	0.0000	147.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.1904 2.3976 2.6134 3.0710 4.0899	1.4290 1.6109 1.8015 2.2085 3.1263	0.04 0.06 0.08 0.13 0.26
(2) RRH2x60-AWS	C	From Leg	4.0000 0.00 3.00	0.0000	147.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.1904 2.3976 2.6134 3.0710 4.0899	1.4290 1.6109 1.8015 2.2085 3.1263	0.04 0.06 0.08 0.13 0.26
DB-T1-6Z-8AB-0Z	C	From Leg	4.0000 0.00 3.00	0.0000	147.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.6000 5.9154 6.2395 6.9136 8.3654	2.3333 2.5580 2.7914 3.2840 4.3728	0.04 0.08 0.12 0.21 0.45
BXA-70063-6CF-2 w/ Mount Pipe	A	From Leg	4.0000 0.00 3.00	0.0000	147.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.9686 8.6091 9.2158 10.4591 13.0655	5.8008 6.9529 7.8191 9.6015 13.3662	0.04 0.10 0.17 0.34 0.80
BXA-70063-6CF-2 w/ Mount Pipe	B	From Leg	4.0000 0.00 3.00	0.0000	147.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.9686 8.6091 9.2158 10.4591 13.0655	5.8008 6.9529 7.8191 9.6015 13.3662	0.04 0.10 0.17 0.34 0.80
BXA-70063-6CF-2 w/ Mount Pipe	C	From Leg	4.0000 0.00 3.00	0.0000	147.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.9686 8.6091 9.2158 10.4591 13.0655	5.8008 6.9529 7.8191 9.6015 13.3662	0.04 0.10 0.17 0.34 0.80
(2) LPA-80063/6CFx5 w/ Mount Pipe	A	From Leg	4.0000 0.00 3.00	0.0000	147.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	10.5451 11.2089 11.8391 13.1295 15.8301	10.6455 11.9061 12.8841 14.8937 19.1279	0.05 0.14 0.25 0.48 1.09
(2) LPA-80063/6CFx5 w/ Mount Pipe	B	From Leg	4.0000 0.00 3.00	0.0000	147.0000	No Ice 1/2" Ice 1" Ice	10.5451 11.2089 11.8391 13.1295	10.6455 11.9061 12.8841 14.8937	0.05 0.14 0.25 0.48

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" Ice 4" Ice	15.8301	19.1279	1.09
(2) LPA-80063/6CFx5 w/ Mount Pipe	C	From Leg	4.0000 0.00 3.00	0.0000	147.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	10.5451 11.2089 11.8391 13.1295 15.8301	10.6455 11.9061 12.8841 14.8937 19.1279	0.05 0.14 0.25 0.48 1.09
(2) FD9R6004/2C-3L	A	From Leg	4.0000 0.00 3.00	0.0000	147.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.3665 0.4506 0.5433 0.7546 1.2808	0.0846 0.1362 0.1965 0.3430 0.7396	0.00 0.01 0.01 0.02 0.06
(2) FD9R6004/2C-3L	B	From Leg	4.0000 0.00 3.00	0.0000	147.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.3665 0.4506 0.5433 0.7546 1.2808	0.0846 0.1362 0.1965 0.3430 0.7396	0.00 0.01 0.01 0.02 0.06
(2) FD9R6004/2C-3L	C	From Leg	4.0000 0.00 3.00	0.0000	147.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.3665 0.4506 0.5433 0.7546 1.2808	0.0846 0.1362 0.1965 0.3430 0.7396	0.00 0.01 0.01 0.02 0.06
KS24019-L112A	A	From Leg	4.0000 0.00 0.00	0.0000	147.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.1556 0.2247 0.3025 0.4840 0.9506	0.1556 0.2247 0.3025 0.4840 0.9506	0.01 0.01 0.01 0.02 0.06
Platform Mount [LP 713-1]	C	None		0.0000	147.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	31.2700 39.6800 48.0900 64.9100 98.5500	31.2700 39.6800 48.0900 64.9100 98.5500	1.51 1.93 2.35 3.19 4.86
***									
HPA-65R-BUU-H6 w/ Mount Pipe	A	From Leg	4.0000 0.00 5.00	0.0000	132.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	10.5975 11.2684 11.9061 13.2089 15.9341	8.1125 9.3041 10.2095 12.1748 16.3544	0.08 0.16 0.25 0.46 1.02
HPA-65R-BUU-H6 w/ Mount Pipe	B	From Leg	4.0000 0.00 5.00	0.0000	132.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	10.5975 11.2684 11.9061 13.2089 15.9341	8.1125 9.3041 10.2095 12.1748 16.3544	0.08 0.16 0.25 0.46 1.02
HPA-65R-BUU-H6 w/ Mount Pipe	C	From Leg	4.0000 0.00 5.00	0.0000	132.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	10.5975 11.2684 11.9061 13.2089 15.9341	8.1125 9.3041 10.2095 12.1748 16.3544	0.08 0.16 0.25 0.46 1.02
RRUS12/RRUS A2	A	From Leg	4.0000 0.00 5.00	0.0000	132.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.6674 3.9238 4.1888 4.7448 5.9604	2.1410 2.3474 2.5625 3.0187 4.0348	0.07 0.10 0.13 0.20 0.40
RRUS12/RRUS A2	B	From Leg	4.0000 0.00	0.0000	132.0000	No Ice 1/2"	3.6674 3.9238	2.1410 2.3474	0.07 0.10

Description	*Face or Leg*	*Offset Type*	*Offsets: Horz Lateral Vert* ft ft ft	*Azimuth Adjustment* °	*Placement* ft		*C_AA_A Front* ft^2	*C_AA_A Side* ft^2	*Weight* K
			5.00			Ice	4.1888	2.5625	0.13
						1" Ice	4.7448	3.0187	0.20
						2" Ice	5.9604	4.0348	0.40
						4" Ice			
RRUS12/RRUS A2	C	From Leg	4.0000	0.0000	132.0000	No Ice	3.6674	2.1410	0.07
			0.00			1/2"	3.9238	2.3474	0.10
			5.00			Ice	4.1888	2.5625	0.13
						1" Ice	4.7448	3.0187	0.20
						2" Ice	5.9604	4.0348	0.40
						4" Ice			
(2) 7770.00 w/ Mount Pipe	A	From Leg	4.0000	0.0000	132.0000	No Ice	6.2208	4.8204	0.09
			0.00			1/2"	6.7144	5.5082	0.14
			5.00			Ice	7.2182	6.2127	0.21
						1" Ice	8.2568	7.6716	0.36
						2" Ice	10.4762	11.0613	0.76
						4" Ice			
(2) 7770.00 w/ Mount Pipe	B	From Leg	4.0000	0.0000	132.0000	No Ice	6.2208	4.8204	0.09
			0.00			1/2"	6.7144	5.5082	0.14
			5.00			Ice	7.2182	6.2127	0.21
						1" Ice	8.2568	7.6716	0.36
						2" Ice	10.4762	11.0613	0.76
						4" Ice			
(2) 7770.00 w/ Mount Pipe	C	From Leg	4.0000	0.0000	132.0000	No Ice	6.2208	4.8204	0.09
			0.00			1/2"	6.7144	5.5082	0.14
			5.00			Ice	7.2182	6.2127	0.21
						1" Ice	8.2568	7.6716	0.36
						2" Ice	10.4762	11.0613	0.76
						4" Ice			
(2) LGP21401	A	From Leg	4.0000	0.0000	132.0000	No Ice	1.2880	0.3640	0.01
			0.00			1/2"	1.4453	0.4785	0.02
			0.00			Ice	1.6112	0.6017	0.03
						1" Ice	1.9690	0.8739	0.05
						2" Ice	2.7882	1.5220	0.14
						4" Ice			
(2) LGP21401	B	From Leg	4.0000	0.0000	132.0000	No Ice	1.2880	0.3640	0.01
			0.00			1/2"	1.4453	0.4785	0.02
			0.00			Ice	1.6112	0.6017	0.03
						1" Ice	1.9690	0.8739	0.05
						2" Ice	2.7882	1.5220	0.14
						4" Ice			
(2) LGP21401	C	From Leg	4.0000	0.0000	132.0000	No Ice	1.2880	0.3640	0.01
			0.00			1/2"	1.4453	0.4785	0.02
			0.00			Ice	1.6112	0.6017	0.03
						1" Ice	1.9690	0.8739	0.05
						2" Ice	2.7882	1.5220	0.14
						4" Ice			
RRUS-11	A	From Leg	4.0000	0.0000	132.0000	No Ice	3.2486	1.3726	0.05
			0.00			1/2"	3.4905	1.5510	0.07
			0.00			Ice	3.7411	1.7380	0.09
						1" Ice	4.2682	2.1381	0.15
						2" Ice	5.4260	3.0418	0.31
						4" Ice			
RRUS-11	B	From Leg	4.0000	0.0000	132.0000	No Ice	3.2486	1.3726	0.05
			0.00			1/2"	3.4905	1.5510	0.07
			0.00			Ice	3.7411	1.7380	0.09
						1" Ice	4.2682	2.1381	0.15
						2" Ice	5.4260	3.0418	0.31
						4" Ice			
RRUS-11	C	From Leg	4.0000	0.0000	132.0000	No Ice	3.2486	1.3726	0.05
			0.00			1/2"	3.4905	1.5510	0.07
			0.00			Ice	3.7411	1.7380	0.09
						1" Ice	4.2682	2.1381	0.15
						2" Ice	5.4260	3.0418	0.31
						4" Ice			
DC6-48-60-18-8F	A	From Leg	4.0000	0.0000	132.0000	No Ice	1.4667	1.4667	0.02

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
			0.00				1/2" Ice	1.6667	1.6667	0.04
			0.00				1" Ice	1.8778	1.8778	0.06
							2" Ice	2.3333	2.3333	0.11
							4" Ice	3.3778	3.3778	0.24
(2) LGP21903	A	From Leg	4.0000		0.0000	132.0000	No Ice	0.2695	0.1838	0.01
			0.00				1/2" Ice	0.3432	0.2483	0.01
			0.00				1" Ice	0.4255	0.3216	0.02
							2" Ice	0.6160	0.4940	0.03
							4" Ice	1.1009	0.9425	0.07
(2) LGP21903	B	From Leg	4.0000		0.0000	132.0000	No Ice	0.2695	0.1838	0.01
			0.00				1/2" Ice	0.3432	0.2483	0.01
			0.00				1" Ice	0.4255	0.3216	0.02
							2" Ice	0.6160	0.4940	0.03
							4" Ice	1.1009	0.9425	0.07
(2) LGP21903	C	From Leg	4.0000		0.0000	132.0000	No Ice	0.2695	0.1838	0.01
			0.00				1/2" Ice	0.3432	0.2483	0.01
			0.00				1" Ice	0.4255	0.3216	0.02
							2" Ice	0.6160	0.4940	0.03
							4" Ice	1.1009	0.9425	0.07
Platform Mount [LP 713-1]	C	None			0.0000	132.0000	No Ice	31.2700	31.2700	1.51
							1/2" Ice	39.6800	39.6800	1.93
							1" Ice	48.0900	48.0900	2.35
							2" Ice	64.9100	64.9100	3.19
							4" Ice	98.5500	98.5500	4.86
***										
APX16DWV-16DWV-S-E-ACU w/ Mount Pipe	A	From Leg	4.0000		0.0000	126.0000	No Ice	6.9361	3.2893	0.06
			0.00				1/2" Ice	7.4389	3.9953	0.11
			2.00				1" Ice	7.9415	4.6615	0.16
							2" Ice	8.9779	6.0439	0.28
							4" Ice	11.1750	9.0230	0.65
APX16DWV-16DWV-S-E-ACU w/ Mount Pipe	B	From Leg	4.0000		0.0000	126.0000	No Ice	6.9361	3.2893	0.06
			0.00				1/2" Ice	7.4389	3.9953	0.11
			2.00				1" Ice	7.9415	4.6615	0.16
							2" Ice	8.9779	6.0439	0.28
							4" Ice	11.1750	9.0230	0.65
APX16DWV-16DWV-S-E-ACU w/ Mount Pipe	C	From Leg	4.0000		0.0000	126.0000	No Ice	6.9361	3.2893	0.06
			0.00				1/2" Ice	7.4389	3.9953	0.11
			2.00				1" Ice	7.9415	4.6615	0.16
							2" Ice	8.9779	6.0439	0.28
							4" Ice	11.1750	9.0230	0.65
(2) KRY 112 71	A	From Leg	4.0000		0.0000	126.0000	No Ice	0.6806	0.4497	0.01
			0.00				1/2" Ice	0.8022	0.5590	0.02
			2.00				1" Ice	0.9325	0.6769	0.03
							2" Ice	1.2190	0.9388	0.04
							4" Ice	1.8956	1.5662	0.11
(2) KRY 112 71	B	From Leg	4.0000		0.0000	126.0000	No Ice	0.6806	0.4497	0.01
			0.00				1/2" Ice	0.8022	0.5590	0.02
			2.00				1" Ice	0.9325	0.6769	0.03
							2" Ice	1.2190	0.9388	0.04
							4" Ice	1.8956	1.5662	0.11
(2) KRY 112 71	C	From Leg	4.0000		0.0000	126.0000	No Ice	0.6806	0.4497	0.01
			0.00				1/2" Ice	0.8022	0.5590	0.02
			2.00				1" Ice	0.9325	0.6769	0.03
							2" Ice	1.2190	0.9388	0.04
								1.8956	1.5662	0.11

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
Side Arm Mount [SO 101-3]	C	None		0.0000	126.0000	4" Ice			
						No Ice	7.5000	7.5000	0.25
						1/2" Ice	8.9000	8.9000	0.33
						1" Ice	10.3000	10.3000	0.41
						2" Ice	13.1000	13.1000	0.58
						4" Ice	18.7000	18.7000	0.90
******									

Tower Pressures - No Ice

G_H = 1.690

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft^2	Face	A_F ft^2	A_R ft^2	A_{leg} ft^2	Leg %	C_AA_A In Face ft^2	C_AA_A Out Face ft^2
L1 150.0000-133.8300	141.6818	1.516	28	23.602	A	0.000	23.602	23.602	100.00	0.000	0.000
					B	0.000	23.602		100.00	0.000	0.000
					C	0.000	23.602		100.00	0.000	2.803
L2 133.8300-123.5000	128.5816	1.475	27	17.217	A	0.000	17.217	17.217	100.00	0.000	0.000
					B	0.000	17.217		100.00	0.000	0.000
					C	0.000	17.217		100.00	0.000	4.080
L3 123.5000-118.7500	121.1085	1.45	27	8.476	A	0.000	8.476	8.476	100.00	0.000	0.000
					B	0.000	8.476		100.00	0.000	0.000
					C	0.000	8.476		100.00	0.000	2.722
L4 118.7500-95.1670	106.5975	1.398	26	47.302	A	0.000	47.302	47.302	100.00	0.000	0.000
					B	0.000	47.302		100.00	0.000	0.000
					C	0.000	47.302		100.00	0.000	13.513
L5 95.1670-93.7500	94.4562	1.35	25	3.061	A	0.000	3.061	3.061	100.00	0.000	0.000
					B	0.000	3.061		100.00	0.000	0.000
					C	0.000	3.061		100.00	0.000	0.812
L6 93.7500-92.7500	93.2494	1.346	25	2.189	A	0.000	2.189	2.189	100.00	0.000	0.000
					B	0.000	2.189		100.00	0.000	0.000
					C	0.000	2.189		100.00	0.000	0.573
L7 92.7500-92.0000	92.3747	1.342	25	1.652	A	0.000	1.652	1.652	100.00	0.000	0.000
					B	0.000	1.652		100.00	0.000	0.000
					C	0.000	1.652		100.00	0.000	0.430
L8 92.0000-86.5000	89.2325	1.329	25	12.382	A	0.000	12.382	12.382	100.00	0.000	0.000
					B	0.000	12.382		100.00	0.000	0.000
					C	0.000	12.382		100.00	0.000	3.152
L9 86.5000-85.7500	86.1247	1.315	24	1.725	A	0.000	1.725	1.725	100.00	0.000	0.000
					B	0.000	1.725		100.00	0.000	0.000
					C	0.000	1.725		100.00	0.000	0.430
L10 85.7500-68.0833	76.7503	1.273	24	43.180	A	0.000	43.180	43.180	100.00	0.000	0.000
					B	0.000	43.180		100.00	0.000	0.000
					C	0.000	43.180		100.00	0.000	10.123
L11 68.0833-66.7500	67.4158	1.226	23	3.457	A	0.000	3.457	3.457	100.00	0.000	0.000
					B	0.000	3.457		100.00	0.000	0.000
					C	0.000	3.457		100.00	0.000	0.764
L12 66.7500-63.2500	64.9939	1.214	22	9.207	A	0.000	9.207	9.207	100.00	0.000	0.000
					B	0.000	9.207		100.00	0.000	0.000
					C	0.000	9.207		100.00	0.000	2.006
L13 63.2500-62.7500	62.9999	1.203	22	1.331	A	0.000	1.331	1.331	100.00	0.000	0.000
					B	0.000	1.331		100.00	0.000	0.000
					C	0.000	1.331		100.00	0.000	0.286
L14 62.7500-56.2500	59.4797	1.183	22	17.657	A	0.000	17.657	17.657	100.00	0.000	0.000
					B	0.000	17.657		100.00	0.000	0.000
					C	0.000	17.657		100.00	0.000	3.724

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L15 56.2500-44.6670	50.3973	1.129	21	33.102	A	0.000	33.102	33.102	100.00	0.000	0.000
					B	0.000	33.102		100.00	0.000	0.000
					C	0.000	33.102		100.00	0.000	6.637
L16 44.6670-35.5000	40.0326	1.057	20	26.964	A	0.000	26.964	26.964	100.00	0.000	0.000
					B	0.000	26.964		100.00	0.000	0.000
					C	0.000	26.964		100.00	0.000	5.326
L17 35.5000-34.2500	34.8743	1.016	19	3.812	A	0.000	3.812	3.812	100.00	0.000	0.000
					B	0.000	3.812		100.00	0.000	0.000
					C	0.000	3.812		100.00	0.000	0.768
L18 34.2500-33.2500	33.7496	1.006	19	3.067	A	0.000	3.067	3.067	100.00	0.000	0.000
					B	0.000	3.067		100.00	0.000	0.000
					C	0.000	3.067		100.00	0.000	0.615
L19 33.2500-26.2500	29.7296	1	18	21.905	A	0.000	21.905	21.905	100.00	0.000	0.000
					B	0.000	21.905		100.00	0.000	0.000
					C	0.000	21.905		100.00	0.000	4.303
L20 26.2500-25.2500	25.7496	1	18	3.192	A	0.000	3.192	3.192	100.00	0.000	0.000
					B	0.000	3.192		100.00	0.000	0.000
					C	0.000	3.192		100.00	0.000	0.615
L21 25.2500-12.2500	18.6833	1	18	42.915	A	0.000	42.915	42.915	100.00	0.000	0.000
					B	0.000	42.915		100.00	0.000	0.000
					C	0.000	42.915		100.00	0.000	7.574
L22 12.2500-9.2500	10.7466	1	18	10.279	A	0.000	10.279	10.279	100.00	0.000	0.000
					B	0.000	10.279		100.00	0.000	0.000
					C	0.000	10.279		100.00	0.000	1.719
L23 9.2500-3.0000	6.1105	1	18	21.865	A	0.000	21.865	21.865	100.00	0.000	0.000
					B	0.000	21.865		100.00	0.000	0.000
					C	0.000	21.865		100.00	0.000	3.581
L24 3.0000-0.0000	1.4967	1	18	10.712	A	0.000	10.712	10.712	100.00	0.000	0.000
					B	0.000	10.712		100.00	0.000	0.000
					C	0.000	10.712		100.00	0.000	1.719

Tower Pressure - With Ice

G_H = 1.690

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1 150.0000-133.8300	141.6818	1.516	5	0.8933	26.010	A	0.000	26.010	26.010	100.00	0.000	0.000
						B	0.000	26.010		100.00	0.000	0.000
						C	0.000	26.010		100.00	0.000	5.388
L2 133.8300-123.5000	128.5816	1.475	5	0.8830	18.737	A	0.000	18.737	18.737	100.00	0.000	0.000
						B	0.000	18.737		100.00	0.000	0.000
						C	0.000	18.737		100.00	0.000	8.225
L3 123.5000-118.7500	121.1085	1.45	5	0.8766	9.170	A	0.000	9.170	9.170	100.00	0.000	0.000
						B	0.000	9.170		100.00	0.000	0.000
						C	0.000	9.170		100.00	0.000	5.405
L4 118.7500-95.1670	106.5975	1.398	5	0.8633	50.696	A	0.000	50.696	50.696	100.00	0.000	0.000
						B	0.000	50.696		100.00	0.000	0.000
						C	0.000	50.696		100.00	0.000	26.634
L5 95.1670-93.7500	94.4562	1.35	5	0.8509	3.265	A	0.000	3.265	3.265	100.00	0.000	0.000
						B	0.000	3.265		100.00	0.000	0.000
						C	0.000	3.265		100.00	0.000	1.600
L6 93.7500-92.7500	93.2494	1.346	5	0.8496	2.330	A	0.000	2.330	2.330	100.00	0.000	0.000
						B	0.000	2.330		100.00	0.000	0.000
						C	0.000	2.330		100.00	0.000	1.120
L7 92.7500-92.0000	92.3747	1.342	5	0.8486	1.758	A	0.000	1.758	1.758	100.00	0.000	0.000
						B	0.000	1.758		100.00	0.000	0.000
						C	0.000	1.758		100.00	0.000	0.840
L8 92.0000-86.5000	89.2325	1.329	5	0.8451	13.157	A	0.000	13.157	13.157	100.00	0.000	0.000
						B	0.000	13.157		100.00	0.000	0.000
						C	0.000	13.157		100.00	0.000	6.147
L9 86.5000-85.7500	86.1247	1.315	5	0.8415	1.830	A	0.000	1.830	1.830	100.00	0.000	0.000
						B	0.000	1.830		100.00	0.000	0.000

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
						C	0.000	1.830		100.00	0.000	0.836
L10 85.7500-68.0833	76.7503	1.273	5	0.8299	45.623	A	0.000	45.623	45.623	100.00	0.000	0.000
						B	0.000	45.623		100.00	0.000	0.000
						C	0.000	45.623		100.00	0.000	19.572
L11 68.0833-66.7500	67.4158	1.226	4	0.8171	3.638	A	0.000	3.638	3.638	100.00	0.000	0.000
						B	0.000	3.638		100.00	0.000	0.000
						C	0.000	3.638		100.00	0.000	1.466
L12 66.7500-63.2500	64.9939	1.214	4	0.8136	9.681	A	0.000	9.681	9.681	100.00	0.000	0.000
						B	0.000	9.681		100.00	0.000	0.000
						C	0.000	9.681		100.00	0.000	3.841
L13 63.2500-62.7500	62.9999	1.203	4	0.8105	1.398	A	0.000	1.398	1.398	100.00	0.000	0.000
						B	0.000	1.398		100.00	0.000	0.000
						C	0.000	1.398		100.00	0.000	0.548
L14 62.7500-56.2500	59.4797	1.183	4	0.8049	18.529	A	0.000	18.529	18.529	100.00	0.000	0.000
						B	0.000	18.529		100.00	0.000	0.000
						C	0.000	18.529		100.00	0.000	7.096
L15 56.2500-44.6670	50.3973	1.129	4	0.7891	34.625	A	0.000	34.625	34.625	100.00	0.000	0.000
						B	0.000	34.625		100.00	0.000	0.000
						C	0.000	34.625		100.00	0.000	12.527
L16 44.6670-35.5000	40.0326	1.057	4	0.7676	28.170	A	0.000	28.170	28.170	100.00	0.000	0.000
						B	0.000	28.170		100.00	0.000	0.000
						C	0.000	28.170		100.00	0.000	9.987
L17 35.5000-34.2500	34.8743	1.016	4	0.7550	3.969	A	0.000	3.969	3.969	100.00	0.000	0.000
						B	0.000	3.969		100.00	0.000	0.000
						C	0.000	3.969		100.00	0.000	1.377
L18 34.2500-33.2500	33.7496	1.006	4	0.7520	3.192	A	0.000	3.192	3.192	100.00	0.000	0.000
						B	0.000	3.192		100.00	0.000	0.000
						C	0.000	3.192		100.00	0.000	1.099
L19 33.2500-26.2500	29.7296	1	4	0.7500	22.780	A	0.000	22.780	22.780	100.00	0.000	0.000
						B	0.000	22.780		100.00	0.000	0.000
						C	0.000	22.780		100.00	0.000	7.686
L20 26.2500-25.2500	25.7496	1	4	0.7500	3.317	A	0.000	3.317	3.317	100.00	0.000	0.000
						B	0.000	3.317		100.00	0.000	0.000
						C	0.000	3.317		100.00	0.000	1.098
L21 25.2500-12.2500	18.6833	1	4	0.7500	44.540	A	0.000	44.540	44.540	100.00	0.000	0.000
						B	0.000	44.540		100.00	0.000	0.000
						C	0.000	44.540		100.00	0.000	13.857
L22 12.2500-9.2500	10.7466	1	4	0.7500	10.654	A	0.000	10.654	10.654	100.00	0.000	0.000
						B	0.000	10.654		100.00	0.000	0.000
						C	0.000	10.654		100.00	0.000	3.169
L23 9.2500-3.0000	6.1105	1	4	0.7500	22.647	A	0.000	22.647	22.647	100.00	0.000	0.000
						B	0.000	22.647		100.00	0.000	0.000
						C	0.000	22.647		100.00	0.000	6.602
L24 3.0000-0.0000	1.4967	1	4	0.7500	11.087	A	0.000	11.087	11.087	100.00	0.000	0.000
						B	0.000	11.087		100.00	0.000	0.000
						C	0.000	11.087		100.00	0.000	3.169

Tower Pressure - Service

G_H = 1.690

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1 150.0000-133.8300	141.6818	1.516	10	23.602	A	0.000	23.602	23.602	100.00	0.000	0.000
					B	0.000	23.602		100.00	0.000	0.000
					C	0.000	23.602		100.00	0.000	2.803
L2 133.8300-123.5000	128.5816	1.475	9	17.217	A	0.000	17.217	17.217	100.00	0.000	0.000
					B	0.000	17.217		100.00	0.000	0.000
					C	0.000	17.217		100.00	0.000	4.080
L3 123.5000-118.7500	121.1085	1.45	9	8.476	A	0.000	8.476	8.476	100.00	0.000	0.000
					B	0.000	8.476		100.00	0.000	0.000

Section Elevation	z	K_Z	q_z	A_G	Face	A_F	A_R	A_{leg}	Leg %	C_AA_A In Face	C_AA_A Out Face
ft	ft		psf	ft^2		ft^2	ft^2	ft^2		ft^2	ft^2
					C	0.000	8.476		100.00	0.000	2.722
L4 118.7500-95.1670	106.5975	1.398	9	47.302	A	0.000	47.302	47.302	100.00	0.000	0.000
					B	0.000	47.302		100.00	0.000	0.000
					C	0.000	47.302		100.00	0.000	13.513
L5 95.1670-93.7500	94.4562	1.35	9	3.061	A	0.000	3.061	3.061	100.00	0.000	0.000
					B	0.000	3.061		100.00	0.000	0.000
					C	0.000	3.061		100.00	0.000	0.812
L6 93.7500-92.7500	93.2494	1.346	9	2.189	A	0.000	2.189	2.189	100.00	0.000	0.000
					B	0.000	2.189		100.00	0.000	0.000
					C	0.000	2.189		100.00	0.000	0.573
L7 92.7500-92.0000	92.3747	1.342	9	1.652	A	0.000	1.652	1.652	100.00	0.000	0.000
					B	0.000	1.652		100.00	0.000	0.000
					C	0.000	1.652		100.00	0.000	0.430
L8 92.0000-86.5000	89.2325	1.329	9	12.382	A	0.000	12.382	12.382	100.00	0.000	0.000
					B	0.000	12.382		100.00	0.000	0.000
					C	0.000	12.382		100.00	0.000	3.152
L9 86.5000-85.7500	86.1247	1.315	8	1.725	A	0.000	1.725	1.725	100.00	0.000	0.000
					B	0.000	1.725		100.00	0.000	0.000
					C	0.000	1.725		100.00	0.000	0.430
L10 85.7500-68.0833	76.7503	1.273	8	43.180	A	0.000	43.180	43.180	100.00	0.000	0.000
					B	0.000	43.180		100.00	0.000	0.000
					C	0.000	43.180		100.00	0.000	10.123
L11 68.0833-66.7500	67.4158	1.226	8	3.457	A	0.000	3.457	3.457	100.00	0.000	0.000
					B	0.000	3.457		100.00	0.000	0.000
					C	0.000	3.457		100.00	0.000	0.764
L12 66.7500-63.2500	64.9939	1.214	8	9.207	A	0.000	9.207	9.207	100.00	0.000	0.000
					B	0.000	9.207		100.00	0.000	0.000
					C	0.000	9.207		100.00	0.000	2.006
L13 63.2500-62.7500	62.9999	1.203	8	1.331	A	0.000	1.331	1.331	100.00	0.000	0.000
					B	0.000	1.331		100.00	0.000	0.000
					C	0.000	1.331		100.00	0.000	0.286
L14 62.7500-56.2500	59.4797	1.183	8	17.657	A	0.000	17.657	17.657	100.00	0.000	0.000
					B	0.000	17.657		100.00	0.000	0.000
					C	0.000	17.657		100.00	0.000	3.724
L15 56.2500-44.6670	50.3973	1.129	7	33.102	A	0.000	33.102	33.102	100.00	0.000	0.000
					B	0.000	33.102		100.00	0.000	0.000
					C	0.000	33.102		100.00	0.000	6.637
L16 44.6670-35.5000	40.0326	1.057	7	26.964	A	0.000	26.964	26.964	100.00	0.000	0.000
					B	0.000	26.964		100.00	0.000	0.000
					C	0.000	26.964		100.00	0.000	5.326
L17 35.5000-34.2500	34.8743	1.016	7	3.812	A	0.000	3.812	3.812	100.00	0.000	0.000
					B	0.000	3.812		100.00	0.000	0.000
					C	0.000	3.812		100.00	0.000	0.768
L18 34.2500-33.2500	33.7496	1.006	6	3.067	A	0.000	3.067	3.067	100.00	0.000	0.000
					B	0.000	3.067		100.00	0.000	0.000
					C	0.000	3.067		100.00	0.000	0.615
L19 33.2500-26.2500	29.7296	1	6	21.905	A	0.000	21.905	21.905	100.00	0.000	0.000
					B	0.000	21.905		100.00	0.000	0.000
					C	0.000	21.905		100.00	0.000	4.303
L20 26.2500-25.2500	25.7496	1	6	3.192	A	0.000	3.192	3.192	100.00	0.000	0.000
					B	0.000	3.192		100.00	0.000	0.000
					C	0.000	3.192		100.00	0.000	0.615
L21 25.2500-12.2500	18.6833	1	6	42.915	A	0.000	42.915	42.915	100.00	0.000	0.000
					B	0.000	42.915		100.00	0.000	0.000
					C	0.000	42.915		100.00	0.000	7.574
L22 12.2500-9.2500	10.7466	1	6	10.279	A	0.000	10.279	10.279	100.00	0.000	0.000
					B	0.000	10.279		100.00	0.000	0.000
					C	0.000	10.279		100.00	0.000	1.719
L23 9.2500-3.0000	6.1105	1	6	21.865	A	0.000	21.865	21.865	100.00	0.000	0.000
					B	0.000	21.865		100.00	0.000	0.000
					C	0.000	21.865		100.00	0.000	3.581
L24 3.0000-0.0000	1.4967	1	6	10.712	A	0.000	10.712	10.712	100.00	0.000	0.000
					B	0.000	10.712		100.00	0.000	0.000
					C	0.000	10.712		100.00	0.000	1.719

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
15	Dead+Wind 0 deg+Ice
16	Dead+Wind 30 deg+Ice
17	Dead+Wind 60 deg+Ice
18	Dead+Wind 90 deg+Ice
19	Dead+Wind 120 deg+Ice
20	Dead+Wind 150 deg+Ice
21	Dead+Wind 180 deg+Ice
22	Dead+Wind 210 deg+Ice
23	Dead+Wind 240 deg+Ice
24	Dead+Wind 270 deg+Ice
25	Dead+Wind 300 deg+Ice
26	Dead+Wind 330 deg+Ice
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 - 133.83	Pole	Max Tension	24	0.00	-0.00	0.00
			Max. Compression	14	-6.91	0.50	-0.25
			Max. Mx	11	-2.23	149.86	-1.17
			Max. My	8	-2.25	1.26	-148.49
			Max. Vy	11	-10.26	149.86	-1.17
			Max. Vx	2	-10.18	-0.98	148.33
			Max. Torque	13			0.55
L2	133.83 - 123.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-14.29	0.53	-0.01
			Max. Mx	11	-5.96	330.74	-1.84
			Max. My	2	-5.97	-1.68	328.46
			Max. Vy	11	-18.26	330.74	-1.84
			Max. Vx	2	-18.17	-1.68	328.46
			Max. Torque	13			0.55
L3	123.5 - 118.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-15.35	0.55	-0.02
			Max. Mx	11	-6.90	418.82	-2.18
			Max. My	2	-6.91	-2.01	416.14

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	11	-18.84	418.82	-2.18
			Max. Vx	2	-18.76	-2.01	416.14
			Max. Torque	8			-0.56
L4	118.75 - 95.167	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-19.57	0.62	-0.07
			Max. Mx	11	-10.70	803.43	-3.55
			Max. My	8	-10.71	3.75	-799.15
			Max. Vy	11	-21.16	803.43	-3.55
			Max. Vx	2	-21.08	-3.34	799.15
			Max. Torque	8			-0.66
L5	95.167 - 93.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-21.99	0.64	-0.08
			Max. Mx	11	-12.82	927.52	-3.97
			Max. My	8	-12.84	4.17	-922.77
			Max. Vy	11	-21.98	927.52	-3.97
			Max. Vx	2	-21.90	-3.74	922.76
			Max. Torque	8			-0.70
L6	93.75 - 92.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-22.30	0.65	-0.08
			Max. Mx	11	-13.11	949.56	-4.04
			Max. My	8	-13.13	4.24	-944.73
			Max. Vy	11	-22.11	949.56	-4.04
			Max. Vx	2	-22.03	-3.81	944.72
			Max. Torque	8			-0.70
L7	92.75 - 92	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-22.57	0.65	-0.08
			Max. Mx	11	-13.37	966.18	-4.10
			Max. My	8	-13.38	4.30	-961.29
			Max. Vy	11	-22.21	966.18	-4.10
			Max. Vx	2	-22.13	-3.87	961.27
			Max. Torque	8			-0.71
L8	92 - 86.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-24.14	0.67	-0.10
			Max. Mx	11	-14.82	1090.20	-4.49
			Max. My	8	-14.83	4.70	-1084.85
			Max. Vy	11	-22.90	1090.20	-4.49
			Max. Vx	2	-22.82	-4.25	1084.82
			Max. Torque	8			-0.74
L9	86.5 - 85.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-24.44	0.68	-0.10
			Max. Mx	11	-15.10	1107.41	-4.55
			Max. My	8	-15.11	4.76	-1101.99
			Max. Vy	11	-23.00	1107.41	-4.55
			Max. Vx	2	-22.91	-4.30	1101.97
			Max. Torque	8			-0.74
L10	85.75 - 68.0833	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-29.80	0.76	-0.14
			Max. Mx	11	-20.09	1532.60	-5.83
			Max. My	8	-20.09	6.06	-1525.71
			Max. Vy	11	-25.17	1532.60	-5.83
			Max. Vx	2	-25.09	-5.54	1525.66
			Max. Torque	8			-0.85
L11	68.0833 - 66.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-30.24	0.76	-0.15
			Max. Mx	11	-20.50	1566.25	-5.92
			Max. My	8	-20.51	6.15	-1559.26
			Max. Vy	11	-25.34	1566.25	-5.92
			Max. Vx	2	-25.25	-5.63	1559.20
			Max. Torque	8			-0.86
L12	66.75 - 63.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-31.67	0.78	-0.16
			Max. Mx	11	-21.84	1655.68	-6.18
			Max. My	8	-21.85	6.41	-1648.39

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	11	-25.78	1655.68	-6.18
			Max. Vx	2	-25.70	-5.88	1648.33
			Max. Torque	8			-0.88
L13	63.25 - 62.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-31.91	0.78	-0.16
			Max. Mx	11	-22.07	1668.58	-6.21
			Max. My	8	-22.08	6.45	-1661.26
			Max. Vy	11	-25.84	1668.58	-6.21
			Max. Vx	2	-25.76	-5.91	1661.19
			Max. Torque	8			-0.88
L14	62.75 - 56.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-34.32	0.81	-0.18
			Max. Mx	11	-24.33	1839.10	-6.68
			Max. My	8	-24.33	6.92	-1831.24
			Max. Vy	11	-26.64	1839.10	-6.68
			Max. Vx	2	-26.56	-6.37	1831.16
			Max. Torque	8			-0.92
L15	56.25 - 44.667	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-36.54	0.84	-0.19
			Max. Mx	11	-26.42	2007.77	-7.14
			Max. My	8	-26.43	7.38	-1999.38
			Max. Vy	11	-27.35	2007.77	-7.14
			Max. Vx	2	-27.27	-6.80	1999.30
			Max. Torque	8			-0.96
L16	44.667 - 35.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-43.79	0.92	-0.24
			Max. Mx	11	-33.15	2417.23	-8.18
			Max. My	8	-33.16	8.44	-2407.64
			Max. Vy	11	-29.04	2417.23	-8.18
			Max. Vx	2	-28.96	-7.81	2407.52
			Max. Torque	8			-1.06
L17	35.5 - 34.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-44.28	0.92	-0.24
			Max. Mx	11	-33.62	2453.60	-8.27
			Max. My	8	-33.62	8.53	-2443.91
			Max. Vy	11	-29.17	2453.60	-8.27
			Max. Vx	2	-29.09	-7.90	2443.79
			Max. Torque	8			-1.06
L18	34.25 - 33.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-44.77	0.93	-0.24
			Max. Mx	11	-34.09	2482.81	-8.35
			Max. My	8	-34.09	8.60	-2473.04
			Max. Vy	11	-29.28	2482.81	-8.35
			Max. Vx	2	-29.20	-7.96	2472.92
			Max. Torque	8			-1.07
L19	33.25 - 26.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-47.38	0.97	-0.26
			Max. Mx	11	-36.58	2690.10	-8.85
			Max. My	8	-36.58	9.11	-2679.75
			Max. Vy	11	-29.97	2690.10	-8.85
			Max. Vx	2	-29.89	-8.45	2679.61
			Max. Torque	8			-1.12
L20	26.25 - 25.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-47.89	0.97	-0.27
			Max. Mx	11	-37.06	2720.11	-8.92
			Max. My	8	-37.07	9.18	-2709.68
			Max. Vy	11	-30.08	2720.11	-8.92
			Max. Vx	2	-29.99	-8.51	2709.54
			Max. Torque	8			-1.12
L21	25.25 - 12.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-53.27	1.04	-0.31

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	11	-42.19	3119.44	-9.84
			Max. My	8	-42.19	10.11	-3107.95
			Max. Vy	11	-31.39	3119.44	-9.84
			Max. Vx	2	-31.31	-9.40	3107.78
			Max. Torque	8			-1.21
L22	12.25 - 9.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-54.49	1.06	-0.32
			Max. Mx	11	-43.35	3214.00	-10.05
			Max. My	8	-43.35	10.33	-3202.27
			Max. Vy	11	-31.68	3214.00	-10.05
			Max. Vx	2	-31.60	-9.60	3202.10
			Max. Torque	8			-1.23
L23	9.25 - 3	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-57.07	1.10	-0.34
			Max. Mx	11	-45.81	3413.86	-10.49
			Max. My	8	-45.81	10.77	-3401.63
			Max. Vy	11	-32.30	3413.86	-10.49
			Max. Vx	2	-32.22	-10.02	3401.44
			Max. Torque	13			1.28
L24	3 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-58.42	1.12	-0.35
			Max. Mx	11	-47.10	3511.18	-10.69
			Max. My	8	-47.10	10.98	-3498.70
			Max. Vy	11	-32.61	3511.18	-10.69
			Max. Vx	2	-32.53	-10.22	3498.51
			Max. Torque	13			1.30

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	14	58.42	0.00	0.00
	Max. H_x	11	47.11	32.59	-0.07
	Max. H_z	2	47.11	-0.07	32.51
	Max. M_x	2	3498.51	-0.07	32.51
	Max. M_z	5	3510.41	-32.59	0.07
	Max. Torsion	13	1.30	16.24	28.12
	Min. Vert	1	47.11	0.00	0.00
	Min. H_x	5	47.11	-32.59	0.07
	Min. H_z	8	47.11	0.07	-32.51
	Min. M_x	8	-3498.70	0.07	-32.51
	Min. M_z	11	-3511.18	32.59	-0.07
	Min. Torsion	7	-1.30	-16.24	-28.12

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	47.11	0.00	0.00	0.09	0.37	0.00
Dead+Wind 0 deg - No Ice	47.11	0.07	-32.51	-3498.51	-10.22	-1.27
Dead+Wind 30 deg - No Ice	47.11	16.35	-28.19	-3035.04	-1764.20	-0.91
Dead+Wind 60 deg - No Ice	47.11	28.26	-16.31	-1758.35	-3045.33	-0.31
Dead+Wind 90 deg - No Ice	47.11	32.59	-0.07	-10.50	-3510.41	0.37
Dead+Wind 120 deg - No Ice	47.11	28.19	16.20	1740.22	-3034.80	0.96
Dead+Wind 150 deg - No Ice	47.11	16.24	28.12	3024.70	-1745.88	1.30
Dead+Wind 180 deg - No Ice	47.11	-0.07	32.51	3498.70	10.98	1.29
Dead+Wind 210 deg - No Ice	47.11	-16.35	28.19	3035.24	1764.96	0.93
Dead+Wind 240 deg - No Ice	47.11	-28.26	16.31	1758.54	3046.10	0.31
Dead+Wind 270 deg - No Ice	47.11	-32.59	0.07	10.69	3511.18	-0.39

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead+Wind 300 deg - No Ice	47.11	-28.19	-16.20	-1740.03	3035.56	-0.98
Dead+Wind 330 deg - No Ice	47.11	-16.24	-28.12	-3024.51	1746.64	-1.30
Dead+Ice	58.42	0.00	0.00	0.35	1.12	0.00
Dead+Wind 0 deg+Ice	58.42	0.01	-7.80	-864.16	-1.03	-0.42
Dead+Wind 30 deg+Ice	58.42	3.92	-6.76	-749.45	-434.29	-0.29
Dead+Wind 60 deg+Ice	58.42	6.77	-3.91	-433.83	-750.86	-0.08
Dead+Wind 90 deg+Ice	58.42	7.81	-0.01	-1.86	-865.90	0.15
Dead+Wind 120 deg+Ice	58.42	6.76	3.89	430.71	-748.63	0.34
Dead+Wind 150 deg+Ice	58.42	3.90	6.75	747.96	-430.43	0.44
Dead+Wind 180 deg+Ice	58.42	-0.01	7.80	864.89	3.42	0.42
Dead+Wind 210 deg+Ice	58.42	-3.92	6.76	750.19	436.67	0.29
Dead+Wind 240 deg+Ice	58.42	-6.77	3.91	434.56	753.24	0.08
Dead+Wind 270 deg+Ice	58.42	-7.81	0.01	2.59	868.29	-0.15
Dead+Wind 300 deg+Ice	58.42	-6.76	-3.89	-429.97	751.01	-0.34
Dead+Wind 330 deg+Ice	58.42	-3.90	-6.75	-747.23	432.82	-0.44
Dead+Wind 0 deg - Service	47.11	0.02	-11.25	-1212.25	-3.29	-0.45
Dead+Wind 30 deg - Service	47.11	5.66	-9.75	-1051.66	-611.09	-0.32
Dead+Wind 60 deg - Service	47.11	9.78	-5.65	-609.26	-1055.05	-0.11
Dead+Wind 90 deg - Service	47.11	11.28	-0.02	-3.58	-1216.20	0.13
Dead+Wind 120 deg - Service	47.11	9.75	5.60	603.09	-1051.38	0.34
Dead+Wind 150 deg - Service	47.11	5.62	9.73	1048.18	-604.73	0.45
Dead+Wind 180 deg - Service	47.11	-0.02	11.25	1212.44	4.06	0.45
Dead+Wind 210 deg - Service	47.11	-5.66	9.75	1051.86	611.86	0.32
Dead+Wind 240 deg - Service	47.11	-9.78	5.65	609.45	1055.82	0.11
Dead+Wind 270 deg - Service	47.11	-11.28	0.02	3.77	1216.97	-0.13
Dead+Wind 300 deg - Service	47.11	-9.75	-5.60	-602.90	1052.15	-0.34
Dead+Wind 330 deg - Service	47.11	-5.62	-9.73	-1047.99	605.50	-0.45

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.00	-47.11	0.00	0.00	47.11	0.00	0.000%
2	0.07	-47.11	-32.51	-0.07	47.11	32.51	0.000%
3	16.35	-47.11	-28.19	-16.35	47.11	28.19	0.000%
4	28.26	-47.11	-16.31	-28.26	47.11	16.31	0.000%
5	32.59	-47.11	-0.07	-32.59	47.11	0.07	0.000%
6	28.19	-47.11	16.20	-28.19	47.11	-16.20	0.000%
7	16.24	-47.11	28.12	-16.24	47.11	-28.12	0.000%
8	-0.07	-47.11	32.51	0.07	47.11	-32.51	0.000%
9	-16.35	-47.11	28.19	16.35	47.11	-28.19	0.000%
10	-28.26	-47.11	16.31	28.26	47.11	-16.31	0.000%
11	-32.59	-47.11	0.07	32.59	47.11	-0.07	0.000%
12	-28.19	-47.11	-16.20	28.19	47.11	16.20	0.000%
13	-16.24	-47.11	-28.12	16.24	47.11	28.12	0.000%
14	0.00	-58.42	0.00	0.00	58.42	0.00	0.000%
15	0.01	-58.42	-7.80	-0.01	58.42	7.80	0.000%
16	3.92	-58.42	-6.76	-3.92	58.42	6.76	0.000%
17	6.77	-58.42	-3.91	-6.77	58.42	3.91	0.000%
18	7.81	-58.42	-0.01	-7.81	58.42	0.01	0.000%
19	6.76	-58.42	3.89	-6.76	58.42	-3.89	0.000%
20	3.90	-58.42	6.75	-3.90	58.42	-6.75	0.000%
21	-0.01	-58.42	7.80	0.01	58.42	-7.80	0.000%
22	-3.92	-58.42	6.76	3.92	58.42	-6.76	0.000%
23	-6.77	-58.42	3.91	6.77	58.42	-3.91	0.000%
24	-7.81	-58.42	0.01	7.81	58.42	-0.01	0.000%
25	-6.76	-58.42	-3.89	6.76	58.42	3.89	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
26	-3.90	-58.42	-6.75	3.90	58.42	6.75	0.000%
27	0.02	-47.11	-11.25	-0.02	47.11	11.25	0.000%
28	5.66	-47.11	-9.75	-5.66	47.11	9.75	0.000%
29	9.78	-47.11	-5.65	-9.78	47.11	5.65	0.000%
30	11.28	-47.11	-0.02	-11.28	47.11	0.02	0.000%
31	9.75	-47.11	5.60	-9.75	47.11	-5.60	0.000%
32	5.62	-47.11	9.73	-5.62	47.11	-9.73	0.000%
33	-0.02	-47.11	11.25	0.02	47.11	-11.25	0.000%
34	-5.66	-47.11	9.75	5.66	47.11	-9.75	0.000%
35	-9.78	-47.11	5.65	9.78	47.11	-5.65	0.000%
36	-11.28	-47.11	0.02	11.28	47.11	-0.02	0.000%
37	-9.75	-47.11	-5.60	9.75	47.11	5.60	0.000%
38	-5.62	-47.11	-9.73	5.62	47.11	9.73	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	0.00075647
3	Yes	6	0.00000001	0.00004463
4	Yes	6	0.00000001	0.00004544
5	Yes	4	0.00000001	0.00033773
6	Yes	6	0.00000001	0.00004523
7	Yes	6	0.00000001	0.00004406
8	Yes	5	0.00000001	0.00004928
9	Yes	6	0.00000001	0.00004576
10	Yes	6	0.00000001	0.00004497
11	Yes	4	0.00000001	0.00063026
12	Yes	6	0.00000001	0.00004429
13	Yes	6	0.00000001	0.00004545
14	Yes	4	0.00000001	0.00000001
15	Yes	4	0.00000001	0.00034017
16	Yes	5	0.00000001	0.00013682
17	Yes	5	0.00000001	0.00014377
18	Yes	4	0.00000001	0.00025569
19	Yes	5	0.00000001	0.00014461
20	Yes	5	0.00000001	0.00013309
21	Yes	4	0.00000001	0.00036027
22	Yes	5	0.00000001	0.00014835
23	Yes	5	0.00000001	0.00014131
24	Yes	4	0.00000001	0.00026342
25	Yes	5	0.00000001	0.00013580
26	Yes	5	0.00000001	0.00014743
27	Yes	4	0.00000001	0.00021527
28	Yes	5	0.00000001	0.00011090
29	Yes	5	0.00000001	0.00011499
30	Yes	4	0.00000001	0.00013374
31	Yes	5	0.00000001	0.00011382
32	Yes	5	0.00000001	0.00010797
33	Yes	4	0.00000001	0.00025298
34	Yes	5	0.00000001	0.00011662
35	Yes	5	0.00000001	0.00011278
36	Yes	4	0.00000001	0.00014523
37	Yes	5	0.00000001	0.00010930
38	Yes	5	0.00000001	0.00011493

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	150 - 133.83	35.883	35	2.3420	0.0039
L2	133.83 - 123.5	28.237	35	2.0887	0.0020
L3	123.5 - 118.75	23.904	35	1.9030	0.0015
L4	118.75 - 95.167	22.043	35	1.8385	0.0014
L5	99.5 - 93.75	15.319	35	1.4877	0.0010
L6	93.75 - 92.75	13.563	35	1.4210	0.0009
L7	92.75 - 92	13.267	35	1.4058	0.0009
L8	92 - 86.5	13.047	35	1.3963	0.0009
L9	86.5 - 85.75	11.493	35	1.3010	0.0008
L10	85.75 - 68.0833	11.290	35	1.2920	0.0008
L11	68.0833 - 66.75	7.082	35	0.9839	0.0006
L12	66.75 - 63.25	6.810	35	0.9626	0.0005
L13	63.25 - 62.75	6.121	35	0.9165	0.0005
L14	62.75 - 56.25	6.026	35	0.9110	0.0005
L15	56.25 - 44.667	4.852	35	0.8141	0.0004
L16	50 - 35.5	3.851	35	0.7149	0.0004
L17	35.5 - 34.25	1.930	35	0.5257	0.0003
L18	34.25 - 33.25	1.794	35	0.5069	0.0003
L19	33.25 - 26.25	1.690	35	0.4951	0.0003
L20	26.25 - 25.25	1.048	35	0.3809	0.0002
L21	25.25 - 12.25	0.969	35	0.3695	0.0002
L22	12.25 - 9.25	0.225	35	0.1790	0.0001
L23	9.25 - 3	0.127	35	0.1336	0.0001
L24	3 - 0	0.013	35	0.0406	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
147.0000	(2) HBXX-6517DS-A2M w/ Mount Pipe	35	34.422	2.2990	0.0035	7140
132.0000	HPA-65R-BUU-H6 w/ Mount Pipe	35	27.434	2.0544	0.0019	2451
126.0000	APX16DWV-16DWV-S-E-ACU w/ Mount Pipe	35	24.913	1.9428	0.0016	3269

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	150 - 133.83	103.212	10	6.7411	0.0112
L2	133.83 - 123.5	81.273	10	6.0154	0.0056
L3	123.5 - 118.75	68.825	10	5.4821	0.0042
L4	118.75 - 95.167	63.476	10	5.2964	0.0039
L5	99.5 - 93.75	44.138	10	4.2876	0.0027
L6	93.75 - 92.75	39.081	10	4.0956	0.0026
L7	92.75 - 92	38.230	10	4.0519	0.0025
L8	92 - 86.5	37.596	10	4.0245	0.0025
L9	86.5 - 85.75	33.124	10	3.7502	0.0023
L10	85.75 - 68.0833	32.538	10	3.7242	0.0022
L11	68.0833 - 66.75	20.418	10	2.8369	0.0016
L12	66.75 - 63.25	19.635	10	2.7754	0.0015
L13	63.25 - 62.75	17.650	10	2.6426	0.0014
L14	62.75 - 56.25	17.374	10	2.6267	0.0014
L15	56.25 - 44.667	13.991	10	2.3476	0.0013
L16	50 - 35.5	11.107	10	2.0618	0.0011
L17	35.5 - 34.25	5.566	10	1.5164	0.0008
L18	34.25 - 33.25	5.176	10	1.4621	0.0007
L19	33.25 - 26.25	4.873	10	1.4279	0.0007

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L20	26.25 - 25.25	3.023	10	1.0988	0.0005
L21	25.25 - 12.25	2.796	10	1.0658	0.0005
L22	12.25 - 9.25	0.648	10	0.5164	0.0002
L23	9.25 - 3	0.365	10	0.3854	0.0002
L24	3 - 0	0.037	10	0.1172	0.0001

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
147.0000	(2) HBXX-6517DS-A2M w/ Mount Pipe	10	99.020	6.6179	0.0104	2557
132.0000	HPA-65R-BUU-H6 w/ Mount Pipe	10	78.968	5.9169	0.0056	874
126.0000	APX16DWV-16DWV-S-E-ACU w/ Mount Pipe	10	71.725	5.5964	0.0047	1160

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 - 133.83 (1)	TP19.0315x16x0.1875	16.1700	0.0000	0.0	39.000	11.3771	-2.23	443.71	0.005
L2	133.83 - 123.5 (2)	TP20.9682x19.0315x0.422	10.3300	0.0000	0.0	28.470	27.9177	-5.95	794.82	0.007
L3	123.5 - 118.75 (3)	TP21.8587x20.9682x0.7535	4.7500	0.0000	0.0	28.506	51.2043	-6.89	1459.63	0.005
L4	118.75 - 95.167 (4)	TP26.28x21.8587x0.6518	23.5830	0.0000	0.0	28.698	52.0803	-10.69	1494.60	0.007
L5	95.167 - 93.75 (5)	TP26.1715x24.1641x0.7755	5.7500	0.0000	0.0	28.734	62.1813	-12.49	1786.72	0.007
L6	93.75 - 92.75 (6)	TP26.3591x26.1715x0.9049	1.0000	0.0000	0.0	27.360	74.1655	-13.11	2029.17	0.006
L7	92.75 - 92 (7)	TP26.4998x26.3591x1.1119	0.7500	0.0000	0.0	27.366	90.8983	-13.37	2487.52	0.005
L8	92 - 86.5 (8)	TP27.5317x26.4998x0.7925	5.5000	0.0000	0.0	27.396	68.2376	-14.81	1869.44	0.008
L9	86.5 - 85.75 (9)	TP27.6724x27.5317x1.1823	0.7500	0.0000	0.0	27.384	100.8450	-15.10	2761.53	0.005
L10	85.75 - 68.0833 (10)	TP30.9868x27.6724x0.7796	17.6667	0.0000	0.0	28.902	75.8248	-20.08	2191.49	0.009
L11	68.0833 - 66.75 (11)	TP31.237x30.9868x0.8295	1.3333	0.0000	0.0	31.638	81.2190	-20.50	2569.61	0.008
L12	66.75 - 63.25 (12)	TP31.8936x31.237x1.0345	3.5000	0.0000	0.0	31.398	102.7900	-21.84	3227.39	0.007
L13	63.25 - 62.75 (13)	TP31.9874x31.8936x1.2477	0.5000	0.0000	0.0	28.482	123.4980	-22.07	3517.46	0.006
L14	62.75 - 56.25 (14)	TP33.2069x31.9874x0.8881	6.5000	0.0000	0.0	28.530	92.4255	-24.32	2636.90	0.009
L15	56.25 - 44.667 (15)	TP35.38x33.2069x0.8131	11.5830	0.0000	0.0	31.710	87.8776	-26.42	2786.60	0.009
L16	44.667 - 35.5 (16)	TP36.4734x32.7534x0.8462	14.5000	0.0000	0.0	31.776	90.6623	-29.84	2880.89	0.010
L17	35.5 - 34.25	TP36.7078x36.4734x0.842	1.2500	0.0000	0.0	31.764	97.2971	-33.62	3090.55	0.011

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
	(17)	5								
L18	34.25 - 33.25 (18)	TP36.8953x36.7078x1.0917	1.0000	0.0000	0.0	31.794	125.8540	-34.09	4001.40	0.009
L19	33.25 - 26.25 (19)	TP38.2079x36.8953x0.7663	7.0000	0.0000	0.0	31.818	92.3889	-36.57	2939.63	0.012
L20	26.25 - 25.25 (20)	TP38.3954x38.2079x1.0944	1.0000	0.0000	0.0	31.818	131.4430	-37.06	4182.25	0.009
L21	25.25 - 12.25 (21)	TP40.833x38.3954x0.8201	13.0000	0.0000	0.0	31.860	105.6620	-42.19	3366.38	0.013
L22	12.25 - 9.25 (22)	TP41.3955x40.833x0.7657	3.0000	0.0000	0.0	33.468	100.1740	-43.35	3352.62	0.013
L23	9.25 - 3 (23)	TP42.5675x41.3955x0.7648	6.2500	0.0000	0.0	33.174	102.9400	-45.81	3414.94	0.013
L24	3 - 0 (24)	TP43.13x42.5675x0.828	3.0000	0.0000	0.0	31.020	112.7770	-47.10	3498.35	0.013

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 - 133.83 (1)	TP19.0315x16x0.1875	150.52	34.531	39.000	0.885	0.00	0.000	39.000	0.000
L2	133.83 - 123.5 (2)	TP20.9682x19.0315x0.422	331.76	28.746	28.470	1.010	0.00	0.000	28.470	0.000
L3	123.5 - 118.75 (3)	TP21.8587x20.9682x0.7535	420.03	19.604	28.506	0.688	0.00	0.000	28.506	0.000
L4	118.75 - 95.167 (4)	TP26.28x21.8587x0.6518	805.43	31.147	28.698	1.085	0.00	0.000	28.698	0.000
L5	95.167 - 93.75 (5)	TP26.1715x24.1641x0.7755	898.69	29.145	28.734	1.014	0.00	0.000	28.734	0.000
L6	93.75 - 92.75 (6)	TP26.3591x26.1715x0.9049	951.85	25.427	27.360	0.929	0.00	0.000	27.360	0.000
L7	92.75 - 92 (7)	TP26.4998x26.3591x1.1119	968.50	21.333	27.366	0.780	0.00	0.000	27.366	0.000
L8	92 - 86.5 (8)	TP27.5317x26.4998x0.7925	1092.74	30.030	27.396	1.096	0.00	0.000	27.396	0.000
L9	86.5 - 85.75 (9)	TP27.6724x27.5317x1.1823	1109.98	21.138	27.384	0.772	0.00	0.000	27.384	0.000
L10	85.75 - 68.0833 (10)	TP30.9868x27.6724x0.7796	1535.90	33.499	28.902	1.159	0.00	0.000	28.902	0.000
L11	68.0833 - 66.75 (11)	TP31.237x30.9868x0.8295	1569.62	31.796	31.638	1.005	0.00	0.000	31.638	0.000
L12	66.75 - 63.25 (12)	TP31.8936x31.237x1.0345	1659.18	26.327	31.398	0.839	0.00	0.000	31.398	0.000
L13	63.25 - 62.75 (13)	TP31.9874x31.8936x1.2477	1672.11	22.321	28.482	0.784	0.00	0.000	28.482	0.000
L14	62.75 - 56.25 (14)	TP33.2069x31.9874x0.8881	1842.90	30.871	28.530	1.082	0.00	0.000	28.530	0.000
L15	56.25 - 44.667 (15)	TP35.38x33.2069x0.8131	2011.83	34.019	31.710	1.073	0.00	0.000	31.710	0.000
L16	44.667 - 35.5 (16)	TP36.4734x32.7534x0.8462	2159.82	35.752	31.776	1.125	0.00	0.000	31.776	0.000
L17	35.5 - 34.25 (17)	TP36.7078x36.4734x0.8425	2458.31	35.113	31.764	1.105	0.00	0.000	31.764	0.000
L18	34.25 - 33.25 (18)	TP36.8953x36.7078x1.0917	2487.56	27.704	31.794	0.871	0.00	0.000	31.794	0.000
L19	33.25 - 26.25 (19)	TP38.2079x36.8953x0.7663	2695.13	38.720	31.818	1.217	0.00	0.000	31.818	0.000
L20	26.25 - 25.25 (20)	TP38.3954x38.2079x1.0944	2725.19	27.863	31.818	0.876	0.00	0.000	31.818	0.000
L21	25.25 - 12.25 (21)	TP40.833x38.3954x0.8201	3125.04	36.735	31.860	1.153	0.00	0.000	31.860	0.000
L22	12.25 - 9.25 (22)	TP41.3955x40.833x0.7657	3219.72	39.251	33.468	1.173	0.00	0.000	33.468	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 $\frac{f_{by}}{F_{by}}$
L23	9.25 - 3 (23)	TP42.5675x41.3955x0.7648	3419.83	39.411	33.174	1.188	0.00	0.000	33.174	0.000
L24	3 - 0 (24)	TP43.13x42.5675x0.828	3517.27	36.607	31.020	1.180	0.00	0.000	31.020	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 - 133.83 (1)	TP19.0315x16x0.1875	10.30	0.906	26.000	0.071	0.03	0.003	26.000	0.000
L2	133.83 - 123.5 (2)	TP20.9682x19.0315x0.422	18.30	0.655	18.980	0.070	0.31	0.013	18.980	0.001
L3	123.5 - 118.75 (3)	TP21.8587x20.9682x0.7535	18.88	0.369	19.004	0.039	0.31	0.007	19.004	0.000
L4	118.75 - 95.167 (4)	TP26.28x21.8587x0.6518	21.21	0.407	19.132	0.043	0.31	0.006	19.132	0.000
L5	95.167 - 93.75 (5)	TP26.1715x24.1641x0.7755	22.03	0.354	19.156	0.037	0.31	0.005	19.156	0.000
L6	93.75 - 92.75 (6)	TP26.3591x26.1715x0.9049	22.15	0.299	18.240	0.033	0.31	0.004	18.240	0.000
L7	92.75 - 92 (7)	TP26.4998x26.3591x1.1119	22.25	0.245	18.244	0.027	0.31	0.003	18.244	0.000
L8	92 - 86.5 (8)	TP27.5317x26.4998x0.7925	22.94	0.336	18.264	0.037	0.31	0.004	18.264	0.000
L9	86.5 - 85.75 (9)	TP27.6724x27.5317x1.1823	23.04	0.228	18.256	0.025	0.31	0.003	18.256	0.000
L10	85.75 - 68.0833 (10)	TP30.9868x27.6724x0.7796	25.21	0.332	19.268	0.035	0.31	0.003	19.268	0.000
L11	68.0833 - 66.75 (11)	TP31.237x30.9868x0.8295	25.38	0.312	21.092	0.030	0.31	0.003	21.092	0.000
L12	66.75 - 63.25 (12)	TP31.8936x31.237x1.0345	25.82	0.251	20.932	0.024	0.31	0.002	20.932	0.000
L13	63.25 - 62.75 (13)	TP31.9874x31.8936x1.2477	25.88	0.210	18.988	0.022	0.31	0.002	18.988	0.000
L14	62.75 - 56.25 (14)	TP33.2069x31.9874x0.8881	26.68	0.289	19.020	0.031	0.31	0.002	19.020	0.000
L15	56.25 - 44.667 (15)	TP35.38x33.2069x0.8131	27.39	0.312	21.140	0.030	0.31	0.002	21.140	0.000
L16	44.667 - 35.5 (16)	TP36.4734x32.7534x0.8462	28.23	0.311	21.184	0.030	0.31	0.002	21.184	0.000
L17	35.5 - 34.25 (17)	TP36.7078x36.4734x0.8425	29.21	0.300	21.176	0.029	0.31	0.002	21.176	0.000
L18	34.25 - 33.25 (18)	TP36.8953x36.7078x1.0917	29.32	0.233	21.196	0.022	0.31	0.002	21.196	0.000
L19	33.25 - 26.25 (19)	TP38.2079x36.8953x0.7663	30.01	0.325	21.212	0.031	0.31	0.002	21.212	0.000
L20	26.25 - 25.25 (20)	TP38.3954x38.2079x1.0944	30.12	0.229	21.212	0.022	0.31	0.001	21.212	0.000
L21	25.25 - 12.25 (21)	TP40.833x38.3954x0.8201	31.43	0.297	21.240	0.028	0.31	0.002	21.240	0.000
L22	12.25 - 9.25 (22)	TP41.3955x40.833x0.7657	31.72	0.317	22.312	0.029	0.31	0.002	22.312	0.000
L23	9.25 - 3 (23)	TP42.5675x41.3955x0.7648	32.34	0.314	22.116	0.029	0.31	0.002	22.116	0.000
L24	3 - 0 (24)	TP43.13x42.5675x0.828	32.64	0.289	20.680	0.028	0.31	0.002	20.680	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 - 133.83 (1)	0.005	0.885	0.000	0.071	0.000	0.892 ✔	1.333	H1-3+VT ✔
L2	133.83 - 123.5 (2)	0.007	1.010	0.000	0.070	0.001	1.018 ✔	1.333	H1-3+VT ✔
L3	123.5 - 118.75 (3)	0.005	0.688	0.000	0.039	0.000	0.693 ✔	1.333	H1-3+VT ✔
L4	118.75 - 95.167 (4)	0.007	1.085	0.000	0.043	0.000	1.093 ✔	1.333	H1-3+VT ✔
L5	95.167 - 93.75 (5)	0.007	1.014	0.000	0.037	0.000	1.022 ✔	1.333	H1-3+VT ✔
L6	93.75 - 92.75 (6)	0.006	0.929	0.000	0.033	0.000	0.936 ✔	1.333	H1-3+VT ✔
L7	92.75 - 92 (7)	0.005	0.780	0.000	0.027	0.000	0.785 ✔	1.333	H1-3+VT ✔
L8	92 - 86.5 (8)	0.008	1.096	0.000	0.037	0.000	1.104 ✔	1.333	H1-3+VT ✔
L9	86.5 - 85.75 (9)	0.005	0.772	0.000	0.025	0.000	0.778 ✔	1.333	H1-3+VT ✔
L10	85.75 - 68.0833 (10)	0.009	1.159	0.000	0.035	0.000	1.169 ✔	1.333	H1-3+VT ✔
L11	68.0833 - 66.75 (11)	0.008	1.005	0.000	0.030	0.000	1.013 ✔	1.333	H1-3+VT ✔
L12	66.75 - 63.25 (12)	0.007	0.839	0.000	0.024	0.000	0.845 ✔	1.333	H1-3+VT ✔
L13	63.25 - 62.75 (13)	0.006	0.784	0.000	0.022	0.000	0.790 ✔	1.333	H1-3+VT ✔
L14	62.75 - 56.25 (14)	0.009	1.082	0.000	0.031	0.000	1.092 ✔	1.333	H1-3+VT ✔
L15	56.25 - 44.667 (15)	0.009	1.073	0.000	0.030	0.000	1.083 ✔	1.333	H1-3+VT ✔
L16	44.667 - 35.5 (16)	0.010	1.125	0.000	0.030	0.000	1.136 ✔	1.333	H1-3+VT ✔
L17	35.5 - 34.25 (17)	0.011	1.105	0.000	0.029	0.000	1.117 ✔	1.333	H1-3+VT ✔
L18	34.25 - 33.25 (18)	0.009	0.871	0.000	0.022	0.000	0.880 ✔	1.333	H1-3+VT ✔
L19	33.25 - 26.25 (19)	0.012	1.217	0.000	0.031	0.000	1.230 ✔	1.333	H1-3+VT ✔
L20	26.25 - 25.25 (20)	0.009	0.876	0.000	0.022	0.000	0.885 ✔	1.333	H1-3+VT ✔
L21	25.25 - 12.25 (21)	0.013	1.153	0.000	0.028	0.000	1.166 ✔	1.333	H1-3+VT ✔
L22	12.25 - 9.25 (22)	0.013	1.173	0.000	0.029	0.000	1.186 ✔	1.333	H1-3+VT ✔
L23	9.25 - 3 (23)	0.013	1.188	0.000	0.029	0.000	1.202 ✔	1.333	H1-3+VT ✔
L24	3 - 0 (24)	0.013	1.180	0.000	0.028	0.000	1.194 ✔	1.333	H1-3+VT ✔

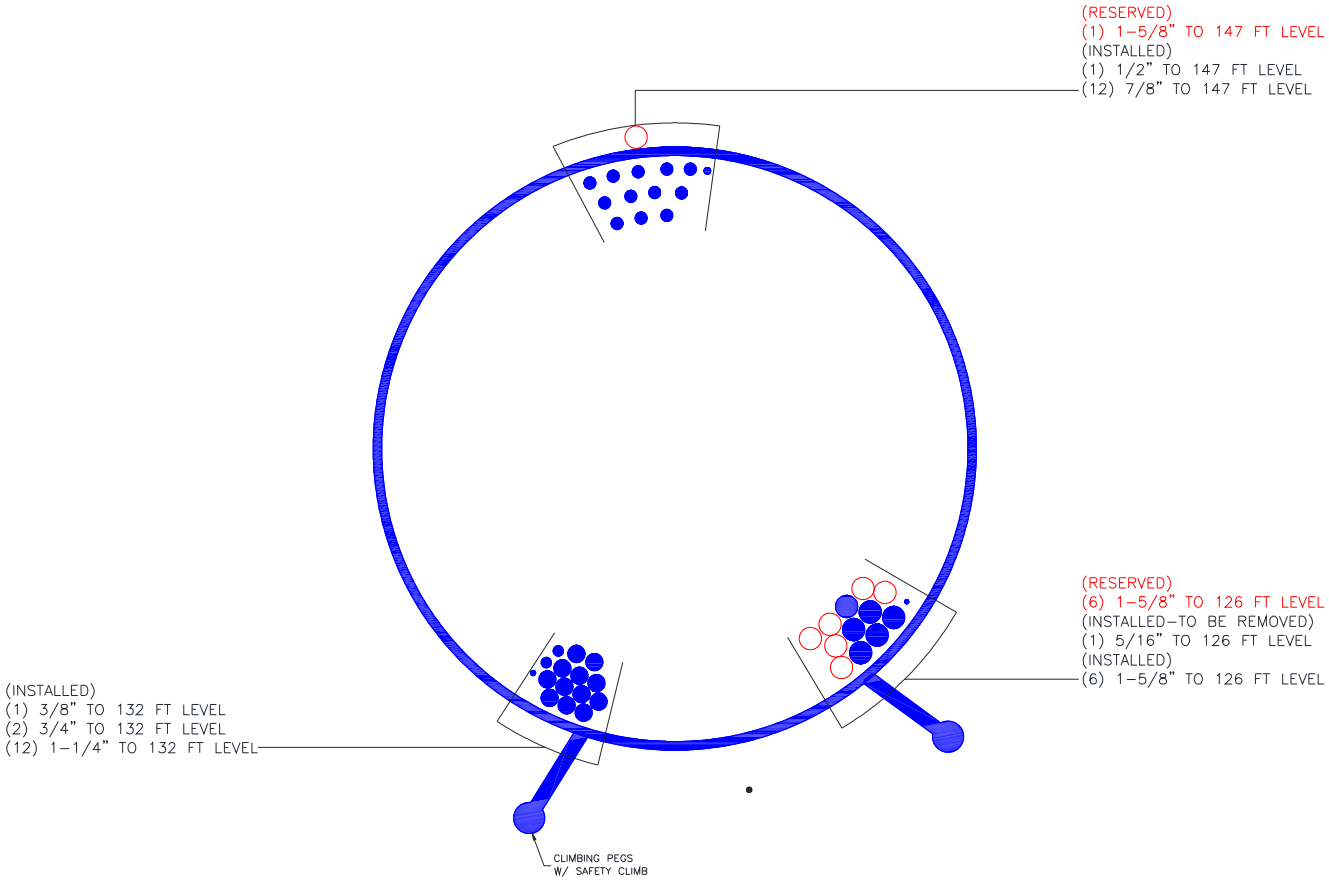
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
L1	150 - 133.83	Pole	TP19.0315x16x0.1875	1	-2.23	591.46	66.9	Pass
L2	133.83 - 123.5	Pole	TP20.9682x19.0315x0.422	2	-5.95	1059.49	76.4	Pass
L3	123.5 - 118.75	Pole	TP21.8587x20.9682x0.7535	3	-6.89	1945.69	52.0	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
L4	118.75 - 95.167	Pole	TP26.28x21.8587x0.6518	4	-10.69	1992.30	82.0	Pass
L5	95.167 - 93.75	Pole	TP26.1715x24.1641x0.7755	5	-12.49	2381.70	76.6	Pass
L6	93.75 - 92.75	Pole	TP26.3591x26.1715x0.9049	6	-13.11	2704.88	70.2	Pass
L7	92.75 - 92	Pole	TP26.4998x26.3591x1.1119	7	-13.37	3315.86	58.9	Pass
L8	92 - 86.5	Pole	TP27.5317x26.4998x0.7925	8	-14.81	2491.96	82.9	Pass
L9	86.5 - 85.75	Pole	TP27.6724x27.5317x1.1823	9	-15.10	3681.12	58.3	Pass
L10	85.75 - 68.0833	Pole	TP30.9868x27.6724x0.7796	10	-20.08	2921.26	87.7	Pass
L11	68.0833 - 66.75	Pole	TP31.237x30.9868x0.8295	11	-20.50	3425.29	76.0	Pass
L12	66.75 - 63.25	Pole	TP31.8936x31.237x1.0345	12	-21.84	4302.11	63.4	Pass
L13	63.25 - 62.75	Pole	TP31.9874x31.8936x1.2477	13	-22.07	4688.77	59.3	Pass
L14	62.75 - 56.25	Pole	TP33.2069x31.9874x0.8881	14	-24.32	3514.99	81.9	Pass
L15	56.25 - 44.667	Pole	TP35.38x33.2069x0.8131	15	-26.42	3714.54	81.2	Pass
L16	44.667 - 35.5	Pole	TP36.4734x32.7534x0.8462	16	-29.84	3840.23	85.2	Pass
L17	35.5 - 34.25	Pole	TP36.7078x36.4734x0.8425	17	-33.62	4119.70	83.8	Pass
L18	34.25 - 33.25	Pole	TP36.8953x36.7078x1.0917	18	-34.09	5333.87	66.0	Pass
L19	33.25 - 26.25	Pole	TP38.2079x36.8953x0.7663	19	-36.57	3918.53	92.2	Pass
L20	26.25 - 25.25	Pole	TP38.3954x38.2079x1.0944	20	-37.06	5574.94	66.4	Pass
L21	25.25 - 12.25	Pole	TP40.833x38.3954x0.8201	21	-42.19	4487.38	87.5	Pass
L22	12.25 - 9.25	Pole	TP41.3955x40.833x0.7657	22	-43.35	4469.04	89.0	Pass
L23	9.25 - 3	Pole	TP42.5675x41.3955x0.7648	23	-45.81	4552.11	90.1	Pass
L24	3 - 0	Pole	TP43.13x42.5675x0.828	24	-47.10	4663.30	89.6	Pass
							Summary	
						Pole (L19)	92.2	Pass
						RATING =	**92.2**	**Pass**

APPENDIX B

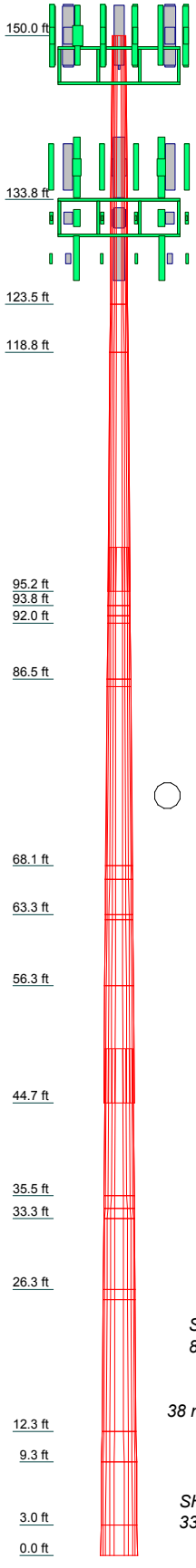
BASE LEVEL DRAWING

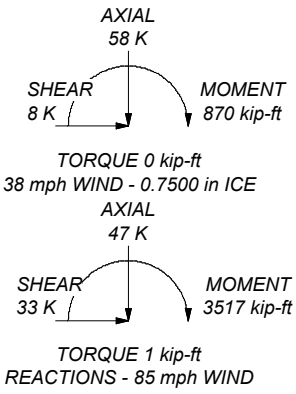


APPENDIX C

ADDITIONAL CALCULATIONS

Section	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Length (ft)	3.0000	6.2500	3.0000	13.0000	1.0000	7.0000	1.0000	1.0000	14.5000	11.5830	6.5000	0.5000	0.5000	0.5000	17.6667	0.7500	6.5000	0.5000	0.7500	5.7500	23.5830	4.7500	10.3300	16.1700
Number of Sides	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Thickness (in)	0.8279	0.7648	0.7657	0.8201	1.0944	0.7663	1.0944	1.0944	0.8461	0.8131	0.8881	1.2470	1.2470	1.2470	0.7795	1.1823	0.7925	1.0944	1.0944	1.0944	0.6518	0.7535	0.4220	0.1875
Socket Length (ft)										5.3330											4.3330			
Top Dia (in)	42.5675	41.3955	40.8330	38.3954	38.2079	36.8953	36.7078	36.5203	32.7534	33.2069	31.9834	31.8307	31.6432	31.4557	27.6724	27.5326	27.3451	27.1576	26.9701	26.7826	21.8587	20.9682	19.0315	16.0000
Bot Dia (in)	43.1300	42.5675	41.3955	40.8330	38.3954	38.2079	36.8953	36.7078	36.4734	35.3800	33.2069	32.0742	31.8867	31.6992	30.9868	27.6724	27.5326	27.3451	27.1576	26.9701	26.2800	21.8587	20.9682	19.0315
Grade	Reinf 47.55 ksi	Reinf 47.55 ksi	Reinf 55.78 ksi	Reinf 53.10 ksi	Reinf 53.03 ksi	Reinf 52.96 ksi	Reinf 52.94 ksi	Reinf 52.99 ksi	Reinf 52.85 ksi	Reinf 47.57 ksi	Reinf 47.57 ksi	Reinf 47.57 ksi	Reinf 47.57 ksi	Reinf 47.57 ksi	Reinf 48.17 ksi	Reinf 45.64 ksi	Reinf 47.83 ksi	Reinf 47.83 ksi	Reinf 47.83 ksi	Reinf 47.83 ksi	Reinf 47.51 ksi	Reinf 47.45 ksi	A572-65	A572-65
Weight (K)	37.8	1.1	2.2	1.0	4.5	0.4	2.2	0.4	4.5	3.5	2.0	0.4	0.0	2.1	4.3	0.3	1.3	0.2	2.1	0.2	3.9	0.8	0.9	0.6





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
(2) HBXX-6517DS-A2M w/ Mount Pipe	147	(2) 7770.00 w/ Mount Pipe	132
(2) HBXX-6517DS-A2M w/ Mount Pipe	147	(2) 7770.00 w/ Mount Pipe	132
(2) HBXX-6517DS-A2M w/ Mount Pipe	147	(2) 7770.00 w/ Mount Pipe	132
(2) RRH2x60-AWS	147	(2) LGP21401	132
(2) RRH2x60-AWS	147	(2) LGP21401	132
(2) RRH2x60-AWS	147	(2) LGP21401	132
DB-T1-6Z-8AB-0Z	147	RRUS-11	132
BXA-70063-6CF-2 w/ Mount Pipe	147	RRUS-11	132
BXA-70063-6CF-2 w/ Mount Pipe	147	RRUS-11	132
BXA-70063-6CF-2 w/ Mount Pipe	147	DC6-48-60-18-8F	132
(2) LPA-80063/6CFx5 w/ Mount Pipe	147	(2) LGP21903	132
(2) LPA-80063/6CFx5 w/ Mount Pipe	147	(2) LGP21903	132
(2) LPA-80063/6CFx5 w/ Mount Pipe	147	(2) LGP21903	132
(2) FD9R6004/2C-3L	147	Platform Mount [LP 713-1]	132
(2) FD9R6004/2C-3L	147	APX16DWV-16DWV-S-E-ACU w/ Mount Pipe	126
(2) FD9R6004/2C-3L	147		
KS24019-L112A	147	APX16DWV-16DWV-S-E-ACU w/ Mount Pipe	126
Platform Mount [LP 713-1]	147		
HPA-65R-BUU-H6 w/ Mount Pipe	132	APX16DWV-16DWV-S-E-ACU w/ Mount Pipe	126
HPA-65R-BUU-H6 w/ Mount Pipe	132		
HPA-65R-BUU-H6 w/ Mount Pipe	132	(2) KRY 112 71	126
RRUS12/RRUS A2	132	(2) KRY 112 71	126
RRUS12/RRUS A2	132	(2) KRY 112 71	126
RRUS12/RRUS A2	132	Side Arm Mount [SO 101-3]	126

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi	Reinf 47.47 ksi	47 ksi	60 ksi
Reinf 47.45 ksi	47 ksi	60 ksi	Reinf 47.55 ksi	48 ksi	60 ksi
Reinf 47.51 ksi	48 ksi	60 ksi	Reinf 52.85 ksi	53 ksi	67 ksi
Reinf 47.83 ksi	48 ksi	60 ksi	Reinf 52.96 ksi	53 ksi	67 ksi
Reinf 47.89 ksi	48 ksi	60 ksi	Reinf 52.94 ksi	53 ksi	67 ksi
Reinf 45.60 ksi	46 ksi	57 ksi	Reinf 52.99 ksi	53 ksi	67 ksi
Reinf 45.61 ksi	46 ksi	58 ksi	Reinf 53.03 ksi	53 ksi	67 ksi
Reinf 45.66 ksi	46 ksi	58 ksi	Reinf 53.10 ksi	53 ksi	67 ksi
Reinf 45.64 ksi	46 ksi	58 ksi	Reinf 55.78 ksi	56 ksi	70 ksi
Reinf 48.17 ksi	48 ksi	61 ksi	Reinf 55.29 ksi	55 ksi	70 ksi
Reinf 52.73 ksi	53 ksi	66 ksi	Reinf 51.70 ksi	52 ksi	65 ksi
Reinf 52.33 ksi	52 ksi	66 ksi			

TOWER DESIGN NOTES

1. Tower is located in New Haven 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.
5. TOWER RATING: 92.2%

Paul J Ford and Company
250 E. Broad Street Suite 600
Columbus, OH 43215
Phone: 614.221.6679
FAX: 614.448.4105

Job: 150' MP; Guilford, CT, NHV 102 94312			
Project: PJF 37515-0830.005.7805 (BU 806361)			
Client: Crown Castle	Drawn by: Kyle Thorpe	App'd:	
Code: TIA/EIA-222-F	Date: 12/23/15	Scale: NTS	
Path:		Dwg No. E-1	

PAUL J. FORD & COMPANY
250 E Broad St, Ste 600 • Columbus, OH 43215
Phone 614.221.6679 www.pauljford.com

v4.0 - Effective 1-12-12

Date: 12/23/2015
PJF Project: 37515-0830.005.7805
Client Ref. # 806361
Site Name: NHV 102
Description: 150' Pole
Owner: CCI
Engineer: KAT

Asymmetric Anchor Rod Analysis

Moment =	3517	k-ft	TIA Ref.	F		Location =	Base Plate	
Axial =	47.0	kips	ASIF =	1.3333		η =	N/A	for BP, Rev. G Sect. 4.9.9
Shear =	33.0	kips	Max Ratio =	105.0%		Threads =	N/A	for FP, Rev. G
Anchor Qty =	18							

**** For Post Installed Anchors: Check anchors for embedment, epoxy/grout bond, and capacity based on proof load. ****

Item	Nominal Anchor Dia, in	Anchor Spec	Fy, ksi	Fu, ksi	Location, degrees	Anchor Circle, in	Area Override, in^2	Area, in^2	Max Net Compression, kips	Max Net Tension, kips	Load for Capacity Calc, kips	Capacity Override, kips	Capacity, kips	Capacity Ratio
1	2.250	#18J A615 Gr 75	75	100	0.0	50.62	0.00	3.98	187.89	182.66	182.66	0.00	195.00	93.7%
2	2.250	#18J A615 Gr 75	75	100	30.0	50.62	0.00	3.98	187.89	182.66	182.66	0.00	195.00	93.7%
3	2.250	#18J A615 Gr 75	75	100	60.0	50.62	0.00	3.98	187.89	182.66	182.66	0.00	195.00	93.7%
4	2.250	#18J A615 Gr 75	75	100	90.0	50.62	0.00	3.98	187.89	182.66	182.66	0.00	195.00	93.7%
5	2.250	#18J A615 Gr 75	75	100	120.0	50.62	0.00	3.98	187.89	182.66	182.66	0.00	195.00	93.7%
6	2.250	#18J A615 Gr 75	75	100	150.0	50.62	0.00	3.98	187.89	182.66	182.66	0.00	195.00	93.7%
7	2.250	#18J A615 Gr 75	75	100	180.0	50.62	0.00	3.98	187.89	182.66	182.66	0.00	195.00	93.7%
8	2.250	#18J A615 Gr 75	75	100	210.0	50.62	0.00	3.98	187.89	182.66	182.66	0.00	195.00	93.7%
9	2.250	#18J A615 Gr 75	75	100	240.0	50.62	0.00	3.98	187.89	182.66	182.66	0.00	195.00	93.7%
10	2.250	#18J A615 Gr 75	75	100	270.0	50.62	0.00	3.98	187.89	182.66	182.66	0.00	195.00	93.7%
11	2.250	#18J A615 Gr 75	75	100	300.0	50.62	0.00	3.98	187.89	182.66	182.66	0.00	195.00	93.7%
12	2.250	#18J A615 Gr 75	75	100	330.0	50.62	0.00	3.98	187.89	182.66	182.66	0.00	195.00	93.7%
13	2.250	#18J A615 Gr 75	75	100	15.0	50.62	0.00	3.98	187.89	182.66	182.66	0.00	195.00	93.7%
14	2.250	#18J A615 Gr 75	75	100	75.0	50.62	0.00	3.98	187.89	182.66	182.66	0.00	195.00	93.7%
15	2.250	#18J A615 Gr 75	75	100	135.0	50.62	0.00	3.98	187.89	182.66	182.66	0.00	195.00	93.7%
16	2.250	#18J A615 Gr 75	75	100	195.0	50.62	0.00	3.98	187.89	182.66	182.66	0.00	195.00	93.7%
17	2.250	#18J A615 Gr 75	75	100	255.0	50.62	0.00	3.98	187.89	182.66	182.66	0.00	195.00	93.7%
18	2.250	#18J A615 Gr 75	75	100	315.0	50.62	0.00	3.98	187.89	182.66	182.66	0.00	195.00	93.7%
								71.64						

PAUL J. FORD & COMPANY
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Phone 614.221.6679 www.pauljford.com

v1.0 - Effective 4-26-11

Date: 12/23/2015
PJF Project: 37515-0830.005.7805
Client Ref. # 9/27/4107
Site Name: NHV 102
Description: s
Owner: CCI
Engineer: KAT

Unstiffened Circular Base Plate Analysis and Anchor Load Calculation

Pole Dia =	43.130	in	Moment =	3517	k-ft	Yield Line =	26.499	in
BP Dia =	55.100	in	Axial =	47.0	kips	Above YL =	3	
BP Thk =	2.750	in	TIA Ref.	F		fb =	52.41	ksi
BP Fy =	60	ksi	ASIF =	1.3333		Fb =	60.00	ksi
Max Ratio =	105.0%		Yield Line 1 =	40.601	in	BP Ratio =	87.35%	<= 105.0%, OK
Anchor Qty =	18		Yield Line 2 =	26.499	in			

Item	Nominal Dia, in	Location, degrees	Bolt Circle, in	Area, in^2	Moment, ft-kips	Axial, kips	Net Comp, kips	Moment Arm, in	Plate Bending, k-in
1	2.250	0.0	50.62	3.98	3517	2.61	-128.40	0.00	0.00
2	2.250	30.0	50.62	3.98	3517	2.61	-45.34	0.00	0.00
3	2.250	60.0	50.62	3.98	3517	2.61	50.56	0.00	0.00
4	2.250	90.0	50.62	3.98	3517	2.61	133.62	0.00	0.00
5	2.250	120.0	50.62	3.98	3517	2.61	181.57	2.88	523.40
6	2.250	150.0	50.62	3.98	3517	2.61	181.57	2.88	523.40
7	2.250	180.0	50.62	3.98	3517	2.61	133.62	0.00	0.00
8	2.250	210.0	50.62	3.98	3517	2.61	50.56	0.00	0.00
9	2.250	240.0	50.62	3.98	3517	2.61	-45.34	0.00	0.00
10	2.250	270.0	50.62	3.98	3517	2.61	-128.40	0.00	0.00
11	2.250	300.0	50.62	3.98	3517	2.61	-176.35	0.00	0.00
12	2.250	330.0	50.62	3.98	3517	2.61	-176.35	0.00	0.00
13	2.250	15.0	50.62	3.98	3517	2.61	-90.03	0.00	0.00
14	2.250	75.0	50.62	3.98	3517	2.61	95.25	0.00	0.00
15	2.250	135.0	50.62	3.98	3517	2.61	187.89	3.75	703.64
16	2.250	195.0	50.62	3.98	3517	2.61	95.25	0.00	0.00
17	2.250	255.0	50.62	3.98	3517	2.61	-90.03	0.00	0.00
18	2.250	315.0	50.62	3.98	3517	2.61	-182.66	0.00	0.00
				71.64		47.00			1750.44

PAUL J. FORD & COMPANY
250 E Broad St, Ste 600 • Columbus, OH 43215
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Job Number:	37515-0830.005.7805	**Page:**	1
Site Number:	806361	**By:**	KAT
Site Name:	NHV 102 943127	**Date:**	12/23/2015

DRILLED PIER SOIL AND STEEL ANALYSIS - TIA/EIA-222-F

Unfactored Base Reactions from RISA

	Comp. (+)	Tension (-)	
Moment, M =	3517.0		k-ft
Shear, V =	33.0		kips
Axial Load, P =	47.0		kips
OTM =	3533.5	0.0	k-ft @ Ground

Safety Factors / Load Factors / Φ Factors

Tower Type =	Monopole DP
ACI Code =	ACI 318-02
Seismic Design Category =	C
Reference Standard =	TIA/EIA-222-F
Use 1.3 Load Factor?	Yes
Load Factor =	1.30

Drilled Pier Parameters

Diameter =	6	ft
Height Above Grade =	0.5	ft
Depth Below Grade =	33	ft
fc' =	3	ksi
εc =	0.003	in/in
Mat Ftdn. Cap Width =		ft
Mat Ftdn. Cap Length =		ft
Depth Below Grade =		ft

	Safety Factor	Φ Factor
Soil Lateral Resistance =	2.00	0.75
Skin Friction =	2.00	0.75
End Bearing =	2.00	0.75
Concrete Wt. Resist Uplift =	1.25	

Load Combinations Checked per TIA/EIA-222-F

1. Ult. Skin Friction/2.00 + Ult. End Bearing/2.00
+ Effective Soil Wt. - Buoyant Conc. Wt. ≥ Comp.
2. Ult. Skin Friction/2.00 + Buoyant Conc. Wt./1.25 ≥ Uplift
3. Ult. Skin Friction/1.50 + Buoyant Conc. Wt./1.50 ≥ Uplift

Steel Parameters

Number of Bars =	32	
Rebar Size =	#11	
Rebar Fy =	60	ksi
Rebar MOE =	29000	ksi
Tie Size =	#4	
Side Clear Cover to Ties =	4	in

Soil Parameters

Water Table Depth =	10.00	ft
Depth to Ignore Soil =	3.00	ft
Depth to Full Cohesion =	0	ft
Full Cohesion Starts at?*	Ground	

Above Full Cohesion Lateral Resistance = 4(Cohesion)(Dia)(H)
Below Full Cohesion Lateral Resistance = 8(Cohesion)(Dia)(H)

Direct Embed Pole Shaft Parameters

Dia @ Grade =		in
Dia @ Depth Below Grade =		in
Number of Sides =		
Thickness =		in
Fy =		ksi
Backfill Condition =		

Maximum Capacity Ratios

Maximum Soil Ratio =	110.0%
Maximum Steel Ratio =	105.0%

*Note: The drilled pier foundation was analyzed using the methodology in the software 'PLS-Caisson' (Version 8.10, or newer, by Power Line Systems, Inc.). Per the methods in PLS-Caisson, the soil reactions of cohesive soils are calculated using 8CD independent of the depth of the soil layer. The depth of soil to be ignored at the top of the drilled pier is based the recommendations of the site specific geotechnical report. In the absence of any recommendations, the frost depth at the site or one half of the drilled pier diameter (whichever is greater) shall be ignored.

Define Soil Layers

Note: Cohesion = Undrained Shear Strengh = Unconfined Compressive Strength / 2

Layer	Thickness ft	Unit Weight pcf	Cohesion psf	Friction Angle degrees	Soil Type	Ultimate End Bearing psf	Comp. Ult. Skin Friction psf	Tension Ult. Skin Friction psf	Depth ft
1	34	135	0	38	Sand	40000	800	800	34
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

Soil Results: Overturning

Depth to COR =	22.92	ft, from Grade
Bending Moment, M =	4289.90	k-ft, from COR
Resisting Moment, Ma =	14255.70	k-ft, from COR
MOMENT RATIO =	**30.1%**	**OK**

Shear, V =	33.00	kips
Resisting Shear, Va =	109.66	kips
SHEAR RATIO =	**30.1%**	**OK**

Soil Results: Uplift

Uplift, T =	0.00	kips
Allowable Uplift Cap., Ta =	307.39	kips
UPLIFT RATIO =	**0.0%**	**OK**

Soil Results: Compression

Compression, C =	47.00	kips
Allowable Comp. Cap., Ca =	775.56	kips
COMPRESSION RATIO =	**6.1%**	**OK**

Steel Results (ACI 318-02):

Minimum Steel Area =	13.57	sq in
Actual Steel Area =	49.92	sq in
Allowable Min Axial, Pa =	-2073.60	kips, Where Ma = 0 k-ft
Allowable Max Axial, Pa =	5300.10	kips, Where Ma = 0 k-ft

Axial Load, P =	58.83	kips @ 7.25 ft Below Grade
Moment, M =	3711.44	k-ft @ 7.25 ft Below Grade
Allowable Moment, Ma =	4730.67	k-ft
MOMENT RATIO =	**78.5%**	**OK**

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

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

Site Data

BU#: *806361*
Site Name: *NHV 102 943127*
App #:

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

Pier Properties

Concrete:

Pier Diameter =	6.0	ft
Concrete Area =	4071.5	in^2

Reinforcement:

Clear Cover to **Tie**=	4.00	in
Horiz. **Tie** Bar Size=	4	
Vert. Cage Diameter =	5.13	ft
Vert. Cage Diameter =	61.59	in
Vertical Bar Size =	11	
Bar Diameter =	1.41	in
Bar Area =	1.56	in^2
Number of Bars =	32	
As Total=	49.92	in^2
A s/ Aconc, Rho:	0.0123	1.23%

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

Minimum Rho Check:

Actual Req'd Min. Rho:	0.33%	Flexural
Provided Rho:	1.23%	**OK**

Ref. Shaft Max Axial Capacities, ϕ Max(Pn or Tn):		
Max Pu = (φ=0.65) Pn.		
Pn per ACI 318 (10-2)	6890.12	kips
at Mu=(ϕ=0.65)Mn=	3484.22	ft-kips
Max Tu, (φ=0.9) Tn =	2695.68	kips
at Mu=ϕ=(0.90)Mn=	0.00	ft-kips

Maximum Shaft Superimposed Forces

TIA Revision:	F	
Max. Service Shaft M:	3711.44	ft-kips **(* Note)**
Max. Service Shaft P:	58.83	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:	4824.872	ft-kips
1.30	Pu:	76.479	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

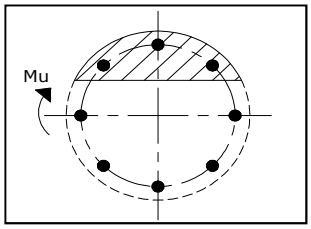
Seismic Properties

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

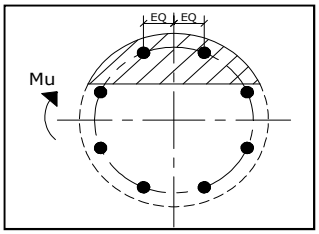
Solve (Run) <-- Press Upon Completing All Input

Results:

Governing Orientation Case: **2**



Case 1



Case 2

Dist. From Edge to Neutral Axis:	**16.91**	in
Extreme Steel Strain, ϵt:	**0.0088**	
	ϵt > 0.0050, Tension Controlled	
Reduction Factor,φ:	**0.900**	

Output Note: Negative Pu=Tension

For Axial Compression, φ Pn = Pu:	76.48	kips
Drilled Shaft Moment Capacity, φMn:	**6149.87**	ft-kips
Drilled Shaft Superimposed Mu:	**4824.87**	ft-kips

(Mu/φMn, Drilled Shaft Flexure CSR:	**78.5%**

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

AT&T Existing Facility

Site ID: CTV2030

Guilford Central
145 Manor Road
Guilford, CT 06437

February 3, 2016

EBI Project Number: 6216000454

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	7.15 %

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

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February 3, 2016

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

Emissions Analysis for Site: **CTV2030 – Guilford Central**

EBI Consulting was directed to analyze the proposed AT&T facility located at **145 Manor Road, Guilford, CT**, for the purpose of determining whether the emissions from the Proposed AT&T Antenna Installation located on this property are within specified federal limits.

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

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

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

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 700 and 850 MHz Bands are approximately 467 $\mu W/cm^2$ and 567 $\mu W/cm^2$ respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 2300 MHz (WCS) bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed AT&T Wireless antenna facility located at **145 Manor Road, Guilford, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6 foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

1) 2 UMTS channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 2 UMTS channels (PCS Band – 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

3) 2 LTE channels (700 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

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

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

6) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

7) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

8) The antennas used in this modeling are the **CCI HPA-65R-BUU-H6 and the Powerwave 7770.00** for transmission in the 700 MHz, 850 MHz and1900 MHz (PCS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

9) The antenna mounting height centerline of the proposed antennas is **137 feet** above ground level (AGL).

10) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

All calculations were done with respect to uncontrolled / general public threshold limits.

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AT&T Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	Powerwave 7770.00	Make / Model:	Powerwave 7770.00	Make / Model:	Powerwave 7770.00
Gain:	11.4 / 13.4 dBd	Gain:	11.4 / 13.4 dBd	Gain:	11.4 / 13.4 dBd
Height (AGL):	137 feet	Height (AGL):	137 feet	Height (AGL):	137 feet
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	120	Total TX Power(W):	120	Total TX Power(W):	120
ERP (W):	2,140.89	ERP (W):	2,140.89	ERP (W):	2,140.89
Antenna A1 MPE%	**0.58**	Antenna B1 MPE%	**0.58**	Antenna C1 MPE%	**0.58**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	CCI OPA-65R-BUU-H6	Make / Model:	CCI OPA-65R-BUU-H6	Make / Model:	CCI OPA-65R-BUU-H6
Gain:	11.95 / 14.75 dBd	Gain:	11.95 / 14.75 dBd	Gain:	11.95 / 14.75 dBd
Height (AGL):	137 feet	Height (AGL):	137 feet	Height (AGL):	137 feet
Frequency Bands	700 MHz / 1900 MHz (PCS)	Frequency Bands	700 MHz / 1900 MHz (PCS)	Frequency Bands	700 MHz / 1900 MHz (PCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	240	Total TX Power(W):	240	Total TX Power(W):	240
ERP (W):	5,462.56	ERP (W):	5,462.56	ERP (W):	5,462.56
Antenna A2 MPE%	**1.59**	Antenna B2 MPE%	**1.59**	Antenna C2 MPE%	**1.59**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Powerwave 7770.00	Make / Model:	Powerwave 7770.00	Make / Model:	Powerwave 7770.00
Gain:	11.4 dBd	Gain:	11.4 dBd	Gain:	11.4 dBd
Height (AGL):	100 feet	Height (AGL):	100 feet	Height (AGL):	100 feet
Frequency Bands	850 MHz	Frequency Bands	850 MHz	Frequency Bands	850 MHz
Channel Count	2	Channel Count	2	Channel Count	2
Total TX Power(W):	60	Total TX Power(W):	60	Total TX Power(W):	60
ERP (W):	828.23	ERP (W):	828.23	ERP (W):	828.23
Antenna A3 MPE%	**0.31**	Antenna B3 MPE%	**0.31**	Antenna C3 MPE%	**0.31**

Site Composite MPE%	
Carrier	**MPE%**
AT&T – Max per sector	**2.48 %**
T-Mobile	2.47 %
Verizon Wireless	2.20 %
Site Total MPE %:	**7.15 %**

AT&T Sector 1 Total:	2.48 %
AT&T Sector 2 Total:	2.48 %
AT&T Sector 3 Total:	2.48 %
Site Total:	7.15 %

AT&T _ Per Sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
AT&T 850 MHz UMTS	2	414.12	137	1.74	850	567	0.31 %
AT&T 1900 MHz (PCS) UMTS	2	656.33	137	2.75	1900	1000	0.27 %
AT&T 700 MHz LTE	2	940.05	137	3.94	700	467	0.84 %
AT&T 1900 MHz (PCS) LTE	2	1791.23	137	7.50	1900	1000	0.75 %
AT&T 850 MHz GSM	2	414.12	137	1.74	850	567	0.31 %
						Total:	2.48 %

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Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general public exposure to RF Emissions.

The anticipated maximum composite contributions from the AT&T facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general public exposure to RF Emissions are shown here:

AT&T Sector	Power Density Value (%)
Sector 1:	2.48%
Sector 2:	2.48%
Sector 3 :	2.48%
AT&T Maximum Total (per sector):	2.48%
Site Total:	7.15 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **7.15%** 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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