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

August 10, 2017

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

RE: **Notice of Exempt Modification for Sprint 2.5 Rework Crown Site BU: 829046**
Sprint Site ID: CT03XC376
56 Norfield Road, Weston, CT 06883
Latitude: 41° 12' 8.4" / Longitude: -73° 22' 46.6"

Dear Ms. Bachman:

Sprint currently maintains three (3) antennas at the 190-foot level of the existing 190-foot monopole at 56 Norfield Road in Weston, CT. The tower is owned by Crown Castle. The property is owned by the Town of Weston. Sprint intends to install three (3) antennas, three (3) RRHus, and one (1) hybrid line.

A request for original zoning documents was sent to the Town of Weston but has not been answered.

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 the Town of Weston as the property owner, the Town of Weston Planner, and 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:

Town of Weston
PO Box 1007
Weston, CT 06883

Planning and Zoning
Weston Town Hall Annex
24 School Road
Weston, CT 06883

Town of Weston, CT

Recent Sales in Neighborhood | Previous Parcel | Next Parcel | Field Definitions | Return to Main Search | Weston Home

Owner and Parcel Information

Owner Name	TOWN OF WESTON TOWN HALL & FIRE DEPARTMENT	**Today's Date**	December 5, 2016
Mailing Address	56 NORFIELD ROAD	**Parcel ID**	13094 (Account #: E00130)
	WESTON, CT 06883	**Map/Block/Lot**	22/6/28
Location Address	56 NORFIELD ROAD		
Subdivision Map / Lot	/	**Acreage**	0.00
Use Class / Description	901 Municipal	**Subdivision**	

Current Appraised Value Information

Building Value	XF Value	OB Value	Land Value	Special Land Value	Total Appraised Value	Net Appraised Value	Current Assessment
$ 3,796,500	$ 0	$ 26,800	$ 0		$ 3,823,300	$ 3,823,300	$ 2,676,300

Assessment History

Year	Building	OB/Misc	Land	Total Assessment
2015	$ 2,657,600	$ 18,700	0	$ 2,676,300
2014	$ 2,657,600	$ 18,700	0	$ 2,676,300
2013	$ 2,657,600	$ 18,700	0	$ 2,676,300

Land Information

Use	Class	Area	Value
Municipal	E	0 AC	

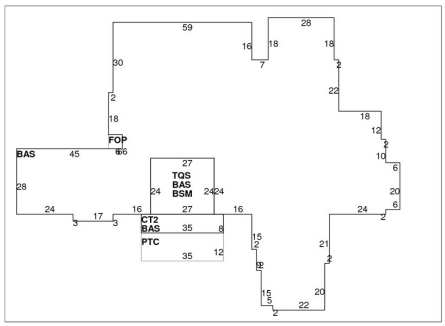
Commercial Building Information

Style	Year Built	Eff Year Built	Gross Area	Stories	Grade	Exterior Wall	Interior Wall	Wall Height	# Units
Library	1963	1993	13,500	1	B+	Stone/Masonry	Drywall	10	1
Roof Cover	**Roof Structure**	**Floor Type**	**Heat Type**	**Heat Fuel**	**AC Type**	**Sprinkler**	**Construction**	**Plumbing**	**Comm Walls**
Wood Shingle	Gable	Carpet Vinyl/Asphalt	Oil	Forced Air	Heat/AC Split	%	Masonry	Average	0%

Building Sub Areas

Code	Description	Living Area	Gross Area
BAS	First Floor	11,468	11,468
BSM	Basement Area	0	648
CT2	Cath. Ceil 2 St.	0	280
FOP	Framed Open Porch	0	36
PTC	Patio - Concrete	0	420
TQS	Three Quarter Story	486	648
	Totals	**11,954**	**13,500**

Building Sketch Enlarge



Building Photo Enlarge

Out Buildings / Extra Features

Description	Sub Description	Area	Year Built	Value
Paving Asph.		9,000 S.F.	2008	$ 21,900
Light (1)		1 UNITS	2008	$ 2,000
Light (2)		1 UNITS	2008	$ 2,900

Sale Information

Sale Date	Sale Price	Deed Book/Page	Sale Qualification	Reason	Vacant or Improved	Owner
00/00/0000						TOWN OF WESTON TOWN HALL & FIRE DEPARTMENT

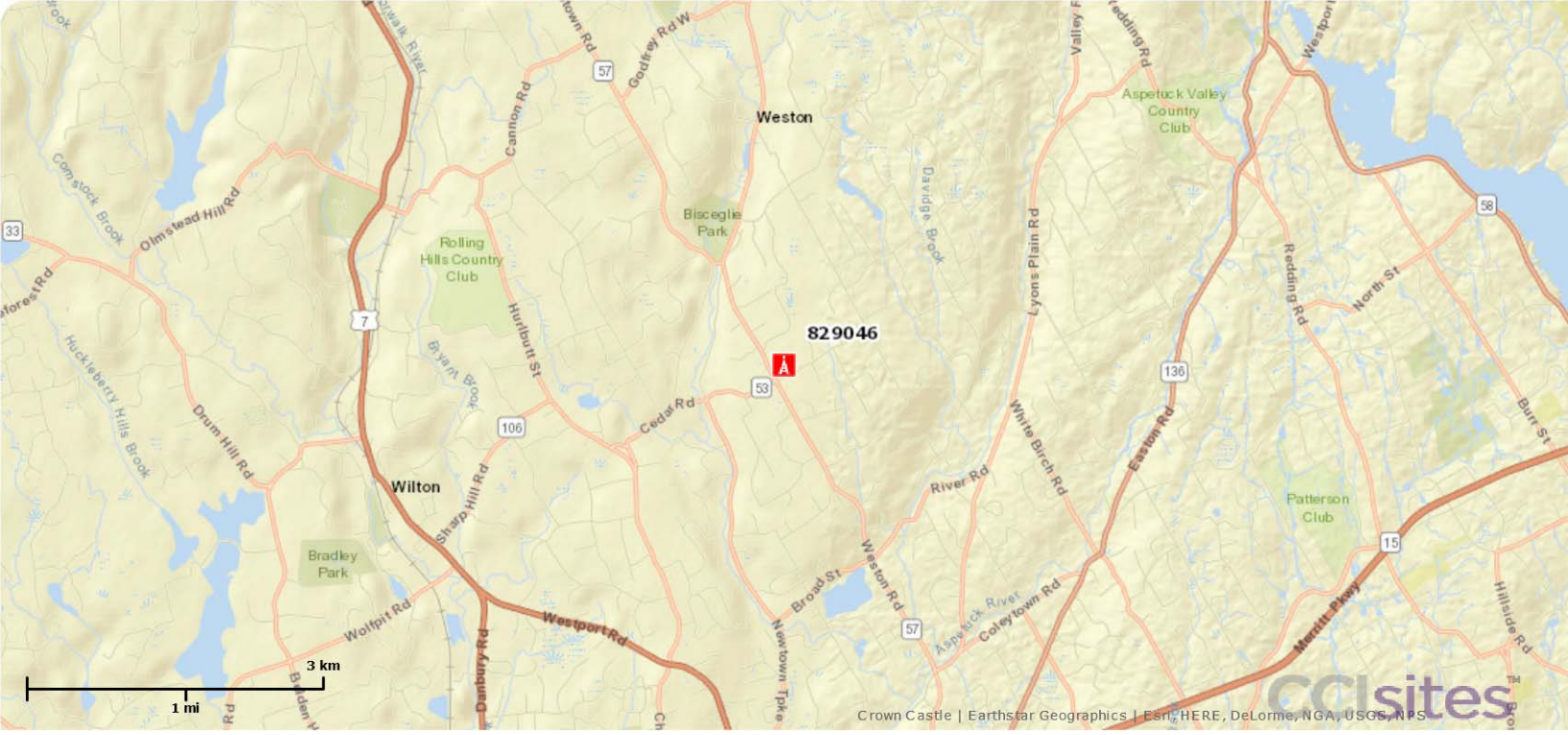
Permit Information

Permit ID	Issue Date	Type	Description	Amount	Inspection Date	% Complete	Date Complete	Comments
7737	04/20/2016					100	04/20/2016	INSULATION
7604	06/08/2015			$ 15,000		100	03/29/2016	T-MOBILE
7099	10/16/2012				07/31/2013	100	12/06/2012	RENOVATE ONION BARN
7056	07/09/2012			$ 130,592		100		CELL TOWERS
6776	09/14/2010			$ 186,338		100		ROOFING
6739	06/28/2010			$ 13,000		100	06/01/2011	ANTENNAE PANELS
5787	07/14/2005					100		SEE PERMIT

Recent Sales in Neighborhood | Previous Parcel | Next Parcel | Field Definitions | Return to Main Search Page | Weston Home

The Town of Weston Assessor's Office makes every effort to produce the most accurate information possible. No warranties, expressed or implied, are provided for the data herein, its use or interpretation. Website Updated: November 27, 2016

© 2012 by the Town of Weston, CT | Website design by qpublic.net


Weston
Wilton
829046
Aspetuck Valley Country Club
Rolling Hills Country Club
Bisceglie Park
Bradley Park
Patterson Club
Cannon Rd
Godfrey Rd W
Comstock Brook
Olmstead Hill Rd
Huckleberry Hills Brook
Drum Hill Rd
Hurlbutt St
Bryan Brook
Cedar Rd
Sharp Hill Rd
Wolfpit Rd
Westport Rd
Danbury Rd
Newtown Tpke
Broad St
Weston Rd
River Rd
Aspetuck River
Coleytown Rd
White Birch Rd
Lyons Plain Rd
Easton Rd
Redding Rd
North St
Burr St
Hillside Rd
Merritt Pkwy
3 km
1 mi
Crown Castle | Earthstar Geographics | Esri, HERE, DeLorme, NGA, USGS, NPS
CCIsites

Sprint

2.5 EQUIPMENT DEPLOYMENT

SITE NUMBER:

CT03XC376

SITE NAME:

WESTON / OMNIPOINT

SITE ADDRESS:

56 NORFIELD ROAD
WESTON, CT 06883

CROWN ID#: 829046

CROWN SITE NAME: WESTON/ RT-57/ NORFIELD R

APPROVED
By Jason D'Amico at 11:13 am, Jul 06, 2017

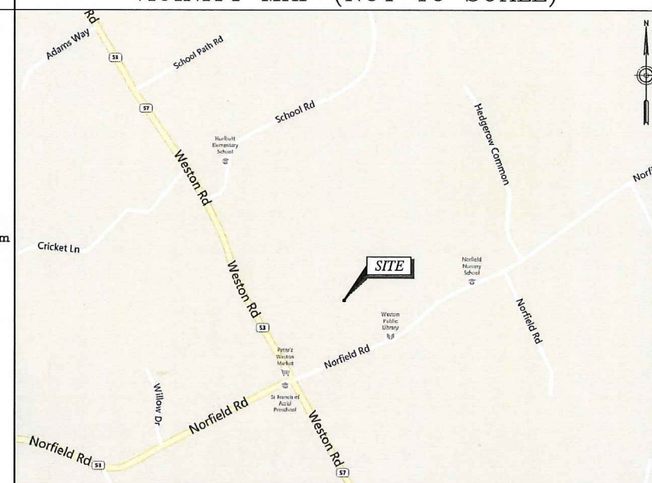
APPROVED
By Susan Vale at 3:08 pm, Dec 12, 2014

SHEET INFORMATION

SITE NUMBER:	CT03XC376
SITE NAME:	WESTON / OMNIPOINT
SITE ADDRESS:	56 NORFIELD ROAD WESTON, CT 06883
COUNTY:	FAIRFIELD
COORDINATES: (NAD 83)	41° 12' 8.4" N 73° 22' 46.6" W
GROUND ELEV:	317'± AMSL
STRUCTURE TYPE:	MONOPOLE
STRUCTURE HEIGHT:	192'-0"± AGL
STRUCTURE RAD CENTER:	190'-0"± AGL
ZONING CLASSIFICATION:	200 COMMERCIAL
MAP-BLOCK-LOT:	22/6/28A

LANDLORD:	CROWN CASTLE USA 2000 CORPORATE DRIVE CANONSBURG, PA
LOCAL POWER COMPANY:	CONNECTICUT LIGHT AND POWER CONTACT CUSTOMER SERVICE (800) 286-2000
APPLICANT:	SPRINT 6580 SPRINT PARKWAY OVERLAND PARK, KANSAS 66251
ENGINEER:	JAMES QUICKSELL (845) 567-6656 EXT. 2835 JQuicksell@tectonicengineering.com
SPRINT CM:	PETER CULBERT Peter.Culbert@sprint.com
CROWN CM:	JASON D'AMICO (860) 209-0104 jason.d'amico@crowncastle.com
AAV:	AT&T

VICINITY MAP (NOT TO SCALE)



SHEET INDEX

SHT. NO.	SHEET DESCRIPTION
T-1	TITLE SHEET
SP-1	GENERAL NOTES
SP-2	GENERAL NOTES
A-1	SITE PLAN
A-2	ELEVATION
A-3	ENLARGED EQUIPMENT LAYOUT PLANS
A-4	ANTENNA LAYOUT PLANS
A-5	RAN WIRING DIAGRAM
A-6	CABLE DETAILS
S-1	EQUIPMENT DETAILS
S-2	EQUIPMENT SCHEMATIC DETAILS
E-1	ELECTRICAL & GROUNDING PLANS
E-2	GROUNDING DETAILS & NOTES

GENERAL NOTES

1. THIS IS AN UNMANNED TELECOMMUNICATION FACILITY AND NOT FOR HUMAN HABITATION: HANDICAP ACCESS REQUIREMENTS ARE NOT REQUIRED. FACILITY HAS NO PLUMBING OR REFRIGERANTS. THIS FACILITY SHALL MEET OR EXCEED ALL FAA AND FCC REGULATOR REQUIREMENTS.
2. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE PROJECT OWNER'S REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.
3. DEVELOPMENT AND USE OF THIS SITE WILL CONFORM TO ALL APPLICABLE CODES AND ORDINANCES.
   - 2005 STATE OF CONNECTICUT BUILDING CODE.
   - ANSI/TIA/EIA-222-F-1996.
   - NATIONAL ELECTRICAL CODE, LATEST EDITION.

PROJECT DESCRIPTION

1. (1) NEW 2.5 EQUIPMENT RACK INSIDE EXIST MMBTS CABINET.
2. (3) NEW RFS APXVTM14-C-120 ANTENNAS.
3. (3) NEW TD-RRH8x20-25 RRH.
4. (1) NEW 1-1/4" HYBRID CABLE.
5. (3) NEW RFS APXVSPP18C-A20 ANTENNAS.

AERIAL VIEW (NOT TO SCALE)

APPROVALS

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

CONSTRUCTION: _____ DATE: _____

LEASING/
SITE ACQUISITION: _____ DATE: _____

LANDLORD/
PROPERTY OWNER: _____ DATE: _____

R.F. ENGINEER: _____ DATE: _____

CALL TOLL FREE FOR CONNECTICUT
1-800-922-4455 OR DIAL 811
CALL TWO FULL WORKING DAYS IN ADVANCE TO LOCATE BURIED UTILITY PIPES AND CABLES

Sprint
2.5 EQUIPMENT DEPLOYMENT
6580 SPRINT PARKWAY
OVERLAND PARK, KANSAS 66251

CROWN CASTLE

TECTONIC
• PLANNING
• ENGINEERING
• SURVEYING
• CONSTRUCTION MANAGEMENT

TECTONIC Engineering & Surveying Consultants P.C.
1279 Route 300
Newburgh, NY 12550
Phone: (845) 567-6656
Fax: (845) 567-8703
www.tectonicengineering.com

THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF SPRINT COMMUNICATIONS, INC. 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.

SUBMITTALS

PROJECT NO: 7225.CT03XC376

NO	DATE	DESCRIPTION	BY
0	07/08/14	FOR COMMENT	DC
1	12/12/14	FOR CONSTRUCTION	DC

DATE	REVIEWED BY
12/12/14	JMQ

SEAL

STATE OF CONNECTICUT
MANOJKUMAR PATEL
No. 22038
LICENSED PROFESSIONAL ENGINEER

SITE NUMBER:
CT03XC376

SITE NAME:
WESTON / OMNIPOINT

SITE ADDRESS:
56 NORFIELD ROAD
WESTON, CT 06883

SHEET TITLE:
TITLE SHEET

SHEET NO:
T-1

DIVISION 01000–GENERAL NOTES

1. THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK. THE WORK PERFORMED ON THE PROJECT AND THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES.

2. THE ARCHITECT/ENGINEER HAVE MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION AND CONTRACT DOCUMENTS THE COMPLETE SCOPE OF WORK. THE CONTRACTOR BIDDING THE JOB IS NEVERTHELESS CAUTIONED THAT MINOR OMISSIONS OR ERRORS IN THE DRAWINGS AND OR SPECIFICATIONS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS.

3. THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) THE PROJECT OWNER'S REPRESENTATIVE OF ANY CONFLICTS, ERRORS, OR OMISSIONS PRIOR TO THE SUBMISSION OF CONTRACTOR'S PROPOSAL OR PERFORMANCE OF WORK.

4. THE SCOPE OF WORK SHALL INCLUDE FURNISHING ALL MATERIALS, EQUIPMENT, LABOR AND ALL OTHER MATERIALS AND LABOR DEEMED NECESSARY TO COMPLETE THE WORK/PROJECT AS DESCRIBED HEREIN.

5. THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION OF BIDS OR PERFORMING WORK TO FAMILIARIZE HIMSELF WITH THE FIELD CONDITIONS AND TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

6. ONCE THE CONTRACTOR HAS RECEIVED AND ACCEPTED THE NOTICE TO PROCEED, CONTRACTOR WILL CONTACT THE CROWN CASTLE CONSTRUCTION MANAGER OF RECORD (NOTED ON THE FIRST PAGE ON THIS CONSTRUCTION DRAWING) A MINIMUM OF 48 HOURS PRIOR TO WORK START. UPON ARRIVAL TO THE JOB SITE, CONTRACTOR CREW IS REQUIRED CALL 1–800–788–7011 TO NOTIFY THE CROWN CASTLE NOC WORK HAS BEGUN.

7. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S/VENDOR'S SPECIFICATIONS UNLESS NOTED OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.

8. THE CONTRACTOR SHALL PROVIDE A FULL SET OF CONSTRUCTION DOCUMENTS AT THE SITE UPDATED WITH THE LATEST REVISIONS AND ADDENDUMS OR CLARIFICATIONS AVAILABLE FOR THE USE BY ALL PERSONNEL INVOLVED WITH THE PROJECT.

9. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.

10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY OR LOCAL GOVERNMENT AUTHORITY.

11. THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, EASEMENTS, PAVING, CURBING, ETC. DURING CONSTRUCTION. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DUE TO CONSTRUCTION ON OR ABOUT THE PROPERTY.

12. THE CONTRACTOR SHALL KEEP THE GENERAL WORK AREA CLEAN AND HAZARD FREE DURING CONSTRUCTION AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH AND REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY. PREMISES SHALL BE LEFT IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE.

13. THE CONTRACTOR SHALL COMPLY WITH ALL PERTINENT SECTIONS OF THE BASIC STATE BUILDING CODE, LATEST EDITION, AND ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJECT. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK SHALL BE RELOCATED AS DIRECTED BY THE ARCHITECT/ENGINEER. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR PIER DRILLING AROUND OR NEAR UTILITIES. THE CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT LIMITED TO A) FALL PROTECTION, B) CONFINED SPACE, C) ELECTRICAL SAFETY, D) TRENCHING AND EXCAVATION OF ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHICH INTERFERE WITH THE EXECUTION OF THE WORK SHALL BE REMOVED AND OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT THE POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK SUBJECT TO THE APPROVAL OF THE ARCHITECT/ENGINEER.

14. THE CONTRACTOR SHALL NOTIFY THE PROJECT OWNER'S REPRESENTATIVE IN WRITING WHERE A CONFLICT OCCURS ON ANY OF THE CONTRACT DOCUMENTS. THE CONTRACTOR IS NOT TO ORDER MATERIAL OR CONSTRUCT ANY PORTION OF THE WORK THAT IS IN CONFLICT UNTIL CONFLICT IS RESOLVED BY THE LESSEE/LICENSEE REPRESENTATIVE.

15. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC. ON THE JOB.

16. THE CONTRACTOR SHALL NOTIFY THE THE RF ENGINEER FOR ANTENNA AZIMUTH VERIFICATION (DURING ANTENNA INSTALLATION) PRIOR TO CONDUCTING SWEEP TESTS.

17. THE CONTRACTOR SHALL SUBMIT AT THE END OF THE PROJECT A COMPLETE SET OF AS–BUILT DRAWINGS TO THE CLIENT REPRESENTATIVE.

18. REFER TO: CONSTRUCTION STANDARDS–SPRINT DOCUMENT EXHIBIT A–STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES REV. 4.0– 02.15.2011.DOCM.

19. REFER TO: WEATHER PROOFING SPECS: EXCERPT EXH A–WIHRPRF–STD CONSTR SPECS._1572011104218554 92.DOCM.

20. REFER TO: COLOR CODING–SPRINT NEXTEL ANT AND LINE COLOR CODING (DRAFT) V3 09–08–11.PDF

21. REFER TO LATEST DOCUMENTATION REVISION.

DIVISION 03000–CONCRETE

1.03 APPLICABLE STANDARDS (USE LATEST EDITIONS)

A. ACI–301 – SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS.
B. ACI–347 GUIDE TO FORM WORK FOR CONCRETE.
C. ASTM C33– CONCRETE AGGREGATE
D. ASTM C94 – READY MIXED CONCRETE e. ASTM C150 – PORTLAND CEMENT.
E. ASTM C260 – AIR–ENTRAINING ADMIXTURES FOR CONCRETE
F. ASTM C309– LIQUID MEMBRANE FORMING COMPOUNDS FOR CURING CONCRETE.
H. ASTM C494 – CHEMICAL ADMIXTURES FOR CONCRETE
I. ASTM A615– DEFORMED AND PLAIN BILLET–STEEL BARS FOR CONCRETE REINFORCEMENT
J. ASTM A185– STEEL WELDED WIRE FABRIC (PLAIN) FOR CONCRETE REINFORCEMENT

1.04 QUALITY ASSURANCE

CONCRETE MATERIALS AND OPERATIONS SHALL BE TESTED AND INSPECTED BY THE ARCHITECT/ENGINEER AS DIRECTED BY THE CLIENT'S REPRESENTATIVE.

3.04 SURFACE FINISHES

A. SURFACES AGAINST WHICH BACKFILL OR CONCRETE SHALL BE PLACED REQUIRE NO TREATMENT EXCEPT REPAIR OF DEFECTIVE AREAS.

B. SURFACES THAT WILL BE PERMANENTLY EXPOSED SHALL PRESENT A UNIFORM FINISH PROVIDED BY THE REMOVAL OF FINS AND THE FILLING HOLES AND OTHER IRREGULARITIES WITH DRY PACK GROUT, OR BY SACKING WITH UTILITY OR ORDINARY GROUT.

C. SURFACES THAT WOULD NORMALLY BE LEVEL AND WHICH WILL BE PERMANENTLY EXPOSED TO THE WEATHER SHALL BE SLOPED FOR DRAINAGE. UNLESS ENGINEER'S DESIGN DRAWING SPECIFIES A HORIZONTAL SURFACE OR SURFACES SUCH AS STAIR TREADS, WALLS, CURBS, AND PARAPETS SHALL BE SLOPED APPROXIMATELY 1/4" PER FOOT.

D. SURFACES THAT WILL BE COVERED BY BACKFILL OR CONCRETE SHALL BE SMOOTH SCREENED.

E. EXPOSED SLAB SURFACES SHALL BE CONSOLIDATED, SCREENED, FLOATED, AND STEEL TROWELED. HAND OR POWER–DRIVEN EQUIPMENT MAY BE USED FOR FLOATING. FLOATING SHALL BE STARTED AS SOON AS THE SCREENED SURFACE HAS ATTAINED A STIFFNESS TO PERMIT FINISHING OPERATIONS. OPERATIONS. ALL EDGES MUST HAVE A 3/4" CHAMFER.

1.04 QUALITY ASSURANCE CONCRETE MATERIALS AND OPERATIONS SHALL BE TESTED AND INSPECTED BY THE ENGINEER.

3.05 PATCHING

THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY UPON REMOVAL OF THE FORMS TO OBSERVE CONCRETE SURFACE CONDITIONS. IMPERFECTIONS SHALL BE PATCHED ACCORDING TO THE ENGINEER'S DIRECTION.

3.06 DEFECTIVE CONCRETE

THE CONTRACTOR SHALL NOTIFY OR REPLACE CONCRETE NOT CONFORMING TO REQUIRED LEVELS AND LINES, DETAILS, AND ELEVATIONS AS SPECIFIED IN ACI 301.

3.07 PROTECTION

A. IMMEDIATELY AFTER PLACEMENT. THE CONTRACTOR SHALL PROTECT THE CONCRETE FROM PREMATURE DRYING, EXCESSIVELY HOT OR COLD TEMPERATURES, AND MECHANICAL INJURY. FINISHED WORK SHALL BE PROTECTED.

B. CONCRETE SHALL BE MAINTAINED WITH MINIMAL MOISTURE LOSS AT RELATIVELY CONSTANT TEMPERATURE FOR PERIOD NECESSARY FOR HYDRATION OF CEMENT AND HARDENING OF CONCRETE.

C. ALL CONCRETE SHALL BE WATER CURED PER ACCEPTABLE PRACTICES SPECIFIED BY ACI CODE (LATEST EDITION)

DIVISION 05000 – METALS

PART 1 – GENERAL

1.01 WORK INCLUDED

A. THE WORK CONSISTS OF THE FABRICATION AND INSTALLATION OF ALL MATERIALS TO BE FURNISHED. AND WITHOUT LIMITING THE GENERALITY THEREOF, INCLUDING ALL EQUIPMENT, LABOR AND SERVICES REQUIRED FOR ALL STRUCTURAL STEEL WORK AND ALL ITEMS INCIDENTAL AS SPECIFIED AND AS SHOWN ON THE DRAWINGS:

1. STEEL FRAMING INCLUDING BEAMS, ANGLES, CHANNELS AND PLATES.
2. WELDING AND BOLTING OF ATTACHMENTS.

1.02 REFERENCE STANDARDS

A. THE WORK SHALL CONFORM TO THE CODES AND STANDARDS OF THE FOLLOWING AGENCIES AS FURTHER CITED HEREIN:

1. ASTM: AMERICAN SOCIETY FOR TESTING AND MATERIALS AS PUBLISHED IN "COMPILATION OF ASTM STANDARDS IN BUILDING CODES" OR LATEST EDITION.
2. AWS: AMERICAN WELDING SOCIETY CODE OR LATEST EDITION.
3. AISC: AMERICAN INSTITUTE OF STEEL CONSTRUCTION, "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS" (LATEST EDITION).

PART 2 – PRODUCTS

2.01 MATERIALS

A. STRUCTURAL STEEL: SHALL COMPLY WITH THE REQUIREMENTS OF ASTM A36 AND A992 FOR STRUCTURAL STEEL.

ALL PROPOSED STRUCTURAL STEEL SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH AISC CODE AND ASTM SPECIFICATIONS (LATEST EDITION) ALL NEW STEEL SHALL CONFORM TO THE FOLLOWING.

1. STRUCTURAL WIDE FLANGE: ASTM A992 Fy=50KSI.
2. MISCELLANEOUS STEEL (PLATES), CHANNELS, ANGLES, ETC): ASTM A36 (Fy=36KSI).
3. STRUCTURAL TUBING: ASTM A500 Gr. B (Fy=46KSI).
4. STEEL PIPE: ASTM A53 Gr B (Fy=35KSI).

2.02 WELDING

A. ALL WELDING SHALL BE DONE BY CERTIFIED WELDERS. CERTIFICATION DOCUMENTS SHALL BE MADE AVAILABLE FOR ENGINEER'S AND/OR OWNER'S REVIEW IF REQUESTED.

B. WELDING ELECTRODES FOR MANUAL SHIELDED METAL ARC WELDING SHALL CONFORM TO ASTM 1–233, E70 SERIES. BARE ELECTRODES AND GRANULAR FLUX USED IN THE SUBMERGED ARC PROCESS SHALL CONFORM TO AISC SPECIFICATIONS.

C. FIELD WELDING SHALL BE DONE AS PER AWS D1.1 REQUIREMENTS VISUAL INSPECTION IS ACCEPTABLE.

D. STUD WELDING SHALL BE ACCOMPLISHED BY CAPACITOR DISCHARGE (CD) WELDING TECHNIQUE USING CAPACITOR DISCHARGE STUD WELDER.

E. PROVIDE STUD FASTENERS OF MATERIALS AND SIZES SHOWN ON DRAWINGS OR AS RECOMMENDED BY THE MANUFACTURER FOR STRUCTURAL LOADINGS REQUIRED.

F. FOLLOW MANUFACTURERS SPECIFICATIONS AND INSTRUCTIONS TO PROPERLY SELECT AND INSTALL STUD WELDS.

2.03 BOLTING

A. BOLTS SHALL BE CONFORMING TO ASTM A35 HIGH STRENGTH HOT DIP GALVANIZED WITH ASTM A153 HEAVY HEX TYPE NUTS.

B. BOLTS SHALL BE 3/4" (MINIMUM) CONFORMING TO ASTM A325, HOT DIP GALVANIZED, ASTM A153 NUTS SHALL BE HEAVY HEX TYPE.

C. ALL CONNECTIONS SHALL BE 2 BOLTS MINIMUM.

D. EXCEPT WHERE SHOWN, ALL BEAM TO BEAM AND BEAM TO COLUMN CONNECTIONS TO BE DOUBLE ANGLED CONNECTIONS WITH HIGH STRENGTH BOLTS (THREADS EXCLUDED FROM SHEAR PLANE) AND HARDENED WASHERS.

E. STANDARD, OVERSIZED OR HORIZONTAL SHORT SLOTTED HOLES.

F. SNUG–TIGHT STRENGTH BEARING BOLTS MAY BE USED IN STANDARD HOLES CONFORMING TO ACIS, USING THE TURN OF THE NUT METHOD.

H. FULLY–TENSIONED HIGH STRENGTH (SLIP CRITICAL) SHALL BE USED IN OVERSIZED SLOT HOLES (RESPECTIVE OF SLOT ORIENTATION).

I. ALL BRACED CONNECTION, MOMENT CONNECTION AND CONNECTIONS NOTED AS "SLIP CRITICAL" SHALL BE BE SLIP CRITICAL JOINTS WITH CLASS A SURFACE CONDITIONS, UNLESS OTHERWISE NOTED.

J. EPOXY ANCHOR ASSEMBLIES SHALL BE AS MANUFACTURED BY HILTI OR ENGINEER APPROVED EQUAL, AS FOLLOWS:

BASE MATERIAL	ANCHOR SYSTEM
CONCRETE	HILTI HIT–HY 200
HOLLOW & GROUTED CMU OR BRICK	HILTI HIT–HY 70

2.04 FABRICATION

A. FABRICATION OF STEEL SHALL CONFORM TO THE AISC AND AWS

2.05 FINISH

A. STRUCTURAL STEEL EXPOSED TO WEATHER SHALL BE HOT–DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123. (LATEST EDITION) UNLESS OTHERWISE NOTED.

2.06 PROTECTION

A. UPON COMPLETION OF ERECTION, INSPECT ALL GALVANIZED STEEL AND PAINT ANY FIELD CUTS, WELDS OR GALVANIZED BREAKS WITH (2) COATS OF ZINC–RICH COLD GALVANIZING PAINT.

PART 3 – ERECTION

A. PROVIDE ALL ERECTION, EQUIPMENT, BRACING, PLANKING, FIELD BOLTS, NUTS, WASHERS, DRIFT PINS, AND SIMILAR MATERIALS WHICH DO NOT FORM A PART OF THE COMPLETED CONSTRUCTION, BUT ARE NECESSARY FOR ITS PROPER ERECTION.

B. ERECT AND ANCHOR ALL STRUCTURAL STEEL IN ACCORDANCE WITH AISC REFERENCE STANDARDS. ALL WORK SHALL BE ACCURATELY SET TO ESTABLISHED SUITABLE ATTACHMENTS TO THE CONSTRUCTION OF THE BUILDING

C. TEMPORARY BRACING, GUYING, AND SUPPORT SHALL BE PROVIDED TO KEEP THE STRUCTURE SET AND ALIGNED AT ALL TIMES DURING CONSTRUCTION, AND TO PREVENT DANGER TO PERSONS AND PROPERTY. CHECK ALL TEMPORARY LOADS AND STAY WITHIN SAFE CAPACITY OF ALL BUILDING COMPONENTS.

Sprint

2.5 EQUIPMENT DEPLOYMENT
6580 SPRINT PARKWAY
OVERLAND PARK, KANSAS 66251

CROWN CASTLE

TECTONIC • PLANNING • ENGINEERING • SURVEYING • CONSTRUCTION MANAGEMENT

TECTONIC Engineering & Surveying Consultants P.C.

1279 Route 300
Newburgh, NY 12550

Phone: (845) 567–6656
Fax: (845) 567–8703

www.tectonicengineering.com

THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF SPRINT COMMUNICATIONS, INC. 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.

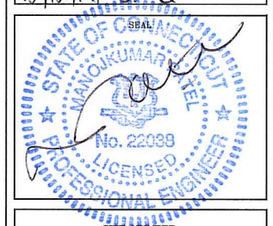
SUBMITTALS

PROJECT NO: 7225.CT03XC376

NO	DATE	DESCRIPTION	BY
0	07/08/14	FOR COMMENT	DC
1	12/12/14	FOR CONSTRUCTION	DC

DATE	REVIEWED BY
12/12/14	JMQ

SEAL



SITE NUMBER:
CT03XC376

SITE NAME:
WESTON / OMNIPOINT

SITE ADDRESS:
56 NORFIELD ROAD
WESTON, CT 06883

SHEET TITLE:
GENERAL NOTES

SHEET NO:
SP–1

DIVISION 13000–SPECIAL CONSTRUCTION ANTENNA INSTALLATION

PART 1 – GENERAL

1.01 WORK INCLUDED

A. ANTENNAS AND HYBRIFLEX CABLES ARE FURNISHED BY CLIENT'S REPRESENTATIVE UNDER SEPARATE CONTRACT. THE CONTRACTOR SHALL ASSIST ANTENNA INSTALLATION CONTRACTOR IN TERMS OF COORDINATION AND SITE ACCESS. ERECTION SUBCONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPERTY.

B. INSTALL ANTENNAS AS INDICATED ON DRAWINGS AND CLIENT'S REPRESENTATIVE SPECIFICATIONS.

C. INSTALL GALVANIZED STEEL ANTENNA MOUNTS AS INDICATED ON DRAWINGS.

D. INSTALL FURNISHED GALVANIZED STEEL OR ALUMINUM WAVEGUIDE AND PROVIDE PRINTOUT OF THAT RESULT

F. INSTALL HYBRIFLEX CABLES AND TERMINATIONS BETWEEN ANTENNAS AND EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS. WEATHERPROOF ALL CONNECTORS BETWEEN THE ANTENNA AND EQUIPMENT PER MANUFACTURER'S REQUIREMENTS.

G. ANTENNA AND HYBRIFLEX CABLE GROUNDING:

1. ALL EXTERIOR #6 GREEN GROUND WIRE DAISY CHAIN CONNECTIONS ARE TO BE WEATHER SEALED WITH ANDREWS CONNECTOR/SPLICE WEATHERPROOFING KIT TYPE 3221213 OR EQUIVALENT.

2. ALL HYBRIFLEX CABLE GROUNDING KITS ARE TO BE INSTALLED ON STRAIGHT RUNS OF HYBRIFLEX CABLE (NOT WITHIN BENDS). 1.02 RELATED WORK FURNISH THE FOLLOWING WORK AS SPECIFIED UNDER CONSTRUCTION DOCUMENTS, BUT COORDINATE WITH QOTHER TRADES PRIOR TO BID:

   1. FLASHING OF OPENING INTO OUTSIDE WALLS.
   2. SEALING AND CAULKING ALL OPENINGS.
   3. PAINTING.
   4. CUTTING AND PATCHING.

1.03 REQUIREMENTS OF REGULATOR AGENCIES

A. FURNISH U.L. LISTED EQUIPMENT WHERE SUCH LABEL IS AVAILABLE. INSTALL IN CONFORMANCE WITH U.L. STANDARDS WHERE APPLICABLE.

B. INSTALL ANTENNA, ANTENNA CABLES, GROUNDING SYSTEM IN ACCORDANCE WITH DRAWINGS AND SPECIFICATIONS IN EFFECT AT PROJECT LOCATION AND RECOMMENDATIONS OF STATE AND LOCAL BUILDING CODES HAVING JURISDICTION OVER SPECIFIC PORTIONS OF WORK. THIS WORK INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING:

1. EIA – ELECTRONIC INDUSTRIES ASSOCIATION RS–22. STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES.

2. FAA – FEDERAL AVIATION ADMINISTRATION ADVISORY CIRCULAR AC 70/7480–IH, CONSTRUCTION MARKING AND LIGHTING.

3. FCC – FEDERAL COMMUNICATION COMMISSION RULES AND REGULATIONS FORM 715, OBSTRUCTION MARKING AND LIGHTING SPECIFICATION FOR ANTENNA STRUCTURES

4. AISC – AMERICAN INSTITUTE OF STEEL CONSTRUCTION FOR STRUCTURAL JOINTS USING ASTM 1325 OR A490 BOLTS.

5. NEC – NATIONAL ELECTRIC CODE – ON TOWER LIGHTING KITS.

6. UL – UNDERWRITER'S LABORATORIES APPROVED ELECTRICAL PRODUCTS.

7. IN ALL CASES, PART 77 OF THE FAA RULES AND PARTS 17 AND 22 OF THE FCC RULES ARE APPLICABLE AND IN THE EVENT OF CONFLICT, SUPERSEDE ANY OTHER STANDARDS OR SPECIFICATIONS.

8. LIFE SAFETY CODE NFPA, LATEST EDITION.

DIVISION 13000–EARTHWORK

PART 1 GENERAL

1.01 WORK INCLUDED: REFER TO SURVEY AND SITE PLAN FOR WORK INCLUDED.

1.02 RELATED WORK

A. CONSTRUCTION OF EQUIPMENT FOUNDATIONS
B. INSTALLATION OF ANTENNA SYSTEM

PART 2 PRODUCTS

2.01 MATERIALS

A. ROAD AND SITE MATERIALS; FILL MATERIAL SHALL BE ACCEPTABLE, SELECT FILL SHALL BE IN ACCORDANCE WITH LOCAL DEPARTMENT OF HIGHWAY AND PUBLIC TRANSPORTATION STANDARD SPECIFICATIONS.

B. SOIL STERILIZER SHALL BE EPA REGISTERED OF LIQUID COMPOSITION AND OF PRE–EMERGENCE DESIGN.

C. SOIL STABILIZER FABRIC SHALL BE MIRAFI OR EQUAL – 600X AT ACCESS ROAD AND COMPOUND.

D. GRAVEL FILL; WELL GRADED, HARD, DURABLE, NATURAL SAND AND GRAVEL, FREE FROM ICE AND SNOW, ROOTS, SOD RUBBISH, AND OTHER DELETERIOUS OR ORGANIC MATTER.

MATERIAL SHALL CONFORM TO THE FOLLOWING GRADATION REQUIREMENTS.

GRAVEL FILL TO BE PLACED IN LIFTS OF 9" MAXIMUM THICKNESS AND 90 % DENSITY. COMPACTED TO 95

E. NO FILL OR EMBANKMENT MATERIALS SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OF EMBANKMENT

2.02 EQUIPMENT

A. COMPACTION SHALL BE ACCOMPLISHED BY MECHANICAL MEANS. LARGER AREAS SHALL BE COMPACTED BY SHEEPS FOOT, VIBRATORY OR RUBBER TIED ROLLERS WEIGHING AT LEAST FIVE TONS. SMALLER AREAS SHALL BE COMPACTED BY POWER–DRIVER, HAND HELD TAMPERS.

B. PRIOR TO OTHER EXCAVATION AND CONSTRUCTION EFFORTS GRUB ORGANIC MATERIAL TO A MINIMUM OF 6" BELOW ORIGINAL GROUND LEVEL.

C. UNLESS OTHERWISE INSTRUCTED BY CLIENT'S REPRESENTATIVE. REMOVE TREES, BRUSH AND DEBRIS FROM THE PROPERTY TO AN AUTHORIZED DISPOSAL LOCATION.

D. PRIOR TO PLACEMENT OF FILL OR BASE MATERIALS, ROLL THE SOIL.

E. WHERE UNSTABLE SOIL CONDITIONS ARE ENCOUNTERED, LINE THE GRUBBED AREAS WITH STABILIZER MAT PRIOR TO PLACEMENT OF FILL OR BASE MATERIAL.

3.03 INSTALLATION

A. THE SITE AND TURNAROUND AREAS SHALL BE AT THE SUB–BASE COURSE ELEVATION PRIOR TO FORMING FOUNDATIONS. GRADE OR FILL THE SITE AND ACCESS ROAD AS REQUIRED TO PRODUCE EVEN DISTRIBUTION OF SPOILS RESULTING FROM FOUNDATION EXCAVATIONS. THE RESULTING GRADE SHALL CORRESPOND WITH SAID SUB–BASE COURSE, ELEVATIONS ARE TO BE CALCULATED FORM FINISHED GRADES OR SLOPES INDICATED.

B. THE ACCESS ROAD SHALL BE BROUGHT TO BASE COURSE ELEVATION PRIOR TO FOUNDATION CONSTRUCTION.

C. DO NOT CREATE DEPRESSIONS WHERE WATER MAY POND.

D. THE CONTRACT INCLUDES ALL NECESSARY GRADING, BANKING, DITCHING AND COMPLETE SURFACE COURSE FOR ACCESS ROAD. ALL ROADS OR ROUTES UTILIZED FOR ACCESS TO PUBLIC THOROUGHFARE IS INCLUDED IN SCOPE OF WORK UNLESS OTHERWISE INDICATED.

E. WHEN IMPROVING AN EXISTING ACCESS ROAD, GRADE THE EXISTING ROAD TO REMOVE ANY ORGANIC MATTER AND SMOOTH THE SURFACE BEFORE PLACING FILL OR STONE.

F. PLACE FILL OR STONE IN 3" MAXIMUM LIFTS AND COMPACT BEFORE PLACING NEXT LIFT.

G. THE FINISH GRADE, INCLUDING TOP SURFACE COURSE, SHALL EXTEND A MINIMUM OF 12" BEYOND THE SITE FENCE AND SHALL COVER THE AREA AS INDICATED.

H. RIPRAP SHALL BE APPLIED TO THE SIDE SLOPES OF ALL FENCED AREAS, PARKING AREAS AND TO ALL OTHER SLOPES GREATER THAN 2:1.

I. RIPRAP SHALL BE APPLIED TO THE SIDES OF DITCHES OR DRAINAGE SWALES AS INDICATED ON PLANS.

J. RIPRAP ENTIRE DITCH FOR 6'–0" IN ALL DIRECTIONS AT CULVERT OPENINGS.

K. SEED, FERTILIZER AND STRAW COVER SHALL BE APPLIED TO ALL OTHER DISTURBED AREAS AND DITCHES, DRAINAGE, SWALES, NOT OTHERWISE RIP–RAPPED.

L. UNDER NO CIRCUMSTANCES SHALL DITCHES, SWALES OR CULVERTS BE PLACED SO THEY DIRECT WATER TOWARDS, OR PERMIT STANDING WATER IMMEDIATELY ADJACENT TO SITE. IF OWNER DESIGNS OR IF DESIGN ELEVATIONS CONFLICT WITH THIS GUIDANCE ADVISE THE OWNER IMMEDIATELY.

M. IF A DITCH LIES WITH SLOPE GREATER THAN TEN PERCENT, MOUND DIVERSIONARY HEADWALL IN THE DITCH AT CULVERT ENTRANCES. RIP–RAP THE UPSTREAM SIDE OF THE HEADWALL AS WELL AS THE DITCH FOR 6'–0" ABOVE THE CULVERT.

N. IF A DITCH LIES WITH SLOPES GREATER THAN TEN PERCENT, MOUND DIVERSIONARY HEADWALLS IN THE DITCH FOR 6'–0" ABOVE THE CULVERT ENTRANCE.

O. SEED AND FERTILIZER SHALL BE APPLIED TO SURFACE CONDITIONS WHICH WILL ENCOURAGE ROOTING. RAKE AREAS TO BE SEEDED TO EVEN THE SURFACE AND TO LOOSEN THE SOIL.

P. SOW SEED IN TWO DIRECTIONS IN TWICE THE QUANTITY RECOMMENDED BY THE SEED PRODUCER.

Q. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE GROWTH OF SEEDED AND LANDSCAPED AREAS BY WATERING UP TO THE POINT OF RELEASE FROM THE CONTRACT. CONTINUE TO REWORK BARE AREAS UNTIL COMPLETE COVERAGE IS OBTAINED.

3.04 FIELD QUALITY CONTROL

A. COMPACTION SHALL BE D–1557 FOR SITE WORK AND 95 % MAXIMUM DENSITY UNDER SLAB AREAS. AREAS OF SETTLEMENT WILL BE EXCAVATED AND REFILLED AT CONTRACTOR'S EXPENSE. REQUIRED. USE OF EROSION CONTROL MESH OR MULCH NET SHALL BE AN ACCEPTABLE ALTERNATIVE.

B. THE COMPACTION TEST RESULTS SHALL BE AVAILABLE PRIOR TO THE CONCRETE POUR.

3.05 PROTECTION

A. PROTECT SEEDED AREAS FORM EROSION BY SPREADING STRAW TO A UNIFORM LOOSE DEPTH OF 1"–2". STAKE AND TIE DOWN AS REQUIRED. USE OF EROSION CONTROL MESH OR MULCH NET SHALL BE AN ACCEPTABLE ALTERNATIVE.

B. ALL TREES PLACED IN CONJUNCTION WITH A LANDSCAPE CONTRACT SHALL BE WRAPPED, TIED WITH HOSE PROTECTED WIRE AND SECURED TO STAKES EXTENDING 2'–0" INTO THE GROUND ON FOUR SIDES OF THE TREE.

C. ALL EXPOSED AREAS SHALL BE PROTECTED AGAINST WASHOUTS AND SOIL EROSION. STRAW BALES SHALL BE PLACED AT THE INLET APPROACH TO ALL NEW OR EXISTING CULVERTS. REFER TO DETAILS ON DRAWINGS

SYMBOLS	ABBREVIATIONS
— — — G — — — G —	GROUND WIRE
— — — E — — — E —	ELECTRIC
— — — T — — — T —	TELEPHONE
—OH— —OH— —OH— —OH— —OH—	OVERHEAD WIRE
——— — — ———	PROPERTY LINE
—X———X———X———	CHAIN LINK FENCE
A–1	ANTENNA MARK
(E)	EXISTING
(P)	PROPOSED DETAIL
DET # / SHT #	REFERENCE
✦	SURFACE ELEVATION

Sprint

2.5 EQUIPMENT DEPLOYMENT
6580 SPRINT PARKWAY
OVERLAND PARK, KANSAS 66251

CROWN CASTLE

TECTONIC
• PLANNING
• ENGINEERING
• SURVEYING
• CONSTRUCTION MANAGEMENT

TECTONIC Engineering & Surveying Consultants P.C.

1279 Route 300
Newburgh, NY 12550

Phone: (845) 567–6656
Fax: (845) 567–8703

www.tectonicengineering.com

THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF SPRINT COMMUNICATIONS, INC. 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.

SUBMITTALS

PROJECT NO: 7225.CT03XC376

NO	DATE	DESCRIPTION	BY
0	07/08/14	FOR COMMENT	DC
1	12/12/14	FOR CONSTRUCTION	DC

DATE	REVIEWED BY
12/12/14	JMQ

SEAL

STATE OF CONNECTICUT
ANTONJKUMAR
No. 22038
LICENSED
PROFESSIONAL ENGINEER

SITE NUMBER:
CT03XC376

SITE NAME:
WESTON / OMNIPOINT

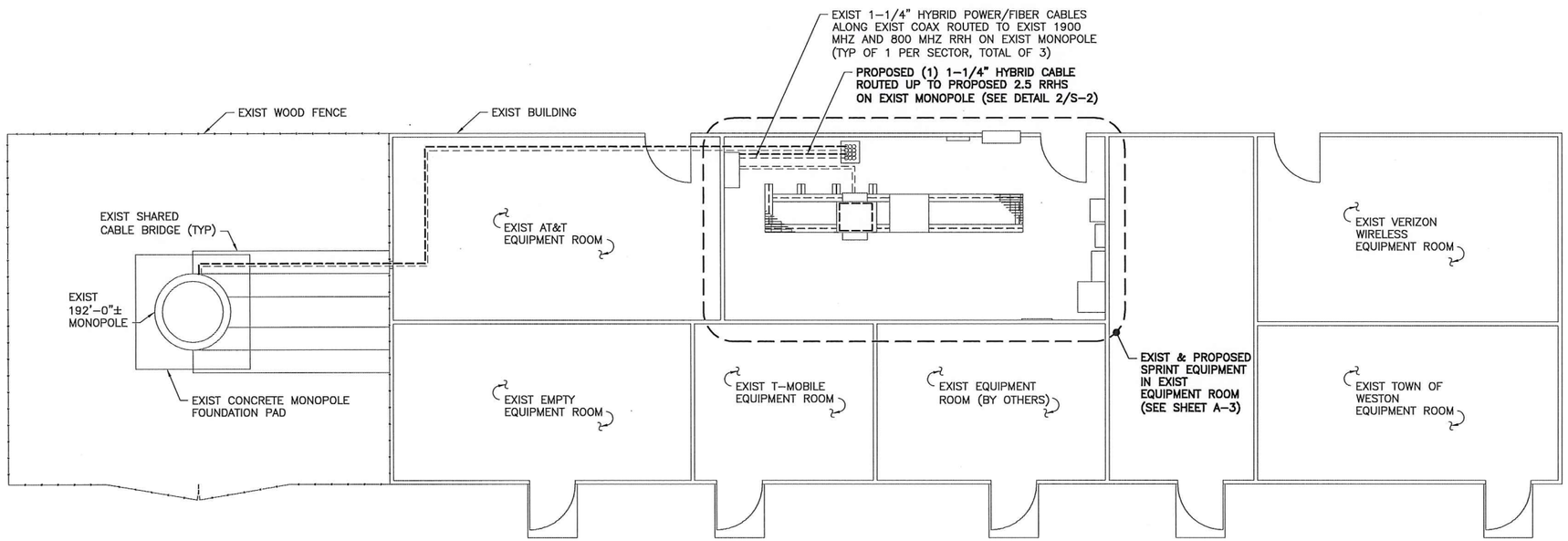
SITE ADDRESS:
56 NORFIELD ROAD
WESTON, CT 06883

SHEET TITLE:
GENERAL NOTES

SHEET NO:
SP–2

NORTH NOTE:

NORTH SHOWN HAS BEEN ESTABLISHED USING THE USGS QUADRANGLE 7.5 MINUTE MAPS AND IS APPROXIMATE. VERIFY TRUE NORTH PRIOR TO INSTALLATION OF ANTENNAS.



1 A-1 SITE PLAN

SCALE: 1/4" = 1'-0"

Sprint

2.5 EQUIPMENT DEPLOYMENT
6580 SPRINT PARKWAY
OVERLAND PARK, KANSAS 66251

CROWN CASTLE

TECTONIC
• PLANNING
• ENGINEERING
• SURVEYING
• CONSTRUCTION MANAGEMENT

TECTONIC Engineering & Surveying Consultants P.C.

1279 Route 300
Newburgh, NY 12550

Phone: (845) 567-6656
Fax: (845) 567-8703

www.tectonicengineering.com

THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF SPRINT COMMUNICATIONS, INC. 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.

SUBMITTALS

PROJECT NO: 7225.CT03XC376

NO	DATE	DESCRIPTION	BY
0	07/08/14	FOR COMMENT	DC
1	12/12/14	FOR CONSTRUCTION	DC

DATE	REVIEWED BY
12/12/14	JMG

SEAL

STATE OF CONNECTICUT
MANOJKUMAR PATEL
No. 22033
LICENSED
PROFESSIONAL ENGINEER

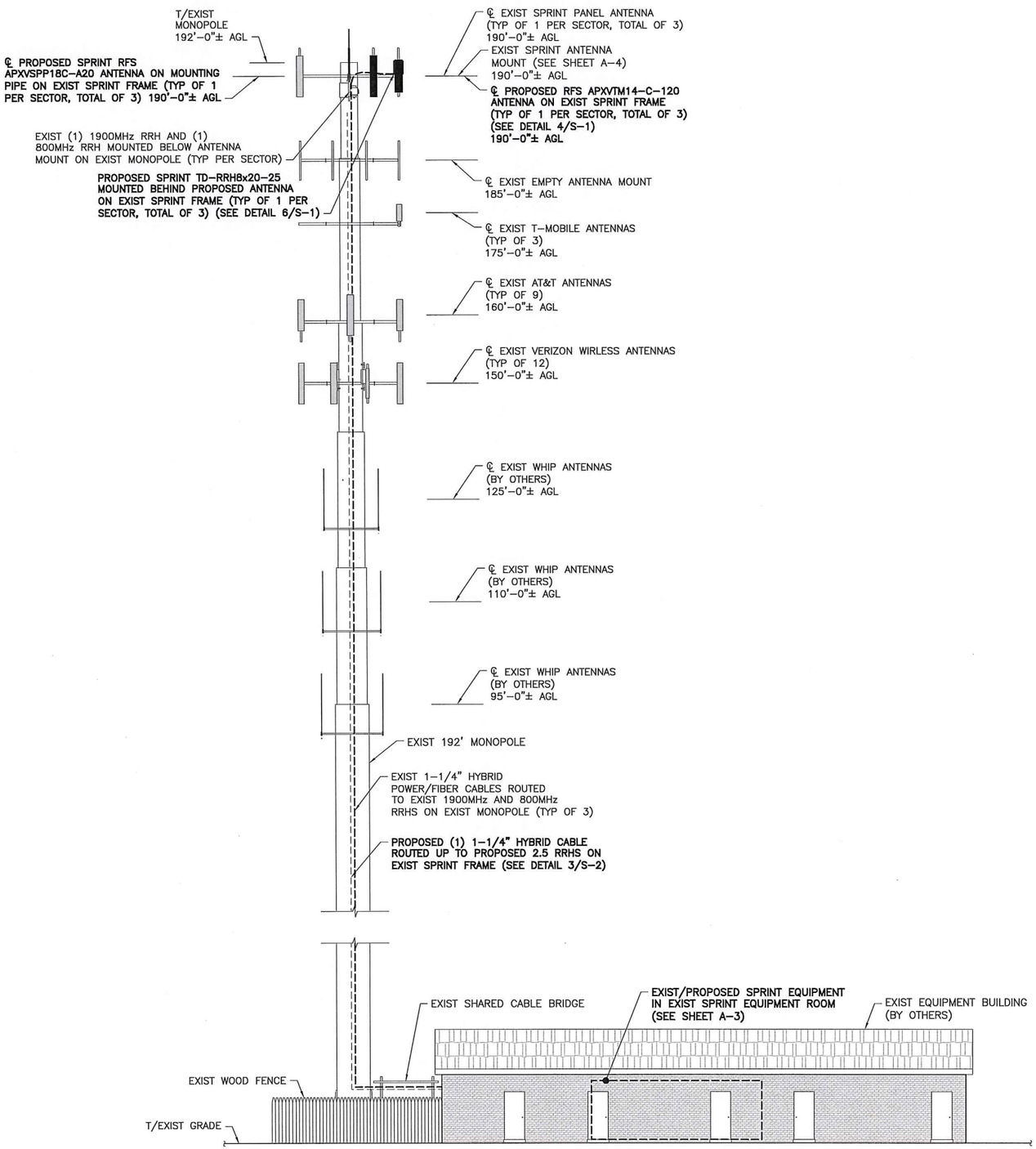
SITE NUMBER:
CT03XC376

SITE NAME:
WESTON / OMNIPOINT

SITE ADDRESS:
56 NORFIELD ROAD
WESTON, CT 06883

SHEET TITLE:
SITE PLAN

SHEET NO:
A-1

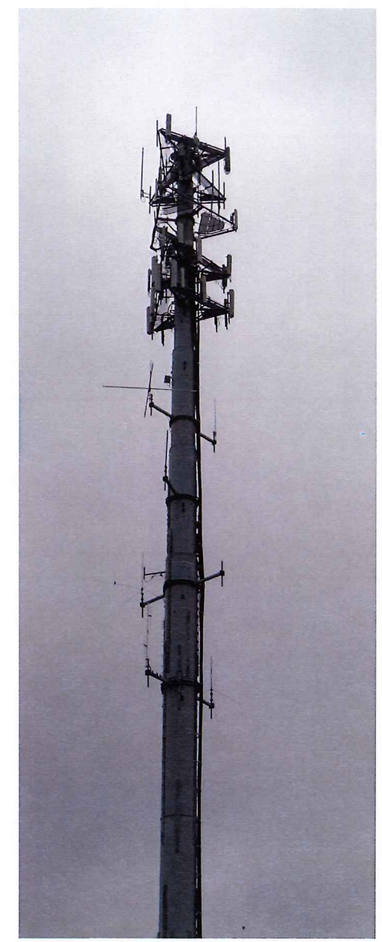


1 / A-2 ELEVATION

SCALE: 1/8" = 1'-0"

THE EXISTING MONOPOLE SHALL BE ANALYZED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF CONNECTICUT (TO BE COORDINATED BY OTHERS).

THE EXISTING MOUNT HAS BEEN ANALYZED BY TECTONIC ENGINEERING AND FOUND TO BE ADEQUATE TO SUPPORT THE PROPOSED SPRINT UPGRADE AS DETAILED IN THE STRUCTURAL ANALYSIS EVALUATION LETTER DATED 12/12/14.



Sprint

2.5 EQUIPMENT DEPLOYMENT
6580 SPRINT PARKWAY
OVERLAND PARK, KANSAS 66251

CROWN CASTLE

TECTONIC
• PLANNING
• ENGINEERING
• SURVEYING
• CONSTRUCTION MANAGEMENT

TECTONIC Engineering & Surveying Consultants P.C.
1279 Route 300
Newburgh, NY 12550
Phone: (845) 567-6656
Fax: (845) 567-8703
www.tectonicengineering.com

THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF SPRINT COMMUNICATIONS, INC. 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.

SUBMITTALS

PROJECT NO: 7225.CT03XC376

NO	DATE	DESCRIPTION	BY
0	07/08/14	FOR COMMENT	DC
1	12/12/14	FOR CONSTRUCTION	DC

DATE	REVIEWED BY
12/12/14	JMQ

SEAL

STATE OF CONNECTICUT
MANOJKUMAR PATEL
No. 22038
LICENSED
PROFESSIONAL ENGINEER

SITE NUMBER:
CT03XC376

SITE NAME:
WESTON / OMNIPOINT

SITE ADDRESS:
56 NORFIELD ROAD
WESTON, CT 06883

SHEET TITLE:
ELEVATION

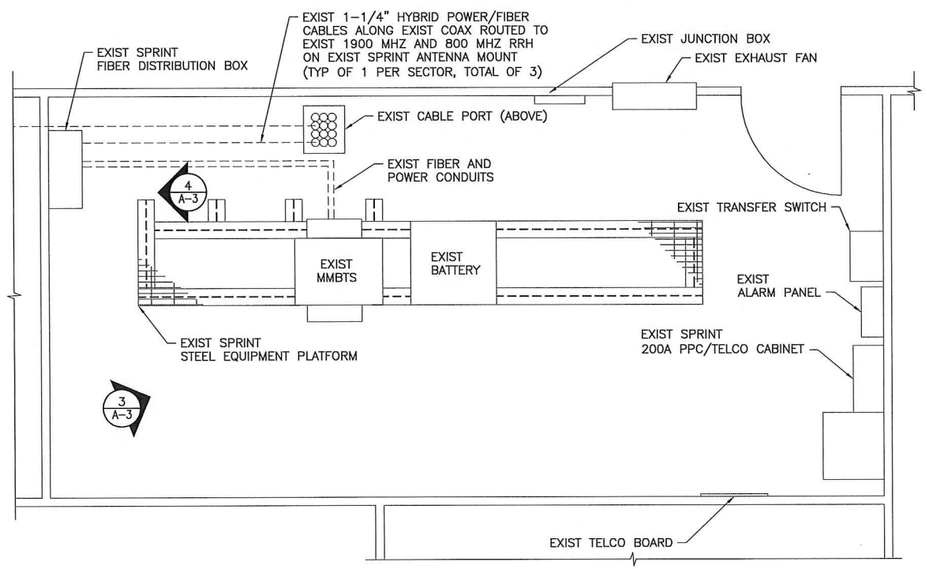
SHEET NO:
A-2

NORTH NOTE:

NORTH SHOWN HAS BEEN ESTABLISHED USING THE USGS QUADRANGLE 7.5 MINUTE MAPS AND IS APPROXIMATE. VERIFY TRUE NORTH PRIOR TO INSTALLATION OF ANTENNAS.

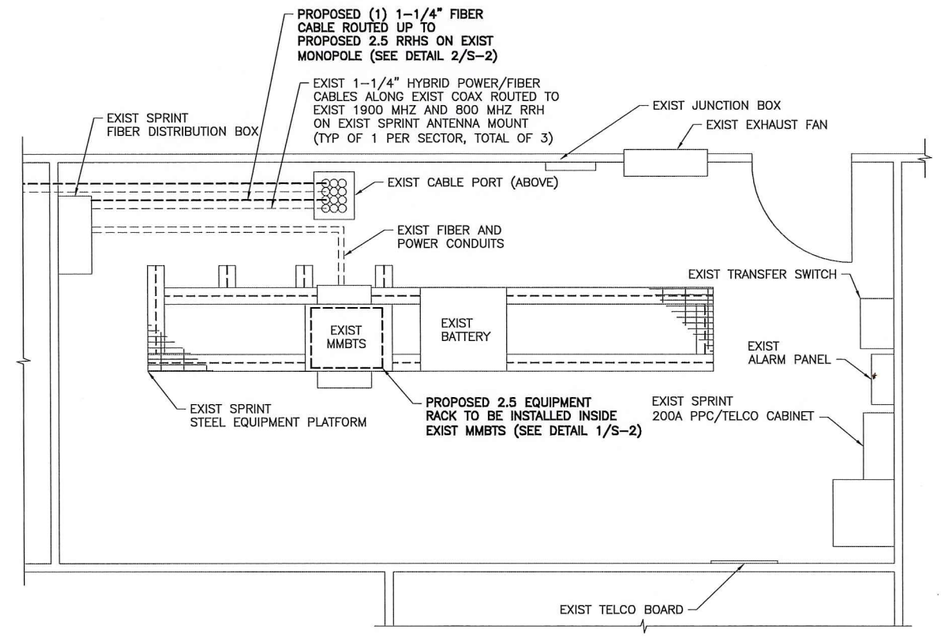
N

APPROX.



1 A-3 ENLARGED EQUIP. LAYOUT PLAN (EXIST)

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

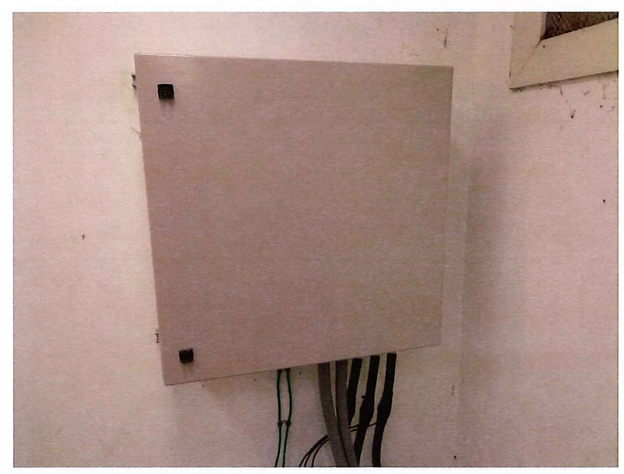


2 A-3 ENLARGED EQUIP. LAYOUT PLAN (FINAL)

SCALE: 3/4" = 1'-0"

3 A-3 EXIST EQUIPMENT ROOM

SCALE: NTS



4 A-3 EXIST FIBER DISTRIBUTION BOX

SCALE: NTS

Sprint

2.5 EQUIPMENT DEPLOYMENT
6580 SPRINT PARKWAY
OVERLAND PARK, KANSAS 66251

CROWN CASTLE

TECTONIC
• PLANNING
• ENGINEERING
• SURVEYING
• CONSTRUCTION MANAGEMENT

TECTONIC Engineering & Surveying Consultants P.C.

1279 Route 300
Newburgh, NY 12550

Phone: (845) 567-6656
Fax: (845) 567-8703

www.tectonicengineering.com

THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF SPRINT COMMUNICATIONS, INC. 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.

SUBMITTALS

PROJECT NO: 7225.CT03XC376

NO	DATE	DESCRIPTION	BY
0	07/08/14	FOR COMMENT	DC
1	12/12/14	FOR CONSTRUCTION	DC

DATE	REVIEWED BY
12/12/14	JMQ

SEAL

STATE OF CONNECTICUT
MANOJKUMAR J. PATEL
No. 22038
LICENSED PROFESSIONAL ENGINEER

SITE NUMBER:
CT03XC376

SITE NAME:
WESTON / OMNIPOINT

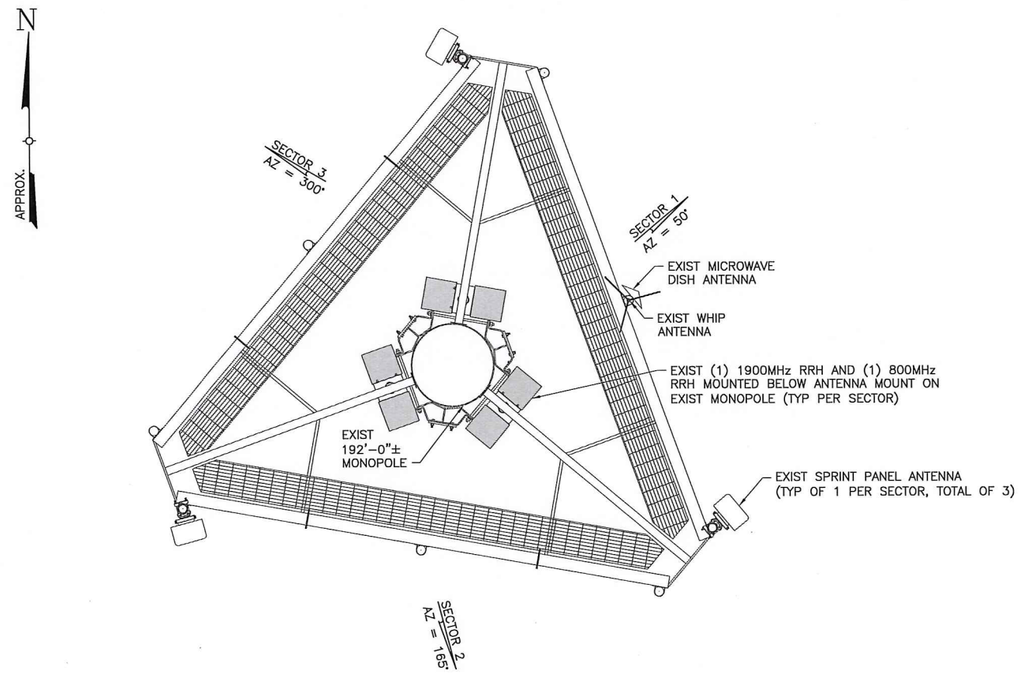
SITE ADDRESS:
56 NORFIELD ROAD
WESTON, CT 06883

SHEET TITLE:
ENLARGED EQUIPMENT LAYOUT PLANS

SHEET NO:
A-3

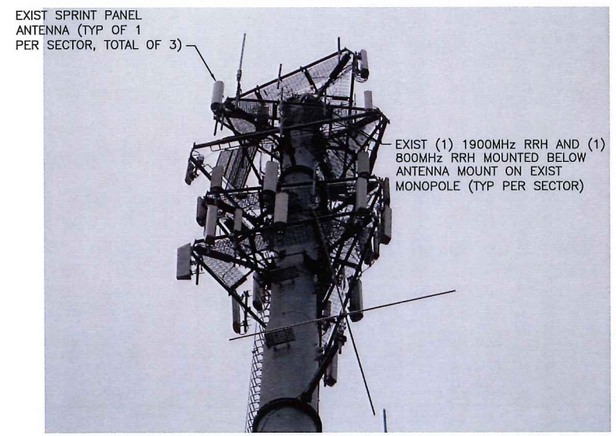
THE EXISTING MONOPOLE SHALL BE ANALYZED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF CONNECTICUT (TO BE COORDINATED BY OTHERS).

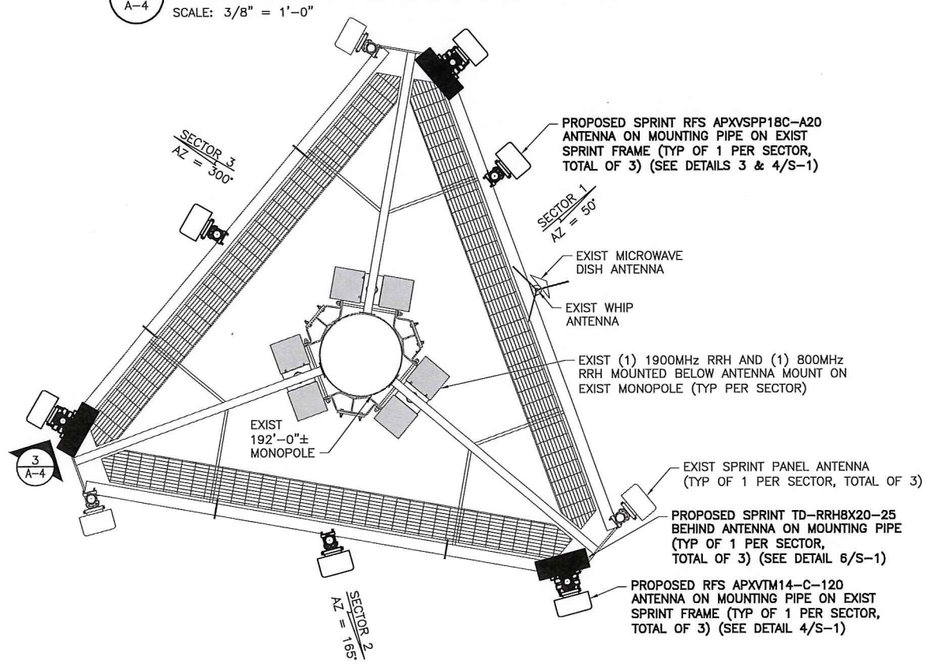
THE EXISTING MOUNT HAS BEEN ANALYZED BY TECTONIC ENGINEERING AND FOUND TO BE ADEQUATE TO SUPPORT THE PROPOSED SPRINT UPGRADE AS DETAILED IN THE STRUCTURAL ANALYSIS EVALUATION LETTER DATED 12/12/14.



1 A-4 ANTENNA LAYOUT PLAN (EXIST)

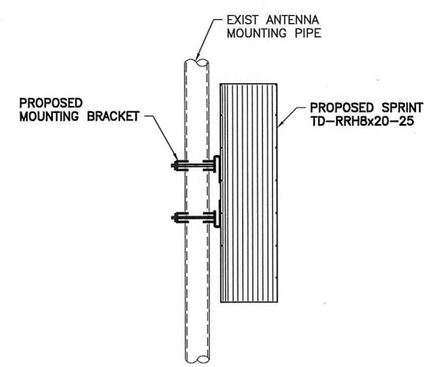
SCALE: 3/8" = 1'-0"





2 A-4 ANTENNA LAYOUT PLAN (FINAL)

SCALE: 3/8" = 1'-0"



3 A-4 RRH MOUNTING DETAIL

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

ANTENNA DATA

Status	Exist	Proposed	Proposed
Antenna Manufacturer	RFS-CEL WAVE	RFS-CEL WAVE	RFS-CEL WAVE
Antenna Model Number	APXVSPP18C-A20	APXVSPP18C-A20	APXVTM14-C-120
Number of Antennas	3	3	3
Antenna RAD Center	190'	190'	190'
Antenna Azimuth	50/165/300	50/165/300	50/165/300
Antenna RRH Model Number	1900MHz/800MHz RRHS	N/A	TD-RRH8x20-25
Number of RRH	6	N/A	3

Sprint

2.5 EQUIPMENT DEPLOYMENT
6580 SPRINT PARKWAY
OVERLAND PARK, KANSAS 66251

CROWN CASTLE

TECTONIC
• PLANNING
• ENGINEERING
• SURVEYING
• CONSTRUCTION MANAGEMENT

TECTONIC Engineering & Surveying Consultants P.C.
1279 Route 300
Newburgh, NY 12550
Phone: (845) 567-6656
Fax: (845) 567-8703
www.tectonicengineering.com

THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF SPRINT COMMUNICATIONS, INC. 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.

SUBMITTALS

PROJECT NO: 7225.CT03XC376

NO	DATE	DESCRIPTION	BY
0	07/08/14	FOR COMMENT	DC
1	12/12/14	FOR CONSTRUCTION	DC

DATE	REVIEWED BY
12/12/14	JMC

SEAL

STATE OF CONNECTICUT
MANOJKUMAR PATEL
No. 22038
LICENSED PROFESSIONAL ENGINEER

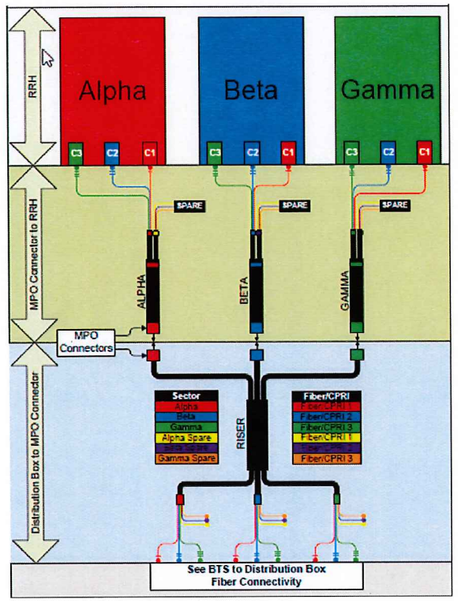
SITE NUMBER:
CT03XC376

SITE NAME:
WESTON / OMNIPOINT

SITE ADDRESS:
56 NORFIELD ROAD
WESTON, CT 06883

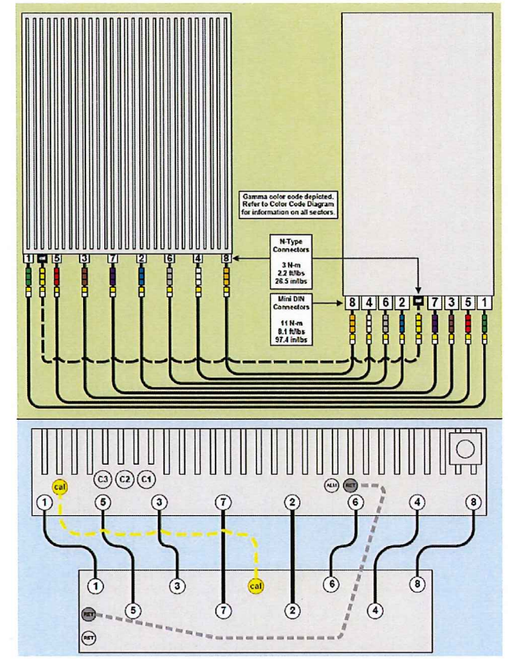
SHEET TITLE:
ANTENNA LAYOUT PLANS

SHEET NO:
A-4



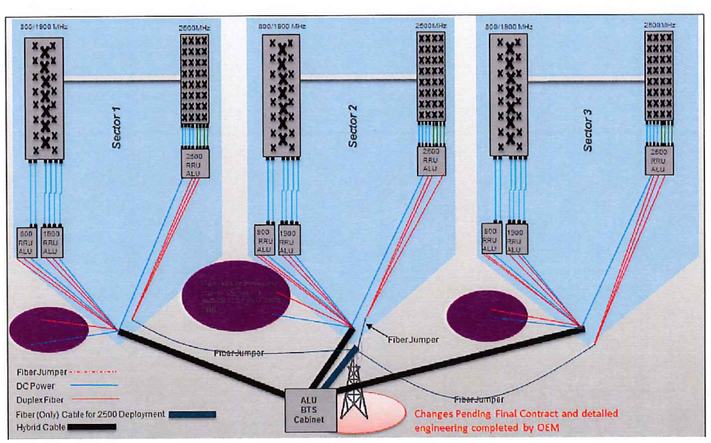
1 / A–5 2.5 CABLE COLOR CODING

SCALE: N.T.S.



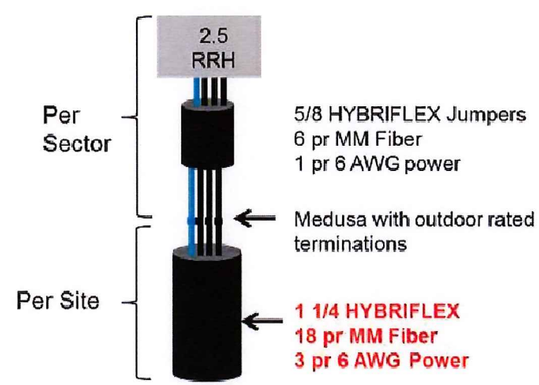
2 / A–5 RRH CONNECTIVITY

SCALE: N.T.S.



3 / A–5 RAN WIRING

SCALE: N.T.S.



4 / A–5 CABLE SCENARIO

SCALE: N.T.S.

Sprint

2.5 EQUIPMENT DEPLOYMENT
6580 SPRINT PARKWAY
OVERLAND PARK, KANSAS 66251

CROWN CASTLE

TECTONIC
• PLANNING
• ENGINEERING
• SURVEYING
• CONSTRUCTION MANAGEMENT

TECTONIC Engineering & Surveying Consultants P.C.
1279 Route 300
Newburgh, NY 12550
Phone: (845) 567–6656
Fax: (845) 567–8703
www.tectonicengineering.com

THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF SPRINT COMMUNICATIONS, INC. 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.

SUBMITTALS

PROJECT NO: 7225.CT03XC376

NO	DATE	DESCRIPTION	BY
0	07/08/14	FOR COMMENT	DC
1	12/12/14	FOR CONSTRUCTION	DC

DATE	REVIEWED BY
12/12/14	JMG

SEAL

STATE OF CONNECTICUT
MANOJKUMAR PATEL
No. 22038
LICENSED
PROFESSIONAL ENGINEER

SITE NUMBER:
CT03XC376

SITE NAME:
WESTON / OMNIPOINT

SITE ADDRESS:
56 NORFIELD ROAD
WESTON, CT 06883

SHEET TITLE:
RAN WIRING DIAGRAM

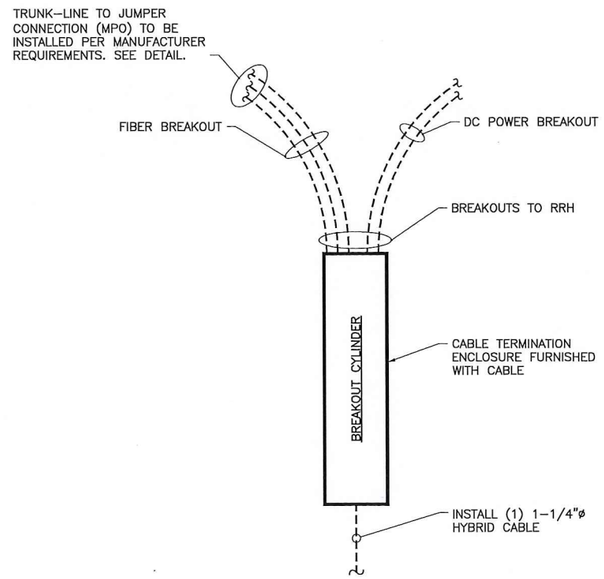
SHEET NO:
A–5

IMPORTANT!! LINE UP WHITE MARKINGS ON JUMPER AND RISER IP-MPO CONNECTOR. PUSH THE WHITE MARK ON THE JUMPER CONNECTOR FLUSH AGAINST THE RED SEAL ON THE RISER CONNECTION

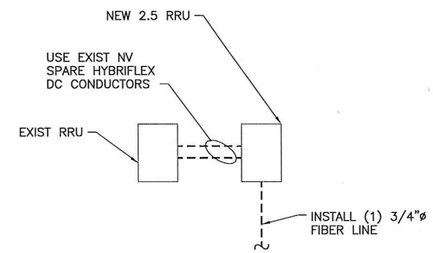
IMPORTANT!! ROTATE THE BAYONET HOUSING CLOCKWISE UNTIL A CLICK SOUND IS HEARD TO ENSURE A GOOD CONNECTION

1 / A-6 HYBRIFLEX RISER/JUMPER CONNECTION DETAILS

SCALE: N.T.S.



2.5 HYBRID CABLE W/FIBER & DC FEEDERS



FIBER ONLY TRUNK LINES

2 / A-6 TRUNK LINE DETAILS (TYPICAL)

SCALE: N.T.S.

SPECIAL NOTES: CABLE MARKINGS AT RAD CENTER AND ALL WALL/BLDG. PENETRATIONS

- ALL COLOR CODE TAPE SHALL BE 3M-35 AND SHALL BE INSTALLED USING A MINIMUM OF (3) WRAPS OF TAPE.
- ALL COLOR BANDS INSTALLED AT THE TOWER TOP SHALL BE A MINIMUM OF 3" WIDE AND SHALL HAVE A MINIMUM OF 3/4" OF SPACING BETWEEN EACH COLOR.
- ALL COLOR BANDS INSTALLED AT OR NEAR THE GROUND MAY BE ONLY 3/4" WIDE. EACH TOP-JUMPER SHALL BE COLOR CORDED WITH (1) SET OF 3" WIDE BANDS.
- EACH MAIN COAX SHALL BE COLOR CODED WITH (1) SET OF 3" BANDS NEAR THE TOP-JUMPER CONNECTION AND WITH 3/4" COLOR BANDS JUST PRIOR TO ENTERING THE BTS OR TRANSMITTER BUILDING.
- ALL BOTTOM JUMPERS SHALL BE COLOR CODED WITH (1) SET OF 3/4" BANDS ON EACH END OF THE BOTTOM JUMPER.
- ALL COLOR CODES SHALL BE INSTALLED SO AS TO ALIGN NEATLY WITH ONE ANOTHER FROM SIDE-TO-SIDE.
- EACH COLOR BAND SHALL HAVE A MINIMUM OF (3) WRAPS AND SHALL BE NEATLY TRIMMED AND SMOOTHED OUT AS TO AVOID UNRAVELING.
- X-POLE ANTENNAS SHOULD USE "XX-1" FOR THE "+45" PORT, "XX-2" FOR THE "-45" PORT.
- COLOR BAND #4 REFERS TO THE FREQUENCY BAND: ORANGE=850, VIOLET=1900. USED ON JUMPERS ONLY.
- RF FEEDLINE SHALL BE IDENTIFIED WITH A METAL TAG (STAINLESS OR BRASS) AND STAMPED WITH THE SECTOR, ANTENNA POSITION, AND CABLE NUMBER.
- ANTENNAS MUST BE IDENTIFIED, USING THE SECTOR LETTER AND ANTENNA NUMBER, WITH A BLACK MARKER PRIOR TO INSTALLATION.

Sprint

2.5 EQUIPMENT DEPLOYMENT
6580 SPRINT PARKWAY
OVERLAND PARK, KANSAS 66251

CROWN CASTLE

TECTONIC
• PLANNING
• ENGINEERING
• SURVEYING
• CONSTRUCTION MANAGEMENT

TECTONIC Engineering & Surveying Consultants P.C.
1279 Route 300
Newburgh, NY 12550
Phone: (845) 567-6656
Fax: (845) 567-8703
www.tectonicengineering.com

THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF SPRINT COMMUNICATIONS, INC. 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.

SUBMITTALS

PROJECT NO: 7225.CT03XC376

NO	DATE	DESCRIPTION	BY
0	07/08/14	FOR COMMENT	DC
1	12/12/14	FOR CONSTRUCTION	DC

DATE	REVIEWED BY
12/12/14	JMQ

SEAL

STATE OF CONNECTICUT
MANOJKUMAR
No. 22038
LICENSED
PROFESSIONAL ENGINEER

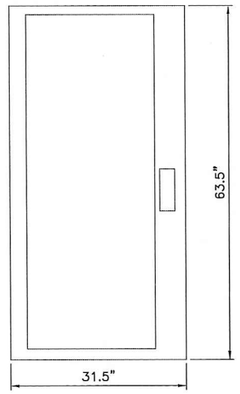
SITE NUMBER:
CT03XC376

SITE NAME:
WESTON / OMNIPOINT

SITE ADDRESS:
56 NORFIELD ROAD
WESTON, CT 06883

SHEET TITLE:
CABLE DETAILS

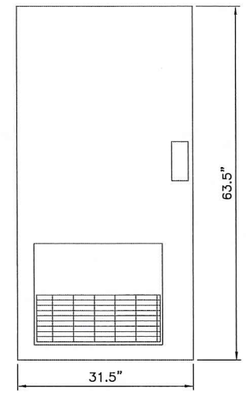
SHEET NO:
A-6



9927 MMBTS MODULAR CELL
SPECIFICATIONS:
HEIGHT: 63.5" WIDTH: 31.5" DEPTH: 38.0"

1 / S-1 (EXIST) MMBTS CABINET

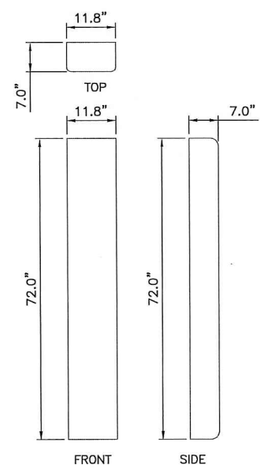
SCALE: 1" = 1'-0"



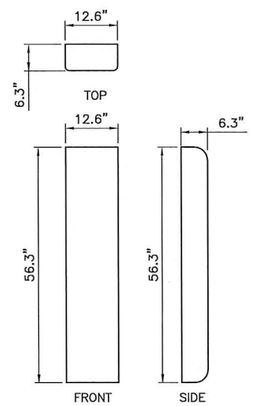
BATTERY
SPECIFICATIONS:
HEIGHT: 63.5" WIDTH: 31.5" DEPTH: 28.0"

2 / S-1 (EXIST) BATTERY CABINET

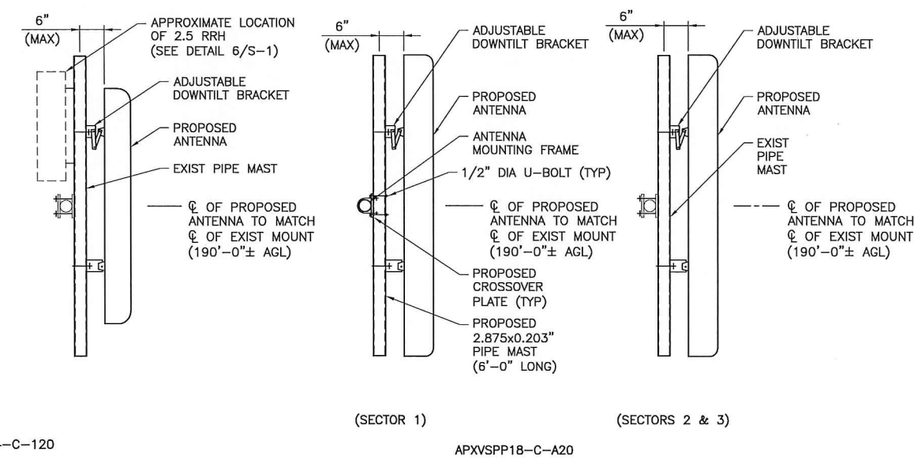
SCALE: 1" = 1'-0"



APXVSPP18-C-A20



APXVTM14-C-120



(SECTOR 1) (SECTORS 2 & 3)

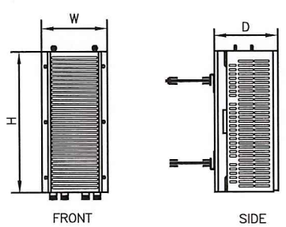
APXVSPP18-C-A20

3 / S-1 (PROPOSED) ANTENNA DETAILS

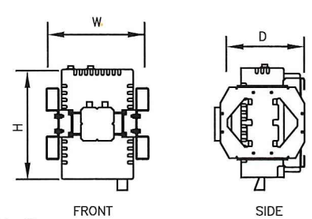
SCALE: 3/4"=1'-0"

5 / S-1 (PROPOSED) ANTENNA DETAIL

SCALE: 3/4"=1'-0"



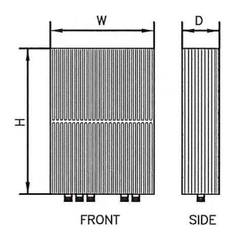
TYPE:	1900 MHz 4x45W
MODEL #:	RRH 1900 4X45 65MHz
HEIGHT:	25.0"
WIDTH:	11.1"
DEPTH:	11.4"
WEIGHT:	±60 LBS.



TYPE:	800 MHz 2x50W
MODEL #:	FD-RRH-2x50-800
HEIGHT:	19.7"
WIDTH:	13"
DEPTH:	10.8"
WEIGHT:	±53 LBS

5 / S-1 (EXIST) RRH DETAILS

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



TYPE:	2.5 RRH
MODEL #:	TD-RRH8x20-25
HEIGHT:	26.1"
WIDTH:	18.6"
DEPTH:	6.7"
WEIGHT:	±70 LBS

6 / S-1 (PROPOSED) RRH DETAIL

SCALE: N.T.S.

Sprint

2.5 EQUIPMENT DEPLOYMENT
6580 SPRINT PARKWAY
OVERLAND PARK, KANSAS 66251

CROWN CASTLE

TECTONIC
• PLANNING
• ENGINEERING
• SURVEYING
• CONSTRUCTION MANAGEMENT

TECTONIC Engineering & Surveying Consultants P.C.

1279 Route 300
Newburgh, NY 12550

Phone: (845) 567-6656
Fax: (845) 567-8703

www.tectonicengineering.com

THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF SPRINT COMMUNICATIONS, INC. 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.

SUBMITTALS

PROJECT NO: 7225.CT03XC376

NO	DATE	DESCRIPTION	BY
0	07/08/14	FOR COMMENT	DC
1	12/12/14	FOR CONSTRUCTION	DC

DATE	REVIEWED BY
12/12/14	TMG

STATE OF CONNECTICUT
MANOJKUMAR PATEL
No. 22038
LICENSED PROFESSIONAL ENGINEER
SEAL

SITE NUMBER:
CT03XC376

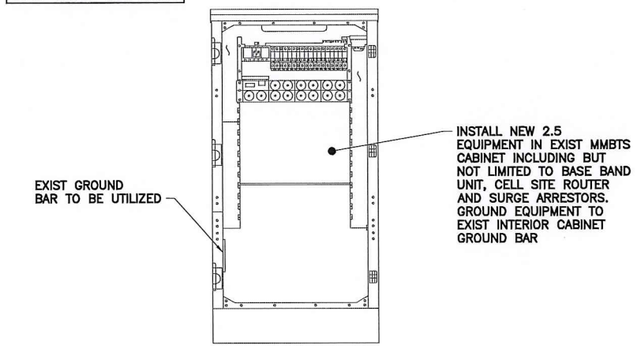
SITE NAME:
WESTON / OMNIPOINT

SITE ADDRESS:
56 NORFIELD ROAD
WESTON, CT 06883

SHEET TITLE:
EQUIPMENT DETAILS

SHEET NO:
S-1

NOTE:
LOCATIONS SHOWN FOR INSTALLATION OF NEW EQUIPMENT IN EXISTING CABINET ARE APPROXIMATE. ACTUAL SPACE AVAILABLE TO BE VERIFIED IN FIELD ON A SITE BY SITE BASIS.

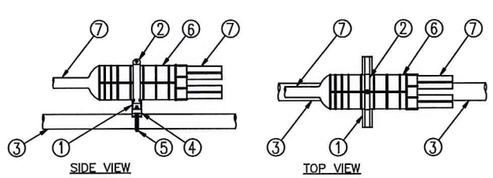


FRONT ELEVATION
(CABINET INTERIOR)

1 / S-2 MMBTS INTERIOR DETAIL

SCALE: N.T.S.

LEGEND:
1. P1000T–HG UNISTRUT, 12" LONG.
2. 6" PIPE HANGER.
3. EXISTING SUPPORT PIPE.
4. NEW STANDOFF BRACKET, ANDREW PART# 30848–4.
5. NEW ROUND MEMBER ADAPTER SIZED FOR EXISTING PIPE SUPPORT.
6. BREAKOUT UNIT.
7. CABLE.



3 / S-2 MEDUSA HEAD DETAIL

SCALE: NTS

RFS HYBRIFLEX RISER CABLES SCHEDULE

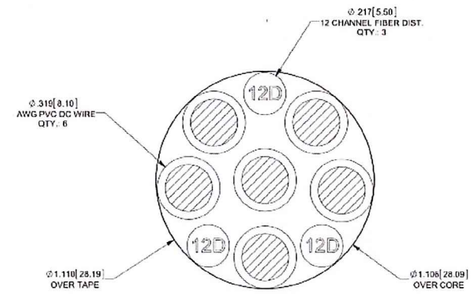
Fiber Only (Existing DC Power)	**Hybrid cable** MN: HB058-M12-050F 12x multi-mode fiber pairs, Top: Outdoor protected connectors, Bottom:LC Connectors, 5/8 cable, 50ft	50 ft
	MN: HB058-M12-075F	75 ft
	MN: HB058-M12-100F	100 ft
	MN:HB058-M12-125F	125 ft
	MN:HB058-M12-150F	150 ft
	MN:HB058-M12-175F	175 ft
	MN:HB058-M12-200F	200 ft
8 AWG Power	**Hybrid cable** MN: HB114-08U3M12-050F 3x 8 AWG power pairs, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable, 50ft	50 ft
	MN: HB114-08U3M12-075F	75 ft
	MN: HB114-08U3M12-100F	100 ft
	MN: HB114-08U3M12-125F	125 ft
	MN: HB114-08U3M12-150F	150 ft
	MN: HB114-08U3M12-175F	175 ft
	MN: HB114-08U3M12-200F	200 ft
6 AWG Power	**Hybrid cable** MN: HB114-13U3M12-225F 3x 6 AWG power pairs, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable,225ft	225 ft
	MN: HB114-13U3M12-250F	250 ft
	MN: HB114-13U3M12-275F	275 ft
	MN: HB114-13U3M12-300F	300 ft
4 AWG Power	**Hybrid cable** MN: HB114-21U3M12-225F 3x 6 AWG power pairs, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable,225ft	325 ft
	MN: HB114-21U3M12-350F	350 ft
	MN: HB114-21U3M12-375F	375 ft

RFS HYBRIFLEX JUMPER CABLE SCHEDULE

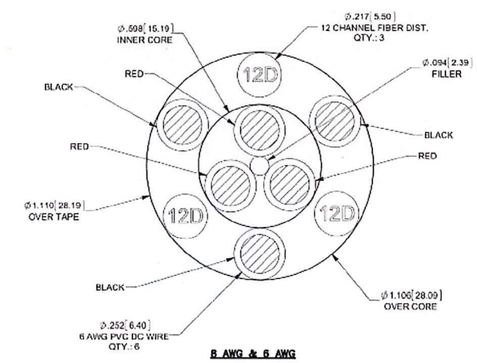
Fiber Only	**Hybrid Jumper cable** MN: HBF012-M3-5F1 5 ft, 3x multi-mode fiber pairs, Outdoor & LC connectors, 1/2 cable	5 ft
	MN: HBF012-M3-10F1	10 ft
	MN: HBF012-M3-15F1	15 ft
	MN: HBF012-M3-20F1	20 ft
	MN: HBF012-M3-25F1	25 ft
	MN: HBF012-M3-30F1	30 ft
8 AWG Power	**Hybrid Jumper cable** MN: HBF058-08U1M3-5F1 5 ft, 1x 8 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 5/8 cable	5 ft
	MN: HBF058-08U1M3-10F1	10 ft
	MN: HBF058-08U1M3-15F1	15 ft
	MN: HBF058-08U1M3-20F1	20 ft
	MN: HBF058-08U1M3-25F1	25 ft
	MN: HBF058-08U1M3-30F1	30 ft
6 AWG Power	**Hybrid Jumper cable** MN: HBF058-13U1M3-5F1 5 ft, 1x 6 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 5/8 cable	5 ft
	MN: HBF058-13U1M3-10F1	10 ft
	MN: HBF058-13U1M3-15F1	15 ft
	MN: HBF058-13U1M3-20F1	20 ft
	MN: HBF058-13U1M3-25F1	25 ft
	MN: HBF058-13U1M3-30F1	30 ft
4 AWG Power	**Hybrid Jumper cable** MN: HBF078-21U1M3-5F1 5 ft, 1x 4 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 7/8 cable	5 ft
	MN: HBF078-21U1M3-10F1	10 ft
	MN: HBF078-21U1M3-15F1	15 ft
	MN: HBF078-21U1M3-20F1	20 ft
	MN: HBF078-21U1M3-25F1	25 ft
	MN: HBF078-21U1M3-30F1	30 ft

HYBRID CABLE DC CONDUCTOR SIZE GUIDELINE

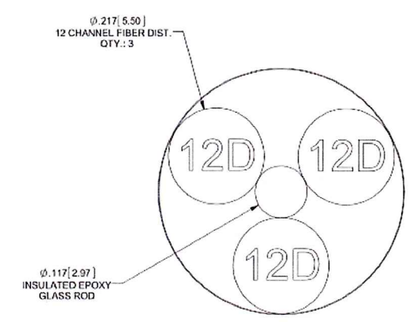
MANUF:	RFS		
CABLE	LENGTH	DC CONDUCTOR	CABLE DIAMETER
FIBER ONLY	VARIES	USE NV HYBRIFLEX	7/8"
HYBRIFLEX	<200'	8 AWG	1-1/4"
HYBRIFLEX	225-300'	6 AWG	1-1/4"
HYBRIFLEX	325-375'	4 AWG	1-1/4"



4 AWG



8 AWG & 6 AWG



FIBER ONLY

2 / S-2 2.5 HYBRID CABLE X–SECTION AND DATA

SCALE: NTS

Sprint

2.5 EQUIPMENT DEPLOYMENT
6580 SPRINT PARKWAY
OVERLAND PARK, KANSAS 66251

CROWN CASTLE

TECTONIC
• PLANNING
• ENGINEERING
• SURVEYING
• CONSTRUCTION MANAGEMENT

TECTONIC Engineering & Surveying Consultants P.C.
1279 Route 300
Newburgh, NY 12550
Phone: (845) 567–6656
Fax: (845) 567–8703
www.tectonicengineering.com

THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF SPRINT COMMUNICATIONS, INC. 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.

SUBMITTALS

PROJECT NO: 7225.CT03XC376

NO	DATE	DESCRIPTION	BY
0	07/08/14	FOR COMMENT	DC
1	12/12/14	FOR CONSTRUCTION	DC

DATE	REVIEWED BY
12/12/14	SMG

SEAL
STATE OF CONNECTICUT
MANOJKUMAR PATEL
No. 22038
LICENSED
PROFESSIONAL ENGINEER

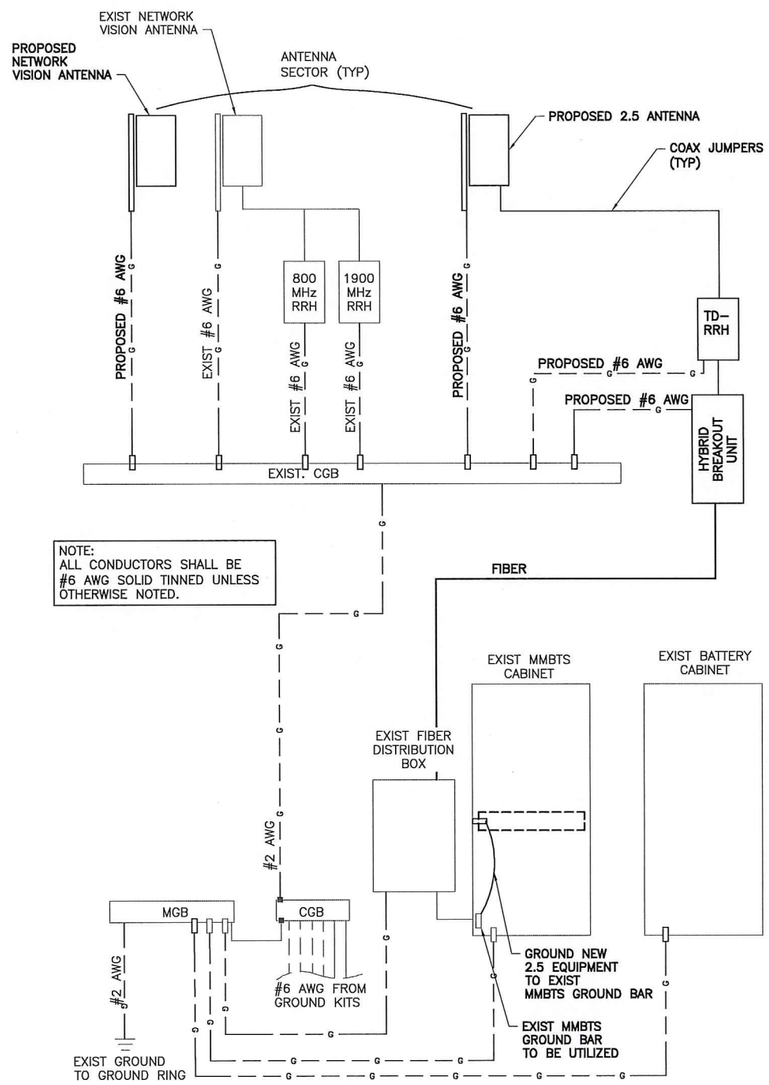
SITE NUMBER:
CT03XC376

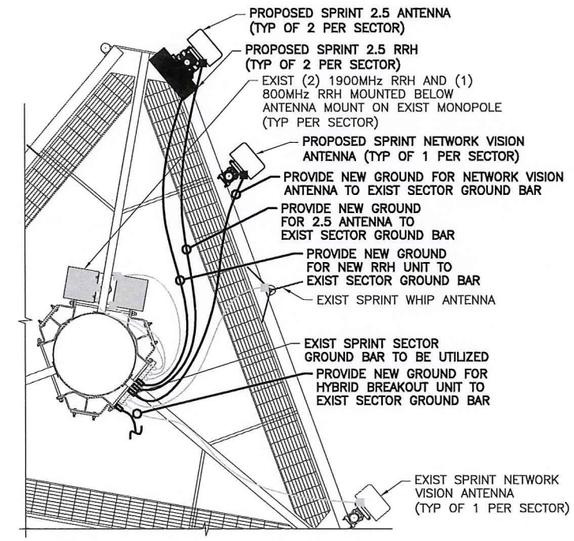
SITE NAME:
WESTON / OMNIPOINT

SITE ADDRESS:
56 NORFIELD ROAD
WESTON, CT 06883

SHEET TITLE:
EQUIPMENT SCHEMATIC DETAILS

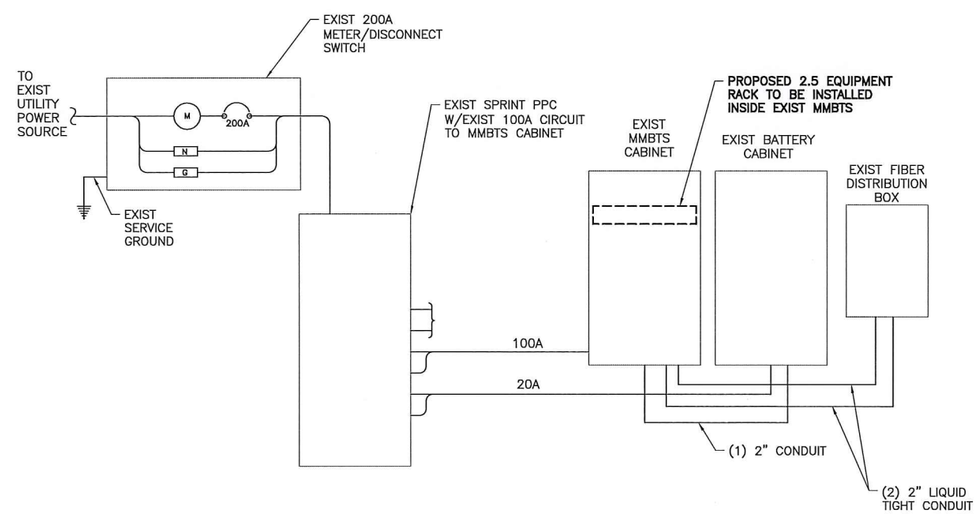
SHEET NO:
S-2





2 / E-1 TYPICAL ANTENNA GROUNDING PLAN

SCALE: NTS



LEGEND
- ■ CADWELD CONNECTION
- ▭ MECHANICAL CONNECTION
- ● COMPRESSION CONNECTION

1 / E-1 TYPICAL GROUNDING ONE LINE DIAGRAM

SCALE: NTS

3 / E-1 TYPICAL ELECTRICAL & TELCO PLAN

SCALE: NTS

Sprint

2.5 EQUIPMENT DEPLOYMENT
6580 SPRINT PARKWAY
OVERLAND PARK, KANSAS 66251

CROWN CASTLE

TECTONIC
• PLANNING
• ENGINEERING
• SURVEYING
• CONSTRUCTION MANAGEMENT

TECTONIC Engineering & Surveying Consultants P.C.
1279 Route 300
Newburgh, NY 12550
Phone: (845) 567-6656
Fax: (845) 567-8703
www.tectonicengineering.com

THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF SPRINT COMMUNICATIONS, INC. 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.

SUBMITTALS

PROJECT NO: 7225.CT03XC376

NO	DATE	DESCRIPTION	BY
0	07/08/14	FOR COMMENT	DC
1	12/12/14	FOR CONSTRUCTION	DC

DATE	REVIEWED BY
12/12/14	JMO

SEAL
STATE OF CONNECTICUT
MANOJKUMAR PATEL
No. 22038
LICENSED
PROFESSIONAL ENGINEER

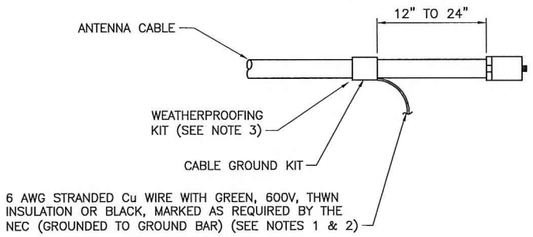
SITE NUMBER:
CT03XC376

SITE NAME:
WESTON / OMNIPOINT

SITE ADDRESS:
56 NORFIELD ROAD
WESTON, CT 06883

SHEET TITLE:
ELECTRICAL & GROUNDING PLANS

SHEET NO:
E-1



CONNECTION OF CABLE GROUND KIT TO ANTENNA CABLE

NOTES:

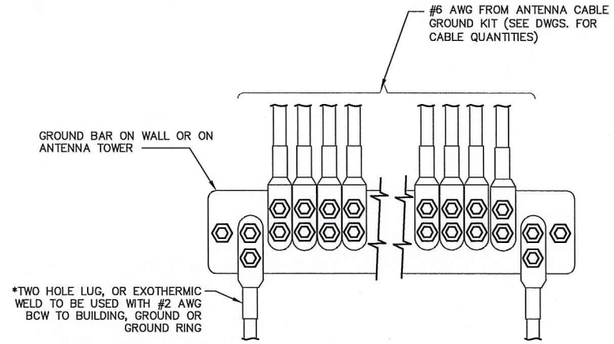
DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.

GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.

WEATHER PROOFING SHALL BE (TYPE AND PART NUMBER) AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER AND APPROVED BY CONTRACTOR.

1 / E-2 CABLE GROUNDING KIT DETAIL

SCALE: N.T.S.



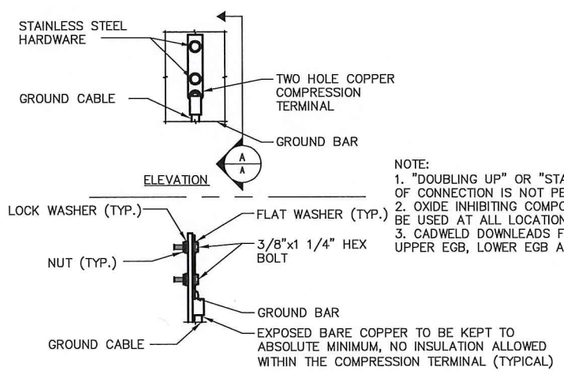
* – GROUND BARS AT THE BOTTOM OF TOWERS/MONOPOLES SHALL ONLY USE EXOTHERMIC WELDS.

– ATTACH "DO NOT DISCONNECT" LABELS TO GROUND BARS. CAN USE BRASS TAG "DO NOT DISCONNECT" AT EACH HYBRID GROUND POINT OR BACK–A–LITE PLATE LABEL ON GROUND BAR.

– CONNECT SEQUENCE– BOLT/WASHER/NO–OX/GROUND BAR/NO–OX/WASHER/LOCK–WASHER/NUT. THIS IS REPEATED FOR EACH LUG CONNECTION POINT.

4 / E-2 ANTENNA GROUND BAR DETAIL

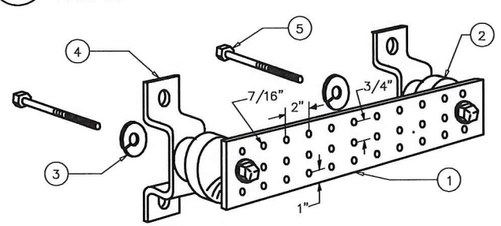
SCALE: NTS



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

2 / E-2 GROUNDING BAR CONN. DETAIL

SCALE: NTS



LEGEND

1– COPPER TINNED GROUND BAR, 1/4"X 4"X 20", OR OTHER LENGTH AS REQUIRED, HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION
2– INSULATORS, NEWTON INSTRUMENT CAT. NO. 3061–4 OR EQUAL
3– 5/8" LOCKWASHERS OR EQUAL
4– WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT NO. A–6056 OR EQUAL
5– 5/8–11 X 1" H.H.C.S.BOLTS

NOTE:
ALL BOLTS, NUTS, WASHERS AND LOCK WASHERS SHALL BE 18–8 STAINLESS STEEL.

3 / E-2 GROUNDING BAR DETAIL

SCALE: NTS

GROUNDING NOTES:

1. GROUNDING SHALL BE IN ACCORDANCE WITH NEC ARTICLE 250–GROUNDING AND BONDING.

2. ALL GROUND WIRES SHALL BE #2 AWG UNLESS NOTED OTHERWISE.

3. ALL GROUNDING WIRES SHALL PROVIDE A STRAIGHT, DOWNWARD PATH TO GROUND WITH GRADUAL BENDS AS REQUIRED. GROUND WIRES SHALL NOT BE LOOPED OR SHARPLY BENT.

4. EACH EQUIPMENT CABINET SHALL BE CONNECTED TO THE MASTER ISOLATION GROUND BAR (MGB) WITH #2 AWG INSULATED STRANDED COPPER WIRE. EQUIPMENT CABINETS WALL HAVE (2) CONNECTIONS.

5. PROVIDE DEDICATED #2 AWG COPPER GROUND WIRE FROM EACH ANTENNA MOUNTING PIPE TO ASSOCIATED CIGBE.

6. THE CONTRACTOR SHALL VERIFY THAT THE EXISTING GROUND BARS HAVE ENOUGH SPACE/HOLES FOR ADDITIONAL TWO HOLE LUGS.

7. ALL CONDUITS SHALL BE RIGID GALVANIZED STEEL AND SHALL BE PROVIDED WITH GROUNDING BUSHINGS.

8. PROVIDE GROUND CONNECTIONS FOR ALL METALLIC STRUCTURES, ENCLOSURES, RACEWAYS AND OTHER CONDUCTIVE ITEMS ASSOCIATED WITH THE INSTALLATION OF CARRIER'S EQUIPMENT.

9. WHEN CABLE LENGTH IS OVER 20' THE MANUFACTURERS GROUND KIT MUST BE INSTALLED PER THE MANUFACTURERS SPECIFICATIONS.

10. REFER TO "ANTI–THEFT UPDATE TO SPRINT GROUNDING 082412.PDF" FOR GUIDELINE TO SUSPECTED OR ACTUAL THEFT OF GROUNDING.

11. HOME RUN GROUNDS ARE NOT APPROVED BY CROWN CASTLE CONSTRUCTION STANDARDS AND THAT ANTENNA BUSS BARS SHOULD BE INSTALLED DIRECTLY TO TOWER STEEL WITHOUT INSULATORS OR DOWN CONDUCTORS.

PROTECTIVE GROUNDING SYSTEM GENERAL NOTES:

1. AT ALL TERMINATIONS AT EQUIPMENT ENCLOSURES, PANEL, AND FRAMES OF EQUIPMENT AND WHERE EXPOSED FOR GROUNDING. CONDUCTOR TERMINATION SHALL BE PERFORMED UTILIZING TWO HOLE BOLTED TONGUE COMPRESSION TYPE LUGS WITH STAINLESS STEEL SELF–TAPPING SCREWS.

2. ALL CLAMPS AND SUPPORTS USED TO SUPPORT THE GROUNDING SYSTEM CONDUCTORS AND PVC CONDUITS SHALL BE PVC TYPE (NON CONDUCTIVE). DO NOT USE METAL BRACKETS OR SUPPORTS WHICH WOULD FORM A COMPLETE RING AROUND ANY GROUNDING CONDUCTOR.

3. ALL GROUNDING CONNECTIONS SHALL BE COATED WITH A COPPER SHIELD ANTI–CORROSIVE AGENT SUCH AS T&B KOPR SHIELD. VERIFY PRODUCT WITH PROJECT MANAGER.

4. ALL BOLTS, WASHERS, AND NUTS USED ON GROUNDING CONNECTIONS SHALL BE STAINLESS STEEL.

5. INSTALL GROUND BUSHING ON ALL METALLIC CONDUITS AND BOND TO THE EQUIPMENT GROUND BUS IN THE PANEL BOARD.

6. GROUND ANTENNA BASES, FRAMES, CABLE RACKS, AND OTHER METALLIC COMPONENTS WITH #2 INSULATED TINNED STRANDED COPPER GROUNDING CONDUCTORS AND CONNECT TO INSULATED SURFACE MOUNTED GROUND BARS. CONNECTION DETAILS SHALL FOLLOW MANUFACTURER'S SPECIFICATIONS FOR GROUNDING.

7. GROUND HYBRID CABLE SHIELD AT BOTH ENDS USING MANUFACTURER'S GUIDELINES.

ELECTRICAL AND GROUNDING NOTES

1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.

2. ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.

3. ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.

4. BURIED CONDUIT SHALL BE SCHEDULE 40 PVC.

5. ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THNN INSULATION.

6. RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON THIS DRAWING PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.

7. WHERE CONDUIT BETWEEN BTS AND PROJECT OWNER CELL SITE PPC AND BETWEEN BTS AND PROJECT OWNER CELL SITE TELCO SERVICE CABINET ARE UNDERGROUND USE PVC, SCHEDULE 40 CONDUIT. ABOVE THE GROUND PORTION OF THESE CONDUITS SHALL BE PVC CONDUIT.

8. ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.

9. GROUNDING SHALL COMPLY WITH NEC ART. 250.

10. GROUND HYBRID CABLE SHIELDS AT 3 LOCATIONS USING MANUFACTURER'S HYBRID CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.

11. USE #2 COPPER STRANDED WIRE WITH GREEN COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON THE DRAWING.

12. ALL GROUND CONNECTIONS TO BE BURNDY HYGROUND COMPRESSION TYPE CONNECTORS OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.

13. ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE, EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AT RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #2 WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY. BOND ANY METAL OBJECTS WITHIN 6 FEET OF PROJECT OWNER EQUIPMENT OR CABINET TO MASTER GROUND BAR OR GROUNDING RING.

14. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.

15. APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTIONS.

16. BOND ANTENNA MOUNTING BRACKETS, HYBRID CABLE GROUND KITS, AND RRHs TO EGB PLACED NEAR THE ANTENNA LOCATION.

17. BOND ANTENNA EGB'S AND MGB TO GROUND RING.

18. CONTRACTOR SHALL TEST COMPLETED GROUND SYSTEM AND RECORD RESULT FOR PROJECT CLOSE–OUT DOCUMENTATION. 5 OHMS MINIMUM RESISTANCE REQUIRED.

19. CONTRACTOR SHALL CONDUCT ANTENNA, HYBRID CABLES, GPS COAX AND RRH RETURN–LOSS AND DISTANCE– TO–FAULT MEASUREMENTS (SWEEP TESTS) AND RECORD RESULTS FOR PROJECT CLOSE OUT.

20. CONTRACTOR SHALL CHECK CAPACITY OF EXISTING SERVICE & PANEL ON SITE TO DETERMINE IF CAPACITY EXISTS TO ACCOMMODATE THE ADDED LOAD OF THIS PROJECT. ADVISE ENGINEER OF ANY DISCREPANCY.

21. LOCATION OF ALL OUTLET, BOXES, ETC, AND THE TYPE OF CONNECTION (PLUG OR DIRECT) SHALL BE CONFIRMED WITH THE OWNER'S REPRESENTATIVE PRIOR TO ROUGH–IN.

22. ELECTRICAL CHARACTERISTICS OF ALL EQUIPMENT (NEW AND EXISTING) SHALL BE FIELD VERIFIED WITH THE OWNERS REPRESENTATIVE AND EQUIPMENT SUPPLIER PRIOR TO ROUGH–IN OF CONDUIT AND WIRE. ALL EQUIPMENT SHALL BE PROPERLY CONNECTED ACCORDING TO THE NAMEPLATE DATA FURNISHED ON THE EQUIPMENT.

Sprint

2.5 EQUIPMENT DEPLOYMENT
6580 SPRINT PARKWAY
OVERLAND PARK, KANSAS 66251

CROWN CASTLE

TECTONIC
• PLANNING
• ENGINEERING
• SURVEYING
• CONSTRUCTION MANAGEMENT

TECTONIC Engineering & Surveying Consultants P.C.
1279 Route 300
Newburgh, NY 12550
Phone: (845) 567–6656
Fax: (845) 567–8703
www.tectonicengineering.com

THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF SPRINT COMMUNICATIONS, INC. 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.

SUBMITTALS

PROJECT NO: 7225.CT03XC376

NO	DATE	DESCRIPTION	BY
0	07/08/14	FOR COMMENT	DC
1	12/12/14	FOR CONSTRUCTION	DC

DATE	REVIEWED BY
12/12/14	JMA

SEAL
STATE OF CONNECTICUT
MANOJKUMAR PATEL
No. 22038
LICENSED
PROFESSIONAL ENGINEER

SITE NUMBER:
CT03XC376

SITE NAME:
WESTON / OMNIPOINT

SITE ADDRESS:
56 NORFIELD ROAD
WESTON, CT 06883

SHEET TITLE:
GROUNDING DETAILS & NOTES

SHEET NO:
E–2

Date: **June 22, 2017**

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

Velocitel, Inc. d.b.a. FDH Velocitel
6521 Meridien Drive, Suite 107
Raleigh, NC 27616
(919) 755-1012

Subject: Structural Analysis Report

Carrier Designation:	***Sprint* Co-Locate** **Carrier Site Number:**	 CT03XC376
Crown Castle Designation:	**Crown Castle BU Number:** **Crown Castle Site Name:** **Crown Castle JDE Job Number:** **Crown Castle Work Order Number:** **Crown Castle Application Number:**	829046 Weston/Rt-57/ Norfield R 442078 1418026 393558 Rev. 0
Engineering Firm Designation:	**FDH Velocitel Project Number:**	17QGQH1400
Site Data:	**56 Norfield Rd. (Town Hall), Weston, Fairfield County, CT** **Latitude *41° 12' 8.4"*, Longitude *-73° 22' 46.6"*** **190 Foot - Monopole Tower**	

Dear Rebecca Klein,

FDH Velocitel is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 1047536, in accordance with application 393558, revision 0.

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.

This analysis has been performed in accordance with the 2012 International Building Code based upon an ultimate 3-second gust wind speed of 120 mph converted to a nominal 3-second gust wind speed of 93 mph per section 1609.3.1 as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1. Exposure Category B with a topographic category 1 and Risk Category II were used in this analysis.

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

Respectfully submitted by:

Patrick E. Roach, EI
Project Engineer

Reviewed by:

Dennis D. Abel, PE
Director, New Product Development
CT PE License No. 23247

STATE OF CONNECTICUT
DENNIS D. ABEL
No. 23247
LICENSED
PROFESSIONAL ENGINEER
06-23-2017

TABLE OF CONTENTS

1) INTRODUCTION

2) ANALYSIS CRITERIA
Table 1 - Proposed Antenna and Cable Information
Table 2 - Existing and Reserved Antenna and Cable Information
Table 3 - Design Antenna and Cable Information

3) ANALYSIS PROCEDURE
Table 4 - Documents Provided
3.1) Analysis Method
3.2) Assumptions

4) ANALYSIS RESULTS
Table 5 - Section Capacity (Summary)
Table 6 – Tower Components vs. Capacity
4.1) Recommendations

5) APPENDIX A
tnxTower Output

6) APPENDIX B
Base Level Drawing

7) APPENDIX C
Additional Calculations

1) INTRODUCTION

This tower is a 190 ft Monopole tower designed by PIROD MANUFACTURES INC. in January of 2000 and was mapped by TEP in October of 2015. The tower was originally designed for a wind speed of 85 mph per TIA/EIA-222-F. This tower has been modified multiple times in the past. These modifications were considered effective in this analysis.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA-222-G Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a 3-second gust wind speed of 93 mph with no ice, 50 mph with 0.75 inch ice thickness and 60 mph under service loads, exposure category B with topographic category 1 and crest height of 0 feet.

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
188.0	190.0	3	alcatel lucent	TD-RRH8x20-25	3	1-1/4	-
		3	rfs celwave	APXVTM14-ALU-I20 w/ Mount Pipe			

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
188.0	193.0	1	rfs celwave	PD201-7	1 1 1 1	1-1/4 7/8 5/8 5/16	1
	190.0	3	rfs celwave	APXVSPP18-C-A20 w/ Mount Pipe			
	188.0	1	crown mounts	Platform Mount [LP 403-1]			
	187.0	1	radiowaves	SP2-5.8			
185.0	188.0	3	alcatel lucent	TME-1900MHZ RRH	-	-	1
		3	alcatel lucent	TME-800MHz RRH			
	185.0	1	crown mounts	Side Arm Mount [SO 102-3]			
184.0	185.0	1	crown mounts	Side Arm Mount [SO 701-1]	-	-	1
179.0	185.0	2	rfs celwave	458-2D	2	7/8	1
	179.0	1	crown mounts	Platform Mount [LP 403-1]			
170.0	174.0	1	rfs celwave	PD201-7	13 2	1-5/8 7/8	1
	170.0	1	crown mounts	Platform Mount [LP 405-1]			
		3	ericsson	ERICSSON AIR 21 B2A B4P w/ Mount Pipe			
		3	ericsson	Ericsson Air 21 B4A B12P-B5P 8FT w/ Mount Pipe			
		3	ericsson	KRY 112 144/1			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
		4	ericsson	RRUS 11 B12			
160.0	163.0	3	ericsson	RRUS 32 B2	2 1	3/4 3/8	2
		3	cci antennas	OPA-65R-LCUU-H6 w/ Mount Pipe	12 2	1-5/8 7/8	1
		3	ericsson	RRUS-11			
		12	powerwave technologies	7020.00			
		6	powerwave technologies	7770.00 w/ Mount Pipe			
		6	powerwave technologies	LGP21401			
		3	powerwave technologies	TT19-08BP111-001			
		1	raycap	DC6-48-60-18-8F			
	160.0	1	crown mounts	Platform Mount [LP 403-1]			
150.0	150.0	6	commscope	SBNHH-1D85C w/ Mount Pipe	1	1-5/8	2
		3	alcatel lucent	RRH2X60-1900			
		3	alcatel lucent	RRH2x60-700			
		3	alcatel lucent	RRH4X45-AWS4 B66			
		1	rfs celwave	DB-T1-6Z-8AB-0Z			
		3	antel	BXA-171063-12CF-EDIN-2 w/ Mount Pipe	12	1-5/8	1
		2	antel	LPA-80080/6CF w/ Mount Pipe			
		4	decibel	DB846F65ZAXY w/ Mount Pipe			
		1	rfs celwave	DB-T1-6Z-8AB-0Z			
		1	crown mounts	Platform Mount [LP 403-1]			
		6	rfs celwave	FD9R6004/2C-3L			
125.0	130.0	1	rfs celwave	PD128-1	1 1	7/8 1/2	1
		1	rfs celwave	PD201-1			
	125.0	2	crown mounts	Side Arm Mount[SO701-1]			
110.0	115.0	2	rfs celwave	PD128-1	2	1/2	1
	110.0	2	crown mounts	Side Arm Mount[SO701-1]			
100.0	101.0	1	gps	GPS_A	1	1/2	1
	100.0	1	crown mounts	Side Arm Mount[SO701-1]			
95.0	100.0	2	rfs celwave	PD128-1	2	1/2	1
	95.0	2	crown mounts	Side Arm Mount[SO701-1]			
80.0	85.0	1	decibel	DB222	2	1/2	1
		1	rfs celwave	PD128-1			
	80.0	2	crown mounts	Side Arm Mount[SO701-1]			

Notes:
1) Existing Equipment; Considered in this Analysis

2) Reserved Equipment; Considered in this Analysis

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
190.0	190.0	9	-	DB980	14	1-5/8
		4	-	DB636		
		1	-	PD128		
		1	-	Low Profile Mount		
180.0	180.0	12	-	ALP9011	12	1-5/8
		1	-	Low Profile Mount		
170.0	170.0	6	-	RR90-17	6	1-5/8
		1	-	Low Profile Mount		
160.0	160.0	12	-	ALP11011	12	1-5/8
		1	-	Low Profile Mount		
150.0	150.0	12	-	ALP9212	12	1-5/8
		1	-	Low Profile Mount		
140.0	140.0	12	-	7184	12	1-5/8
		1	-	Low Profile Mount		
125.0	125.0	1	-	PD201	2	7/8
		1	-	PD128		
		1	-	2-Arm Clamp Ring		
110.0	110.0	2	-	PD128	2	7/8
		1	-	2-Arm Clamp Ring		
95.0	95.0	2	-	PD128	2	7/8
		1	-	2-Arm Clamp Ring		
80.0	80.0	1	-	PD128	2	7/8
		1	-	DB222		
		1	-	2-Arm Clamp Ring		

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Arcnet, A99.506-247B, 10/15/1999	3529916	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	PiRod, A-116331, 1/5/2000	3755295	CCISITES
4-TOWER MANUFACTURER DRAWINGS	TEP, 48073-66926, 10/26/2015 PiRod, A-116331, 1/5/2000	3529917	CCISITES
4-TOWER MODIFICATION DRAWINGS/DESIGN/DATA	Sabre, 61801-MR, 8/2/2012	3667108	CCISITES
4-POST-MODIFICATION INSPECTION	Sabre, 61801, 11/19/2012	3673725	CCISITES
4-TOWER MODIFICATION DRAWINGS/DESIGN/DATA	PJF, 37513-0787 BP, 4/15/2013	3801440	CCISITES

Document	Remarks	Reference	Source
4-POST-MODIFICATION INSPECTION	TEP, 48073, 11/10/2014	5392198	CCISITES
4-TOWER STRUCTURAL ANALYSIS REPORTS	PJF, 37516-0710.004.7805, 11/14/2016	6559680	CCISITES

3.1) Analysis Method

tnxTower (version 7.0.5.1), 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.

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

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
190 - 185	Pole	TP30x30x0.375	Pole	1.8%	Pass
185 - 180	Pole	TP30x30x0.375	Pole	4.5%	Pass
180 - 175	Pole	TP36x36x0.375	Pole	6.0%	Pass
175 - 170	Pole	TP36x36x0.375	Pole	8.7%	Pass
170 - 165	Pole	TP36x36x0.375	Pole	13.0%	Pass
165 - 160	Pole	TP36x36x0.375	Pole	17.2%	Pass
160 - 155	Pole	TP42x42x0.375	Pole	17.9%	Pass
155 - 150	Pole	TP42x42x0.375	Pole	22.4%	Pass
150 - 145	Pole	TP42x42x0.375	Pole	28.9%	Pass
145 - 140	Pole	TP42x42x0.375	Pole	35.3%	Pass
140 - 135	Pole	TP48x48x0.375	Pole	32.6%	Pass
135 - 130	Pole	TP48x48x0.375	Pole	37.8%	Pass
130 - 125	Pole	TP48x48x0.375	Pole	43.1%	Pass
125 - 120	Pole	TP48x48x0.375	Pole	48.6%	Pass
120 - 115	Pole	TP54x54x0.375	Pole	43.4%	Pass
115 - 112.67	Pole	TP54x54x0.375	Pole	45.5%	Pass
112.67 - 112.42	Pole + Reinf.	TP54x54x0.4875	Pole	35.0%	Pass
112.42 - 107.42	Pole + Reinf.	TP54x54x0.4875	Pole	38.6%	Pass
107.42 - 102.42	Pole + Reinf.	TP54x54x0.4875	Pole	42.2%	Pass
102.42 - 101.33	Pole + Reinf.	TP54x54x0.4875	Pole	43.0%	Pass
101.33 - 101.08	Pole + Reinf.	TP54x54x0.4875	Pole	43.2%	Pass
101.08 - 100	Pole + Reinf.	TP54x54x0.4875	Pole	44.0%	Pass

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
100 - 95	Pole + Reinf.	TP60x60x0.475	Pole	40.1%	Pass
95 - 90	Pole + Reinf.	TP60x60x0.475	Pole	43.3%	Pass
90 - 89.5	Pole + Reinf.	TP60x60x0.475	Pole	43.6%	Pass
89.5 - 89.25	Pole + Reinf.	TP60x60x0.5563	Pole	37.8%	Pass
89.25 - 85.5	Pole + Reinf.	TP60x60x0.5563	Pole	39.9%	Pass
85.5 - 85.25	Pole + Reinf.	TP60x60x0.6375	Pole	35.2%	Pass
85.25 - 84	Pole + Reinf.	TP60x60x0.6375	Pole	35.8%	Pass
84 - 83.75	Pole + Reinf.	TP60x60x0.525	Pole	42.9%	Pass
83.75 - 82.5	Pole + Reinf.	TP60x60x0.525	Pole	43.7%	Pass
82.5 - 82.25	Pole + Reinf.	TP60x60x0.45	Pole	51.3%	Pass
82.25 - 80	Pole + Reinf.	TP60x60x0.45	Pole	52.9%	Pass
80 - 75	Pole + Reinf.	TP60x60x0.575	Reinf. 3 Compression	43.4%	Pass
75 - 70	Pole + Reinf.	TP60x60x0.575	Reinf. 3 Compression	46.3%	Pass
70 - 65	Pole + Reinf.	TP60x60x0.575	Reinf. 3 Compression	49.1%	Pass
65 - 60	Pole + Reinf.	TP60x60x0.575	Reinf. 3 Compression	52.1%	Pass
60 - 58.5	Pole + Reinf.	TP60x60x0.7	Reinf. 3 Compression	43.7%	Pass
58.5 - 58.25	Pole	TP60x60x0.625	Pole	47.9%	Pass
58.25 - 53.25	Pole	TP60x60x0.625	Pole	50.6%	Pass
53.25 - 48.25	Pole	TP60x60x0.625	Pole	53.3%	Pass
48.25 - 48	Pole + Reinf.	TP60x60x0.775	Pole	43.6%	Pass
48 - 43	Pole + Reinf.	TP60x60x0.775	Pole	45.9%	Pass
43 - 40	Pole + Reinf.	TP60x60x0.775	Pole	47.2%	Pass
40 - 35	Pole + Reinf.	TP60x60x0.775	Pole	49.5%	Pass
35 - 32.08	Pole + Reinf.	TP60x60x0.775	Pole	50.9%	Pass
32.08 - 31.83	Pole + Reinf.	TP60x60x0.9625	Pole	41.1%	Pass
31.83 - 28.75	Pole + Reinf.	TP60x60x0.9625	Pole	42.3%	Pass
28.75 - 28.5	Pole + Reinf.	TP60x60x0.8125	Pole	49.7%	Pass
28.5 - 23.5	Pole + Reinf.	TP60x60x0.8125	Pole	51.9%	Pass
23.5 - 18.5	Pole + Reinf.	TP60x60x0.95	Pole	46.0%	Pass
18.5 - 13.5	Pole + Reinf.	TP60x60x0.95	Pole	47.9%	Pass
13.5 - 8.5	Pole + Reinf.	TP60x60x0.95	Pole	49.9%	Pass
8.5 - 3.5	Pole + Reinf.	TP60x60x0.95	Pole	51.8%	Pass
3.5 - 0	Pole + Reinf.	TP60x60x0.95	Pole	53.2%	Pass
				Summary	
			Pole	53.3%	Pass
			Reinforcement	52.1%	Pass
			Overall	53.3%	Pass

Table 6 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	46.4	Pass
1	Base Plate	0	58.5	Pass
1	Base Transfer Stiffener	0	44.5	Pass
1	Base Foundation	0	33.0	Pass
1	Base Foundation Soil Interaction	0	99.4	Pass
1	Flange Bolts	20	54.3	Pass
	Flange Plate		39.2	Pass
	Bridge Stiffener		90.9	Pass
1	Flange Bolts	40	54.9	Pass
	Flange Plate		38.8	Pass
	Bridge Stiffener		94.9	Pass
1	Flange Bolts	60	54.9	Pass
	Flange Plate		38.1	Pass
	Bridge Stiffener		90.0	Pass
1	Flange Bolts	80	55.1	Pass
	Flange Plate		46.3	Pass
	Bridge Stiffener		99.8	Pass
1	Flange Bolts	100	32.9	Pass
	Flange Plate		48.8	Pass
	Bridge Stiffener		53.5	Pass
1, 2	Flange Connection	120	50.6	Pass
1, 2	Flange Connection	140	35.7	Pass
1, 2	Flange Connection	160	16.7	Pass
1, 2	Flange Connection	180	4.0	Pass

Structure Rating (max from all components) =	99.8%

Notes:
1) See additional documentation in “Appendix C – Additional Calculations” for calculations supporting the % capacity consumed.
2) Based on the design methodology of the manufacturer, the base plate has been sufficiently designed to resist the full capacity of the bolts and shaft.

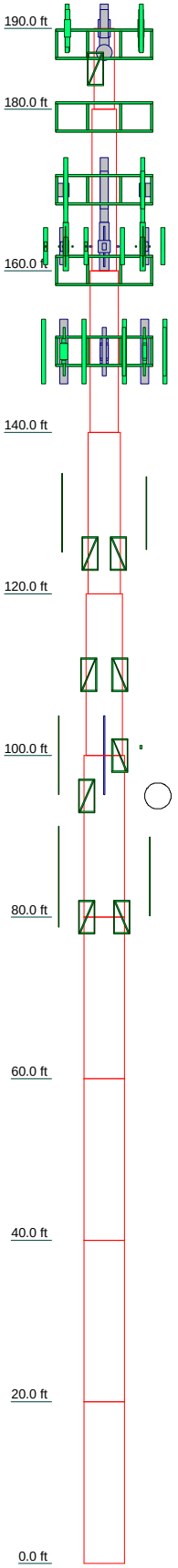
4.1) Recommendations

The tower and its foundation have the sufficient capacity to carry the proposed loading configuration. No further modifications are needed at this time.

APPENDIX A

TNXTOWER OUTPUT

Section	Size	Length (ft)	Socket Length (ft)	Grade	Weight (K)
1	P30x3/8	10.000	5.000	A53-B-42	1.2
2	P36x3/8	20.000	5.000		2.9
3	P42x3/8	20.000	5.000		3.3
4	P48x3/8	20.000	5.000		3.8
5	P54x3/8	20.000	5.000		4.3
6	P60x3/8	20.000	5.000		4.8
7	P60x1/2	20.000	5.000		6.4
8	P60x5/8	20.000	5.000		7.9
9	P60x5/8	20.000	5.000		7.9
10	P60x3/4	20.000			9.5
					52.0



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
PD201-7	188	(4) 7020.00	160
APXVSPP18-C-A20 w/ Mount Pipe	188	(4) 7020.00	160
APXVSPP18-C-A20 w/ Mount Pipe	188	(4) 7020.00	160
APXVSPP18-C-A20 w/ Mount Pipe	188	TT19-08BP111-001	160
Platform Mount [LP 403-1]	188	TT19-08BP111-001	160
Pipe Mount	188	TT19-08BP111-001	160
Pipe Mount	188	DC6-48-60-18-8F	160
Pipe Mount	188	Platform Mount [LP 403-1]	160
APXVTM14-ALU-I20 w/ Mount Pipe	188	RRUS 32 B2	160
APXVTM14-ALU-I20 w/ Mount Pipe	188	RRUS 32 B2	160
APXVTM14-ALU-I20 w/ Mount Pipe	188	RRUS 32 B2	160
TD-RRH8x20-25	188	Pipe Mount	160
TD-RRH8x20-25	188	Pipe Mount	160
TD-RRH8x20-25	188	Pipe Mount	160
SP2-5.8	188	(2) 7770.00 w/ Mount Pipe	160
TME-800MHz RRH	185	(2) DB846F65ZAXY w/ Mount Pipe	150
TME-800MHz RRH	185	(2) LPA-80080/6CF w/ Mount Pipe	150
TME-1900MHZ RRH	185	BXA-171063-12CF-EDIN-2 w/ Mount Pipe	150
TME-1900MHZ RRH	185		
TME-1900MHZ RRH	185	BXA-171063-12CF-EDIN-2 w/ Mount Pipe	150
Side Arm Mount [SO 102-3]	185		
TME-800MHz RRH	185	BXA-171063-12CF-EDIN-2 w/ Mount Pipe	150
Side Arm Mount [SO 701-1]	184		
458-2D	179	(2) FD9R6004/2C-3L	150
Platform Mount [LP 403-1]	179	(2) FD9R6004/2C-3L	150
(4) Pipe Mount	179	(2) FD9R6004/2C-3L	150
(4) Pipe Mount	179	DB-T1-6Z-8AB-0Z	150
(4) Pipe Mount	179	Platform Mount [LP 403-1]	150
458-2D	179	(2) SBNHH-1D85C w/ Mount Pipe	150
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	170	(2) SBNHH-1D85C w/ Mount Pipe	150
		(2) SBNHH-1D85C w/ Mount Pipe	150
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	170	RRH2x60-700	150
		RRH2x60-700	150
Ericsson Air 21 B4A B12P-B5P 8FT w/ Mount Pipe	170	RRH2x60-700	150
		RRH4X45-AWS4 B66	150
Ericsson Air 21 B4A B12P-B5P 8FT w/ Mount Pipe	170	RRH4X45-AWS4 B66	150
		RRH4X45-AWS4 B66	150
Ericsson Air 21 B4A B12P-B5P 8FT w/ Mount Pipe	170	RRH2X60-1900	150
		RRH2X60-1900	150
KRY 112 144/1	170	RRH2X60-1900	150
KRY 112 144/1	170	DB-T1-6Z-8AB-0Z	150
KRY 112 144/1	170	(2) DB846F65ZAXY w/ Mount Pipe	150
(2) RRUS 11 B12	170	PD201-1	125
RRUS 11 B12	170	Side Arm Mount [SO 701-1]	125
RRUS 11 B12	170	Side Arm Mount [SO 701-1]	125
Platform Mount [LP 405-1]	170	PD128-1	125
PD201-7	170	PD128-1	110
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	170	Side Arm Mount [SO 701-1]	110
		Side Arm Mount [SO 701-1]	110
(2) 7770.00 w/ Mount Pipe	160	PD128-1	110
(2) 7770.00 w/ Mount Pipe	160	Side Arm Mount [SO 701-1]	100
OPA-65R-LCUU-H6 w/ Mount Pipe	160	GPS_A	100
OPA-65R-LCUU-H6 w/ Mount Pipe	160	PD128-1	95
OPA-65R-LCUU-H6 w/ Mount Pipe	160	Side Arm Mount [SO 701-1]	95
(2) LGP21401	160	Side Arm Mount [SO 701-1]	95
(2) LGP21401	160	PD128-1	95
(2) LGP21401	160	PD128-1	80
RRUS-11	160	Side Arm Mount [SO 701-1]	80
RRUS-11	160	Side Arm Mount [SO 701-1]	80
RRUS-11	160	DB222	80

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-42	42 ksi	63 ksi			

TOWER DESIGN NOTES

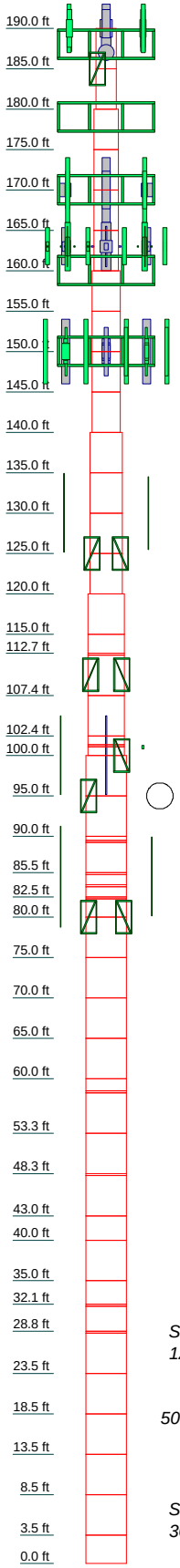
1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 93 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.000 ft

FDH Velocitel
222 S. Central Ave., Suite 1110
Saint Louis, MO 63105
Phone: 3147734000
FAX: 3147734001

Tower Analysis

Job: Weston/Rt-57/Norfield, 829046		
Project: 17QGQH1400		
Client: CCI	Drawn by: PRoach	App'd:
Code: TIA-222-G	Date: 06/22/17	Scale: NTS
Path:		Dwg No. E-1

Section	Size	Length (ft)	Grade	Weight (K)
1	P36x0.375	5.000	A53-B-42	0.6
2	P36x0.375	5.000		0.6
3	P36x0.375	5.000		0.7
4	P36x0.375	5.000		0.7
5	P36x0.375	5.000		0.7
6	P36x0.375	5.000		0.7
7	P36x0.375	5.000		0.8
8	P36x0.375	5.000		0.8
9	P36x0.375	5.000		0.8
10	P36x0.375	5.000		0.8
11	P36x0.375	5.000		1.0
12	P36x0.375	5.000		1.0
13	P36x0.375	5.000		1.0
14	P36x0.375	5.000		1.0
15	P36x0.375	5.000		1.1
16	[illegible]	[illegible]		0.5
18	[illegible]	5.000		1.4
19	[illegible]	5.000		1.4
22	[illegible]	[illegible]		1.3
23	[illegible]	5.000		1.5
24	[illegible]	5.000		1.5
25	[illegible]	[illegible]		1.2
27	[illegible]	[illegible]		1.3
28	[illegible]	[illegible]		0.4
33	[illegible]	[illegible]		0.4
34	[illegible]	5.000		1.8
35	[illegible]	5.000		1.8
36	[illegible]	5.000		1.8
37	[illegible]	5.000		1.8
38	[illegible]	[illegible]		1.7
40	[illegible]	5.000		2.0
41	[illegible]	5.000		2.0
42	[illegible]	[illegible]		2.0
43	[illegible]	5.000		2.4
44	[illegible]	3.000		1.4
45	[illegible]	5.000		2.4
46	[illegible]	[illegible]		1.4
48	[illegible]	[illegible]		1.8
49	[illegible]	[illegible]		2.5
50	[illegible]	5.000		2.5
51	[illegible]	5.000		2.9
52	[illegible]	5.000		2.9
53	[illegible]	5.000		2.9
54	[illegible]	5.000		2.9
55	[illegible]	3.500		2.0
				60.7



ALL REACTIONS ARE FACTORED

AXIAL 160 K

SHEAR 12 K *MOMEI 1644 kip*

TORQUE 1 kip-ft
50 mph WIND - 0.750 in ICE

AXIAL 100 K

SHEAR 36 K *MOMEI 4885 kip*

TORQUE 4 kip-ft
REACTIONS - 93 mph WIND

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
PD201-7	188	(4) 7020.00	160
APXVSPP18-C-A20 w/ Mount Pipe	188	(4) 7020.00	160
APXVSPP18-C-A20 w/ Mount Pipe	188	(4) 7020.00	160
APXVSPP18-C-A20 w/ Mount Pipe	188	TT19-08BP111-001	160
Platform Mount [LP 403-1]	188	TT19-08BP111-001	160
Pipe Mount	188	TT19-08BP111-001	160
Pipe Mount	188	DC6-48-60-18-8F	160
Pipe Mount	188	Platform Mount [LP 403-1]	160
APXVTM14-ALU-I20 w/ Mount Pipe	188	RRUS 32 B2	160
APXVTM14-ALU-I20 w/ Mount Pipe	188	RRUS 32 B2	160
APXVTM14-ALU-I20 w/ Mount Pipe	188	RRUS 32 B2	160
TD-RRH8x20-25	188	Pipe Mount	160
TD-RRH8x20-25	188	Pipe Mount	160
TD-RRH8x20-25	188	Pipe Mount	160
SP2-5.8	188	(2) 7770.00 w/ Mount Pipe	160
TME-800MHz RRH	185	(2) DB846F65ZAXY w/ Mount Pipe	150
TME-800MHz RRH	185	(2) LPA-80080/6CF w/ Mount Pipe	150
TME-1900MHZ RRH	185	BXA-171063-12CF-EDIN-2 w/ Mount Pipe	150
TME-1900MHZ RRH	185		
TME-1900MHZ RRH	185	BXA-171063-12CF-EDIN-2 w/ Mount Pipe	150
Side Arm Mount [SO 102-3]	185		
TME-800MHz RRH	185	BXA-171063-12CF-EDIN-2 w/ Mount Pipe	150
Side Arm Mount [SO 701-1]	184		
458-2D	179	(2) FD9R6004/2C-3L	150
Platform Mount [LP 403-1]	179	(2) FD9R6004/2C-3L	150
(4) Pipe Mount	179	(2) FD9R6004/2C-3L	150
(4) Pipe Mount	179	DB-T1-6Z-8AB-0Z	150
(4) Pipe Mount	179	Platform Mount [LP 403-1]	150
458-2D	179	(2) SBNHH-1D85C w/ Mount Pipe	150
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	170	(2) SBNHH-1D85C w/ Mount Pipe	150
		(2) SBNHH-1D85C w/ Mount Pipe	150
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	170	RRH2x60-700	150
		RRH2x60-700	150
Ericsson Air 21 B4A B12P-B5P 8FT w/ Mount Pipe	170	RRH2x60-700	150
		RRH4X45-AWS4 B66	150
Ericsson Air 21 B4A B12P-B5P 8FT w/ Mount Pipe	170	RRH4X45-AWS4 B66	150
		RRH4X45-AWS4 B66	150
Ericsson Air 21 B4A B12P-B5P 8FT w/ Mount Pipe	170	RRH2X60-1900	150
		RRH2X60-1900	150
KRY 112 144/1	170	RRH2X60-1900	150
KRY 112 144/1	170	DB-T1-6Z-8AB-0Z	150
KRY 112 144/1	170	(2) DB846F65ZAXY w/ Mount Pipe	150
(2) RRUS 11 B12	170	PD201-1	125
RRUS 11 B12	170	Side Arm Mount [SO 701-1]	125
RRUS 11 B12	170	Side Arm Mount [SO 701-1]	125
Platform Mount [LP 405-1]	170	PD128-1	125
PD201-7	170	PD128-1	110
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	170	Side Arm Mount [SO 701-1]	110
		Side Arm Mount [SO 701-1]	110
(2) 7770.00 w/ Mount Pipe	160	PD128-1	110
(2) 7770.00 w/ Mount Pipe	160	Side Arm Mount [SO 701-1]	100
OPA-65R-LCUU-H6 w/ Mount Pipe	160	GPS_A	100
OPA-65R-LCUU-H6 w/ Mount Pipe	160	PD128-1	95
OPA-65R-LCUU-H6 w/ Mount Pipe	160	Side Arm Mount [SO 701-1]	95
(2) LGP21401	160	Side Arm Mount [SO 701-1]	95
(2) LGP21401	160	PD128-1	95
(2) LGP21401	160	PD128-1	80
RRUS-11	160	Side Arm Mount [SO 701-1]	80
RRUS-11	160	Side Arm Mount [SO 701-1]	80
RRUS-11	160	DB222	80

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-42	42 ksi	63 ksi			

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 93 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. TOWER RATING: 53.3%

FDH Velocitel
222 S. Central Ave., Suite 1110
Saint Louis, MO 63105
Phone: 3147734000
FAX: 3147734001
Tower Analysis

Job: **Weston/Rt-57/Norfield, 829046**			
Project: **17QGQH1400**			
Client: CCI	Drawn by: PRoach	App'd:	
Code: TIA-222-G	Date: 06/22/17	Scale: NTS	
Path: C:\Users\PRoach\Desktop\829046_Weston_Rt-57_Norfield R\17QGQH1400-STAMOO_Sprint\R.0\Analysis\Reported\Tower\829046_EQT.eri		Dwg No. E-1	

Tower Input Data

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

Tower is located in Fairfield County, Connecticut.
ASCE 7-10 Wind Data is used (wind speeds converted to nominal values).
Basic wind speed of 93 mph.
Structure Class II.
Exposure Category B.
Topographic Category 1.
Crest Height 0.000 ft.
Nominal ice thickness of 0.750 in.
Ice thickness is considered to increase with height.
Ice density of 56.000 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50.000 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs
Consider Moments - Horizontals
Consider Moments - Diagonals
Use Moment Magnification
√ Use Code Stress Ratios
√ Use Code Safety Factors - Guys
Escalate Ice
Always Use Max Kz
Use Special Wind Profile
Include Bolts In Member Capacity
Leg Bolts Are At Top Of Section
Secondary Horizontal Braces Leg
Use Diamond Inner Bracing (4 Sided)
SR Members Have Cut Ends
SR Members Are Concentric

Distribute Leg Loads As Uniform
Assume Legs Pinned
√ Assume Rigid Index Plate
√ Use Clear Spans For Wind Area
Use Clear Spans For KL/r
Retension Guys To Initial Tension
√ Bypass Mast Stability Checks
√ Use Azimuth Dish Coefficients
√ Project Wind Area of Appurt.
Autocalc Torque Arm Areas
Add IBC .6D+W Combination
Sort Capacity Reports By Component
Triangulate Diamond Inner Bracing
Treat Feed Line Bundles As Cylinder

Use ASCE 10 X-Brace Ly Rules
Calculate Redundant Bracing Forces
Ignore Redundant Members in FEA
SR Leg Bolts Resist Compression
All Leg Panels Have Same Allowable
Offset Girt At Foundation
√ Consider Feed Line Torque
Include Angle Block Shear Check
Use TIA-222-G Bracing Resist. Exemption
Use TIA-222-G Tension Splice Exemption

Poles

√ Include Shear-Torsion Interaction
Always Use Sub-Critical Flow
Use Top Mounted Sockets

Pole Section Geometry

Section	*Elevation* *ft*	*Section Length* *ft*	*Pole Size*	*Pole Grade*	*Socket Length* *ft*
L1	190.000-185.000	5.000	P30x0.375	A53-B-42 (42 ksi)	
L2	185.000-180.000	5.000	P30x0.375	A53-B-42	

Section	Elevation ft	Section Length ft	Pole Size	Pole Grade	Socket Length ft
				(42 ksi)	
L3	180.000-175.000	5.000	P36x0.375	A53-B-42 (42 ksi)	
L4	175.000-170.000	5.000	P36x0.375	A53-B-42 (42 ksi)	
L5	170.000-165.000	5.000	P36x0.375	A53-B-42 (42 ksi)	
L6	165.000-160.000	5.000	P36x0.375	A53-B-42 (42 ksi)	
L7	160.000-155.000	5.000	P42x0.375	A53-B-42 (42 ksi)	
L8	155.000-150.000	5.000	P42x0.375	A53-B-42 (42 ksi)	
L9	150.000-145.000	5.000	P42x0.375	A53-B-42 (42 ksi)	
L10	145.000-140.000	5.000	P42x0.375	A53-B-42 (42 ksi)	
L11	140.000-135.000	5.000	P48x0.375	A53-B-42 (42 ksi)	
L12	135.000-130.000	5.000	P48x0.375	A53-B-42 (42 ksi)	
L13	130.000-125.000	5.000	P48x0.375	A53-B-42 (42 ksi)	
L14	125.000-120.000	5.000	P48x0.375	A53-B-42 (42 ksi)	
L15	120.000-115.000	5.000	P54x0.375	A53-B-42 (42 ksi)	
L16	115.000-112.666	2.334	P54x0.375	A53-B-42 (42 ksi)	
L17	112.666-112.416	0.250	P54x0.4875	A53-B-42 (42 ksi)	
L18	112.416-107.416	5.000	P54x0.4875	A53-B-42 (42 ksi)	
L19	107.416-102.416	5.000	P54x0.4875	A53-B-42 (42 ksi)	
L20	102.416-101.333	1.083	P54x0.4875	A53-B-42 (42 ksi)	
L21	101.333-101.083	0.250	P54x0.4875	A53-B-42 (42 ksi)	
L22	101.083-100.000	1.083	P54x0.4875	A53-B-42 (42 ksi)	
L23	100.000-95.000	5.000	P60x0.475	A53-B-42 (42 ksi)	
L24	95.000-90.000	5.000	P60x0.475	A53-B-42 (42 ksi)	
L25	90.000-89.500	0.500	P60x0.475	A53-B-42 (42 ksi)	
L26	89.500-89.250	0.250	P60x0.55625	A53-B-42 (42 ksi)	
L27	89.250-85.500	3.750	P60x0.55625	A53-B-42 (42 ksi)	
L28	85.500-85.250	0.250	P60x0.6375	A53-B-42 (42 ksi)	
L29	85.250-84.000	1.250	P60x0.6375	A53-B-42 (42 ksi)	
L30	84.000-83.750	0.250	P60x0.525	A53-B-42 (42 ksi)	
L31	83.750-82.500	1.250	P60x0.525	A53-B-42 (42 ksi)	
L32	82.500-82.250	0.250	P60x0.45	A53-B-42 (42 ksi)	

Section	Elevation ft	Section Length ft	Pole Size	Pole Grade	Socket Length ft
L33	82.250-80.000	2.250	P60x0.45	A53-B-42 (42 ksi)	
L34	80.000-75.000	5.000	P60x0.575	A53-B-42 (42 ksi)	
L35	75.000-70.000	5.000	P60x0.575	A53-B-42 (42 ksi)	
L36	70.000-65.000	5.000	P60x0.575	A53-B-42 (42 ksi)	
L37	65.000-60.000	5.000	P60x0.575	A53-B-42 (42 ksi)	
L38	60.000-58.500	1.500	P60x0.7	A53-B-42 (42 ksi)	
L39	58.500-58.250	0.250	P60x0.625	A53-B-42 (42 ksi)	
L40	58.250-53.250	5.000	P60x0.625	A53-B-42 (42 ksi)	
L41	53.250-48.250	5.000	P60x0.625	A53-B-42 (42 ksi)	
L42	48.250-48.000	0.250	P60x0.775	A53-B-42 (42 ksi)	
L43	48.000-43.000	5.000	P60x0.775	A53-B-42 (42 ksi)	
L44	43.000-40.000	3.000	P60x0.775	A53-B-42 (42 ksi)	
L45	40.000-35.000	5.000	P60x0.775	A53-B-42 (42 ksi)	
L46	35.000-32.083	2.917	P60x0.775	A53-B-42 (42 ksi)	
L47	32.083-31.833	0.250	P60x0.9625	A53-B-42 (42 ksi)	
L48	31.833-28.750	3.083	P60x0.9625	A53-B-42 (42 ksi)	
L49	28.750-28.500	0.250	P60x0.8125	A53-B-42 (42 ksi)	
L50	28.500-23.500	5.000	P60x0.8125	A53-B-42 (42 ksi)	
L51	23.500-18.500	5.000	P60x0.95	A53-B-42 (42 ksi)	
L52	18.500-13.500	5.000	P60x0.95	A53-B-42 (42 ksi)	
L53	13.500-8.500	5.000	P60x0.95	A53-B-42 (42 ksi)	
L54	8.500-3.500	5.000	P60x0.95	A53-B-42 (42 ksi)	
L55	3.500-0.000	3.500	P60x0.95	A53-B-42 (42 ksi)	

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	Double Angle Stitch Bolt Spacing Redundants in
L1 190.000-185.000				1	1	1			
L2 185.000-180.000				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	Double Angle Stitch Bolt Spacing Redundants in
L3 180.000-175.000				1	1	1			
L4 175.000-170.000				1	1	1			
L5 170.000-165.000				1	1	1			
L6 165.000-160.000				1	1	1			
L7 160.000-155.000				1	1	1			
L8 155.000-150.000				1	1	1			
L9 150.000-145.000				1	1	1			
L10 145.000-140.000				1	1	1			
L11 140.000-135.000				1	1	1			
L12 135.000-130.000				1	1	1			
L13 130.000-125.000				1	1	1			
L14 125.000-120.000				1	1	1			
L15 120.000-115.000				1	1	1			
L16 115.000-112.666				1	1	1			
L17 112.666-112.416				1	1	0.990478			
L18 112.416-107.416				1	1	0.990478			
L19 107.416-102.416				1	1	0.990478			
L20 102.416-101.333				1	1	0.990478			
L21 101.333-101.083				1	1	0.990478			
L22 101.083-100.0				1	1	0.990478			

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	Double Angle Stitch Bolt Spacing Redundants in
00									
L23				1	1	0.993442			
100.000-95.000									
L24				1	1	0.993442			
95.000-90.000									
L25				1	1	0.993442			
90.000-89.500									
L26				1	1	0.979451			
89.500-89.250									
L27				1	1	0.979451			
89.250-85.500									
L28				1	1	0.96934			
85.500-85.250									
L29				1	1	0.96934			
85.250-84.000									
L30				1	1	0.991333			
84.000-83.750									
L31				1	1	0.991333			
83.750-82.500									
L32				1	1	0.99474			
82.500-82.250									
L33				1	1	0.99474			
82.250-80.000									
L34				1	1	0.996424			
80.000-75.000									
L35				1	1	0.996424			
75.000-70.000									
L36				1	1	0.996424			
70.000-65.000									
L37				1	1	0.996424			
65.000-60.000									
L38				1	1	0.997508			
60.000-58.500									
L39				1	1	1			
58.500-58.250									
L40				1	1	1			
58.250-53.250									
L41				1	1	1			
53.250-48.250									
L42				1	1	0.977534			
48.250-48.000									
L43				1	1	0.977534			
48.000-43.000									
L44				1	1	0.977534			
43.000-40.000									
L45				1	1	0.977534			
40.000-35.000									
L46				1	1	0.977534			
35.000-32.083									
L47				1	1	0.96816			
32.083-31.833									
L48				1	1	0.96816			
31.833-28.750									
L49				1	1	0.98265			
28.750-28.500									
L50				1	1	0.98265			
28.500-23.500									
L51				1	1	0.973014			

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	Double Angle Stitch Bolt Spacing Redundants in
23.500-18.500									
L52				1	1	0.973014			
18.500-13.500									
L53				1	1	0.973014			
13.500-8.500									
L54				1	1	0.973014			
8.500-3.500									
L55				1	1	0.973014			
3.500-0.000									

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight klf
***									
***									
Safety Line 3/8	C	Surface Ar (CaAa)	190.000 - 0.000	1	1	0.000 0.000	0.375		0.000
***									
TYPE I(1-1/4")	B	Surface Ar (CaAa)	188.000 - 0.000	3	3	-0.450 -0.400	1.299		0.001
***									
***									
LDF7-50A(1-5/8")	A	Surface Ar (CaAa)	170.000 - 0.000	6	6	0.350 0.450	1.980		0.001
***									
***									
LDF7-50A(1-5/8")	A	Surface Ar (CaAa)	160.000 - 0.000	12	6	-0.250 -0.100	1.980		0.001
***									
***									
***									
***									
***									
***									
***									
***									
***									
***									
8.5" x 1.25" Flat Plate (G)	A	Surface Af (CaAa)	35.833 - 0.833	1	1	-0.142 -0.142	8.500	19.500	0.000
8.5" x 1.25" Flat Plate (G)	B	Surface Af (CaAa)	35.833 - 0.833	1	1	-0.142 -0.142	8.500	19.500	0.000
8.5" x 1.25" Flat Plate (G)	C	Surface Af (CaAa)	35.833 - 0.833	1	1	-0.142 -0.142	8.500	19.500	0.000
*									
6.5" x 1.25" Flat Plate (G)	A	Surface Af (CaAa)	51.000 - 26.000	1	1	-0.142 -0.142	6.500	15.500	0.000
6.5" x 1.25" Flat Plate (G)	B	Surface Af (CaAa)	51.000 - 26.000	1	1	-0.142 -0.142	6.500	15.500	0.000
6.5" x 1.25" Flat Plate (G)	C	Surface Af (CaAa)	51.000 - 26.000	1	1	-0.142 -0.142	6.500	15.500	0.000
*									
4.5" x 1" Flat Plate (G)	A	Surface Af	87.000 - 57.000	1	1	-0.142	4.500	11.000	0.000

Description	Sector	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight klf
		(CaAa)				-0.142			
4.5" x 1" Flat Plate (G)	B	Surface Af	87.000 - 57.000	1	1	-0.142	4.500	11.000	0.000
		(CaAa)				-0.142			
4.5" x 1" Flat Plate (G)	C	Surface Af	87.000 - 57.000	1	1	-0.142	4.500	11.000	0.000
		(CaAa)				-0.142			
*									
6" x 1" Flat Plate (G)	A	Surface Af	105.333 - 82.000	1	1	-0.142	6.000	14.000	0.000
		(CaAa)				-0.142			
6" x 1" Flat Plate (G)	B	Surface Af	105.333 - 82.000	1	1	-0.142	6.000	14.000	0.000
		(CaAa)				-0.142			
6" x 1" Flat Plate (G)	C	Surface Af	105.333 - 82.000	1	1	-0.142	6.000	14.000	0.000
		(CaAa)				-0.142			
*									
6" x 1" Flat Plate (G)	A	Surface Af	114.666 - 101.333	1	1	-0.142	6.000	14.000	0.000
		(CaAa)				-0.142			
6" x 1" Flat Plate (G)	B	Surface Af	114.666 - 101.333	1	1	-0.142	6.000	14.000	0.000
		(CaAa)				-0.142			
6" x 1" Flat Plate (G)	C	Surface Af	114.666 - 101.333	1	1	-0.142	6.000	14.000	0.000
		(CaAa)				-0.142			
*									
6.5" x 1.25" Flat Plate (G)	A	Surface Af	25.000 - 15.000	1	1	-0.500	6.500	15.500	0.028
		(CaAa)				-0.500			
6.5" x 1.25" Flat Plate (G)	B	Surface Af	25.000 - 15.000	1	1	-0.500	6.500	15.500	0.028
		(CaAa)				-0.500			
6.5" x 1.25" Flat Plate (G)	C	Surface Af	25.000 - 15.000	1	1	-0.500	6.500	15.500	0.028
		(CaAa)				-0.500			
*									
6" x 1" Flat Plate (G)	A	Surface Af	45.250 - 35.250	1	1	-0.500	6.000	14.000	0.020
		(CaAa)				-0.500			
6" x 1" Flat Plate (G)	B	Surface Af	45.250 - 35.250	1	1	-0.500	6.000	14.000	0.020
		(CaAa)				-0.500			
6" x 1" Flat Plate (G)	C	Surface Af	45.250 - 35.250	1	1	-0.500	6.000	14.000	0.020
		(CaAa)				-0.500			
*									
6.5" x 1.25" Flat Plate (G)	A	Surface Af	65.500 - 55.500	1	1	-0.500	6.500	15.500	0.028
		(CaAa)				-0.500			
6.5" x 1.25" Flat Plate (G)	B	Surface Af	65.500 - 55.500	1	1	-0.500	6.500	15.500	0.028
		(CaAa)				-0.500			
6.5" x 1.25" Flat Plate (G)	C	Surface Af	65.500 - 55.500	1	1	-0.500	6.500	15.500	0.028
		(CaAa)				-0.500			
*									
4.5" x 1" Flat Plate (G)	A	Surface Af	85.750 - 75.750	1	1	-0.500	4.500	11.000	0.015
		(CaAa)				-0.500			
4.5" x 1" Flat Plate (G)	B	Surface Af	85.750 - 75.750	1	1	-0.500	4.500	11.000	0.015
		(CaAa)				-0.500			
4.5" x 1" Flat Plate (G)	C	Surface Af	85.750 - 75.750	1	1	-0.500	4.500	11.000	0.015
		(CaAa)				-0.500			
*									
4.5" x 1" Flat Plate (G)	A	Surface Af	91.000 - 81.000	1	1	0.167	4.500	11.000	0.000
		(CaAa)				0.167			
4.5" x 1" Flat Plate (G)	B	Surface Af	91.000 - 81.000	1	1	0.167	4.500	11.000	0.000
		(CaAa)				0.167			
4.5" x 1" Flat Plate (G)	C	Surface Af	91.000 - 81.000	1	1	0.167	4.500	11.000	0.000
		(CaAa)				0.167			

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 klf
***								
***								
***								
TYPE I(1-1/4")	B	No	Inside Pole	188.000 - 0.000	1	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
LDF5-50A(7/8")	B	No	Inside Pole	188.000 - 0.000	1	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
LDF4.5-50(5/8")	B	No	Inside Pole	188.000 - 0.000	1	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
ATCB-B01(5/16")	B	No	Inside Pole	188.000 - 0.000	1	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
***								
***								
LDF5-50A(7/8")	C	No	Inside Pole	179.000 - 0.000	2	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
***								
***								
LDF7-50A(1-5/8")	A	No	Inside Pole	170.000 - 0.000	6	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
MLE Hybrid 9Power/18Fiber RL 2(1-5/8")	A	No	Inside Pole	170.000 - 0.000	1	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
LDF5-50A(7/8")	A	No	Inside Pole	170.000 - 0.000	2	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
***								
LDF5-50A(7/8")	A	No	Inside Pole	160.000 - 0.000	2	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
FB-L98B-034-XXX(3/8")	A	No	Inside Pole	160.000 - 0.000	1	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
WR-VG86ST-BRD(3/4")	A	No	Inside Pole	160.000 - 0.000	2	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
***								
***								
LDF7-50A(1-5/8")	B	No	Inside Pole	150.000 - 0.000	11	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
HB158-1-08U8-S8J18(1-5/8")	B	No	Inside Pole	150.000 - 0.000	1	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
HB158-1-08U8-S8J18(1-5/8")	B	No	Inside Pole	150.000 - 0.000	1	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
***								
***								
LDF5-50A(7/8")	B	No	Inside Pole	125.000 - 0.000	1	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
LDF4P-50A(1/2)	B	No	Inside Pole	125.000 - 0.000	1	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
***								

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
***								
LDF4-50A(1/2")	B	No	Inside Pole	110.000 - 0.000	2	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
***								
***								
LDF4-50A(1/2")	B	No	Inside Pole	100.000 - 0.000	1	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
***								
***								
LDF4-75A(1/2")	B	No	Inside Pole	95.000 - 0.000	2	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
***								
***								
LDF4-75A(1/2")	B	No	Inside Pole	80.000 - 0.000	2	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
***								
***								
***								

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	190.000-185.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	1.169	0.000	0.009
		C	0.000	0.000	0.188	0.000	0.001
L2	185.000-180.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	1.949	0.000	0.015
		C	0.000	0.000	0.188	0.000	0.001
L3	180.000-175.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	1.949	0.000	0.015
		C	0.000	0.000	0.188	0.000	0.004
L4	175.000-170.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	1.949	0.000	0.015
		C	0.000	0.000	0.188	0.000	0.004
L5	170.000-165.000	A	0.000	0.000	5.940	0.000	0.058
		B	0.000	0.000	1.949	0.000	0.015
		C	0.000	0.000	0.188	0.000	0.004
L6	165.000-160.000	A	0.000	0.000	5.940	0.000	0.058
		B	0.000	0.000	1.949	0.000	0.015
		C	0.000	0.000	0.188	0.000	0.004
L7	160.000-155.000	A	0.000	0.000	11.880	0.000	0.116
		B	0.000	0.000	1.949	0.000	0.015
		C	0.000	0.000	0.188	0.000	0.004
L8	155.000-150.000	A	0.000	0.000	11.880	0.000	0.116
		B	0.000	0.000	1.949	0.000	0.015
		C	0.000	0.000	0.188	0.000	0.004
L9	150.000-145.000	A	0.000	0.000	11.880	0.000	0.116
		B	0.000	0.000	1.949	0.000	0.073
		C	0.000	0.000	0.188	0.000	0.004
L10	145.000-140.000	A	0.000	0.000	11.880	0.000	0.116
		B	0.000	0.000	1.949	0.000	0.073
		C	0.000	0.000	0.188	0.000	0.004

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L11	140.000-135.000	A	0.000	0.000	11.880	0.000	0.116
		B	0.000	0.000	1.949	0.000	0.073
		C	0.000	0.000	0.188	0.000	0.004
L12	135.000-130.000	A	0.000	0.000	11.880	0.000	0.116
		B	0.000	0.000	1.949	0.000	0.073
		C	0.000	0.000	0.188	0.000	0.004
L13	130.000-125.000	A	0.000	0.000	11.880	0.000	0.116
		B	0.000	0.000	1.949	0.000	0.073
		C	0.000	0.000	0.188	0.000	0.004
L14	125.000-120.000	A	0.000	0.000	11.880	0.000	0.116
		B	0.000	0.000	1.949	0.000	0.076
		C	0.000	0.000	0.188	0.000	0.004
L15	120.000-115.000	A	0.000	0.000	11.880	0.000	0.116
		B	0.000	0.000	1.949	0.000	0.076
		C	0.000	0.000	0.188	0.000	0.004
L16	115.000-112.666	A	0.000	0.000	7.546	0.000	0.054
		B	0.000	0.000	2.910	0.000	0.035
		C	0.000	0.000	2.088	0.000	0.002
L17	112.666-112.416	A	0.000	0.000	0.844	0.000	0.006
		B	0.000	0.000	0.347	0.000	0.004
		C	0.000	0.000	0.259	0.000	0.000
L18	112.416-107.416	A	0.000	0.000	16.880	0.000	0.116
		B	0.000	0.000	6.949	0.000	0.077
		C	0.000	0.000	5.188	0.000	0.004
L19	107.416-102.416	A	0.000	0.000	19.797	0.000	0.116
		B	0.000	0.000	9.866	0.000	0.077
		C	0.000	0.000	8.104	0.000	0.004
L20	102.416-101.333	A	0.000	0.000	4.739	0.000	0.025
		B	0.000	0.000	2.588	0.000	0.017
		C	0.000	0.000	2.207	0.000	0.001
L21	101.333-101.083	A	0.000	0.000	0.844	0.000	0.006
		B	0.000	0.000	0.347	0.000	0.004
		C	0.000	0.000	0.259	0.000	0.000
L22	101.083-100.000	A	0.000	0.000	3.656	0.000	0.025
		B	0.000	0.000	1.505	0.000	0.017
		C	0.000	0.000	1.124	0.000	0.001
L23	100.000-95.000	A	0.000	0.000	16.880	0.000	0.116
		B	0.000	0.000	6.949	0.000	0.078
		C	0.000	0.000	5.188	0.000	0.004
L24	95.000-90.000	A	0.000	0.000	17.630	0.000	0.116
		B	0.000	0.000	7.699	0.000	0.080
		C	0.000	0.000	5.938	0.000	0.004
L25	90.000-89.500	A	0.000	0.000	2.063	0.000	0.012
		B	0.000	0.000	1.070	0.000	0.008
		C	0.000	0.000	0.894	0.000	0.000
L26	89.500-89.250	A	0.000	0.000	1.032	0.000	0.006
		B	0.000	0.000	0.535	0.000	0.004
		C	0.000	0.000	0.447	0.000	0.000
L27	89.250-85.500	A	0.000	0.000	16.785	0.000	0.091
		B	0.000	0.000	9.336	0.000	0.064
		C	0.000	0.000	8.016	0.000	0.007
L28	85.500-85.250	A	0.000	0.000	1.407	0.000	0.010
		B	0.000	0.000	0.910	0.000	0.008
		C	0.000	0.000	0.822	0.000	0.004
L29	85.250-84.000	A	0.000	0.000	7.032	0.000	0.048
		B	0.000	0.000	4.550	0.000	0.039
		C	0.000	0.000	4.109	0.000	0.020
L30	84.000-83.750	A	0.000	0.000	1.407	0.000	0.010
		B	0.000	0.000	0.910	0.000	0.008
		C	0.000	0.000	0.822	0.000	0.004
L31	83.750-82.500	A	0.000	0.000	7.032	0.000	0.048

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B	0.000	0.000	4.550	0.000	0.039
		C	0.000	0.000	4.109	0.000	0.020
L32	82.500-82.250	A	0.000	0.000	1.407	0.000	0.010
		B	0.000	0.000	0.910	0.000	0.008
		C	0.000	0.000	0.822	0.000	0.004
L33	82.250-80.000	A	0.000	0.000	9.909	0.000	0.087
		B	0.000	0.000	5.439	0.000	0.070
		C	0.000	0.000	4.647	0.000	0.036
L34	80.000-75.000	A	0.000	0.000	18.817	0.000	0.182
		B	0.000	0.000	8.886	0.000	0.146
		C	0.000	0.000	7.125	0.000	0.069
L35	75.000-70.000	A	0.000	0.000	15.630	0.000	0.116
		B	0.000	0.000	5.699	0.000	0.081
		C	0.000	0.000	3.938	0.000	0.004
L36	70.000-65.000	A	0.000	0.000	16.172	0.000	0.130
		B	0.000	0.000	6.240	0.000	0.095
		C	0.000	0.000	4.479	0.000	0.018
L37	65.000-60.000	A	0.000	0.000	21.047	0.000	0.255
		B	0.000	0.000	11.115	0.000	0.220
		C	0.000	0.000	9.354	0.000	0.143
L38	60.000-58.500	A	0.000	0.000	6.314	0.000	0.076
		B	0.000	0.000	3.335	0.000	0.066
		C	0.000	0.000	2.806	0.000	0.043
L39	58.500-58.250	A	0.000	0.000	1.052	0.000	0.013
		B	0.000	0.000	0.556	0.000	0.011
		C	0.000	0.000	0.468	0.000	0.007
L40	58.250-53.250	A	0.000	0.000	15.797	0.000	0.193
		B	0.000	0.000	5.865	0.000	0.157
		C	0.000	0.000	4.104	0.000	0.080
L41	53.250-48.250	A	0.000	0.000	14.859	0.000	0.116
		B	0.000	0.000	4.928	0.000	0.081
		C	0.000	0.000	3.167	0.000	0.004
L42	48.250-48.000	A	0.000	0.000	0.865	0.000	0.006
		B	0.000	0.000	0.368	0.000	0.004
		C	0.000	0.000	0.280	0.000	0.000
L43	48.000-43.000	A	0.000	0.000	19.547	0.000	0.162
		B	0.000	0.000	9.615	0.000	0.127
		C	0.000	0.000	7.854	0.000	0.050
L44	43.000-40.000	A	0.000	0.000	13.378	0.000	0.131
		B	0.000	0.000	7.419	0.000	0.110
		C	0.000	0.000	6.362	0.000	0.064
L45	40.000-35.000	A	0.000	0.000	23.227	0.000	0.213
		B	0.000	0.000	13.295	0.000	0.178
		C	0.000	0.000	11.534	0.000	0.101
L46	35.000-32.083	A	0.000	0.000	14.223	0.000	0.068
		B	0.000	0.000	8.429	0.000	0.047
		C	0.000	0.000	7.402	0.000	0.003
L47	32.083-31.833	A	0.000	0.000	1.219	0.000	0.006
		B	0.000	0.000	0.722	0.000	0.004
		C	0.000	0.000	0.634	0.000	0.000
L48	31.833-28.750	A	0.000	0.000	15.033	0.000	0.072
		B	0.000	0.000	8.909	0.000	0.050
		C	0.000	0.000	7.823	0.000	0.003
L49	28.750-28.500	A	0.000	0.000	1.219	0.000	0.006
		B	0.000	0.000	0.722	0.000	0.004
		C	0.000	0.000	0.634	0.000	0.000
L50	28.500-23.500	A	0.000	0.000	23.297	0.000	0.158
		B	0.000	0.000	13.365	0.000	0.123
		C	0.000	0.000	11.604	0.000	0.046
L51	23.500-18.500	A	0.000	0.000	24.380	0.000	0.255
		B	0.000	0.000	14.448	0.000	0.220

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C	0.000	0.000	12.688	0.000	0.143
L52	18.500-13.500	A	0.000	0.000	22.755	0.000	0.213
		B	0.000	0.000	12.823	0.000	0.178
		C	0.000	0.000	11.063	0.000	0.101
L53	13.500-8.500	A	0.000	0.000	18.963	0.000	0.116
		B	0.000	0.000	9.032	0.000	0.081
		C	0.000	0.000	7.271	0.000	0.004
L54	8.500-3.500	A	0.000	0.000	18.963	0.000	0.116
		B	0.000	0.000	9.032	0.000	0.081
		C	0.000	0.000	7.271	0.000	0.004
L55	3.500-0.000	A	0.000	0.000	12.094	0.000	0.082
		B	0.000	0.000	5.142	0.000	0.057
		C	0.000	0.000	3.910	0.000	0.003

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	190.000-185.000	A	1.785	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	2.800	0.000	0.041
		C		0.000	0.000	1.972	0.000	0.025
L2	185.000-180.000	A	1.780	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	4.660	0.000	0.068
		C		0.000	0.000	1.967	0.000	0.025
L3	180.000-175.000	A	1.775	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	4.654	0.000	0.068
		C		0.000	0.000	1.962	0.000	0.027
L4	175.000-170.000	A	1.770	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	4.648	0.000	0.068
		C		0.000	0.000	1.957	0.000	0.028
L5	170.000-165.000	A	1.765	0.000	0.000	9.631	0.000	0.174
		B		0.000	0.000	4.641	0.000	0.068
		C		0.000	0.000	1.952	0.000	0.027
L6	165.000-160.000	A	1.759	0.000	0.000	9.624	0.000	0.174
		B		0.000	0.000	4.635	0.000	0.067
		C		0.000	0.000	1.947	0.000	0.027
L7	160.000-155.000	A	1.754	0.000	0.000	19.234	0.000	0.430
		B		0.000	0.000	4.628	0.000	0.067
		C		0.000	0.000	1.941	0.000	0.027
L8	155.000-150.000	A	1.748	0.000	0.000	19.220	0.000	0.430
		B		0.000	0.000	4.621	0.000	0.067
		C		0.000	0.000	1.936	0.000	0.027
L9	150.000-145.000	A	1.742	0.000	0.000	19.206	0.000	0.429
		B		0.000	0.000	4.613	0.000	0.125
		C		0.000	0.000	1.930	0.000	0.027
L10	145.000-140.000	A	1.736	0.000	0.000	19.191	0.000	0.428
		B		0.000	0.000	4.606	0.000	0.125
		C		0.000	0.000	1.924	0.000	0.027
L11	140.000-135.000	A	1.730	0.000	0.000	19.175	0.000	0.427
		B		0.000	0.000	4.598	0.000	0.124
		C		0.000	0.000	1.918	0.000	0.027
L12	135.000-130.000	A	1.724	0.000	0.000	19.159	0.000	0.426
		B		0.000	0.000	4.590	0.000	0.124
		C		0.000	0.000	1.911	0.000	0.026
L13	130.000-125.000	A	1.717	0.000	0.000	19.143	0.000	0.425
		B		0.000	0.000	4.582	0.000	0.124
		C		0.000	0.000	1.905	0.000	0.026

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L14	125.000-120.000	A	1.710	0.000	0.000	19.126	0.000	0.424
		B		0.000	0.000	4.573	0.000	0.126
		C		0.000	0.000	1.898	0.000	0.026
L15	120.000-115.000	A	1.703	0.000	0.000	19.108	0.000	0.422
		B		0.000	0.000	4.565	0.000	0.126
		C		0.000	0.000	1.891	0.000	0.026
L16	115.000-112.666	A	1.698	0.000	0.000	11.318	0.000	0.224
		B		0.000	0.000	4.532	0.000	0.086
		C		0.000	0.000	3.285	0.000	0.039
L17	112.666-112.416	A	1.696	0.000	0.000	1.255	0.000	0.024
		B		0.000	0.000	0.528	0.000	0.010
		C		0.000	0.000	0.395	0.000	0.005
L18	112.416-107.416	A	1.692	0.000	0.000	25.088	0.000	0.488
		B		0.000	0.000	10.559	0.000	0.193
		C		0.000	0.000	7.888	0.000	0.093
L19	107.416-102.416	A	1.684	0.000	0.000	28.964	0.000	0.525
		B		0.000	0.000	14.444	0.000	0.232
		C		0.000	0.000	11.775	0.000	0.131
L20	102.416-101.333	A	1.679	0.000	0.000	6.872	0.000	0.119
		B		0.000	0.000	3.729	0.000	0.056
		C		0.000	0.000	3.151	0.000	0.034
L21	101.333-101.083	A	1.678	0.000	0.000	1.286	0.000	0.024
		B		0.000	0.000	0.561	0.000	0.010
		C		0.000	0.000	0.427	0.000	0.005
L22	101.083-100.000	A	1.677	0.000	0.000	5.571	0.000	0.105
		B		0.000	0.000	2.428	0.000	0.042
		C		0.000	0.000	1.850	0.000	0.020
L23	100.000-95.000	A	1.672	0.000	0.000	25.701	0.000	0.483
		B		0.000	0.000	11.197	0.000	0.193
		C		0.000	0.000	8.531	0.000	0.091
L24	95.000-90.000	A	1.663	0.000	0.000	26.611	0.000	0.493
		B		0.000	0.000	12.118	0.000	0.205
		C		0.000	0.000	9.454	0.000	0.102
L25	90.000-89.500	A	1.658	0.000	0.000	3.035	0.000	0.054
		B		0.000	0.000	1.587	0.000	0.025
		C		0.000	0.000	1.320	0.000	0.015
L26	89.500-89.250	A	1.657	0.000	0.000	1.518	0.000	0.027
		B		0.000	0.000	0.793	0.000	0.012
		C		0.000	0.000	0.660	0.000	0.007
L27	89.250-85.500	A	1.653	0.000	0.000	24.607	0.000	0.425
		B		0.000	0.000	13.746	0.000	0.209
		C		0.000	0.000	11.750	0.000	0.132
L28	85.500-85.250	A	1.650	0.000	0.000	2.021	0.000	0.036
		B		0.000	0.000	1.297	0.000	0.022
		C		0.000	0.000	1.164	0.000	0.017
L29	85.250-84.000	A	1.648	0.000	0.000	10.102	0.000	0.180
		B		0.000	0.000	6.483	0.000	0.109
		C		0.000	0.000	5.818	0.000	0.083
L30	84.000-83.750	A	1.647	0.000	0.000	2.020	0.000	0.036
		B		0.000	0.000	1.296	0.000	0.022
		C		0.000	0.000	1.163	0.000	0.017
L31	83.750-82.500	A	1.645	0.000	0.000	10.098	0.000	0.180
		B		0.000	0.000	6.480	0.000	0.108
		C		0.000	0.000	5.815	0.000	0.083
L32	82.500-82.250	A	1.644	0.000	0.000	2.019	0.000	0.036
		B		0.000	0.000	1.296	0.000	0.022
		C		0.000	0.000	1.163	0.000	0.017
L33	82.250-80.000	A	1.641	0.000	0.000	14.571	0.000	0.287
		B		0.000	0.000	8.062	0.000	0.158
		C		0.000	0.000	6.865	0.000	0.112
L34	80.000-75.000	A	1.634	0.000	0.000	28.303	0.000	0.578

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B		0.000	0.000	13.847	0.000	0.295
		C		0.000	0.000	11.190	0.000	0.191
L35	75.000-70.000	A	1.623	0.000	0.000	24.280	0.000	0.464
		B		0.000	0.000	9.837	0.000	0.182
		C		0.000	0.000	7.183	0.000	0.078
L36	70.000-65.000	A	1.611	0.000	0.000	24.807	0.000	0.482
		B		0.000	0.000	10.379	0.000	0.202
		C		0.000	0.000	7.728	0.000	0.098
L37	65.000-60.000	A	1.599	0.000	0.000	29.868	0.000	0.664
		B		0.000	0.000	15.455	0.000	0.385
		C		0.000	0.000	12.807	0.000	0.282
L38	60.000-58.500	A	1.590	0.000	0.000	8.950	0.000	0.199
		B		0.000	0.000	4.629	0.000	0.115
		C		0.000	0.000	3.836	0.000	0.084
L39	58.500-58.250	A	1.588	0.000	0.000	1.491	0.000	0.033
		B		0.000	0.000	0.771	0.000	0.019
		C		0.000	0.000	0.639	0.000	0.014
L40	58.250-53.250	A	1.581	0.000	0.000	23.249	0.000	0.529
		B		0.000	0.000	8.859	0.000	0.252
		C		0.000	0.000	6.215	0.000	0.149
L41	53.250-48.250	A	1.566	0.000	0.000	22.605	0.000	0.437
		B		0.000	0.000	8.234	0.000	0.162
		C		0.000	0.000	5.594	0.000	0.059
L42	48.250-48.000	A	1.558	0.000	0.000	1.286	0.000	0.023
		B		0.000	0.000	0.568	0.000	0.010
		C		0.000	0.000	0.436	0.000	0.004
L43	48.000-43.000	A	1.549	0.000	0.000	28.117	0.000	0.535
		B		0.000	0.000	13.766	0.000	0.263
		C		0.000	0.000	11.131	0.000	0.160
L44	43.000-40.000	A	1.535	0.000	0.000	18.617	0.000	0.373
		B		0.000	0.000	10.018	0.000	0.210
		C		0.000	0.000	8.439	0.000	0.148
L45	40.000-35.000	A	1.519	0.000	0.000	32.131	0.000	0.621
		B		0.000	0.000	17.817	0.000	0.352
		C		0.000	0.000	15.189	0.000	0.250
L46	35.000-32.083	A	1.502	0.000	0.000	19.900	0.000	0.307
		B		0.000	0.000	11.562	0.000	0.151
		C		0.000	0.000	10.031	0.000	0.092
L47	32.083-31.833	A	1.495	0.000	0.000	1.704	0.000	0.026
		B		0.000	0.000	0.990	0.000	0.013
		C		0.000	0.000	0.859	0.000	0.008
L48	31.833-28.750	A	1.487	0.000	0.000	20.991	0.000	0.322
		B		0.000	0.000	12.190	0.000	0.158
		C		0.000	0.000	10.574	0.000	0.096
L49	28.750-28.500	A	1.479	0.000	0.000	1.700	0.000	0.026
		B		0.000	0.000	0.987	0.000	0.013
		C		0.000	0.000	0.856	0.000	0.008
L50	28.500-23.500	A	1.465	0.000	0.000	32.181	0.000	0.546
		B		0.000	0.000	17.936	0.000	0.283
		C		0.000	0.000	15.322	0.000	0.182
L51	23.500-18.500	A	1.434	0.000	0.000	32.538	0.000	0.647
		B		0.000	0.000	18.331	0.000	0.387
		C		0.000	0.000	15.725	0.000	0.286
L52	18.500-13.500	A	1.395	0.000	0.000	30.713	0.000	0.578
		B		0.000	0.000	16.555	0.000	0.323
		C		0.000	0.000	13.958	0.000	0.223
L53	13.500-8.500	A	1.344	0.000	0.000	26.637	0.000	0.431
		B		0.000	0.000	12.543	0.000	0.182
		C		0.000	0.000	9.959	0.000	0.083
L54	8.500-3.500	A	1.265	0.000	0.000	26.360	0.000	0.415
		B		0.000	0.000	12.365	0.000	0.175

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C		0.000	0.000	9.801	0.000	0.077
L55	3.500-0.000	A	1.118	0.000	0.000	16.727	0.000	0.261
		B		0.000	0.000	7.058	0.000	0.105
		C		0.000	0.000	5.289	0.000	0.038

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	190.000-185.000	0.052	-0.275	0.083	-0.162
L2	185.000-180.000	0.081	-0.466	0.121	-0.446
L3	180.000-175.000	0.083	-0.474	0.130	-0.479
L4	175.000-170.000	0.083	-0.474	0.130	-0.479
L5	170.000-165.000	-0.192	-1.547	-0.156	-1.461
L6	165.000-160.000	-0.192	-1.547	-0.156	-1.462
L7	160.000-155.000	-1.279	-1.489	-1.171	-1.376
L8	155.000-150.000	-1.279	-1.489	-1.172	-1.377
L9	150.000-145.000	-1.279	-1.489	-1.172	-1.377
L10	145.000-140.000	-1.279	-1.489	-1.172	-1.377
L11	140.000-135.000	-1.335	-1.567	-1.263	-1.495
L12	135.000-130.000	-1.335	-1.567	-1.263	-1.496
L13	130.000-125.000	-1.335	-1.567	-1.264	-1.496
L14	125.000-120.000	-1.335	-1.567	-1.264	-1.497
L15	120.000-115.000	-1.383	-1.633	-1.347	-1.604
L16	115.000-112.666	-1.023	-1.208	-1.068	-1.272
L17	112.666-112.416	-0.980	-1.158	-1.032	-1.229
L18	112.416-107.416	-0.980	-1.158	-1.032	-1.230
L19	107.416-102.416	-0.838	-0.990	-0.896	-1.068
L20	102.416-101.333	-0.759	-0.897	-0.819	-0.976
L21	101.333-101.083	-0.980	-1.158	-1.006	-1.198
L22	101.083-100.000	-0.980	-1.158	-1.006	-1.198
L23	100.000-95.000	-1.029	-1.222	-1.074	-1.285
L24	95.000-90.000	-0.988	-1.173	-1.038	-1.242
L25	90.000-89.500	-0.852	-1.011	-0.915	-1.095
L26	89.500-89.250	-0.852	-1.011	-0.915	-1.095
L27	89.250-85.500	-0.788	-0.936	-0.849	-1.016
L28	85.500-85.250	-0.633	-0.752	-0.694	-0.831
L29	85.250-84.000	-0.633	-0.752	-0.694	-0.831
L30	84.000-83.750	-0.633	-0.752	-0.694	-0.831
L31	83.750-82.500	-0.633	-0.752	-0.694	-0.831
L32	82.500-82.250	-0.633	-0.752	-0.694	-0.831
L33	82.250-80.000	-0.801	-0.951	-0.859	-1.028
L34	80.000-75.000	-0.929	-1.103	-0.976	-1.168
L35	75.000-70.000	-1.106	-1.313	-1.127	-1.350
L36	70.000-65.000	-1.071	-1.272	-1.103	-1.321
L37	65.000-60.000	-0.836	-0.992	-0.924	-1.106
L38	60.000-58.500	-0.836	-0.992	-0.924	-1.106
L39	58.500-58.250	-0.836	-0.992	-0.924	-1.106
L40	58.250-53.250	-1.095	-1.300	-1.170	-1.400
L41	53.250-48.250	-1.159	-1.376	-1.199	-1.436
L42	48.250-48.000	-1.006	-1.194	-1.061	-1.269
L43	48.000-43.000	-0.896	-1.064	-0.973	-1.165
L44	43.000-40.000	-0.791	-0.939	-0.885	-1.059
L45	40.000-35.000	-0.761	-0.903	-0.854	-1.022
L46	35.000-32.083	-0.727	-0.863	-0.805	-0.963
L47	32.083-31.833	-0.727	-0.863	-0.805	-0.963

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L48	31.833-28.750	-0.727	-0.863	-0.805	-0.963
L49	28.750-28.500	-0.727	-0.863	-0.805	-0.964
L50	28.500-23.500	-0.759	-0.901	-0.848	-1.015
L51	23.500-18.500	-0.727	-0.863	-0.836	-1.000
L52	18.500-13.500	-0.776	-0.921	-0.880	-1.053
L53	13.500-8.500	-0.922	-1.095	-1.003	-1.200
L54	8.500-3.500	-0.922	-1.095	-1.005	-1.202
L55	3.500-0.000	-1.007	-1.196	-1.087	-1.300

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	3	Safety Line 3/8	185.00 - 190.00	1.0000	1.0000
L1	10	TYPE I(1-1/4")	185.00 - 188.00	1.0000	1.0000
L2	3	Safety Line 3/8	180.00 - 185.00	1.0000	1.0000
L2	10	TYPE I(1-1/4")	180.00 - 185.00	1.0000	1.0000
L3	3	Safety Line 3/8	175.00 - 180.00	1.0000	1.0000
L3	10	TYPE I(1-1/4")	175.00 - 180.00	1.0000	1.0000
L4	3	Safety Line 3/8	170.00 - 175.00	1.0000	1.0000
L4	10	TYPE I(1-1/4")	170.00 - 175.00	1.0000	1.0000
L5	3	Safety Line 3/8	165.00 - 170.00	1.0000	1.0000
L5	10	TYPE I(1-1/4")	165.00 - 170.00	1.0000	1.0000
L5	17	LDF7-50A(1-5/8")	165.00 - 170.00	1.0000	1.0000
L6	3	Safety Line 3/8	160.00 - 165.00	1.0000	1.0000
L6	10	TYPE I(1-1/4")	160.00 - 165.00	1.0000	1.0000
L6	17	LDF7-50A(1-5/8")	160.00 - 165.00	1.0000	1.0000
L7	3	Safety Line 3/8	155.00 - 160.00	1.0000	1.0000
L7	10	TYPE I(1-1/4")	155.00 - 160.00	1.0000	1.0000
L7	17	LDF7-50A(1-5/8")	155.00 - 160.00	1.0000	1.0000
L7	22	LDF7-50A(1-5/8")	155.00 - 160.00	1.0000	1.0000
L8	3	Safety Line 3/8	150.00 - 155.00	1.0000	1.0000
L8	10	TYPE I(1-1/4")	150.00 - 155.00	1.0000	1.0000
L8	17	LDF7-50A(1-5/8")	150.00 - 155.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L8	22	LDF7-50A(1-5/8")	150.00 - 155.00	1.0000	1.0000
L9	3	Safety Line 3/8	145.00 - 150.00	1.0000	1.0000
L9	10	TYPE I(1-1/4")	145.00 - 150.00	1.0000	1.0000
L9	17	LDF7-50A(1-5/8")	145.00 - 150.00	1.0000	1.0000
L9	22	LDF7-50A(1-5/8")	145.00 - 150.00	1.0000	1.0000
L10	3	Safety Line 3/8	140.00 - 145.00	1.0000	1.0000
L10	10	TYPE I(1-1/4")	140.00 - 145.00	1.0000	1.0000
L10	17	LDF7-50A(1-5/8")	140.00 - 145.00	1.0000	1.0000
L10	22	LDF7-50A(1-5/8")	140.00 - 145.00	1.0000	1.0000
L11	3	Safety Line 3/8	135.00 - 140.00	1.0000	1.0000
L11	10	TYPE I(1-1/4")	135.00 - 140.00	1.0000	1.0000
L11	17	LDF7-50A(1-5/8")	135.00 - 140.00	1.0000	1.0000
L11	22	LDF7-50A(1-5/8")	135.00 - 140.00	1.0000	1.0000
L12	3	Safety Line 3/8	130.00 - 135.00	1.0000	1.0000
L12	10	TYPE I(1-1/4")	130.00 - 135.00	1.0000	1.0000
L12	17	LDF7-50A(1-5/8")	130.00 - 135.00	1.0000	1.0000
L12	22	LDF7-50A(1-5/8")	130.00 - 135.00	1.0000	1.0000
L13	3	Safety Line 3/8	125.00 - 130.00	1.0000	1.0000
L13	10	TYPE I(1-1/4")	125.00 - 130.00	1.0000	1.0000
L13	17	LDF7-50A(1-5/8")	125.00 - 130.00	1.0000	1.0000
L13	22	LDF7-50A(1-5/8")	125.00 - 130.00	1.0000	1.0000
L14	3	Safety Line 3/8	120.00 - 125.00	1.0000	1.0000
L14	10	TYPE I(1-1/4")	120.00 - 125.00	1.0000	1.0000
L14	17	LDF7-50A(1-5/8")	120.00 - 125.00	1.0000	1.0000
L14	22	LDF7-50A(1-5/8")	120.00 - 125.00	1.0000	1.0000
L15	3	Safety Line 3/8	115.00 - 120.00	1.0000	1.0000
L15	10	TYPE I(1-1/4")	115.00 - 120.00	1.0000	1.0000
L15	17	LDF7-50A(1-5/8")	115.00 - 120.00	1.0000	1.0000
L15	22	LDF7-50A(1-5/8")	115.00 - 120.00	1.0000	1.0000
L16	3	Safety Line 3/8	112.67 - 115.00	1.0000	1.0000
L16	10	TYPE I(1-1/4")	112.67 - 115.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L16	17	LDF7-50A(1-5/8")	112.67 - 115.00	1.0000	1.0000
L16	22	LDF7-50A(1-5/8")	112.67 - 115.00	1.0000	1.0000
L16	70	6" x 1" Flat Plate (G)	112.67 - 114.67	1.0000	1.0000
L16	71	6" x 1" Flat Plate (G)	112.67 - 114.67	1.0000	1.0000
L16	72	6" x 1" Flat Plate (G)	112.67 - 114.67	1.0000	1.0000
L17	3	Safety Line 3/8	112.42 - 112.67	1.0000	1.0000
L17	10	TYPE I(1-1/4")	112.42 - 112.67	1.0000	1.0000
L17	17	LDF7-50A(1-5/8")	112.42 - 112.67	1.0000	1.0000
L17	22	LDF7-50A(1-5/8")	112.42 - 112.67	1.0000	1.0000
L17	70	6" x 1" Flat Plate (G)	112.42 - 112.67	1.0000	1.0000
L17	71	6" x 1" Flat Plate (G)	112.42 - 112.67	1.0000	1.0000
L17	72	6" x 1" Flat Plate (G)	112.42 - 112.67	1.0000	1.0000
L18	3	Safety Line 3/8	107.42 - 112.42	1.0000	1.0000
L18	10	TYPE I(1-1/4")	107.42 - 112.42	1.0000	1.0000
L18	17	LDF7-50A(1-5/8")	107.42 - 112.42	1.0000	1.0000
L18	22	LDF7-50A(1-5/8")	107.42 - 112.42	1.0000	1.0000
L18	70	6" x 1" Flat Plate (G)	107.42 - 112.42	1.0000	1.0000
L18	71	6" x 1" Flat Plate (G)	107.42 - 112.42	1.0000	1.0000
L18	72	6" x 1" Flat Plate (G)	107.42 - 112.42	1.0000	1.0000
L19	3	Safety Line 3/8	102.42 - 107.42	1.0000	1.0000
L19	10	TYPE I(1-1/4")	102.42 - 107.42	1.0000	1.0000
L19	17	LDF7-50A(1-5/8")	102.42 - 107.42	1.0000	1.0000
L19	22	LDF7-50A(1-5/8")	102.42 - 107.42	1.0000	1.0000
L19	66	6" x 1" Flat Plate (G)	102.42 - 105.33	1.0000	1.0000
L19	67	6" x 1" Flat Plate (G)	102.42 - 105.33	1.0000	1.0000
L19	68	6" x 1" Flat Plate (G)	102.42 - 105.33	1.0000	1.0000
L19	70	6" x 1" Flat Plate (G)	102.42 - 107.42	1.0000	1.0000
L19	71	6" x 1" Flat Plate (G)	102.42 - 107.42	1.0000	1.0000
L19	72	6" x 1" Flat Plate (G)	102.42 - 107.42	1.0000	1.0000
L20	3	Safety Line 3/8	101.33 - 102.42	1.0000	1.0000
L20	10	TYPE I(1-1/4")	101.33 - 102.42	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L20	17	LDF7-50A(1-5/8")	101.33 - 102.42	1.0000	1.0000
L20	22	LDF7-50A(1-5/8")	101.33 - 102.42	1.0000	1.0000
L20	66	6" x 1" Flat Plate (G)	101.33 - 102.42	1.0000	1.0000
L20	67	6" x 1" Flat Plate (G)	101.33 - 102.42	1.0000	1.0000
L20	68	6" x 1" Flat Plate (G)	101.33 - 102.42	1.0000	1.0000
L20	70	6" x 1" Flat Plate (G)	101.33 - 102.42	1.0000	1.0000
L20	71	6" x 1" Flat Plate (G)	101.33 - 102.42	1.0000	1.0000
L20	72	6" x 1" Flat Plate (G)	101.33 - 102.42	1.0000	1.0000
L21	3	Safety Line 3/8	101.08 - 101.33	1.0000	1.0000
L21	10	TYPE I(1-1/4")	101.08 - 101.33	1.0000	1.0000
L21	17	LDF7-50A(1-5/8")	101.08 - 101.33	1.0000	1.0000
L21	22	LDF7-50A(1-5/8")	101.08 - 101.33	1.0000	1.0000
L21	66	6" x 1" Flat Plate (G)	101.08 - 101.33	1.0000	1.0000
L21	67	6" x 1" Flat Plate (G)	101.08 - 101.33	1.0000	1.0000
L21	68	6" x 1" Flat Plate (G)	101.08 - 101.33	1.0000	1.0000
L22	3	Safety Line 3/8	100.00 - 101.08	1.0000	1.0000
L22	10	TYPE I(1-1/4")	100.00 - 101.08	1.0000	1.0000
L22	17	LDF7-50A(1-5/8")	100.00 - 101.08	1.0000	1.0000
L22	22	LDF7-50A(1-5/8")	100.00 - 101.08	1.0000	1.0000
L22	66	6" x 1" Flat Plate (G)	100.00 - 101.08	1.0000	1.0000
L22	67	6" x 1" Flat Plate (G)	100.00 - 101.08	1.0000	1.0000
L22	68	6" x 1" Flat Plate (G)	100.00 - 101.08	1.0000	1.0000
L23	3	Safety Line 3/8	95.00 - 100.00	1.0000	1.0000
L23	10	TYPE I(1-1/4")	95.00 - 100.00	1.0000	1.0000
L23	17	LDF7-50A(1-5/8")	95.00 - 100.00	1.0000	1.0000
L23	22	LDF7-50A(1-5/8")	95.00 - 100.00	1.0000	1.0000
L23	66	6" x 1" Flat Plate (G)	95.00 - 100.00	1.0000	1.0000
L23	67	6" x 1" Flat Plate (G)	95.00 - 100.00	1.0000	1.0000
L23	68	6" x 1" Flat Plate (G)	95.00 - 100.00	1.0000	1.0000
L24	3	Safety Line 3/8	90.00 - 95.00	1.0000	1.0000
L24	10	TYPE I(1-1/4")	90.00 - 95.00	1.0000	1.0000
L24	17	LDF7-50A(1-5/8")	90.00 - 95.00	1.0000	1.0000
L24	22	LDF7-50A(1-5/8")	90.00 - 95.00	1.0000	1.0000
L24	66	6" x 1" Flat Plate (G)	90.00 - 95.00	1.0000	1.0000
L24	67	6" x 1" Flat Plate (G)	90.00 - 95.00	1.0000	1.0000
L24	68	6" x 1" Flat Plate (G)	90.00 - 95.00	1.0000	1.0000
L24	90	4.5" x 1" Flat Plate (G)	90.00 - 91.00	1.0000	1.0000
L24	91	4.5" x 1" Flat Plate (G)	90.00 - 91.00	1.0000	1.0000
L24	92	4.5" x 1" Flat Plate (G)	90.00 - 91.00	1.0000	1.0000
L25	3	Safety Line 3/8	89.50 - 90.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L25	10	TYPE I(1-1/4")	89.50 - 90.00	1.0000	1.0000
L25	17	LDF7-50A(1-5/8")	89.50 - 90.00	1.0000	1.0000
L25	22	LDF7-50A(1-5/8")	89.50 - 90.00	1.0000	1.0000
L25	66	6" x 1" Flat Plate (G)	89.50 - 90.00	1.0000	1.0000
L25	67	6" x 1" Flat Plate (G)	89.50 - 90.00	1.0000	1.0000
L25	68	6" x 1" Flat Plate (G)	89.50 - 90.00	1.0000	1.0000
L25	90	4.5" x 1" Flat Plate (G)	89.50 - 90.00	1.0000	1.0000
L25	91	4.5" x 1" Flat Plate (G)	89.50 - 90.00	1.0000	1.0000
L25	92	4.5" x 1" Flat Plate (G)	89.50 - 90.00	1.0000	1.0000
L26	3	Safety Line 3/8	89.25 - 89.50	1.0000	1.0000
L26	10	TYPE I(1-1/4")	89.25 - 89.50	1.0000	1.0000
L26	17	LDF7-50A(1-5/8")	89.25 - 89.50	1.0000	1.0000
L26	22	LDF7-50A(1-5/8")	89.25 - 89.50	1.0000	1.0000
L26	66	6" x 1" Flat Plate (G)	89.25 - 89.50	1.0000	1.0000
L26	67	6" x 1" Flat Plate (G)	89.25 - 89.50	1.0000	1.0000
L26	68	6" x 1" Flat Plate (G)	89.25 - 89.50	1.0000	1.0000
L26	90	4.5" x 1" Flat Plate (G)	89.25 - 89.50	1.0000	1.0000
L26	91	4.5" x 1" Flat Plate (G)	89.25 - 89.50	1.0000	1.0000
L26	92	4.5" x 1" Flat Plate (G)	89.25 - 89.50	1.0000	1.0000
L27	3	Safety Line 3/8	85.50 - 89.25	1.0000	1.0000
L27	10	TYPE I(1-1/4")	85.50 - 89.25	1.0000	1.0000
L27	17	LDF7-50A(1-5/8")	85.50 - 89.25	1.0000	1.0000
L27	22	LDF7-50A(1-5/8")	85.50 - 89.25	1.0000	1.0000
L27	62	4.5" x 1" Flat Plate (G)	85.50 - 87.00	1.0000	1.0000
L27	63	4.5" x 1" Flat Plate (G)	85.50 - 87.00	1.0000	1.0000
L27	64	4.5" x 1" Flat Plate (G)	85.50 - 87.00	1.0000	1.0000
L27	66	6" x 1" Flat Plate (G)	85.50 - 89.25	1.0000	1.0000
L27	67	6" x 1" Flat Plate (G)	85.50 - 89.25	1.0000	1.0000
L27	68	6" x 1" Flat Plate (G)	85.50 - 89.25	1.0000	1.0000
L27	86	4.5" x 1" Flat Plate (G)	85.50 - 85.75	1.0000	1.0000
L27	87	4.5" x 1" Flat Plate (G)	85.50 - 85.75	1.0000	1.0000
L27	88	4.5" x 1" Flat Plate (G)	85.50 - 85.75	1.0000	1.0000
L27	90	4.5" x 1" Flat Plate (G)	85.50 - 89.25	1.0000	1.0000
L27	91	4.5" x 1" Flat Plate (G)	85.50 - 89.25	1.0000	1.0000
L27	92	4.5" x 1" Flat Plate (G)	85.50 - 89.25	1.0000	1.0000
L28	3	Safety Line 3/8	85.25 - 85.50	1.0000	1.0000
L28	10	TYPE I(1-1/4")	85.25 - 85.50	1.0000	1.0000
L28	17	LDF7-50A(1-5/8")	85.25 - 85.50	1.0000	1.0000
L28	22	LDF7-50A(1-5/8")	85.25 - 85.50	1.0000	1.0000
L28	62	4.5" x 1" Flat Plate (G)	85.25 - 85.50	1.0000	1.0000
L28	63	4.5" x 1" Flat Plate (G)	85.25 - 85.50	1.0000	1.0000
L28	64	4.5" x 1" Flat Plate (G)	85.25 - 85.50	1.0000	1.0000
L28	66	6" x 1" Flat Plate (G)	85.25 - 85.50	1.0000	1.0000
L28	67	6" x 1" Flat Plate (G)	85.25 - 85.50	1.0000	1.0000
L28	68	6" x 1" Flat Plate (G)	85.25 - 85.50	1.0000	1.0000
L28	86	4.5" x 1" Flat Plate (G)	85.25 - 85.50	1.0000	1.0000
L28	87	4.5" x 1" Flat Plate (G)	85.25 - 85.50	1.0000	1.0000
L28	88	4.5" x 1" Flat Plate (G)	85.25 - 85.50	1.0000	1.0000
L28	90	4.5" x 1" Flat Plate (G)	85.25 - 85.50	1.0000	1.0000
L28	91	4.5" x 1" Flat Plate (G)	85.25 - 85.50	1.0000	1.0000
L28	92	4.5" x 1" Flat Plate (G)	85.25 - 85.50	1.0000	1.0000
L29	3	Safety Line 3/8	84.00 - 85.25	1.0000	1.0000
L29	10	TYPE I(1-1/4")	84.00 - 85.25	1.0000	1.0000
L29	17	LDF7-50A(1-5/8")	84.00 - 85.25	1.0000	1.0000
L29	22	LDF7-50A(1-5/8")	84.00 - 85.25	1.0000	1.0000
L29	62	4.5" x 1" Flat Plate (G)	84.00 - 85.25	1.0000	1.0000
L29	63	4.5" x 1" Flat Plate (G)	84.00 - 85.25	1.0000	1.0000
L29	64	4.5" x 1" Flat Plate (G)	84.00 - 85.25	1.0000	1.0000
L29	66	6" x 1" Flat Plate (G)	84.00 - 85.25	1.0000	1.0000
L29	67	6" x 1" Flat Plate (G)	84.00 - 85.25	1.0000	1.0000
L29	68	6" x 1" Flat Plate (G)	84.00 - 85.25	1.0000	1.0000
L29	86	4.5" x 1" Flat Plate (G)	84.00 - 85.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L29	87	4.5" x 1" Flat Plate (G)	84.00 - 85.25	1.0000	1.0000
L29	88	4.5" x 1" Flat Plate (G)	84.00 - 85.25	1.0000	1.0000
L29	90	4.5" x 1" Flat Plate (G)	84.00 - 85.25	1.0000	1.0000
L29	91	4.5" x 1" Flat Plate (G)	84.00 - 85.25	1.0000	1.0000
L29	92	4.5" x 1" Flat Plate (G)	84.00 - 85.25	1.0000	1.0000
L30	3	Safety Line 3/8	83.75 - 84.00	1.0000	1.0000
L30	10	TYPE I(1-1/4")	83.75 - 84.00	1.0000	1.0000
L30	17	LDF7-50A(1-5/8")	83.75 - 84.00	1.0000	1.0000
L30	22	LDF7-50A(1-5/8")	83.75 - 84.00	1.0000	1.0000
L30	62	4.5" x 1" Flat Plate (G)	83.75 - 84.00	1.0000	1.0000
L30	63	4.5" x 1" Flat Plate (G)	83.75 - 84.00	1.0000	1.0000
L30	64	4.5" x 1" Flat Plate (G)	83.75 - 84.00	1.0000	1.0000
L30	66	6" x 1" Flat Plate (G)	83.75 - 84.00	1.0000	1.0000
L30	67	6" x 1" Flat Plate (G)	83.75 - 84.00	1.0000	1.0000
L30	68	6" x 1" Flat Plate (G)	83.75 - 84.00	1.0000	1.0000
L30	86	4.5" x 1" Flat Plate (G)	83.75 - 84.00	1.0000	1.0000
L30	87	4.5" x 1" Flat Plate (G)	83.75 - 84.00	1.0000	1.0000
L30	88	4.5" x 1" Flat Plate (G)	83.75 - 84.00	1.0000	1.0000
L30	90	4.5" x 1" Flat Plate (G)	83.75 - 84.00	1.0000	1.0000
L30	91	4.5" x 1" Flat Plate (G)	83.75 - 84.00	1.0000	1.0000
L30	92	4.5" x 1" Flat Plate (G)	83.75 - 84.00	1.0000	1.0000
L31	3	Safety Line 3/8	82.50 - 83.75	1.0000	1.0000
L31	10	TYPE I(1-1/4")	82.50 - 83.75	1.0000	1.0000
L31	17	LDF7-50A(1-5/8")	82.50 - 83.75	1.0000	1.0000
L31	22	LDF7-50A(1-5/8")	82.50 - 83.75	1.0000	1.0000
L31	62	4.5" x 1" Flat Plate (G)	82.50 - 83.75	1.0000	1.0000
L31	63	4.5" x 1" Flat Plate (G)	82.50 - 83.75	1.0000	1.0000
L31	64	4.5" x 1" Flat Plate (G)	82.50 - 83.75	1.0000	1.0000
L31	66	6" x 1" Flat Plate (G)	82.50 - 83.75	1.0000	1.0000
L31	67	6" x 1" Flat Plate (G)	82.50 - 83.75	1.0000	1.0000
L31	68	6" x 1" Flat Plate (G)	82.50 - 83.75	1.0000	1.0000
L31	86	4.5" x 1" Flat Plate (G)	82.50 - 83.75	1.0000	1.0000
L31	87	4.5" x 1" Flat Plate (G)	82.50 - 83.75	1.0000	1.0000
L31	88	4.5" x 1" Flat Plate (G)	82.50 - 83.75	1.0000	1.0000
L31	90	4.5" x 1" Flat Plate (G)	82.50 - 83.75	1.0000	1.0000
L31	91	4.5" x 1" Flat Plate (G)	82.50 - 83.75	1.0000	1.0000
L31	92	4.5" x 1" Flat Plate (G)	82.50 - 83.75	1.0000	1.0000
L32	3	Safety Line 3/8	82.25 - 82.50	1.0000	1.0000
L32	10	TYPE I(1-1/4")	82.25 - 82.50	1.0000	1.0000
L32	17	LDF7-50A(1-5/8")	82.25 - 82.50	1.0000	1.0000
L32	22	LDF7-50A(1-5/8")	82.25 - 82.50	1.0000	1.0000
L32	62	4.5" x 1" Flat Plate (G)	82.25 - 82.50	1.0000	1.0000
L32	63	4.5" x 1" Flat Plate (G)	82.25 - 82.50	1.0000	1.0000
L32	64	4.5" x 1" Flat Plate (G)	82.25 - 82.50	1.0000	1.0000
L32	66	6" x 1" Flat Plate (G)	82.25 - 82.50	1.0000	1.0000
L32	67	6" x 1" Flat Plate (G)	82.25 - 82.50	1.0000	1.0000
L32	68	6" x 1" Flat Plate (G)	82.25 - 82.50	1.0000	1.0000
L32	86	4.5" x 1" Flat Plate (G)	82.25 - 82.50	1.0000	1.0000
L32	87	4.5" x 1" Flat Plate (G)	82.25 - 82.50	1.0000	1.0000
L32	88	4.5" x 1" Flat Plate (G)	82.25 - 82.50	1.0000	1.0000
L32	90	4.5" x 1" Flat Plate (G)	82.25 - 82.50	1.0000	1.0000
L32	91	4.5" x 1" Flat Plate (G)	82.25 - 82.50	1.0000	1.0000
L32	92	4.5" x 1" Flat Plate (G)	82.25 - 82.50	1.0000	1.0000
L33	3	Safety Line 3/8	80.00 - 82.25	1.0000	1.0000
L33	10	TYPE I(1-1/4")	80.00 - 82.25	1.0000	1.0000
L33	17	LDF7-50A(1-5/8")	80.00 - 82.25	1.0000	1.0000
L33	22	LDF7-50A(1-5/8")	80.00 - 82.25	1.0000	1.0000
L33	62	4.5" x 1" Flat Plate (G)	80.00 - 82.25	1.0000	1.0000
L33	63	4.5" x 1" Flat Plate (G)	80.00 - 82.25	1.0000	1.0000
L33	64	4.5" x 1" Flat Plate (G)	80.00 - 82.25	1.0000	1.0000
L33	66	6" x 1" Flat Plate (G)	82.00 - 82.25	1.0000	1.0000
L33	67	6" x 1" Flat Plate (G)	82.00 - 82.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L33	68	6" x 1" Flat Plate (G)	82.00 - 82.25	1.0000	1.0000
L33	86	4.5" x 1" Flat Plate (G)	80.00 - 82.25	1.0000	1.0000
L33	87	4.5" x 1" Flat Plate (G)	80.00 - 82.25	1.0000	1.0000
L33	88	4.5" x 1" Flat Plate (G)	80.00 - 82.25	1.0000	1.0000
L33	90	4.5" x 1" Flat Plate (G)	81.00 - 82.25	1.0000	1.0000
L33	91	4.5" x 1" Flat Plate (G)	81.00 - 82.25	1.0000	1.0000
L33	92	4.5" x 1" Flat Plate (G)	81.00 - 82.25	1.0000	1.0000
L34	3	Safety Line 3/8	75.00 - 80.00	1.0000	1.0000
L34	10	TYPE I(1-1/4")	75.00 - 80.00	1.0000	1.0000
L34	17	LDF7-50A(1-5/8")	75.00 - 80.00	1.0000	1.0000
L34	22	LDF7-50A(1-5/8")	75.00 - 80.00	1.0000	1.0000
L34	62	4.5" x 1" Flat Plate (G)	75.00 - 80.00	1.0000	1.0000
L34	63	4.5" x 1" Flat Plate (G)	75.00 - 80.00	1.0000	1.0000
L34	64	4.5" x 1" Flat Plate (G)	75.00 - 80.00	1.0000	1.0000
L34	86	4.5" x 1" Flat Plate (G)	75.75 - 80.00	1.0000	1.0000
L34	87	4.5" x 1" Flat Plate (G)	75.75 - 80.00	1.0000	1.0000
L34	88	4.5" x 1" Flat Plate (G)	75.75 - 80.00	1.0000	1.0000
L35	3	Safety Line 3/8	70.00 - 75.00	1.0000	1.0000
L35	10	TYPE I(1-1/4")	70.00 - 75.00	1.0000	1.0000
L35	17	LDF7-50A(1-5/8")	70.00 - 75.00	1.0000	1.0000
L35	22	LDF7-50A(1-5/8")	70.00 - 75.00	1.0000	1.0000
L35	62	4.5" x 1" Flat Plate (G)	70.00 - 75.00	1.0000	1.0000
L35	63	4.5" x 1" Flat Plate (G)	70.00 - 75.00	1.0000	1.0000
L35	64	4.5" x 1" Flat Plate (G)	70.00 - 75.00	1.0000	1.0000
L36	3	Safety Line 3/8	65.00 - 70.00	1.0000	1.0000
L36	10	TYPE I(1-1/4")	65.00 - 70.00	1.0000	1.0000
L36	17	LDF7-50A(1-5/8")	65.00 - 70.00	1.0000	1.0000
L36	22	LDF7-50A(1-5/8")	65.00 - 70.00	1.0000	1.0000
L36	62	4.5" x 1" Flat Plate (G)	65.00 - 70.00	1.0000	1.0000
L36	63	4.5" x 1" Flat Plate (G)	65.00 - 70.00	1.0000	1.0000
L36	64	4.5" x 1" Flat Plate (G)	65.00 - 70.00	1.0000	1.0000
L36	82	6.5" x 1.25" Flat Plate (G)	65.00 - 65.50	1.0000	1.0000
L36	83	6.5" x 1.25" Flat Plate (G)	65.00 - 65.50	1.0000	1.0000
L36	84	6.5" x 1.25" Flat Plate (G)	65.00 - 65.50	1.0000	1.0000
L37	3	Safety Line 3/8	60.00 - 65.00	1.0000	1.0000
L37	10	TYPE I(1-1/4")	60.00 - 65.00	1.0000	1.0000
L37	17	LDF7-50A(1-5/8")	60.00 - 65.00	1.0000	1.0000
L37	22	LDF7-50A(1-5/8")	60.00 - 65.00	1.0000	1.0000
L37	62	4.5" x 1" Flat Plate (G)	60.00 - 65.00	1.0000	1.0000
L37	63	4.5" x 1" Flat Plate (G)	60.00 - 65.00	1.0000	1.0000
L37	64	4.5" x 1" Flat Plate (G)	60.00 - 65.00	1.0000	1.0000
L37	82	6.5" x 1.25" Flat Plate (G)	60.00 - 65.00	1.0000	1.0000
L37	83	6.5" x 1.25" Flat Plate (G)	60.00 - 65.00	1.0000	1.0000
L37	84	6.5" x 1.25" Flat Plate (G)	60.00 - 65.00	1.0000	1.0000
L38	3	Safety Line 3/8	58.50 - 60.00	1.0000	1.0000
L38	10	TYPE I(1-1/4")	58.50 - 60.00	1.0000	1.0000
L38	17	LDF7-50A(1-5/8")	58.50 - 60.00	1.0000	1.0000
L38	22	LDF7-50A(1-5/8")	58.50 - 60.00	1.0000	1.0000
L38	62	4.5" x 1" Flat Plate (G)	58.50 - 60.00	1.0000	1.0000
L38	63	4.5" x 1" Flat Plate (G)	58.50 - 60.00	1.0000	1.0000
L38	64	4.5" x 1" Flat Plate (G)	58.50 - 60.00	1.0000	1.0000
L38	82	6.5" x 1.25" Flat Plate (G)	58.50 - 60.00	1.0000	1.0000
L38	83	6.5" x 1.25" Flat Plate (G)	58.50 - 60.00	1.0000	1.0000
L38	84	6.5" x 1.25" Flat Plate (G)	58.50 - 60.00	1.0000	1.0000
L39	3	Safety Line 3/8	58.25 - 58.50	1.0000	1.0000
L39	10	TYPE I(1-1/4")	58.25 - 58.50	1.0000	1.0000
L39	17	LDF7-50A(1-5/8")	58.25 - 58.50	1.0000	1.0000
L39	22	LDF7-50A(1-5/8")	58.25 - 58.50	1.0000	1.0000
L39	62	4.5" x 1" Flat Plate (G)	58.25 - 58.50	1.0000	1.0000
L39	63	4.5" x 1" Flat Plate (G)	58.25 - 58.50	1.0000	1.0000
L39	64	4.5" x 1" Flat Plate (G)	58.25 - 58.50	1.0000	1.0000
L39	82	6.5" x 1.25" Flat Plate (G)	58.25 - 58.50	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L39	83	6.5" x 1.25" Flat Plate (G)	58.25 - 58.50	1.0000	1.0000
L39	84	6.5" x 1.25" Flat Plate (G)	58.25 - 58.50	1.0000	1.0000
L40	3	Safety Line 3/8	53.25 - 58.25	1.0000	1.0000
L40	10	TYPE I(1-1/4")	53.25 - 58.25	1.0000	1.0000
L40	17	LDF7-50A(1-5/8")	53.25 - 58.25	1.0000	1.0000
L40	22	LDF7-50A(1-5/8")	53.25 - 58.25	1.0000	1.0000
L40	62	4.5" x 1" Flat Plate (G)	57.00 - 58.25	1.0000	1.0000
L40	63	4.5" x 1" Flat Plate (G)	57.00 - 58.25	1.0000	1.0000
L40	64	4.5" x 1" Flat Plate (G)	57.00 - 58.25	1.0000	1.0000
L40	82	6.5" x 1.25" Flat Plate (G)	55.50 - 58.25	1.0000	1.0000
L40	83	6.5" x 1.25" Flat Plate (G)	55.50 - 58.25	1.0000	1.0000
L40	84	6.5" x 1.25" Flat Plate (G)	55.50 - 58.25	1.0000	1.0000
L41	3	Safety Line 3/8	48.25 - 53.25	1.0000	1.0000
L41	10	TYPE I(1-1/4")	48.25 - 53.25	1.0000	1.0000
L41	17	LDF7-50A(1-5/8")	48.25 - 53.25	1.0000	1.0000
L41	22	LDF7-50A(1-5/8")	48.25 - 53.25	1.0000	1.0000
L41	58	6.5" x 1.25" Flat Plate (G)	48.25 - 51.00	1.0000	1.0000
L41	59	6.5" x 1.25" Flat Plate (G)	48.25 - 51.00	1.0000	1.0000
L41	60	6.5" x 1.25" Flat Plate (G)	48.25 - 51.00	1.0000	1.0000
L42	3	Safety Line 3/8	48.00 - 48.25	1.0000	1.0000
L42	10	TYPE I(1-1/4")	48.00 - 48.25	1.0000	1.0000
L42	17	LDF7-50A(1-5/8")	48.00 - 48.25	1.0000	1.0000
L42	22	LDF7-50A(1-5/8")	48.00 - 48.25	1.0000	1.0000
L42	58	6.5" x 1.25" Flat Plate (G)	48.00 - 48.25	1.0000	1.0000
L42	59	6.5" x 1.25" Flat Plate (G)	48.00 - 48.25	1.0000	1.0000
L42	60	6.5" x 1.25" Flat Plate (G)	48.00 - 48.25	1.0000	1.0000
L43	3	Safety Line 3/8	43.00 - 48.00	1.0000	1.0000
L43	10	TYPE I(1-1/4")	43.00 - 48.00	1.0000	1.0000
L43	17	LDF7-50A(1-5/8")	43.00 - 48.00	1.0000	1.0000
L43	22	LDF7-50A(1-5/8")	43.00 - 48.00	1.0000	1.0000
L43	58	6.5" x 1.25" Flat Plate (G)	43.00 - 48.00	1.0000	1.0000
L43	59	6.5" x 1.25" Flat Plate (G)	43.00 - 48.00	1.0000	1.0000
L43	60	6.5" x 1.25" Flat Plate (G)	43.00 - 48.00	1.0000	1.0000
L43	78	6" x 1" Flat Plate (G)	43.00 - 45.25	1.0000	1.0000
L43	79	6" x 1" Flat Plate (G)	43.00 - 45.25	1.0000	1.0000
L43	80	6" x 1" Flat Plate (G)	43.00 - 45.25	1.0000	1.0000
L44	3	Safety Line 3/8	40.00 - 43.00	1.0000	1.0000
L44	10	TYPE I(1-1/4")	40.00 - 43.00	1.0000	1.0000
L44	17	LDF7-50A(1-5/8")	40.00 - 43.00	1.0000	1.0000
L44	22	LDF7-50A(1-5/8")	40.00 - 43.00	1.0000	1.0000
L44	58	6.5" x 1.25" Flat Plate (G)	40.00 - 43.00	1.0000	1.0000
L44	59	6.5" x 1.25" Flat Plate (G)	40.00 - 43.00	1.0000	1.0000
L44	60	6.5" x 1.25" Flat Plate (G)	40.00 - 43.00	1.0000	1.0000
L44	78	6" x 1" Flat Plate (G)	40.00 - 43.00	1.0000	1.0000
L44	79	6" x 1" Flat Plate (G)	40.00 - 43.00	1.0000	1.0000
L44	80	6" x 1" Flat Plate (G)	40.00 - 43.00	1.0000	1.0000
L45	3	Safety Line 3/8	35.00 - 40.00	1.0000	1.0000
L45	10	TYPE I(1-1/4")	35.00 - 40.00	1.0000	1.0000
L45	17	LDF7-50A(1-5/8")	35.00 - 40.00	1.0000	1.0000
L45	22	LDF7-50A(1-5/8")	35.00 - 40.00	1.0000	1.0000
L45	54	8.5" x 1.25" Flat Plate (G)	35.00 - 35.83	1.0000	1.0000
L45	55	8.5" x 1.25" Flat Plate (G)	35.00 - 35.83	1.0000	1.0000
L45	56	8.5" x 1.25" Flat Plate (G)	35.00 - 35.83	1.0000	1.0000
L45	58	6.5" x 1.25" Flat Plate (G)	35.00 - 40.00	1.0000	1.0000
L45	59	6.5" x 1.25" Flat Plate (G)	35.00 - 40.00	1.0000	1.0000
L45	60	6.5" x 1.25" Flat Plate (G)	35.00 - 40.00	1.0000	1.0000
L45	78	6" x 1" Flat Plate (G)	35.25 - 40.00	1.0000	1.0000
L45	79	6" x 1" Flat Plate (G)	35.25 - 40.00	1.0000	1.0000
L45	80	6" x 1" Flat Plate (G)	35.25 - 40.00	1.0000	1.0000
L46	3	Safety Line 3/8	32.08 - 35.00	1.0000	1.0000
L46	10	TYPE I(1-1/4")	32.08 - 35.00	1.0000	1.0000
L46	17	LDF7-50A(1-5/8")	32.08 - 35.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L46	22	LDF7-50A(1-5/8")	32.08 - 35.00	1.0000	1.0000
L46	54	8.5" x 1.25" Flat Plate (G)	32.08 - 35.00	1.0000	1.0000
L46	55	8.5" x 1.25" Flat Plate (G)	32.08 - 35.00	1.0000	1.0000
L46	56	8.5" x 1.25" Flat Plate (G)	32.08 - 35.00	1.0000	1.0000
L46	58	6.5" x 1.25" Flat Plate (G)	32.08 - 35.00	1.0000	1.0000
L46	59	6.5" x 1.25" Flat Plate (G)	32.08 - 35.00	1.0000	1.0000
L46	60	6.5" x 1.25" Flat Plate (G)	32.08 - 35.00	1.0000	1.0000
L47	3	Safety Line 3/8	31.83 - 32.08	1.0000	1.0000
L47	10	TYPE I(1-1/4")	31.83 - 32.08	1.0000	1.0000
L47	17	LDF7-50A(1-5/8")	31.83 - 32.08	1.0000	1.0000
L47	22	LDF7-50A(1-5/8")	31.83 - 32.08	1.0000	1.0000
L47	54	8.5" x 1.25" Flat Plate (G)	31.83 - 32.08	1.0000	1.0000
L47	55	8.5" x 1.25" Flat Plate (G)	31.83 - 32.08	1.0000	1.0000
L47	56	8.5" x 1.25" Flat Plate (G)	31.83 - 32.08	1.0000	1.0000
L47	58	6.5" x 1.25" Flat Plate (G)	31.83 - 32.08	1.0000	1.0000
L47	59	6.5" x 1.25" Flat Plate (G)	31.83 - 32.08	1.0000	1.0000
L47	60	6.5" x 1.25" Flat Plate (G)	31.83 - 32.08	1.0000	1.0000
L48	3	Safety Line 3/8	28.75 - 31.83	1.0000	1.0000
L48	10	TYPE I(1-1/4")	28.75 - 31.83	1.0000	1.0000
L48	17	LDF7-50A(1-5/8")	28.75 - 31.83	1.0000	1.0000
L48	22	LDF7-50A(1-5/8")	28.75 - 31.83	1.0000	1.0000
L48	54	8.5" x 1.25" Flat Plate (G)	28.75 - 31.83	1.0000	1.0000
L48	55	8.5" x 1.25" Flat Plate (G)	28.75 - 31.83	1.0000	1.0000
L48	56	8.5" x 1.25" Flat Plate (G)	28.75 - 31.83	1.0000	1.0000
L48	58	6.5" x 1.25" Flat Plate (G)	28.75 - 31.83	1.0000	1.0000
L48	59	6.5" x 1.25" Flat Plate (G)	28.75 - 31.83	1.0000	1.0000
L48	60	6.5" x 1.25" Flat Plate (G)	28.75 - 31.83	1.0000	1.0000
L49	3	Safety Line 3/8	28.50 - 28.75	1.0000	1.0000
L49	10	TYPE I(1-1/4")	28.50 - 28.75	1.0000	1.0000
L49	17	LDF7-50A(1-5/8")	28.50 - 28.75	1.0000	1.0000
L49	22	LDF7-50A(1-5/8")	28.50 - 28.75	1.0000	1.0000
L49	54	8.5" x 1.25" Flat Plate (G)	28.50 - 28.75	1.0000	1.0000
L49	55	8.5" x 1.25" Flat Plate (G)	28.50 - 28.75	1.0000	1.0000
L49	56	8.5" x 1.25" Flat Plate (G)	28.50 - 28.75	1.0000	1.0000
L49	58	6.5" x 1.25" Flat Plate (G)	28.50 - 28.75	1.0000	1.0000
L49	59	6.5" x 1.25" Flat Plate (G)	28.50 - 28.75	1.0000	1.0000
L49	60	6.5" x 1.25" Flat Plate (G)	28.50 - 28.75	1.0000	1.0000
L50	3	Safety Line 3/8	23.50 - 28.50	1.0000	1.0000
L50	10	TYPE I(1-1/4")	23.50 - 28.50	1.0000	1.0000
L50	17	LDF7-50A(1-5/8")	23.50 - 28.50	1.0000	1.0000
L50	22	LDF7-50A(1-5/8")	23.50 - 28.50	1.0000	1.0000
L50	54	8.5" x 1.25" Flat Plate (G)	23.50 - 28.50	1.0000	1.0000
L50	55	8.5" x 1.25" Flat Plate (G)	23.50 - 28.50	1.0000	1.0000
L50	56	8.5" x 1.25" Flat Plate (G)	23.50 - 28.50	1.0000	1.0000
L50	58	6.5" x 1.25" Flat Plate (G)	26.00 - 28.50	1.0000	1.0000
L50	59	6.5" x 1.25" Flat Plate (G)	26.00 - 28.50	1.0000	1.0000
L50	60	6.5" x 1.25" Flat Plate (G)	26.00 - 28.50	1.0000	1.0000
L50	74	6.5" x 1.25" Flat Plate (G)	23.50 - 25.00	1.0000	1.0000
L50	75	6.5" x 1.25" Flat Plate (G)	23.50 - 25.00	1.0000	1.0000
L50	76	6.5" x 1.25" Flat Plate (G)	23.50 - 25.00	1.0000	1.0000
L51	3	Safety Line 3/8	18.50 - 23.50	1.0000	1.0000
L51	10	TYPE I(1-1/4")	18.50 - 23.50	1.0000	1.0000
L51	17	LDF7-50A(1-5/8")	18.50 - 23.50	1.0000	1.0000
L51	22	LDF7-50A(1-5/8")	18.50 - 23.50	1.0000	1.0000
L51	54	8.5" x 1.25" Flat Plate (G)	18.50 - 23.50	1.0000	1.0000
L51	55	8.5" x 1.25" Flat Plate (G)	18.50 - 23.50	1.0000	1.0000
L51	56	8.5" x 1.25" Flat Plate (G)	18.50 - 23.50	1.0000	1.0000
L51	74	6.5" x 1.25" Flat Plate (G)	18.50 - 23.50	1.0000	1.0000
L51	75	6.5" x 1.25" Flat Plate (G)	18.50 - 23.50	1.0000	1.0000
L51	76	6.5" x 1.25" Flat Plate (G)	18.50 - 23.50	1.0000	1.0000
L52	3	Safety Line 3/8	13.50 - 18.50	1.0000	1.0000
L52	10	TYPE I(1-1/4")	13.50 - 18.50	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L52	17	LDF7-50A(1-5/8")	13.50 - 18.50	1.0000	1.0000
L52	22	LDF7-50A(1-5/8")	13.50 - 18.50	1.0000	1.0000
L52	54	8.5" x 1.25" Flat Plate (G)	13.50 - 18.50	1.0000	1.0000
L52	55	8.5" x 1.25" Flat Plate (G)	13.50 - 18.50	1.0000	1.0000
L52	56	8.5" x 1.25" Flat Plate (G)	13.50 - 18.50	1.0000	1.0000
L52	74	6.5" x 1.25" Flat Plate (G)	15.00 - 18.50	1.0000	1.0000
L52	75	6.5" x 1.25" Flat Plate (G)	15.00 - 18.50	1.0000	1.0000
L52	76	6.5" x 1.25" Flat Plate (G)	15.00 - 18.50	1.0000	1.0000
L53	3	Safety Line 3/8	8.50 - 13.50	1.0000	1.0000
L53	10	TYPE I(1-1/4")	8.50 - 13.50	1.0000	1.0000
L53	17	LDF7-50A(1-5/8")	8.50 - 13.50	1.0000	1.0000
L53	22	LDF7-50A(1-5/8")	8.50 - 13.50	1.0000	1.0000
L53	54	8.5" x 1.25" Flat Plate (G)	8.50 - 13.50	1.0000	1.0000
L53	55	8.5" x 1.25" Flat Plate (G)	8.50 - 13.50	1.0000	1.0000
L53	56	8.5" x 1.25" Flat Plate (G)	8.50 - 13.50	1.0000	1.0000
L54	3	Safety Line 3/8	3.50 - 8.50	1.0000	1.0000
L54	10	TYPE I(1-1/4")	3.50 - 8.50	1.0000	1.0000
L54	17	LDF7-50A(1-5/8")	3.50 - 8.50	1.0000	1.0000
L54	22	LDF7-50A(1-5/8")	3.50 - 8.50	1.0000	1.0000
L54	54	8.5" x 1.25" Flat Plate (G)	3.50 - 8.50	1.0000	1.0000
L54	55	8.5" x 1.25" Flat Plate (G)	3.50 - 8.50	1.0000	1.0000
L54	56	8.5" x 1.25" Flat Plate (G)	3.50 - 8.50	1.0000	1.0000
L55	3	Safety Line 3/8	0.00 - 3.50	1.0000	1.0000
L55	10	TYPE I(1-1/4")	0.00 - 3.50	1.0000	1.0000
L55	17	LDF7-50A(1-5/8")	0.00 - 3.50	1.0000	1.0000
L55	22	LDF7-50A(1-5/8")	0.00 - 3.50	1.0000	1.0000
L55	54	8.5" x 1.25" Flat Plate (G)	0.83 - 3.50	1.0000	1.0000
L55	55	8.5" x 1.25" Flat Plate (G)	0.83 - 3.50	1.0000	1.0000
L55	56	8.5" x 1.25" Flat Plate (G)	0.83 - 3.50	1.0000	1.0000

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
***									
***									
PD201-7	A	From Leg	4.000	0.000	188.000	No Ice	1.015	1.015	0.004
			0.000			1/2" Ice	1.810	1.810	0.013
			5.000			1" Ice	2.620	2.620	0.026
APXVSPP18-C-A20 w/	A	From Leg	4.000	0.000	188.000	No Ice	8.262	6.946	0.083
Mount Pipe			0.000			1/2" Ice	8.822	8.127	0.151
			2.000			1" Ice	9.346	9.021	0.227
APXVSPP18-C-A20 w/	B	From Leg	4.000	0.000	188.000	No Ice	8.262	6.946	0.083
Mount Pipe			0.000			1/2" Ice	8.822	8.127	0.151
			2.000			1" Ice	9.346	9.021	0.227
APXVSPP18-C-A20 w/	C	From Leg	4.000	0.000	188.000	No Ice	8.262	6.946	0.083
Mount Pipe			0.000			1/2" Ice	8.822	8.127	0.151
			2.000			1" Ice	9.346	9.021	0.227
Platform Mount [LP 403-1]	C	None		0.000	188.000	No Ice	18.850	18.850	1.500
						1/2" Ice	24.300	24.300	1.797

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice	29.750	29.750	2.093
Pipe Mount	A	From Leg	4.000	0.000	188.000	No Ice	1.200	1.200	0.020
			0.000			1/2" Ice	1.502	1.502	0.029
			2.000			1" Ice	1.814	1.814	0.042
Pipe Mount	B	From Leg	4.000	0.000	188.000	No Ice	1.200	1.200	0.020
			0.000			1/2" Ice	1.502	1.502	0.029
			2.000			1" Ice	1.814	1.814	0.042
Pipe Mount	C	From Leg	4.000	0.000	188.000	No Ice	1.200	1.200	0.020
			0.000			1/2" Ice	1.502	1.502	0.029
			2.000			1" Ice	1.814	1.814	0.042
APXVTM14-ALU-I20 w/ Mount Pipe	A	From Leg	4.000	0.000	188.000	No Ice	6.580	4.959	0.077
			0.000			1/2" Ice	7.031	5.754	0.132
			2.000			1" Ice	7.473	6.472	0.193
APXVTM14-ALU-I20 w/ Mount Pipe	B	From Leg	4.000	0.000	188.000	No Ice	6.580	4.959	0.077
			0.000			1/2" Ice	7.031	5.754	0.132
			2.000			1" Ice	7.473	6.472	0.193
APXVTM14-ALU-I20 w/ Mount Pipe	C	From Leg	4.000	0.000	188.000	No Ice	6.580	4.959	0.077
			0.000			1/2" Ice	7.031	5.754	0.132
			2.000			1" Ice	7.473	6.472	0.193
TD-RRH8x20-25	A	From Leg	4.000	0.000	188.000	No Ice	4.045	1.533	0.070
			0.000			1/2" Ice	4.298	1.712	0.097
			2.000			1" Ice	4.557	1.899	0.128
TD-RRH8x20-25	B	From Leg	4.000	0.000	188.000	No Ice	4.045	1.533	0.070
			0.000			1/2" Ice	4.298	1.712	0.097
			2.000			1" Ice	4.557	1.899	0.128
TD-RRH8x20-25	C	From Leg	4.000	0.000	188.000	No Ice	4.045	1.533	0.070
			0.000			1/2" Ice	4.298	1.712	0.097
			2.000			1" Ice	4.557	1.899	0.128
***									
***									
TME-800MHz RRH	A	From Leg	4.000	0.000	185.000	No Ice	2.134	1.773	0.053
			0.000			1/2" Ice	2.320	1.946	0.074
			3.000			1" Ice	2.512	2.127	0.098
TME-800MHz RRH	B	From Leg	4.000	0.000	185.000	No Ice	2.134	1.773	0.053
			0.000			1/2" Ice	2.320	1.946	0.074
			3.000			1" Ice	2.512	2.127	0.098
TME-800MHz RRH	C	From Leg	4.000	0.000	185.000	No Ice	2.134	1.773	0.053
			0.000			1/2" Ice	2.320	1.946	0.074
			3.000			1" Ice	2.512	2.127	0.098
TME-1900MHZ RRH	A	From Leg	4.000	0.000	185.000	No Ice	2.492	3.258	0.044
			0.000			1/2" Ice	2.695	3.484	0.075
			3.000			1" Ice	2.906	3.718	0.110
TME-1900MHZ RRH	B	From Leg	4.000	0.000	185.000	No Ice	2.492	3.258	0.044
			0.000			1/2" Ice	2.695	3.484	0.075
			3.000			1" Ice	2.906	3.718	0.110
TME-1900MHZ RRH	C	From Leg	4.000	0.000	185.000	No Ice	2.492	3.258	0.044
			0.000			1/2" Ice	2.695	3.484	0.075
			3.000			1" Ice	2.906	3.718	0.110
Side Arm Mount [SO 102-3]	C	None		0.000	185.000	No Ice	3.000	3.000	0.081
						1/2" Ice	3.480	3.480	0.111
						1" Ice	3.960	3.960	0.141
***									
***									
Side Arm Mount [SO 701-1]	C	From Leg	0.000	0.000	184.000	No Ice	0.850	1.670	0.065
			0.000			1/2" Ice	1.140	2.340	0.079
			1.000			1" Ice	1.430	3.010	0.093
***									

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
***									
458-2D	B	From Leg	4.000	0.000	179.000	No Ice	3.667	3.667	0.022
			0.000			1/2" Ice	5.031	5.031	0.049
			6.000			1" Ice	6.412	6.412	0.084
458-2D	C	From Leg	4.000	0.000	179.000	No Ice	3.667	3.667	0.022
			0.000			1/2" Ice	5.031	5.031	0.049
			6.000			1" Ice	6.412	6.412	0.084
Platform Mount [LP 403-1]	C	None		0.000	179.000	No Ice	18.850	18.850	1.500
						1/2" Ice	24.300	24.300	1.797
						1" Ice	29.750	29.750	2.093
(4) Pipe Mount	A	From Leg	4.000	0.000	179.000	No Ice	1.200	1.200	0.020
			0.000			1/2" Ice	1.502	1.502	0.029
			0.000			1" Ice	1.814	1.814	0.042
(4) Pipe Mount	B	From Leg	4.000	0.000	179.000	No Ice	1.200	1.200	0.020
			0.000			1/2" Ice	1.502	1.502	0.029
			0.000			1" Ice	1.814	1.814	0.042
(4) Pipe Mount	C	From Leg	4.000	0.000	179.000	No Ice	1.200	1.200	0.020
			0.000			1/2" Ice	1.502	1.502	0.029
			0.000			1" Ice	1.814	1.814	0.042
***									
***									
ERICSSON AIR 21 B2A	A	From Leg	4.000	0.000	170.000	No Ice	6.329	5.642	0.112
B4P w/ Mount Pipe			0.000			1/2" Ice	6.775	6.426	0.169
			0.000			1" Ice	7.214	7.131	0.233
ERICSSON AIR 21 B2A	B	From Leg	4.000	0.000	170.000	No Ice	6.329	5.642	0.112
B4P w/ Mount Pipe			0.000			1/2" Ice	6.775	6.426	0.169
			0.000			1" Ice	7.214	7.131	0.233
ERICSSON AIR 21 B2A	C	From Leg	4.000	0.000	170.000	No Ice	6.329	5.642	0.112
B4P w/ Mount Pipe			0.000			1/2" Ice	6.775	6.426	0.169
			0.000			1" Ice	7.214	7.131	0.233
Ericsson Air 21 B4A	A	From Leg	4.000	0.000	170.000	No Ice	11.782	11.038	0.159
B12P-B5P 8FT w/ Mount			0.000			1/2" Ice	12.502	12.564	0.254
Pipe			0.000			1" Ice	13.232	14.116	0.360
Ericsson Air 21 B4A	B	From Leg	4.000	0.000	170.000	No Ice	11.782	11.038	0.159
B12P-B5P 8FT w/ Mount			0.000			1/2" Ice	12.502	12.564	0.254
Pipe			0.000			1" Ice	13.232	14.116	0.360
Ericsson Air 21 B4A	C	From Leg	4.000	0.000	170.000	No Ice	11.782	11.038	0.159
B12P-B5P 8FT w/ Mount			0.000			1/2" Ice	12.502	12.564	0.254
Pipe			0.000			1" Ice	13.232	14.116	0.360
KRY 112 144/1	A	From Leg	4.000	0.000	170.000	No Ice	0.352	0.162	0.011
			0.000			1/2" Ice	0.428	0.219	0.014
			0.000			1" Ice	0.512	0.285	0.018
KRY 112 144/1	B	From Leg	4.000	0.000	170.000	No Ice	0.352	0.162	0.011
			0.000			1/2" Ice	0.428	0.219	0.014
			0.000			1" Ice	0.512	0.285	0.018
KRY 112 144/1	C	From Leg	4.000	0.000	170.000	No Ice	0.352	0.162	0.011
			0.000			1/2" Ice	0.428	0.219	0.014
			0.000			1" Ice	0.512	0.285	0.018
(2) RRUS 11 B12	A	From Leg	4.000	0.000	170.000	No Ice	2.833	1.182	0.051
			0.000			1/2" Ice	3.043	1.330	0.072
			0.000			1" Ice	3.259	1.485	0.095
RRUS 11 B12	B	From Leg	4.000	0.000	170.000	No Ice	2.833	1.182	0.051
			0.000			1/2" Ice	3.043	1.330	0.072
			0.000			1" Ice	3.259	1.485	0.095
RRUS 11 B12	C	From Leg	4.000	0.000	170.000	No Ice	2.833	1.182	0.051
			0.000			1/2" Ice	3.043	1.330	0.072
			0.000			1" Ice	3.259	1.485	0.095

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
Platform Mount [LP 405-1]	C	None		0.000	170.000	No Ice	20.800	20.800	1.800
						1/2" Ice	28.100	28.100	2.066
						1" Ice	35.400	35.400	2.332
PD201-7	C	From Leg	4.000	0.000	170.000	No Ice	1.015	1.015	0.004
			0.000			1/2" Ice	1.810	1.810	0.013
			4.000			1" Ice	2.620	2.620	0.026
***									
***									
(2) 7770.00 w/ Mount Pipe	A	From Leg	4.000	0.000	160.000	No Ice	5.746	4.254	0.055
			0.000			1/2" Ice	6.179	5.014	0.103
			3.000			1" Ice	6.607	5.711	0.157
(2) 7770.00 w/ Mount Pipe	B	From Leg	4.000	0.000	160.000	No Ice	5.746	4.254	0.055
			0.000			1/2" Ice	6.179	5.014	0.103
			3.000			1" Ice	6.607	5.711	0.157
(2) 7770.00 w/ Mount Pipe	C	From Leg	4.000	0.000	160.000	No Ice	5.746	4.254	0.055
			0.000			1/2" Ice	6.179	5.014	0.103
			3.000			1" Ice	6.607	5.711	0.157
OPA-65R-LCUU-H6 w/ Mount Pipe	A	From Leg	4.000	0.000	160.000	No Ice	9.895	7.179	0.099
			0.000			1/2" Ice	10.470	8.362	0.175
			3.000			1" Ice	11.010	9.259	0.261
OPA-65R-LCUU-H6 w/ Mount Pipe	B	From Leg	4.000	0.000	160.000	No Ice	9.895	7.179	0.099
			0.000			1/2" Ice	10.470	8.362	0.175
			3.000			1" Ice	11.010	9.259	0.261
OPA-65R-LCUU-H6 w/ Mount Pipe	C	From Leg	4.000	0.000	160.000	No Ice	9.895	7.179	0.099
			0.000			1/2" Ice	10.470	8.362	0.175
			3.000			1" Ice	11.010	9.259	0.261
(2) LGP21401	A	From Leg	4.000	0.000	160.000	No Ice	1.104	0.347	0.014
			0.000			1/2" Ice	1.239	0.442	0.021
			3.000			1" Ice	1.381	0.544	0.030
(2) LGP21401	B	From Leg	4.000	0.000	160.000	No Ice	1.104	0.347	0.014
			0.000			1/2" Ice	1.239	0.442	0.021
			3.000			1" Ice	1.381	0.544	0.030
(2) LGP21401	C	From Leg	4.000	0.000	160.000	No Ice	1.104	0.347	0.014
			0.000			1/2" Ice	1.239	0.442	0.021
			3.000			1" Ice	1.381	0.544	0.030
RRUS-11	A	From Leg	4.000	0.000	160.000	No Ice	2.522	1.068	0.055
			0.000			1/2" Ice	2.719	1.211	0.074
			3.000			1" Ice	2.923	1.361	0.097
RRUS-11	B	From Leg	4.000	0.000	160.000	No Ice	2.522	1.068	0.055
			0.000			1/2" Ice	2.719	1.211	0.074
			3.000			1" Ice	2.923	1.361	0.097
RRUS-11	C	From Leg	4.000	0.000	160.000	No Ice	2.522	1.068	0.055
			0.000			1/2" Ice	2.719	1.211	0.074
			3.000			1" Ice	2.923	1.361	0.097
(4) 7020.00	A	From Leg	4.000	0.000	160.000	No Ice	0.102	0.175	0.002
			0.000			1/2" Ice	0.147	0.239	0.005
			3.000			1" Ice	0.199	0.311	0.009
(4) 7020.00	B	From Leg	4.000	0.000	160.000	No Ice	0.102	0.175	0.002
			0.000			1/2" Ice	0.147	0.239	0.005
			3.000			1" Ice	0.199	0.311	0.009
(4) 7020.00	C	From Leg	4.000	0.000	160.000	No Ice	0.102	0.175	0.002
			0.000			1/2" Ice	0.147	0.239	0.005
			3.000			1" Ice	0.199	0.311	0.009
TT19-08BP111-001	A	From Leg	4.000	0.000	160.000	No Ice	0.545	0.442	0.016
			0.000			1/2" Ice	0.641	0.530	0.022
			3.000			1" Ice	0.743	0.626	0.029
TT19-08BP111-001	B	From Leg	4.000	0.000	160.000	No Ice	0.545	0.442	0.016

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.000			1/2" Ice	0.641	0.530	0.022
			3.000			1" Ice	0.743	0.626	0.029
TT19-08BP111-001	C	From Leg	4.000	0.000	160.000	No Ice	0.545	0.442	0.016
			0.000			1/2" Ice	0.641	0.530	0.022
			3.000			1" Ice	0.743	0.626	0.029
DC6-48-60-18-8F	C	From Leg	4.000	0.000	160.000	No Ice	0.859	0.859	0.033
			0.000			1/2" Ice	1.371	1.371	0.050
			3.000			1" Ice	1.548	1.548	0.069
Platform Mount [LP 403-1]	C	None		0.000	160.000	No Ice	18.850	18.850	1.500
						1/2" Ice	24.300	24.300	1.797
						1" Ice	29.750	29.750	2.093
RRUS 32 B2	A	From Leg	4.000	0.000	160.000	No Ice	2.731	1.668	0.053
			0.000			1/2" Ice	2.953	1.855	0.074
			3.000			1" Ice	3.182	2.049	0.098
RRUS 32 B2	B	From Leg	4.000	0.000	160.000	No Ice	2.731	1.668	0.053
			0.000			1/2" Ice	2.953	1.855	0.074
			3.000			1" Ice	3.182	2.049	0.098
RRUS 32 B2	C	From Leg	4.000	0.000	160.000	No Ice	2.731	1.668	0.053
			0.000			1/2" Ice	2.953	1.855	0.074
			3.000			1" Ice	3.182	2.049	0.098
Pipe Mount	A	From Leg	4.000	0.000	160.000	No Ice	1.200	1.200	0.020
			0.000			1/2" Ice	1.502	1.502	0.029
			3.000			1" Ice	1.814	1.814	0.042
Pipe Mount	B	From Leg	4.000	0.000	160.000	No Ice	1.200	1.200	0.020
			0.000			1/2" Ice	1.502	1.502	0.029
			3.000			1" Ice	1.814	1.814	0.042
Pipe Mount	C	From Leg	4.000	0.000	160.000	No Ice	1.200	1.200	0.020
			0.000			1/2" Ice	1.502	1.502	0.029
			3.000			1" Ice	1.814	1.814	0.042
***									
***									
(2) DB846F65ZAXY w/	A	From Leg	4.000	0.000	150.000	No Ice	7.152	7.702	0.045
Mount Pipe			0.000			1/2" Ice	7.657	8.775	0.111
			0.000			1" Ice	8.141	9.641	0.185
(2) DB846F65ZAXY w/	B	From Leg	4.000	0.000	150.000	No Ice	7.152	7.702	0.045
Mount Pipe			0.000			1/2" Ice	7.657	8.775	0.111
			0.000			1" Ice	8.141	9.641	0.185
(2) LPA-80080/6CF w/	C	From Leg	4.000	0.000	150.000	No Ice	4.564	10.259	0.046
Mount Pipe			0.000			1/2" Ice	5.105	11.427	0.113
			0.000			1" Ice	5.612	12.312	0.187
BXA-171063-12CF-EDIN-2	A	From Leg	4.000	0.000	150.000	No Ice	5.029	5.289	0.041
w/ Mount Pipe			0.000			1/2" Ice	5.583	6.459	0.087
			0.000			1" Ice	6.103	7.348	0.140
BXA-171063-12CF-EDIN-2	B	From Leg	4.000	0.000	150.000	No Ice	5.029	5.289	0.041
w/ Mount Pipe			0.000			1/2" Ice	5.583	6.459	0.087
			0.000			1" Ice	6.103	7.348	0.140
BXA-171063-12CF-EDIN-2	C	From Leg	4.000	0.000	150.000	No Ice	5.029	5.289	0.041
w/ Mount Pipe			0.000			1/2" Ice	5.583	6.459	0.087
			0.000			1" Ice	6.103	7.348	0.140
(2) FD9R6004/2C-3L	A	From Leg	4.000	0.000	150.000	No Ice	0.314	0.076	0.003
			0.000			1/2" Ice	0.386	0.119	0.005
			0.000			1" Ice	0.466	0.169	0.009
(2) FD9R6004/2C-3L	B	From Leg	4.000	0.000	150.000	No Ice	0.314	0.076	0.003
			0.000			1/2" Ice	0.386	0.119	0.005
			0.000			1" Ice	0.466	0.169	0.009
(2) FD9R6004/2C-3L	C	From Leg	4.000	0.000	150.000	No Ice	0.314	0.076	0.003
			0.000			1/2" Ice	0.386	0.119	0.005

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.000			1" Ice	0.466	0.169	0.009
DB-T1-6Z-8AB-0Z	C	From Leg	4.000	0.000	150.000	No Ice	4.800	2.000	0.044
			0.000			1/2" Ice	5.070	2.193	0.080
			0.000			1" Ice	5.348	2.393	0.120
Platform Mount [LP 403-1]	C	None		0.000	150.000	No Ice	18.850	18.850	1.500
						1/2" Ice	24.300	24.300	1.797
						1" Ice	29.750	29.750	2.093
(2) SBNHH-1D85C w/	A	From Leg	4.000	0.000	150.000	No Ice	11.626	9.793	0.077
Mount Pipe			0.000			1/2" Ice	12.346	11.311	0.166
			0.000			1" Ice	13.074	12.854	0.266
(2) SBNHH-1D85C w/	B	From Leg	4.000	0.000	150.000	No Ice	11.626	9.793	0.077
Mount Pipe			0.000			1/2" Ice	12.346	11.311	0.166
			0.000			1" Ice	13.074	12.854	0.266
(2) SBNHH-1D85C w/	C	From Leg	4.000	0.000	150.000	No Ice	11.626	9.793	0.077
Mount Pipe			0.000			1/2" Ice	12.346	11.311	0.166
			0.000			1" Ice	13.074	12.854	0.266
RRH2x60-700	A	From Leg	4.000	0.000	150.000	No Ice	3.500	1.816	0.060
			0.000			1/2" Ice	3.761	2.052	0.083
			0.000			1" Ice	4.029	2.289	0.109
RRH2x60-700	B	From Leg	4.000	0.000	150.000	No Ice	3.500	1.816	0.060
			0.000			1/2" Ice	3.761	2.052	0.083
			0.000			1" Ice	4.029	2.289	0.109
RRH2x60-700	C	From Leg	4.000	0.000	150.000	No Ice	3.500	1.816	0.060
			0.000			1/2" Ice	3.761	2.052	0.083
			0.000			1" Ice	4.029	2.289	0.109
RRH4X45-AWS4 B66	A	From Leg	4.000	0.000	150.000	No Ice	2.660	1.586	0.064
			0.000			1/2" Ice	2.878	1.769	0.084
			0.000			1" Ice	3.104	1.959	0.108
RRH4X45-AWS4 B66	B	From Leg	4.000	0.000	150.000	No Ice	2.660	1.586	0.064
			0.000			1/2" Ice	2.878	1.769	0.084
			0.000			1" Ice	3.104	1.959	0.108
RRH4X45-AWS4 B66	C	From Leg	4.000	0.000	150.000	No Ice	2.660	1.586	0.064
			0.000			1/2" Ice	2.878	1.769	0.084
			0.000			1" Ice	3.104	1.959	0.108
RRH2X60-1900	A	From Leg	4.000	0.000	150.000	No Ice	1.874	1.218	0.043
			0.000			1/2" Ice	2.052	1.367	0.059
			0.000			1" Ice	2.237	1.523	0.077
RRH2X60-1900	B	From Leg	4.000	0.000	150.000	No Ice	1.874	1.218	0.043
			0.000			1/2" Ice	2.052	1.367	0.059
			0.000			1" Ice	2.237	1.523	0.077
RRH2X60-1900	C	From Leg	4.000	0.000	150.000	No Ice	1.874	1.218	0.043
			0.000			1/2" Ice	2.052	1.367	0.059
			0.000			1" Ice	2.237	1.523	0.077
DB-T1-6Z-8AB-0Z	C	From Leg	4.000	0.000	150.000	No Ice	4.800	2.000	0.044
			0.000			1/2" Ice	5.070	2.193	0.080
			0.000			1" Ice	5.348	2.393	0.120
***									
***									
PD128-1	C	From Leg	4.000	0.000	125.000	No Ice	1.277	1.277	0.013
			0.000			1/2" Ice	2.272	2.272	0.024
			5.000			1" Ice	3.282	3.282	0.041
PD201-1	B	From Leg	4.000	0.000	125.000	No Ice	0.628	0.628	0.004
			0.000			1/2" Ice	1.539	1.539	0.011
			5.000			1" Ice	2.467	2.467	0.023
Side Arm Mount [SO 701-1]	C	From Leg	0.000	0.000	125.000	No Ice	0.850	1.670	0.065
			0.000			1/2" Ice	1.140	2.340	0.079
			0.000			1" Ice	1.430	3.010	0.093

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
Side Arm Mount [SO 701-1]	B	From Leg	0.000	0.000	125.000	No Ice	0.850	1.670	0.065
			0.000			1/2" Ice	1.140	2.340	0.079
			0.000			1" Ice	1.430	3.010	0.093
***									
***									
PD128-1	B	From Leg	4.000	0.000	110.000	No Ice	1.277	1.277	0.013
			0.000			1/2" Ice	2.272	2.272	0.024
			5.000			1" Ice	3.282	3.282	0.041
PD128-1	C	From Leg	4.000	0.000	110.000	No Ice	1.277	1.277	0.013
			0.000			1/2" Ice	2.272	2.272	0.024
			5.000			1" Ice	3.282	3.282	0.041
Side Arm Mount [SO 701-1]	B	From Leg	0.000	0.000	110.000	No Ice	0.850	1.670	0.065
			0.000			1/2" Ice	1.140	2.340	0.079
			0.000			1" Ice	1.430	3.010	0.093
Side Arm Mount [SO 701-1]	C	From Leg	0.000	0.000	110.000	No Ice	0.850	1.670	0.065
			0.000			1/2" Ice	1.140	2.340	0.079
			0.000			1" Ice	1.430	3.010	0.093
***									
***									
GPS_A	B	From Leg	3.000	0.000	100.000	No Ice	0.255	0.255	0.001
			0.000			1/2" Ice	0.320	0.320	0.005
			1.000			1" Ice	0.393	0.393	0.010
Side Arm Mount [SO 701-1]	B	From Leg	0.000	0.000	100.000	No Ice	0.850	1.670	0.065
			0.000			1/2" Ice	1.140	2.340	0.079
			0.000			1" Ice	1.430	3.010	0.093
***									
***									
PD128-1	A	From Leg	4.000	0.000	95.000	No Ice	1.277	1.277	0.013
			0.000			1/2" Ice	2.272	2.272	0.024
			5.000			1" Ice	3.282	3.282	0.041
PD128-1	C	From Leg	4.000	0.000	95.000	No Ice	1.277	1.277	0.013
			0.000			1/2" Ice	2.272	2.272	0.024
			5.000			1" Ice	3.282	3.282	0.041
Side Arm Mount [SO 701-1]	A	From Leg	0.000	0.000	95.000	No Ice	0.850	1.670	0.065
			0.000			1/2" Ice	1.140	2.340	0.079
			0.000			1" Ice	1.430	3.010	0.093
Side Arm Mount [SO 701-1]	C	From Leg	0.000	0.000	95.000	No Ice	0.850	1.670	0.065
			0.000			1/2" Ice	1.140	2.340	0.079
			0.000			1" Ice	1.430	3.010	0.093
***									
***									
DB222	C	From Leg	4.000	0.000	80.000	No Ice	3.646	3.646	0.016
			0.000			1/2" Ice	5.057	5.057	0.038
			5.000			1" Ice	6.481	6.481	0.070
PD128-1	B	From Leg	4.000	0.000	80.000	No Ice	1.277	1.277	0.013
			0.000			1/2" Ice	2.272	2.272	0.024
			5.000			1" Ice	3.282	3.282	0.041
Side Arm Mount [SO 701-1]	B	From Leg	0.000	0.000	80.000	No Ice	0.850	1.670	0.065
			0.000			1/2" Ice	1.140	2.340	0.079
			0.000			1" Ice	1.430	3.010	0.093
Side Arm Mount [SO 701-1]	C	From Leg	0.000	0.000	80.000	No Ice	0.850	1.670	0.065
			0.000			1/2" Ice	1.140	2.340	0.079
			0.000			1" Ice	1.430	3.010	0.093
***									
***									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
SP2-5.8	A	Paraboloid w/o Radome	From Leg	4.000 0.000 -1.000	15.000		188.000	2.000	No Ice 1/2" Ice 1" Ice	3.140 3.410 3.680	0.022 0.040 0.060
***											

Tower Pressures - No Ice

G_H = 1.100

Section Elevation ft	z ft	K_Z	q_z ksf	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	187.500	1.183	0.025	12.500	A	0.000	12.500	12.500	100.00	0.000	0.000
190.000-185.0					B	0.000	12.500		100.00	1.169	0.000
00					C	0.000	12.500		100.00	0.188	0.000
L2	182.500	1.174	0.025	12.500	A	0.000	12.500	12.500	100.00	0.000	0.000
185.000-180.0					B	0.000	12.500		100.00	1.949	0.000
00					C	0.000	12.500		100.00	0.188	0.000
L3	177.500	1.164	0.024	15.000	A	0.000	15.000	15.000	100.00	0.000	0.000
180.000-175.0					B	0.000	15.000		100.00	1.949	0.000
00					C	0.000	15.000		100.00	0.188	0.000
L4	172.500	1.155	0.024	15.000	A	0.000	15.000	15.000	100.00	0.000	0.000
175.000-170.0					B	0.000	15.000		100.00	1.949	0.000
00					C	0.000	15.000		100.00	0.188	0.000
L5	167.500	1.145	0.024	15.000	A	0.000	15.000	15.000	100.00	5.940	0.000
170.000-165.0					B	0.000	15.000		100.00	1.949	0.000
00					C	0.000	15.000		100.00	0.188	0.000
L6	162.500	1.135	0.024	15.000	A	0.000	15.000	15.000	100.00	5.940	0.000
165.000-160.0					B	0.000	15.000		100.00	1.949	0.000
00					C	0.000	15.000		100.00	0.188	0.000
L7	157.500	1.125	0.024	17.500	A	0.000	17.500	17.500	100.00	11.880	0.000
160.000-155.0					B	0.000	17.500		100.00	1.949	0.000
00					C	0.000	17.500		100.00	0.188	0.000
L8	152.500	1.115	0.023	17.500	A	0.000	17.500	17.500	100.00	11.880	0.000
155.000-150.0					B	0.000	17.500		100.00	1.949	0.000
00					C	0.000	17.500		100.00	0.188	0.000
L9	147.500	1.104	0.023	17.500	A	0.000	17.500	17.500	100.00	11.880	0.000
150.000-145.0					B	0.000	17.500		100.00	1.949	0.000
00					C	0.000	17.500		100.00	0.188	0.000
L10	142.500	1.093	0.023	17.500	A	0.000	17.500	17.500	100.00	11.880	0.000
145.000-140.0					B	0.000	17.500		100.00	1.949	0.000
00					C	0.000	17.500		100.00	0.188	0.000
L11	137.500	1.082	0.023	20.000	A	0.000	20.000	20.000	100.00	11.880	0.000
140.000-135.0					B	0.000	20.000		100.00	1.949	0.000
00					C	0.000	20.000		100.00	0.188	0.000
L12	132.500	1.071	0.023	20.000	A	0.000	20.000	20.000	100.00	11.880	0.000
135.000-130.0					B	0.000	20.000		100.00	1.949	0.000

Section Elevation ft	z ft	K_Z	q_z ksf	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
00					C	0.000	20.000		100.00	0.188	0.000
L13	127.500	1.059	0.022	20.000	A	0.000	20.000	20.000	100.00	11.880	0.000
130.000-125.0					B	0.000	20.000		100.00	1.949	0.000
00					C	0.000	20.000		100.00	0.188	0.000
L14	122.500	1.047	0.022	20.000	A	0.000	20.000	20.000	100.00	11.880	0.000
125.000-120.0					B	0.000	20.000		100.00	1.949	0.000
00					C	0.000	20.000		100.00	0.188	0.000
L15	117.500	1.035	0.022	22.500	A	0.000	22.500	22.500	100.00	11.880	0.000
120.000-115.0					B	0.000	22.500		100.00	1.949	0.000
00					C	0.000	22.500		100.00	0.188	0.000
L16	113.833	1.025	0.022	10.503	A	0.000	10.503	10.503	100.00	7.546	0.000
115.000-112.6					B	0.000	10.503		100.00	2.910	0.000
66					C	0.000	10.503		100.00	2.088	0.000
L17	112.541	1.022	0.022	1.125	A	0.000	1.125	1.125	100.00	0.844	0.000
112.666-112.4					B	0.000	1.125		100.00	0.347	0.000
16					C	0.000	1.125		100.00	0.259	0.000
L18	109.916	1.015	0.021	22.500	A	0.000	22.500	22.500	100.00	16.880	0.000
112.416-107.4					B	0.000	22.500		100.00	6.949	0.000
16					C	0.000	22.500		100.00	5.188	0.000
L19	104.916	1.002	0.021	22.500	A	0.000	22.500	22.500	100.00	19.797	0.000
107.416-102.4					B	0.000	22.500		100.00	9.866	0.000
16					C	0.000	22.500		100.00	8.104	0.000
L20	101.875	0.993	0.021	4.873	A	0.000	4.873	4.873	100.00	4.739	0.000
102.416-101.3					B	0.000	4.873		100.00	2.588	0.000
33					C	0.000	4.873		100.00	2.207	0.000
L21	101.208	0.992	0.021	1.125	A	0.000	1.125	1.125	100.00	0.844	0.000
101.333-101.0					B	0.000	1.125		100.00	0.347	0.000
83					C	0.000	1.125		100.00	0.259	0.000
L22	100.542	0.99	0.021	4.873	A	0.000	4.873	4.873	100.00	3.656	0.000
101.083-100.0					B	0.000	4.873		100.00	1.505	0.000
00					C	0.000	4.873		100.00	1.124	0.000
L23	97.500	0.981	0.021	25.000	A	0.000	25.000	25.000	100.00	16.880	0.000
100.000-95.00					B	0.000	25.000		100.00	6.949	0.000
0					C	0.000	25.000		100.00	5.188	0.000
L24	92.500	0.966	0.020	25.000	A	0.000	25.000	25.000	100.00	17.630	0.000
95.000-90.000					B	0.000	25.000		100.00	7.699	0.000
					C	0.000	25.000		100.00	5.938	0.000
L25	89.750	0.958	0.020	2.500	A	0.000	2.500	2.500	100.00	2.063	0.000
90.000-89.500					B	0.000	2.500		100.00	1.070	0.000
					C	0.000	2.500		100.00	0.894	0.000
L26	89.375	0.957	0.020	1.250	A	0.000	1.250	1.250	100.00	1.032	0.000
89.500-89.250					B	0.000	1.250		100.00	0.535	0.000
					C	0.000	1.250		100.00	0.447	0.000
L27	87.375	0.951	0.020	18.750	A	0.000	18.750	18.750	100.00	16.785	0.000
89.250-85.500					B	0.000	18.750		100.00	9.336	0.000
					C	0.000	18.750		100.00	8.016	0.000
L28	85.375	0.945	0.020	1.250	A	0.000	1.250	1.250	100.00	1.407	0.000
85.500-85.250					B	0.000	1.250		100.00	0.910	0.000
					C	0.000	1.250		100.00	0.822	0.000
L29	84.625	0.942	0.020	6.250	A	0.000	6.250	6.250	100.00	7.032	0.000
85.250-84.000					B	0.000	6.250		100.00	4.550	0.000
					C	0.000	6.250		100.00	4.109	0.000
L30	83.875	0.94	0.020	1.250	A	0.000	1.250	1.250	100.00	1.407	0.000
84.000-83.750					B	0.000	1.250		100.00	0.910	0.000
					C	0.000	1.250		100.00	0.822	0.000
L31	83.125	0.937	0.020	6.250	A	0.000	6.250	6.250	100.00	7.032	0.000
83.750-82.500					B	0.000	6.250		100.00	4.550	0.000
					C	0.000	6.250		100.00	4.109	0.000
L32	82.375	0.935	0.020	1.250	A	0.000	1.250	1.250	100.00	1.407	0.000
82.500-82.250					B	0.000	1.250		100.00	0.910	0.000

Section Elevation ft	z ft	K_Z	q_z ksf	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
					C	0.000	1.250		100.00	0.822	0.000
L33	81.125	0.931	0.020	11.250	A	0.000	11.250	11.250	100.00	9.909	0.000
82.250-80.000					B	0.000	11.250		100.00	5.439	0.000
					C	0.000	11.250		100.00	4.647	0.000
L34	77.500	0.919	0.019	25.000	A	0.000	25.000	25.000	100.00	18.817	0.000
80.000-75.000					B	0.000	25.000		100.00	8.886	0.000
					C	0.000	25.000		100.00	7.125	0.000
L35	72.500	0.901	0.019	25.000	A	0.000	25.000	25.000	100.00	15.630	0.000
75.000-70.000					B	0.000	25.000		100.00	5.699	0.000
					C	0.000	25.000		100.00	3.938	0.000
L36	67.500	0.883	0.019	25.000	A	0.000	25.000	25.000	100.00	16.172	0.000
70.000-65.000					B	0.000	25.000		100.00	6.240	0.000
					C	0.000	25.000		100.00	4.479	0.000
L37	62.500	0.864	0.018	25.000	A	0.000	25.000	25.000	100.00	21.047	0.000
65.000-60.000					B	0.000	25.000		100.00	11.115	0.000
					C	0.000	25.000		100.00	9.354	0.000
L38	59.250	0.851	0.018	7.500	A	0.000	7.500	7.500	100.00	6.314	0.000
60.000-58.500					B	0.000	7.500		100.00	3.335	0.000
					C	0.000	7.500		100.00	2.806	0.000
L39	58.375	0.847	0.018	1.250	A	0.000	1.250	1.250	100.00	1.052	0.000
58.500-58.250					B	0.000	1.250		100.00	0.556	0.000
					C	0.000	1.250		100.00	0.468	0.000
L40	55.750	0.836	0.018	25.000	A	0.000	25.000	25.000	100.00	15.797	0.000
58.250-53.250					B	0.000	25.000		100.00	5.865	0.000
					C	0.000	25.000		100.00	4.104	0.000
L41	50.750	0.814	0.017	25.000	A	0.000	25.000	25.000	100.00	14.859	0.000
53.250-48.250					B	0.000	25.000		100.00	4.928	0.000
					C	0.000	25.000		100.00	3.167	0.000
L42	48.125	0.802	0.017	1.250	A	0.000	1.250	1.250	100.00	0.865	0.000
48.250-48.000					B	0.000	1.250		100.00	0.368	0.000
					C	0.000	1.250		100.00	0.280	0.000
L43	45.500	0.789	0.017	25.000	A	0.000	25.000	25.000	100.00	19.547	0.000
48.000-43.000					B	0.000	25.000		100.00	9.615	0.000
					C	0.000	25.000		100.00	7.854	0.000
L44	41.500	0.769	0.016	15.000	A	0.000	15.000	15.000	100.00	13.378	0.000
43.000-40.000					B	0.000	15.000		100.00	7.419	0.000
					C	0.000	15.000		100.00	6.362	0.000
L45	37.500	0.747	0.016	25.000	A	0.000	25.000	25.000	100.00	23.227	0.000
40.000-35.000					B	0.000	25.000		100.00	13.295	0.000
					C	0.000	25.000		100.00	11.534	0.000
L46	33.542	0.723	0.015	14.585	A	0.000	14.585	14.585	100.00	14.223	0.000
35.000-32.083					B	0.000	14.585		100.00	8.429	0.000
					C	0.000	14.585		100.00	7.402	0.000
L47	31.958	0.713	0.015	1.250	A	0.000	1.250	1.250	100.00	1.219	0.000
32.083-31.833					B	0.000	1.250		100.00	0.722	0.000
					C	0.000	1.250		100.00	0.634	0.000
L48	30.292	0.703	0.015	15.415	A	0.000	15.415	15.415	100.00	15.033	0.000
31.833-28.750					B	0.000	15.415		100.00	8.909	0.000
					C	0.000	15.415		100.00	7.823	0.000
L49	28.625	0.7	0.015	1.250	A	0.000	1.250	1.250	100.00	1.219	0.000
28.750-28.500					B	0.000	1.250		100.00	0.722	0.000
					C	0.000	1.250		100.00	0.634	0.000
L50	26.000	0.7	0.015	25.000	A	0.000	25.000	25.000	100.00	23.297	0.000
28.500-23.500					B	0.000	25.000		100.00	13.365	0.000
					C	0.000	25.000		100.00	11.604	0.000
L51	21.000	0.7	0.015	25.000	A	0.000	25.000	25.000	100.00	24.380	0.000
23.500-18.500					B	0.000	25.000		100.00	14.448	0.000
					C	0.000	25.000		100.00	12.688	0.000
L52	16.000	0.7	0.015	25.000	A	0.000	25.000	25.000	100.00	22.755	0.000
18.500-13.500					B	0.000	25.000		100.00	12.823	0.000

Section Elevation ft	z ft	K_Z	q_z ksf	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
					C	0.000	25.000		100.00	11.063	0.000
L53	11.000	0.7	0.015	25.000	A	0.000	25.000	25.000	100.00	18.963	0.000
13.500-8.500					B	0.000	25.000		100.00	9.032	0.000
					C	0.000	25.000		100.00	7.271	0.000
L54	6.000	0.7	0.015	25.000	A	0.000	25.000	25.000	100.00	18.963	0.000
8.500-3.500					B	0.000	25.000		100.00	9.032	0.000
					C	0.000	25.000		100.00	7.271	0.000
L55	1.750	0.7	0.015	17.500	A	0.000	17.500	17.500	100.00	12.094	0.000
3.500-0.000					B	0.000	17.500		100.00	5.142	0.000
					C	0.000	17.500		100.00	3.910	0.000

Tower Pressure - With Ice

$G_H = 1.100$

Section Elevation ft	z ft	K_Z	q_z ksf	t_Z in	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	187.500	1.183	0.007	1.785	13.987	A	0.000	13.987	13.987	100.00	0.000	0.000
190.000-185.000						B	0.000	13.987		100.00	2.800	0.000
						C	0.000	13.987		100.00	1.972	0.000
L2	182.500	1.174	0.007	1.780	13.983	A	0.000	13.983	13.983	100.00	0.000	0.000
185.000-180.000						B	0.000	13.983		100.00	4.660	0.000
						C	0.000	13.983		100.00	1.967	0.000
L3	177.500	1.164	0.007	1.775	16.479	A	0.000	16.479	16.479	100.00	0.000	0.000
180.000-175.000						B	0.000	16.479		100.00	4.654	0.000
						C	0.000	16.479		100.00	1.962	0.000
L4	172.500	1.155	0.007	1.770	16.475	A	0.000	16.475	16.475	100.00	0.000	0.000
175.000-170.000						B	0.000	16.475		100.00	4.648	0.000
						C	0.000	16.475		100.00	1.957	0.000
L5	167.500	1.145	0.007	1.765	16.470	A	0.000	16.470	16.470	100.00	9.631	0.000
170.000-165.000						B	0.000	16.470		100.00	4.641	0.000
						C	0.000	16.470		100.00	1.952	0.000
L6	162.500	1.135	0.007	1.759	16.466	A	0.000	16.466	16.466	100.00	9.624	0.000
165.000-160.000						B	0.000	16.466		100.00	4.635	0.000
						C	0.000	16.466		100.00	1.947	0.000
L7	157.500	1.125	0.007	1.754	18.961	A	0.000	18.961	18.961	100.00	19.234	0.000
160.000-155.000						B	0.000	18.961		100.00	4.628	0.000
						C	0.000	18.961		100.00	1.941	0.000
L8	152.500	1.115	0.007	1.748	18.957	A	0.000	18.957	18.957	100.00	19.220	0.000
155.000-150.000						B	0.000	18.957		100.00	4.621	0.000
						C	0.000	18.957		100.00	1.936	0.000
L9	147.500	1.104	0.007	1.742	18.952	A	0.000	18.952	18.952	100.00	19.206	0.000
150.000-145.000						B	0.000	18.952		100.00	4.613	0.000
						C	0.000	18.952		100.00	1.930	0.000
L10	142.500	1.093	0.007	1.736	18.947	A	0.000	18.947	18.947	100.00	19.191	0.000
145.000-140.000						B	0.000	18.947		100.00	4.606	0.000
						C	0.000	18.947		100.00	1.924	0.000
L11	137.500	1.082	0.007	1.730	21.442	A	0.000	21.442	21.442	100.00	19.175	0.000
140.000-135.000						B	0.000	21.442		100.00	4.598	0.000
						C	0.000	21.442		100.00	1.918	0.000
L12	132.500	1.071	0.007	1.724	21.436	A	0.000	21.436	21.436	100.00	19.159	0.000
135.000-130.000						B	0.000	21.436		100.00	4.590	0.000
						C	0.000	21.436		100.00	1.911	0.000
L13	127.500	1.059	0.006	1.717	21.431	A	0.000	21.431	21.431	100.00	19.143	0.000

Section Elevation ft	z ft	K_Z	q_z ksf	t_Z in	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
130.000-125.000						B	0.000	21.431		100.00	4.582	0.000
						C	0.000	21.431		100.00	1.905	0.000
L14	122.500	1.047	0.006	1.710	21.425	A	0.000	21.425	21.425	100.00	19.126	0.000
125.000-120.000						B	0.000	21.425		100.00	4.573	0.000
						C	0.000	21.425		100.00	1.898	0.000
L15	117.500	1.035	0.006	1.703	23.919	A	0.000	23.919	23.919	100.00	19.108	0.000
120.000-115.000						B	0.000	23.919		100.00	4.565	0.000
						C	0.000	23.919		100.00	1.891	0.000
L16	113.833	1.025	0.006	1.698	11.163	A	0.000	11.163	11.163	100.00	11.318	0.000
115.000-112.666						B	0.000	11.163		100.00	4.532	0.000
						C	0.000	11.163		100.00	3.285	0.000
L17	112.541	1.022	0.006	1.696	1.196	A	0.000	1.196	1.196	100.00	1.255	0.000
112.666-112.416						B	0.000	1.196		100.00	0.528	0.000
						C	0.000	1.196		100.00	0.395	0.000
L18	109.916	1.015	0.006	1.692	23.910	A	0.000	23.910	23.910	100.00	25.088	0.000
112.416-107.416						B	0.000	23.910		100.00	10.559	0.000
						C	0.000	23.910		100.00	7.888	0.000
L19	104.916	1.002	0.006	1.684	23.903	A	0.000	23.903	23.903	100.00	28.964	0.000
107.416-102.416						B	0.000	23.903		100.00	14.444	0.000
						C	0.000	23.903		100.00	11.775	0.000
L20	101.875	0.993	0.006	1.679	5.177	A	0.000	5.177	5.177	100.00	6.872	0.000
102.416-101.333						B	0.000	5.177		100.00	3.729	0.000
						C	0.000	5.177		100.00	3.151	0.000
L21	101.208	0.992	0.006	1.678	1.195	A	0.000	1.195	1.195	100.00	1.286	0.000
101.333-101.083						B	0.000	1.195		100.00	0.561	0.000
						C	0.000	1.195		100.00	0.427	0.000
L22	100.542	0.99	0.006	1.677	5.176	A	0.000	5.176	5.176	100.00	5.571	0.000
101.083-100.000						B	0.000	5.176		100.00	2.428	0.000
						C	0.000	5.176		100.00	1.850	0.000
L23	97.500	0.981	0.006	1.672	26.393	A	0.000	26.393	26.393	100.00	25.701	0.000
100.000-95.000						B	0.000	26.393		100.00	11.197	0.000
						C	0.000	26.393		100.00	8.531	0.000
L24	92.500	0.966	0.006	1.663	26.386	A	0.000	26.386	26.386	100.00	26.611	0.000
95.000-90.000						B	0.000	26.386		100.00	12.118	0.000
						C	0.000	26.386		100.00	9.454	0.000
L25	89.750	0.958	0.006	1.658	2.638	A	0.000	2.638	2.638	100.00	3.035	0.000
90.000-89.500						B	0.000	2.638		100.00	1.587	0.000
						C	0.000	2.638		100.00	1.320	0.000
L26	89.375	0.957	0.006	1.657	1.319	A	0.000	1.319	1.319	100.00	1.518	0.000
89.500-89.250						B	0.000	1.319		100.00	0.793	0.000
						C	0.000	1.319		100.00	0.660	0.000
L27	87.375	0.951	0.006	1.653	19.783	A	0.000	19.783	19.783	100.00	24.607	0.000
89.250-85.500						B	0.000	19.783		100.00	13.746	0.000
						C	0.000	19.783		100.00	11.750	0.000
L28	85.375	0.945	0.006	1.650	1.319	A	0.000	1.319	1.319	100.00	2.021	0.000
85.500-85.250						B	0.000	1.319		100.00	1.297	0.000
						C	0.000	1.319		100.00	1.164	0.000
L29	84.625	0.942	0.006	1.648	6.593	A	0.000	6.593	6.593	100.00	10.102	0.000
85.250-84.000						B	0.000	6.593		100.00	6.483	0.000
						C	0.000	6.593		100.00	5.818	0.000
L30	83.875	0.94	0.006	1.647	1.319	A	0.000	1.319	1.319	100.00	2.020	0.000
84.000-83.750						B	0.000	1.319		100.00	1.296	0.000
						C	0.000	1.319		100.00	1.163	0.000
L31	83.125	0.937	0.006	1.645	6.593	A	0.000	6.593	6.593	100.00	10.098	0.000
83.750-82.500						B	0.000	6.593		100.00	6.480	0.000
						C	0.000	6.593		100.00	5.815	0.000
L32	82.375	0.935	0.006	1.644	1.318	A	0.000	1.318	1.318	100.00	2.019	0.000
82.500-82.250						B	0.000	1.318		100.00	1.296	0.000
						C	0.000	1.318		100.00	1.163	0.000
L33	81.125	0.931	0.006	1.641	11.865	A	0.000	11.865	11.865	100.00	14.571	0.000

Section Elevation ft	z ft	K_Z	q_z ksf	t_Z in	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
82.250-80.000						B	0.000	11.865		100.00	8.062	0.000
						C	0.000	11.865		100.00	6.865	0.000
L34	77.500	0.919	0.006	1.634	26.361	A	0.000	26.361	26.361	100.00	28.303	0.000
80.000-75.000						B	0.000	26.361		100.00	13.847	0.000
						C	0.000	26.361		100.00	11.190	0.000
L35	72.500	0.901	0.005	1.623	26.352	A	0.000	26.352	26.352	100.00	24.280	0.000
75.000-70.000						B	0.000	26.352		100.00	9.837	0.000
						C	0.000	26.352		100.00	7.183	0.000
L36	67.500	0.883	0.005	1.611	26.343	A	0.000	26.343	26.343	100.00	24.807	0.000
70.000-65.000						B	0.000	26.343		100.00	10.379	0.000
						C	0.000	26.343		100.00	7.728	0.000
L37	62.500	0.864	0.005	1.599	26.332	A	0.000	26.332	26.332	100.00	29.868	0.000
65.000-60.000						B	0.000	26.332		100.00	15.455	0.000
						C	0.000	26.332		100.00	12.807	0.000
L38	59.250	0.851	0.005	1.590	7.898	A	0.000	7.898	7.898	100.00	8.950	0.000
60.000-58.500						B	0.000	7.898		100.00	4.629	0.000
						C	0.000	7.898		100.00	3.836	0.000
L39	58.375	0.847	0.005	1.588	1.316	A	0.000	1.316	1.316	100.00	1.491	0.000
58.500-58.250						B	0.000	1.316		100.00	0.771	0.000
						C	0.000	1.316		100.00	0.639	0.000
L40	55.750	0.836	0.005	1.581	26.317	A	0.000	26.317	26.317	100.00	23.249	0.000
58.250-53.250						B	0.000	26.317		100.00	8.859	0.000
						C	0.000	26.317		100.00	6.215	0.000
L41	50.750	0.814	0.005	1.566	26.305	A	0.000	26.305	26.305	100.00	22.605	0.000
53.250-48.250						B	0.000	26.305		100.00	8.234	0.000
						C	0.000	26.305		100.00	5.594	0.000
L42	48.125	0.802	0.005	1.558	1.315	A	0.000	1.315	1.315	100.00	1.286	0.000
48.250-48.000						B	0.000	1.315		100.00	0.568	0.000
						C	0.000	1.315		100.00	0.436	0.000
L43	45.500	0.789	0.005	1.549	26.291	A	0.000	26.291	26.291	100.00	28.117	0.000
48.000-43.000						B	0.000	26.291		100.00	13.766	0.000
						C	0.000	26.291		100.00	11.131	0.000
L44	41.500	0.769	0.005	1.535	15.767	A	0.000	15.767	15.767	100.00	18.617	0.000
43.000-40.000						B	0.000	15.767		100.00	10.018	0.000
						C	0.000	15.767		100.00	8.439	0.000
L45	37.500	0.747	0.005	1.519	26.266	A	0.000	26.266	26.266	100.00	32.131	0.000
40.000-35.000						B	0.000	26.266		100.00	17.817	0.000
						C	0.000	26.266		100.00	15.189	0.000
L46	33.542	0.723	0.004	1.502	15.315	A	0.000	15.315	15.315	100.00	19.900	0.000
35.000-32.083						B	0.000	15.315		100.00	11.562	0.000
						C	0.000	15.315		100.00	10.031	0.000
L47	31.958	0.713	0.004	1.495	1.312	A	0.000	1.312	1.312	100.00	1.704	0.000
32.083-31.833						B	0.000	1.312		100.00	0.990	0.000
						C	0.000	1.312		100.00	0.859	0.000
L48	30.292	0.703	0.004	1.487	16.179	A	0.000	16.179	16.179	100.00	20.991	0.000
31.833-28.750						B	0.000	16.179		100.00	12.190	0.000
						C	0.000	16.179		100.00	10.574	0.000
L49	28.625	0.7	0.004	1.479	1.312	A	0.000	1.312	1.312	100.00	1.700	0.000
28.750-28.500						B	0.000	1.312		100.00	0.987	0.000
						C	0.000	1.312		100.00	0.856	0.000
L50	26.000	0.7	0.004	1.465	26.221	A	0.000	26.221	26.221	100.00	32.181	0.000
28.500-23.500						B	0.000	26.221		100.00	17.936	0.000
						C	0.000	26.221		100.00	15.322	0.000
L51	21.000	0.7	0.004	1.434	26.195	A	0.000	26.195	26.195	100.00	32.538	0.000
23.500-18.500						B	0.000	26.195		100.00	18.331	0.000
						C	0.000	26.195		100.00	15.725	0.000
L52	16.000	0.7	0.004	1.395	26.163	A	0.000	26.163	26.163	100.00	30.713	0.000
18.500-13.500						B	0.000	26.163		100.00	16.555	0.000
						C	0.000	26.163		100.00	13.958	0.000
L53	11.000	0.7	0.004	1.344	26.120	A	0.000	26.120	26.120	100.00	26.637	0.000

Section Elevation ft	z ft	K_Z	q_z ksf	t_Z in	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
13.500-8.500						B	0.000	26.120		100.00	12.543	0.000
						C	0.000	26.120		100.00	9.959	0.000
L54 8.500-3.500	6.000	0.7	0.004	1.265	26.054	A	0.000	26.054	26.054	100.00	26.360	0.000
						B	0.000	26.054		100.00	12.365	0.000
						C	0.000	26.054		100.00	9.801	0.000
L55 3.500-0.000	1.750	0.7	0.004	1.118	18.152	A	0.000	18.152	18.152	100.00	16.727	0.000
						B	0.000	18.152		100.00	7.058	0.000
						C	0.000	18.152		100.00	5.289	0.000

Tower Pressure - Service

$G_H = 1.100$

Section Elevation ft	z ft	K_Z	q_z ksf	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	187.500	1.183	0.009	12.500	A	0.000	12.500	12.500	100.00	0.000	0.000
190.000-185.0					B	0.000	12.500		100.00	1.169	0.000
00					C	0.000	12.500		100.00	0.188	0.000
L2	182.500	1.174	0.009	12.500	A	0.000	12.500	12.500	100.00	0.000	0.000
185.000-180.0					B	0.000	12.500		100.00	1.949	0.000
00					C	0.000	12.500		100.00	0.188	0.000
L3	177.500	1.164	0.009	15.000	A	0.000	15.000	15.000	100.00	0.000	0.000
180.000-175.0					B	0.000	15.000		100.00	1.949	0.000
00					C	0.000	15.000		100.00	0.188	0.000
L4	172.500	1.155	0.009	15.000	A	0.000	15.000	15.000	100.00	0.000	0.000
175.000-170.0					B	0.000	15.000		100.00	1.949	0.000
00					C	0.000	15.000		100.00	0.188	0.000
L5	167.500	1.145	0.009	15.000	A	0.000	15.000	15.000	100.00	5.940	0.000
170.000-165.0					B	0.000	15.000		100.00	1.949	0.000
00					C	0.000	15.000		100.00	0.188	0.000
L6	162.500	1.135	0.009	15.000	A	0.000	15.000	15.000	100.00	5.940	0.000
165.000-160.0					B	0.000	15.000		100.00	1.949	0.000
00					C	0.000	15.000		100.00	0.188	0.000
L7	157.500	1.125	0.009	17.500	A	0.000	17.500	17.500	100.00	11.880	0.000
160.000-155.0					B	0.000	17.500		100.00	1.949	0.000
00					C	0.000	17.500		100.00	0.188	0.000
L8	152.500	1.115	0.009	17.500	A	0.000	17.500	17.500	100.00	11.880	0.000
155.000-150.0					B	0.000	17.500		100.00	1.949	0.000
00					C	0.000	17.500		100.00	0.188	0.000
L9	147.500	1.104	0.009	17.500	A	0.000	17.500	17.500	100.00	11.880	0.000
150.000-145.0					B	0.000	17.500		100.00	1.949	0.000
00					C	0.000	17.500		100.00	0.188	0.000
L10	142.500	1.093	0.009	17.500	A	0.000	17.500	17.500	100.00	11.880	0.000
145.000-140.0					B	0.000	17.500		100.00	1.949	0.000
00					C	0.000	17.500		100.00	0.188	0.000
L11	137.500	1.082	0.008	20.000	A	0.000	20.000	20.000	100.00	11.880	0.000
140.000-135.0					B	0.000	20.000		100.00	1.949	0.000
00					C	0.000	20.000		100.00	0.188	0.000
L12	132.500	1.071	0.008	20.000	A	0.000	20.000	20.000	100.00	11.880	0.000
135.000-130.0					B	0.000	20.000		100.00	1.949	0.000
00					C	0.000	20.000		100.00	0.188	0.000
L13	127.500	1.059	0.008	20.000	A	0.000	20.000	20.000	100.00	11.880	0.000
130.000-125.0					B	0.000	20.000		100.00	1.949	0.000

Section Elevation ft	z ft	K_Z	q_z ksf	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
00					C	0.000	20.000		100.00	0.188	0.000
L14	122.500	1.047	0.008	20.000	A	0.000	20.000	20.000	100.00	11.880	0.000
125.000-120.0					B	0.000	20.000		100.00	1.949	0.000
00					C	0.000	20.000		100.00	0.188	0.000
L15	117.500	1.035	0.008	22.500	A	0.000	22.500	22.500	100.00	11.880	0.000
120.000-115.0					B	0.000	22.500		100.00	1.949	0.000
00					C	0.000	22.500		100.00	0.188	0.000
L16	113.833	1.025	0.008	10.503	A	0.000	10.503	10.503	100.00	7.546	0.000
115.000-112.6					B	0.000	10.503		100.00	2.910	0.000
66					C	0.000	10.503		100.00	2.088	0.000
L17	112.541	1.022	0.008	1.125	A	0.000	1.125	1.125	100.00	0.844	0.000
112.666-112.4					B	0.000	1.125		100.00	0.347	0.000
16					C	0.000	1.125		100.00	0.259	0.000
L18	109.916	1.015	0.008	22.500	A	0.000	22.500	22.500	100.00	16.880	0.000
112.416-107.4					B	0.000	22.500		100.00	6.949	0.000
16					C	0.000	22.500		100.00	5.188	0.000
L19	104.916	1.002	0.008	22.500	A	0.000	22.500	22.500	100.00	19.797	0.000
107.416-102.4					B	0.000	22.500		100.00	9.866	0.000
16					C	0.000	22.500		100.00	8.104	0.000
L20	101.875	0.993	0.008	4.873	A	0.000	4.873	4.873	100.00	4.739	0.000
102.416-101.3					B	0.000	4.873		100.00	2.588	0.000
33					C	0.000	4.873		100.00	2.207	0.000
L21	101.208	0.992	0.008	1.125	A	0.000	1.125	1.125	100.00	0.844	0.000
101.333-101.0					B	0.000	1.125		100.00	0.347	0.000
83					C	0.000	1.125		100.00	0.259	0.000
L22	100.542	0.99	0.008	4.873	A	0.000	4.873	4.873	100.00	3.656	0.000
101.083-100.0					B	0.000	4.873		100.00	1.505	0.000
00					C	0.000	4.873		100.00	1.124	0.000
L23	97.500	0.981	0.008	25.000	A	0.000	25.000	25.000	100.00	16.880	0.000
100.000-95.00					B	0.000	25.000		100.00	6.949	0.000
0					C	0.000	25.000		100.00	5.188	0.000
L24	92.500	0.966	0.008	25.000	A	0.000	25.000	25.000	100.00	17.630	0.000
95.000-90.000					B	0.000	25.000		100.00	7.699	0.000
					C	0.000	25.000		100.00	5.938	0.000
L25	89.750	0.958	0.008	2.500	A	0.000	2.500	2.500	100.00	2.063	0.000
90.000-89.500					B	0.000	2.500		100.00	1.070	0.000
					C	0.000	2.500		100.00	0.894	0.000
L26	89.375	0.957	0.007	1.250	A	0.000	1.250	1.250	100.00	1.032	0.000
89.500-89.250					B	0.000	1.250		100.00	0.535	0.000
					C	0.000	1.250		100.00	0.447	0.000
L27	87.375	0.951	0.007	18.750	A	0.000	18.750	18.750	100.00	16.785	0.000
89.250-85.500					B	0.000	18.750		100.00	9.336	0.000
					C	0.000	18.750		100.00	8.016	0.000
L28	85.375	0.945	0.007	1.250	A	0.000	1.250	1.250	100.00	1.407	0.000
85.500-85.250					B	0.000	1.250		100.00	0.910	0.000
					C	0.000	1.250		100.00	0.822	0.000
L29	84.625	0.942	0.007	6.250	A	0.000	6.250	6.250	100.00	7.032	0.000
85.250-84.000					B	0.000	6.250		100.00	4.550	0.000
					C	0.000	6.250		100.00	4.109	0.000
L30	83.875	0.94	0.007	1.250	A	0.000	1.250	1.250	100.00	1.407	0.000
84.000-83.750					B	0.000	1.250		100.00	0.910	0.000
					C	0.000	1.250		100.00	0.822	0.000
L31	83.125	0.937	0.007	6.250	A	0.000	6.250	6.250	100.00	7.032	0.000
83.750-82.500					B	0.000	6.250		100.00	4.550	0.000
					C	0.000	6.250		100.00	4.109	0.000
L32	82.375	0.935	0.007	1.250	A	0.000	1.250	1.250	100.00	1.407	0.000
82.500-82.250					B	0.000	1.250		100.00	0.910	0.000
					C	0.000	1.250		100.00	0.822	0.000
L33	81.125	0.931	0.007	11.250	A	0.000	11.250	11.250	100.00	9.909	0.000
82.250-80.000					B	0.000	11.250		100.00	5.439	0.000

Section Elevation ft	z ft	K_Z	q_z ksf	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
					C	0.000	11.250		100.00	4.647	0.000
L34	77.500	0.919	0.007	25.000	A	0.000	25.000	25.000	100.00	18.817	0.000
80.000-75.000					B	0.000	25.000		100.00	8.886	0.000
					C	0.000	25.000		100.00	7.125	0.000
L35	72.500	0.901	0.007	25.000	A	0.000	25.000	25.000	100.00	15.630	0.000
75.000-70.000					B	0.000	25.000		100.00	5.699	0.000
					C	0.000	25.000		100.00	3.938	0.000
L36	67.500	0.883	0.007	25.000	A	0.000	25.000	25.000	100.00	16.172	0.000
70.000-65.000					B	0.000	25.000		100.00	6.240	0.000
					C	0.000	25.000		100.00	4.479	0.000
L37	62.500	0.864	0.007	25.000	A	0.000	25.000	25.000	100.00	21.047	0.000
65.000-60.000					B	0.000	25.000		100.00	11.115	0.000
					C	0.000	25.000		100.00	9.354	0.000
L38	59.250	0.851	0.007	7.500	A	0.000	7.500	7.500	100.00	6.314	0.000
60.000-58.500					B	0.000	7.500		100.00	3.335	0.000
					C	0.000	7.500		100.00	2.806	0.000
L39	58.375	0.847	0.007	1.250	A	0.000	1.250	1.250	100.00	1.052	0.000
58.500-58.250					B	0.000	1.250		100.00	0.556	0.000
					C	0.000	1.250		100.00	0.468	0.000
L40	55.750	0.836	0.007	25.000	A	0.000	25.000	25.000	100.00	15.797	0.000
58.250-53.250					B	0.000	25.000		100.00	5.865	0.000
					C	0.000	25.000		100.00	4.104	0.000
L41	50.750	0.814	0.006	25.000	A	0.000	25.000	25.000	100.00	14.859	0.000
53.250-48.250					B	0.000	25.000		100.00	4.928	0.000
					C	0.000	25.000		100.00	3.167	0.000
L42	48.125	0.802	0.006	1.250	A	0.000	1.250	1.250	100.00	0.865	0.000
48.250-48.000					B	0.000	1.250		100.00	0.368	0.000
					C	0.000	1.250		100.00	0.280	0.000
L43	45.500	0.789	0.006	25.000	A	0.000	25.000	25.000	100.00	19.547	0.000
48.000-43.000					B	0.000	25.000		100.00	9.615	0.000
					C	0.000	25.000		100.00	7.854	0.000
L44	41.500	0.769	0.006	15.000	A	0.000	15.000	15.000	100.00	13.378	0.000
43.000-40.000					B	0.000	15.000		100.00	7.419	0.000
					C	0.000	15.000		100.00	6.362	0.000
L45	37.500	0.747	0.006	25.000	A	0.000	25.000	25.000	100.00	23.227	0.000
40.000-35.000					B	0.000	25.000		100.00	13.295	0.000
					C	0.000	25.000		100.00	11.534	0.000
L46	33.542	0.723	0.006	14.585	A	0.000	14.585	14.585	100.00	14.223	0.000
35.000-32.083					B	0.000	14.585		100.00	8.429	0.000
					C	0.000	14.585		100.00	7.402	0.000
L47	31.958	0.713	0.006	1.250	A	0.000	1.250	1.250	100.00	1.219	0.000
32.083-31.833					B	0.000	1.250		100.00	0.722	0.000
					C	0.000	1.250		100.00	0.634	0.000
L48	30.292	0.703	0.006	15.415	A	0.000	15.415	15.415	100.00	15.033	0.000
31.833-28.750					B	0.000	15.415		100.00	8.909	0.000
					C	0.000	15.415		100.00	7.823	0.000
L49	28.625	0.7	0.005	1.250	A	0.000	1.250	1.250	100.00	1.219	0.000
28.750-28.500					B	0.000	1.250		100.00	0.722	0.000
					C	0.000	1.250		100.00	0.634	0.000
L50	26.000	0.7	0.005	25.000	A	0.000	25.000	25.000	100.00	23.297	0.000
28.500-23.500					B	0.000	25.000		100.00	13.365	0.000
					C	0.000	25.000		100.00	11.604	0.000
L51	21.000	0.7	0.005	25.000	A	0.000	25.000	25.000	100.00	24.380	0.000
23.500-18.500					B	0.000	25.000		100.00	14.448	0.000
					C	0.000	25.000		100.00	12.688	0.000
L52	16.000	0.7	0.005	25.000	A	0.000	25.000	25.000	100.00	22.755	0.000
18.500-13.500					B	0.000	25.000		100.00	12.823	0.000
					C	0.000	25.000		100.00	11.063	0.000
L53	11.000	0.7	0.005	25.000	A	0.000	25.000	25.000	100.00	18.963	0.000
13.500-8.500					B	0.000	25.000		100.00	9.032	0.000

Section Elevation ft	z ft	K_Z	q_z ksf	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
					C	0.000	25.000		100.00	7.271	0.000
L54	6.000	0.7	0.005	25.000	A	0.000	25.000	25.000	100.00	18.963	0.000
8.500-3.500					B	0.000	25.000		100.00	9.032	0.000
					C	0.000	25.000		100.00	7.271	0.000
L55	1.750	0.7	0.005	17.500	A	0.000	17.500	17.500	100.00	12.094	0.000
3.500-0.000					B	0.000	17.500		100.00	5.142	0.000
					C	0.000	17.500		100.00	3.910	0.000

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service

Comb. No.	Description
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	190 - 185	Pole	Max Tension	45	0.000	-0.000	-0.000
			Max. Compression	26	-7.074	-0.002	0.803
			Max. Mx	20	-3.312	14.631	-0.115
			Max. My	2	-3.308	-0.005	14.880
			Max. Vy	20	-3.510	14.631	-0.115
			Max. Vx	14	3.622	0.110	-14.689
			Max. Torque	20			-0.745
L2	185 - 180	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-9.572	0.136	0.780
			Max. Mx	20	-4.527	38.200	-0.708
			Max. My	14	-4.517	0.422	-38.869
			Max. Vy	20	-4.571	38.200	-0.708
			Max. Vx	14	4.703	0.422	-38.869
			Max. Torque	20			-0.745
L3	180 - 175	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-15.005	0.139	-0.053
			Max. Mx	20	-7.457	71.405	-1.363
			Max. My	14	-7.445	0.655	-72.872
			Max. Vy	20	-6.838	71.405	-1.363
			Max. Vx	14	6.972	0.655	-72.872
			Max. Torque	12			-0.699
L4	175 - 170	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-16.369	0.146	0.018
			Max. Mx	20	-8.323	106.636	-1.911
			Max. My	14	-8.311	0.888	-108.763
			Max. Vy	20	-7.256	106.636	-1.911
			Max. Vx	14	7.391	0.888	-108.763
			Max. Torque	12			-0.699
L5	170 - 165	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-24.624	0.499	0.978
			Max. Mx	20	-12.562	159.657	-2.098
			Max. My	14	-12.545	1.151	-162.342
			Max. Vy	20	-10.778	159.657	-2.098
			Max. Vx	14	10.973	1.151	-162.342
			Max. Torque	13			-0.775
L6	165 - 160	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-26.171	0.566	1.279
			Max. Mx	20	-13.503	214.569	-2.604
			Max. My	14	-13.486	1.397	-218.161
			Max. Vy	20	-11.185	214.569	-2.604
			Max. Vx	14	11.381	1.397	-218.161
			Max. Torque	13			-0.775
L7	160 - 155	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-35.843	1.687	1.405
			Max. Mx	20	-17.757	298.221	-3.191
			Max. My	14	-17.734	1.948	-302.648
			Max. Vy	20	-15.281	298.221	-3.191
			Max. Vx	14	15.534	1.948	-302.648

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Torque	12			-0.938
L8	155 - 150	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-37.862	2.280	1.835
			Max. Mx	20	-18.916	375.903	-3.672
			Max. My	14	-18.891	2.315	-381.519
			Max. Vy	20	-15.745	375.903	-3.672
			Max. Vx	14	16.053	2.315	-381.519
			Max. Torque	12			-0.938
L9	150 - 145	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-50.061	4.895	1.111
			Max. Mx	20	-23.488	485.605	-4.100
			Max. My	14	-23.454	2.830	-492.853
			Max. Vy	20	-22.037	485.605	-4.100
			Max. Vx	14	22.478	2.830	-492.853
			Max. Torque	12			-2.683
L10	145 - 140	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-52.144	5.500	1.546
			Max. Mx	20	-24.734	597.001	-4.249
			Max. My	14	-24.698	2.865	-606.377
			Max. Vy	20	-22.477	597.001	-4.249
			Max. Vx	14	22.972	2.865	-606.377
			Max. Torque	12			-2.683
L11	140 - 135	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-54.431	6.173	2.034
			Max. Mx	20	-26.118	710.770	-4.387
			Max. My	14	-26.082	2.916	-722.467
			Max. Vy	20	-22.981	710.770	-4.387
			Max. Vx	14	23.510	2.916	-722.467
			Max. Torque	12			-2.683
L12	135 - 130	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-56.716	6.844	2.521
			Max. Mx	20	-27.507	827.026	-4.524
			Max. My	14	-27.470	2.965	-841.218
			Max. Vy	20	-23.472	827.026	-4.524
			Max. Vx	14	24.036	2.965	-841.218
			Max. Torque	12			-2.682
L13	130 - 125	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-58.996	7.514	3.007
			Max. Mx	20	-28.902	945.703	-4.660
			Max. My	14	-28.865	3.014	-962.561
			Max. Vy	20	-23.950	945.703	-4.660
			Max. Vx	14	24.548	3.014	-962.561
			Max. Torque	12			-2.682
L14	125 - 120	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-61.664	8.326	2.831
			Max. Mx	20	-30.477	1067.900	-5.002
			Max. My	14	-30.439	3.114	-1087.913
			Max. Vy	20	-24.569	1067.900	-5.002
			Max. Vx	14	25.232	3.114	-1087.913
			Max. Torque	12			-2.957
L15	120 - 115	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-64.147	9.059	3.368
			Max. Mx	20	-32.018	1192.185	-5.126
			Max. My	14	-31.981	3.178	-1215.288
			Max. Vy	20	-25.093	1192.185	-5.126
			Max. Vx	14	25.772	3.178	-1215.288
			Max. Torque	12			-2.957
L16	115 - 112.666	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-65.385	9.399	3.618
			Max. Mx	20	-32.738	1251.093	-5.183
			Max. My	14	-32.701	3.207	-1275.669

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	20	-25.333	1251.093	-5.183
			Max. Vx	14	26.023	3.207	-1275.669
			Max. Torque	12			-2.957
L17	112.666 - 112.416	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-65.538	9.439	3.646
			Max. Mx	20	-32.836	1257.437	-5.192
			Max. My	14	-32.799	3.212	-1282.171
			Max. Vy	20	-25.368	1257.437	-5.192
			Max. Vx	14	26.052	3.212	-1282.171
			Max. Torque	12			-2.957
L18	112.416 - 107.416	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-68.996	10.165	3.392
			Max. Mx	20	-34.924	1386.556	-5.574
			Max. My	14	-34.886	3.273	-1414.891
			Max. Vy	20	-26.054	1386.556	-5.574
			Max. Vx	14	26.800	3.273	-1414.891
			Max. Torque	12			-3.162
L19	107.416 - 102.416	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-72.154	10.893	3.925
			Max. Mx	20	-36.837	1518.234	-5.696
			Max. My	14	-36.800	3.336	-1550.096
			Max. Vy	20	-26.563	1518.234	-5.696
			Max. Vx	14	27.336	3.336	-1550.096
			Max. Torque	12			-3.162
L20	102.416 - 101.333	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-72.856	11.050	4.040
			Max. Mx	20	-37.252	1547.088	-5.722
			Max. My	14	-37.214	3.349	-1579.732
			Max. Vy	20	-26.672	1547.088	-5.722
			Max. Vx	14	27.450	3.349	-1579.732
			Max. Torque	12			-3.162
L21	101.333 - 101.083	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-73.008	11.088	4.067
			Max. Mx	20	-37.350	1553.767	-5.731
			Max. My	14	-37.313	3.353	-1586.592
			Max. Vy	20	-26.705	1553.767	-5.731
			Max. Vx	14	27.477	3.353	-1586.592
			Max. Torque	12			-3.162
L22	101.083 - 100	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-73.665	11.243	4.181
			Max. Mx	20	-37.763	1582.764	-5.755
			Max. My	14	-37.726	3.366	-1616.378
			Max. Vy	20	-26.804	1582.764	-5.755
			Max. Vx	14	27.588	3.366	-1616.378
			Max. Torque	12			-3.162
L23	100 - 95	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-77.049	11.700	4.572
			Max. Mx	20	-39.895	1718.415	-6.018
			Max. My	14	-39.859	3.356	-1755.987
			Max. Vy	20	-27.409	1718.415	-6.018
			Max. Vx	14	28.212	3.356	-1755.987
			Max. Torque	12			-3.162
L24	95 - 90	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-80.725	13.205	5.567
			Max. Mx	20	-42.138	1858.569	-5.986
			Max. My	14	-42.103	3.682	-1899.402

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	20	-28.136	1858.569	-5.986
			Max. Vx	14	28.932	3.682	-1899.402
			Max. Torque	12			-3.284
L25	90 - 89.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-81.065	13.285	5.625
			Max. Mx	20	-42.346	1872.665	-5.998
			Max. My	14	-42.311	3.690	-1913.867
			Max. Vy	20	-28.190	1872.665	-5.998
			Max. Vx	14	28.986	3.690	-1913.867
			Max. Torque	12			-3.284
L26	89.5 - 89.25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-81.248	13.326	5.655
			Max. Mx	20	-42.463	1879.724	-6.005
			Max. My	14	-42.428	3.695	-1921.110
			Max. Vy	20	-28.229	1879.724	-6.005
			Max. Vx	14	29.018	3.695	-1921.110
			Max. Torque	12			-3.284
L27	89.25 - 85.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-84.072	13.912	6.088
			Max. Mx	20	-44.225	1986.398	-6.085
			Max. My	14	-44.190	3.752	-2030.585
			Max. Vy	20	-28.620	1986.398	-6.085
			Max. Vx	14	29.434	3.752	-2030.585
			Max. Torque	12			-3.284
L28	85.5 - 85.25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-84.300	13.955	6.118
			Max. Mx	20	-44.372	1993.565	-6.094
			Max. My	14	-44.338	3.757	-2037.940
			Max. Vy	20	-28.659	1993.565	-6.094
			Max. Vx	14	29.464	3.757	-2037.940
			Max. Torque	12			-3.284
L29	85.25 - 84	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-85.436	14.147	6.261
			Max. Mx	20	-45.090	2029.493	-6.118
			Max. My	14	-45.056	3.775	-2074.818
			Max. Vy	20	-28.784	2029.493	-6.118
			Max. Vx	14	29.604	3.775	-2074.818
			Max. Torque	12			-3.284
L30	84 - 83.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-85.645	14.189	6.291
			Max. Mx	20	-45.219	2036.701	-6.126
			Max. My	14	-45.185	3.780	-2082.215
			Max. Vy	20	-28.822	2036.701	-6.126
			Max. Vx	14	29.635	3.780	-2082.215
			Max. Torque	12			-3.284
L31	83.75 - 82.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-86.689	14.382	6.434
			Max. Mx	20	-45.847	2072.829	-6.151
			Max. My	14	-45.813	3.799	-2119.301
			Max. Vy	20	-28.942	2072.829	-6.151
			Max. Vx	14	29.770	3.799	-2119.301
			Max. Torque	12			-3.284
L32	82.5 - 82.25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-86.884	14.424	6.464
			Max. Mx	20	-45.963	2080.076	-6.159
			Max. My	14	-45.929	3.804	-2126.739
			Max. Vy	20	-28.979	2080.076	-6.159
			Max. Vx	14	29.798	3.804	-2126.739
			Max. Torque	12			-3.284
L33	82.25 - 80	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-88.527	14.773	6.721

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	20	-46.974	2145.565	-6.206
			Max. My	14	-46.940	3.837	-2193.967
			Max. Vy	20	-29.193	2145.565	-6.206
			Max. Vx	14	30.027	3.837	-2193.967
			Max. Torque	12			-3.284
L34	80 - 75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-92.929	15.872	6.294
			Max. Mx	20	-49.845	2294.891	-6.610
			Max. My	14	-49.812	3.926	-2347.606
			Max. Vy	20	-29.933	2294.891	-6.610
			Max. Vx	14	30.799	3.926	-2347.606
			Max. Torque	12			-3.973
L35	75 - 70	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-96.488	16.647	6.864
			Max. Mx	20	-52.298	2445.910	-6.719
			Max. My	14	-52.267	4.003	-2502.669
			Max. Vy	20	-30.419	2445.910	-6.719
			Max. Vx	14	31.288	4.003	-2502.669
			Max. Torque	12			-3.973
L36	70 - 65	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-100.109	17.416	7.430
			Max. Mx	20	-54.805	2599.308	-6.828
			Max. My	14	-54.776	4.079	-2660.126
			Max. Vy	20	-30.886	2599.308	-6.828
			Max. Vx	14	31.758	4.079	-2660.126
			Max. Torque	12			-3.972
L37	65 - 60	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-104.350	18.180	7.993
			Max. Mx	20	-57.763	2754.998	-6.935
			Max. My	14	-57.736	4.155	-2819.890
			Max. Vy	20	-31.338	2754.998	-6.935
			Max. Vx	14	32.213	4.155	-2819.890
			Max. Torque	12			-3.972
L38	60 - 58.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-105.761	18.408	8.160
			Max. Mx	20	-58.790	2802.145	-6.968
			Max. My	14	-58.763	4.177	-2868.263
			Max. Vy	20	-31.477	2802.145	-6.968
			Max. Vx	14	32.353	4.177	-2868.263
			Max. Torque	12			-3.972
L39	58.5 - 58.25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-105.982	18.449	8.189
			Max. Mx	20	-58.952	2810.024	-6.974
			Max. My	14	-58.926	4.182	-2876.345
			Max. Vy	20	-31.506	2810.024	-6.974
			Max. Vx	14	32.373	4.182	-2876.345
			Max. Torque	12			-3.972
L40	58.25 - 53.25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-109.973	19.193	8.740
			Max. Mx	20	-61.882	2968.700	-7.080
			Max. My	14	-61.858	4.256	-3039.106
			Max. Vy	20	-31.922	2968.700	-7.080
			Max. Vx	14	32.798	4.256	-3039.106
			Max. Torque	12			-3.972
L41	53.25 - 48.25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-113.640	19.895	9.268
			Max. Mx	20	-64.545	3129.427	-7.186
			Max. My	14	-64.523	4.331	-3203.924
			Max. Vy	20	-32.319	3129.427	-7.186
			Max. Vx	14	33.197	4.331	-3203.924
			Max. Torque	12			-3.972

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L42	48.25 - 48	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-113.852	19.933	9.295
			Max. Mx	20	-64.707	3137.516	-7.192
			Max. My	14	-64.685	4.335	-3212.217
			Max. Vy	20	-32.344	3137.516	-7.192
			Max. Vx	14	33.216	4.335	-3212.217
			Max. Torque	12			-3.972
L43	48 - 43	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-118.338	20.628	9.818
			Max. Mx	20	-68.025	3300.322	-7.296
			Max. My	14	-68.005	4.408	-3379.142
			Max. Vy	20	-32.733	3300.322	-7.296
			Max. Vx	14	33.620	4.408	-3379.142
			Max. Torque	12			-3.972
L44	43 - 40	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-121.203	21.045	10.130
			Max. Mx	20	-70.140	3398.936	-7.359
			Max. My	14	-70.121	4.452	-3480.244
			Max. Vy	20	-32.960	3398.936	-7.359
			Max. Vx	14	33.850	4.452	-3480.244
			Max. Torque	12			-3.971
L45	40 - 35	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-125.973	21.736	10.646
			Max. Mx	20	-73.651	3564.742	-7.463
			Max. My	14	-73.634	4.525	-3650.229
			Max. Vy	20	-33.313	3564.742	-7.463
			Max. Vx	14	34.212	4.525	-3650.229
			Max. Torque	12			-3.971
L46	35 - 32.083	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-128.555	22.136	10.944
			Max. Mx	20	-75.494	3662.262	-7.523
			Max. My	14	-75.478	4.567	-3750.211
			Max. Vy	20	-33.508	3662.262	-7.523
			Max. Vx	14	34.416	4.567	-3750.211
			Max. Torque	12			-3.971
L47	32.083 - 31.833	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-128.808	22.172	10.971
			Max. Mx	20	-75.691	3670.647	-7.529
			Max. My	14	-75.675	4.571	-3758.808
			Max. Vy	20	-33.522	3670.647	-7.529
			Max. Vx	14	34.424	4.571	-3758.808
			Max. Torque	12			-3.971
L48	31.833 - 28.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-131.930	22.591	11.283
			Max. Mx	20	-78.035	3774.374	-7.592
			Max. My	14	-78.021	4.615	-3865.169
			Max. Vy	20	-33.723	3774.374	-7.592
			Max. Vx	14	34.641	4.615	-3865.169
			Max. Torque	12			-3.971
L49	28.75 - 28.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-132.158	22.627	11.309
			Max. Mx	20	-78.204	3782.814	-7.597
			Max. My	14	-78.190	4.619	-3873.823
			Max. Vy	20	-33.741	3782.814	-7.597
			Max. Vx	14	34.654	4.619	-3873.823
			Max. Torque	12			-3.971
L50	28.5 - 23.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-136.815	23.302	11.811
			Max. Mx	20	-81.669	3952.375	-7.698
			Max. My	14	-81.658	4.690	-4047.705

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	20	-34.038	3952.375	-7.698
			Max. Vx	14	34.967	4.690	-4047.705
			Max. Torque	12			-3.971
L51	23.5 - 18.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-142.297	23.971	12.306
			Max. Mx	20	-85.953	4123.444	-7.799
			Max. My	14	-85.944	4.760	-4223.133
			Max. Vy	20	-34.342	4123.444	-7.799
			Max. Vx	14	35.276	4.760	-4223.133
			Max. Torque	12			-3.971
L52	18.5 - 13.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-147.545	24.631	12.791
			Max. Mx	20	-90.090	4295.994	-7.899
			Max. My	14	-90.083	4.830	-4400.069
			Max. Vy	20	-34.631	4295.994	-7.899
			Max. Vx	14	35.570	4.830	-4400.069
			Max. Torque	12			-3.971
L53	13.5 - 8.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-152.286	25.278	13.264
			Max. Mx	20	-93.882	4469.940	-7.998
			Max. My	14	-93.877	4.899	-4578.426
			Max. Vy	20	-34.903	4469.940	-7.998
			Max. Vx	14	35.847	4.899	-4578.426
			Max. Torque	12			-3.971
L54	8.5 - 3.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-156.968	25.905	13.717
			Max. Mx	20	-97.676	4645.200	-8.095
			Max. My	14	-97.674	4.967	-4758.118
			Max. Vy	20	-35.158	4645.200	-8.095
			Max. Vx	14	36.106	4.967	-4758.118
			Max. Torque	12			-3.971
L55	3.5 - 0	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-160.143	26.320	14.010
			Max. Mx	20	-100.333	4768.618	-8.162
			Max. My	14	-100.333	5.014	-4884.649
			Max. Vy	20	-35.329	4768.618	-8.162
			Max. Vx	14	36.279	5.014	-4884.649
			Max. Torque	12			-3.971

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	160.143	-0.000	-0.000
	Max. H_x	21	75.254	35.312	-0.044
	Max. H_z	2	100.339	0.079	36.186
	Max. M_x	2	4876.362	0.079	36.186
	Max. M_z	8	4751.094	-35.286	-0.039
	Max. Torsion	22	3.511	30.579	17.873
	Min. Vert	15	75.254	-0.021	-36.261
	Min. H_x	9	75.254	-35.287	-0.039
	Min. H_z	14	100.339	-0.021	-36.261
	Min. M_x	14	-4884.649	-0.021	-36.261
	Min. M_z	20	-4768.618	35.311	-0.044
	Min. Torsion	12	-3.971	-17.629	-30.969

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	83.616	-0.000	-0.000	-2.521	5.107	0.000
1.2 Dead+1.6 Wind 0 deg - No Ice	100.339	-0.079	-36.186	-4876.362	18.909	-2.652
0.9 Dead+1.6 Wind 0 deg - No Ice	75.254	-0.079	-36.186	-4838.485	17.186	-2.642
1.2 Dead+1.6 Wind 30 deg - No Ice	100.339	17.694	-30.946	-4179.367	-2378.903	-1.242
0.9 Dead+1.6 Wind 30 deg - No Ice	75.254	17.694	-30.946	-4146.777	-2362.369	-1.236
1.2 Dead+1.6 Wind 60 deg - No Ice	100.339	30.538	-17.712	-2391.684	-4111.088	0.635
0.9 Dead+1.6 Wind 60 deg - No Ice	75.254	30.538	-17.712	-2372.704	-4081.362	0.636
1.2 Dead+1.6 Wind 90 deg - No Ice	100.339	35.286	0.039	1.730	-4751.094	2.393
0.9 Dead+1.6 Wind 90 deg - No Ice	75.254	35.287	0.039	2.496	-4716.526	2.390
1.2 Dead+1.6 Wind 120 deg - No Ice	100.339	30.559	17.958	2428.279	-4112.355	3.628
0.9 Dead+1.6 Wind 120 deg - No Ice	75.254	30.559	17.958	2410.531	-4082.630	3.620
1.2 Dead+1.6 Wind 150 deg - No Ice	100.339	17.629	30.969	4184.807	-2367.275	3.971
0.9 Dead+1.6 Wind 150 deg - No Ice	75.254	17.629	30.969	4153.680	-2350.845	3.961
1.2 Dead+1.6 Wind 180 deg - No Ice	100.339	0.021	36.261	4884.649	5.014	2.983
0.9 Dead+1.6 Wind 180 deg - No Ice	75.254	0.021	36.261	4848.232	3.389	2.974
1.2 Dead+1.6 Wind 210 deg - No Ice	100.339	-17.682	31.040	4191.339	2389.076	1.155
0.9 Dead+1.6 Wind 210 deg - No Ice	75.254	-17.682	31.040	4160.177	2369.316	1.149
1.2 Dead+1.6 Wind 240 deg - No Ice	100.339	-30.524	17.874	2416.718	4120.889	-0.758
0.9 Dead+1.6 Wind 240 deg - No Ice	75.254	-30.524	17.874	2399.050	4087.939	-0.760
1.2 Dead+1.6 Wind 270 deg - No Ice	100.339	-35.311	0.044	8.162	4768.618	-2.281
0.9 Dead+1.6 Wind 270 deg - No Ice	75.254	-35.312	0.044	8.844	4730.758	-2.278
1.2 Dead+1.6 Wind 300 deg - No Ice	100.339	-30.579	-17.873	-2418.120	4128.874	-3.511
0.9 Dead+1.6 Wind 300 deg - No Ice	75.254	-30.579	-17.873	-2398.926	4095.868	-3.504
1.2 Dead+1.6 Wind 330 deg - No Ice	100.339	-17.723	-30.837	-4165.396	2398.052	-3.434
0.9 Dead+1.6 Wind 330 deg - No Ice	75.254	-17.723	-30.837	-4132.907	2378.214	-3.425
1.2 Dead+1.0 Ice+1.0 Temp	160.143	0.000	0.000	-14.010	26.320	-0.001
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	160.143	-0.018	-12.078	-1628.645	29.654	-0.850
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	160.143	5.968	-10.422	-1408.271	-770.992	-0.243
1.2 Dead+1.0 Wind 60 deg+1.0	160.143	10.349	-6.004	-816.661	-1356.797	0.461

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
Ice+1.0 Temp						
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	160.143	12.072	0.008	-13.037	-1589.010	1.053
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	160.143	10.353	6.060	798.671	-1357.064	1.392
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	160.143	5.973	10.465	1388.069	-771.169	1.375
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	160.143	0.004	12.096	1603.840	26.358	0.926
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	160.143	-5.965	10.444	1384.361	823.656	0.219
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	160.143	-10.345	6.042	795.931	1409.370	-0.493
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	160.143	-12.078	0.011	-11.382	1643.461	-1.029
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	160.143	-10.357	-6.040	-823.023	1411.270	-1.364
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	160.143	-5.995	-10.434	-1410.165	828.848	-1.249
Dead+Wind 0 deg - Service	83.616	-0.018	-8.422	-1131.323	8.164	-0.617
Dead+Wind 30 deg - Service	83.616	4.118	-7.202	-969.867	-547.206	-0.289
Dead+Wind 60 deg - Service	83.616	7.108	-4.122	-555.809	-948.402	0.148
Dead+Wind 90 deg - Service	83.616	8.213	0.009	-1.458	-1096.656	0.557
Dead+Wind 120 deg - Service	83.616	7.113	4.180	560.590	-948.748	0.846
Dead+Wind 150 deg - Service	83.616	4.103	7.208	967.401	-544.515	0.926
Dead+Wind 180 deg - Service	83.616	0.005	8.440	1129.520	4.945	0.694
Dead+Wind 210 deg - Service	83.616	-4.115	7.224	968.916	557.133	0.267
Dead+Wind 240 deg - Service	83.616	-7.104	4.160	557.881	958.243	-0.178
Dead+Wind 270 deg - Service	83.616	-8.219	0.010	0.027	1108.285	-0.532
Dead+Wind 300 deg - Service	83.616	-7.117	-4.160	-561.930	960.094	-0.817
Dead+Wind 330 deg - Service	83.616	-4.125	-7.177	-966.680	559.240	-0.799

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.000	-83.616	0.000	0.000	83.616	0.000	0.000%
2	-0.079	-100.339	-36.186	0.079	100.339	36.186	0.000%
3	-0.079	-75.254	-36.186	0.079	75.254	36.186	0.001%
4	17.694	-100.339	-30.946	-17.694	100.339	30.946	0.000%
5	17.694	-75.254	-30.946	-17.694	75.254	30.946	0.000%
6	30.538	-100.339	-17.712	-30.538	100.339	17.712	0.000%
7	30.538	-75.254	-17.712	-30.538	75.254	17.712	0.000%
8	35.287	-100.339	0.039	-35.286	100.339	-0.039	0.001%
9	35.287	-75.254	0.039	-35.287	75.254	-0.039	0.001%
10	30.559	-100.339	17.958	-30.559	100.339	-17.958	0.000%
11	30.559	-75.254	17.958	-30.559	75.254	-17.958	0.000%
12	17.629	-100.339	30.969	-17.629	100.339	-30.969	0.000%
13	17.629	-75.254	30.969	-17.629	75.254	-30.969	0.000%
14	0.021	-100.339	36.261	-0.021	100.339	-36.261	0.000%
15	0.021	-75.254	36.261	-0.021	75.254	-36.261	0.001%
16	-17.682	-100.339	31.040	17.682	100.339	-31.040	0.000%
17	-17.682	-75.254	31.040	17.682	75.254	-31.040	0.000%
18	-30.524	-100.339	17.874	30.524	100.339	-17.874	0.000%
19	-30.524	-75.254	17.874	30.524	75.254	-17.874	0.000%
20	-35.312	-100.339	0.044	35.311	100.339	-0.044	0.001%
21	-35.312	-75.254	0.044	35.312	75.254	-0.044	0.001%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
22	-30.579	-100.339	-17.873	30.579	100.339	17.873	0.000%
23	-30.579	-75.254	-17.873	30.579	75.254	17.873	0.000%
24	-17.723	-100.339	-30.837	17.723	100.339	30.837	0.000%
25	-17.723	-75.254	-30.837	17.723	75.254	30.837	0.000%
26	0.000	-160.143	0.000	-0.000	160.143	-0.000	0.000%
27	-0.018	-160.143	-12.078	0.018	160.143	12.078	0.000%
28	5.968	-160.143	-10.422	-5.968	160.143	10.422	0.000%
29	10.349	-160.143	-6.004	-10.349	160.143	6.004	0.000%
30	12.072	-160.143	0.008	-12.072	160.143	-0.008	0.000%
31	10.353	-160.143	6.060	-10.353	160.143	-6.060	0.000%
32	5.973	-160.143	10.465	-5.973	160.143	-10.465	0.000%
33	0.004	-160.143	12.096	-0.004	160.143	-12.096	0.000%
34	-5.965	-160.143	10.444	5.965	160.143	-10.444	0.000%
35	-10.345	-160.143	6.042	10.345	160.143	-6.042	0.000%
36	-12.078	-160.143	0.011	12.078	160.143	-0.011	0.000%
37	-10.357	-160.143	-6.040	10.357	160.143	6.040	0.000%
38	-5.995	-160.143	-10.434	5.995	160.143	10.434	0.000%
39	-0.018	-83.616	-8.423	0.018	83.616	8.422	0.001%
40	4.119	-83.616	-7.203	-4.118	83.616	7.202	0.001%
41	7.108	-83.616	-4.123	-7.108	83.616	4.122	0.001%
42	8.213	-83.616	0.009	-8.213	83.616	-0.009	0.001%
43	7.113	-83.616	4.180	-7.113	83.616	-4.180	0.000%
44	4.103	-83.616	7.208	-4.103	83.616	-7.208	0.001%
45	0.005	-83.616	8.440	-0.005	83.616	-8.440	0.001%
46	-4.116	-83.616	7.225	4.115	83.616	-7.224	0.001%
47	-7.105	-83.616	4.160	7.104	83.616	-4.160	0.001%
48	-8.219	-83.616	0.010	8.219	83.616	-0.010	0.001%
49	-7.118	-83.616	-4.160	7.117	83.616	4.160	0.001%
50	-4.125	-83.616	-7.178	4.125	83.616	7.177	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	6	0.00000001	0.00000001
2	Yes	17	0.00000001	0.00006793
3	Yes	16	0.00000001	0.00012661
4	Yes	19	0.00000001	0.00009320
5	Yes	19	0.00000001	0.00007527
6	Yes	19	0.00000001	0.00009259
7	Yes	19	0.00000001	0.00007486
8	Yes	16	0.00000001	0.00013270
9	Yes	16	0.00000001	0.00010699
10	Yes	19	0.00000001	0.00010193
11	Yes	19	0.00000001	0.00008271
12	Yes	19	0.00000001	0.00008898
13	Yes	19	0.00000001	0.00007178
14	Yes	17	0.00000001	0.00007121
15	Yes	16	0.00000001	0.00013360
16	Yes	19	0.00000001	0.00009855
17	Yes	19	0.00000001	0.00007962
18	Yes	19	0.00000001	0.00009658
19	Yes	19	0.00000001	0.00007811
20	Yes	16	0.00000001	0.00013267
21	Yes	16	0.00000001	0.00010671
22	Yes	19	0.00000001	0.00009045

23	Yes	19	0.00000001	0.00007287
24	Yes	19	0.00000001	0.00010231
25	Yes	19	0.00000001	0.00008281
26	Yes	14	0.00000001	0.00008240
27	Yes	19	0.00000001	0.00008221
28	Yes	19	0.00000001	0.00008529
29	Yes	19	0.00000001	0.00008434
30	Yes	19	0.00000001	0.00008002
31	Yes	19	0.00000001	0.00008391
32	Yes	19	0.00000001	0.00008434
33	Yes	19	0.00000001	0.00008100
34	Yes	19	0.00000001	0.00008639
35	Yes	19	0.00000001	0.00008669
36	Yes	19	0.00000001	0.00008325
37	Yes	19	0.00000001	0.00008762
38	Yes	19	0.00000001	0.00008789
39	Yes	14	0.00000001	0.00008407
40	Yes	14	0.00000001	0.00013699
41	Yes	14	0.00000001	0.00013723
42	Yes	14	0.00000001	0.00007943
43	Yes	15	0.00000001	0.00007423
44	Yes	14	0.00000001	0.00013479
45	Yes	14	0.00000001	0.00008584
46	Yes	14	0.00000001	0.00014811
47	Yes	14	0.00000001	0.00014453
48	Yes	14	0.00000001	0.00007997
49	Yes	14	0.00000001	0.00013774
50	Yes	15	0.00000001	0.00007526

Maximum Tower Deflections - Service Wind

Section No.	*Elevation* *ft*	*Horz. Deflection* *in*	*Gov. Load Comb.*	*Tilt* °	*Twist* °
L1	190 - 185	13.101	39	0.565	0.002
L2	185 - 180	12.510	39	0.565	0.002
L3	180 - 175	11.919	39	0.562	0.002
L4	175 - 170	11.332	39	0.560	0.002
L5	170 - 165	10.748	39	0.555	0.001
L6	165 - 160	10.170	39	0.548	0.001
L7	160 - 155	9.600	39	0.539	0.001
L8	155 - 150	9.040	39	0.531	0.001
L9	150 - 145	8.489	39	0.520	0.001
L10	145 - 140	7.951	39	0.507	0.001
L11	140 - 135	7.429	39	0.490	0.001
L12	135 - 130	6.923	39	0.476	0.001
L13	130 - 125	6.432	39	0.460	0.001
L14	125 - 120	5.960	39	0.441	0.001
L15	120 - 115	5.509	39	0.420	0.001
L16	115 - 112.666	5.077	39	0.404	0.001
L17	112.666 - 112.416	4.882	39	0.395	0.001
L18	112.416 - 107.416	4.861	39	0.395	0.001
L19	107.416 - 102.416	4.456	39	0.379	0.001
L20	102.416 - 101.333	4.067	39	0.363	0.001
L21	101.333 - 101.083	3.985	39	0.359	0.001
L22	101.083 - 100	3.966	39	0.358	0.001
L23	100 - 95	3.885	39	0.354	0.001
L24	95 - 90	3.522	39	0.340	0.001
L25	90 - 89.5	3.173	39	0.325	0.001
L26	89.5 - 89.25	3.139	39	0.323	0.001

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L27	89.25 - 85.5	3.122	39	0.323	0.001
L28	85.5 - 85.25	2.873	39	0.312	0.000
L29	85.25 - 84	2.857	39	0.311	0.000
L30	84 - 83.75	2.776	39	0.308	0.000
L31	83.75 - 82.5	2.760	39	0.307	0.000
L32	82.5 - 82.25	2.680	39	0.303	0.000
L33	82.25 - 80	2.664	39	0.303	0.000
L34	80 - 75	2.523	39	0.294	0.000
L35	75 - 70	2.223	39	0.278	0.000
L36	70 - 65	1.941	39	0.261	0.000
L37	65 - 60	1.676	39	0.244	0.000
L38	60 - 58.5	1.431	39	0.225	0.000
L39	58.5 - 58.25	1.361	39	0.220	0.000
L40	58.25 - 53.25	1.350	39	0.219	0.000
L41	53.25 - 48.25	1.131	39	0.200	0.000
L42	48.25 - 48	0.932	39	0.180	0.000
L43	48 - 43	0.923	39	0.179	0.000
L44	43 - 40	0.744	39	0.162	0.000
L45	40 - 35	0.646	39	0.151	0.000
L46	35 - 32.083	0.497	39	0.133	0.000
L47	32.083 - 31.833	0.420	39	0.121	0.000
L48	31.833 - 28.75	0.413	39	0.121	0.000
L49	28.75 - 28.5	0.339	39	0.111	0.000
L50	28.5 - 23.5	0.333	39	0.110	0.000
L51	23.5 - 18.5	0.228	39	0.090	0.000
L52	18.5 - 13.5	0.143	39	0.072	0.000
L53	13.5 - 8.5	0.077	39	0.054	0.000
L54	8.5 - 3.5	0.031	39	0.034	0.000
L55	3.5 - 0	0.005	39	0.014	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
188.000	PD201-7	39	12.865	0.565	0.002	201341
187.000	SP2-5.8	39	12.746	0.565	0.002	201341
185.000	TME-800MHz RRH	39	12.510	0.565	0.002	201341
184.000	Side Arm Mount [SO 701-1]	39	12.391	0.564	0.002	170423
179.000	458-2D	39	11.802	0.562	0.002	103844
170.000	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	39	10.748	0.555	0.001	52205
160.000	(2) 7770.00 w/ Mount Pipe	39	9.600	0.539	0.001	32505
150.000	(2) DB846F65ZAXY w/ Mount Pipe	39	8.489	0.520	0.001	23970
125.000	PD128-1	39	5.960	0.441	0.001	14412
110.000	PD128-1	39	4.663	0.387	0.001	18478
100.000	GPS_A	39	3.885	0.354	0.001	18208
95.000	PD128-1	39	3.522	0.340	0.001	19534
80.000	DB222	39	2.523	0.294	0.000	17003

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	190 - 185	56.666	14	2.446	0.007
L2	185 - 180	54.105	14	2.444	0.007
L3	180 - 175	51.551	14	2.434	0.007
L4	175 - 170	49.009	14	2.422	0.006
L5	170 - 165	46.483	14	2.403	0.006
L6	165 - 160	43.981	14	2.374	0.006
L7	160 - 155	41.516	14	2.333	0.006
L8	155 - 150	39.091	14	2.298	0.006
L9	150 - 145	36.709	14	2.252	0.005
L10	145 - 140	34.380	14	2.194	0.005
L11	140 - 135	32.121	14	2.120	0.005
L12	135 - 130	29.932	14	2.061	0.004
L13	130 - 125	27.810	14	1.991	0.004
L14	125 - 120	25.767	14	1.910	0.004
L15	120 - 115	23.814	14	1.818	0.003
L16	115 - 112.666	21.948	14	1.746	0.003
L17	112.666 - 112.416	21.103	14	1.710	0.003
L18	112.416 - 107.416	21.014	14	1.707	0.003
L19	107.416 - 102.416	19.260	14	1.641	0.003
L20	102.416 - 101.333	17.579	14	1.569	0.003
L21	101.333 - 101.083	17.225	14	1.553	0.003
L22	101.083 - 100	17.144	14	1.549	0.003
L23	100 - 95	16.794	14	1.532	0.003
L24	95 - 90	15.221	14	1.471	0.002
L25	90 - 89.5	13.715	14	1.405	0.002
L26	89.5 - 89.25	13.568	14	1.398	0.002
L27	89.25 - 85.5	13.495	14	1.395	0.002
L28	85.5 - 85.25	12.417	14	1.350	0.002
L29	85.25 - 84	12.346	14	1.347	0.002
L30	84 - 83.75	11.995	14	1.333	0.002
L31	83.75 - 82.5	11.926	14	1.329	0.002
L32	82.5 - 82.25	11.580	14	1.312	0.002
L33	82.25 - 80	11.511	14	1.308	0.002
L34	80 - 75	10.904	14	1.271	0.002
L35	75 - 70	9.608	14	1.203	0.002
L36	70 - 65	8.386	14	1.130	0.002
L37	65 - 60	7.243	14	1.053	0.001
L38	60 - 58.5	6.183	14	0.970	0.001
L39	58.5 - 58.25	5.882	14	0.949	0.001
L40	58.25 - 53.25	5.832	14	0.945	0.001
L41	53.25 - 48.25	4.885	14	0.863	0.001
L42	48.25 - 48	4.026	14	0.777	0.001
L43	48 - 43	3.985	14	0.773	0.001
L44	43 - 40	3.214	14	0.699	0.001
L45	40 - 35	2.789	14	0.653	0.001
L46	35 - 32.083	2.147	14	0.573	0.001
L47	32.083 - 31.833	1.812	14	0.524	0.001
L48	31.833 - 28.75	1.785	14	0.521	0.001
L49	28.75 - 28.5	1.462	14	0.478	0.001
L50	28.5 - 23.5	1.437	14	0.474	0.001
L51	23.5 - 18.5	0.986	14	0.388	0.000
L52	18.5 - 13.5	0.619	14	0.312	0.000
L53	13.5 - 8.5	0.334	14	0.232	0.000
L54	8.5 - 3.5	0.134	14	0.149	0.000
L55	3.5 - 0	0.023	14	0.062	0.000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
188.000	PD201-7	14	55.641	2.446	0.007	47787
187.000	SP2-5.8	14	55.129	2.446	0.007	47787
185.000	TME-800MHz RRH	14	54.105	2.444	0.007	47787
184.000	Side Arm Mount [SO 701-1]	14	53.594	2.443	0.007	40335
179.000	458-2D	14	51.042	2.432	0.006	24051
170.000	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	14	46.483	2.403	0.006	12068
160.000	(2) 7770.00 w/ Mount Pipe	14	41.516	2.333	0.006	7535
150.000	(2) DB846F65ZAXY w/ Mount Pipe	14	36.709	2.252	0.005	5546
125.000	PD128-1	14	25.767	1.910	0.004	3333
110.000	PD128-1	14	20.158	1.676	0.003	4274
100.000	GPS_A	14	16.794	1.532	0.003	4211
95.000	PD128-1	14	15.221	1.471	0.002	4517
80.000	DB222	14	10.904	1.271	0.002	3931

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	190 - 185 (1)	P30x0.375	5.000	0.000	0.0	34.901	-3.308	1311.060	0.003
L2	185 - 180 (2)	P30x0.375	5.000	0.000	0.0	34.901	-4.517	1311.060	0.003
L3	180 - 175 (3)	P36x0.375	5.000	0.000	0.0	41.970	-7.445	1490.100	0.005
L4	175 - 170 (4)	P36x0.375	5.000	0.000	0.0	41.970	-8.311	1490.100	0.006
L5	170 - 165 (5)	P36x0.375	5.000	0.000	0.0	41.970	-12.545	1490.100	0.008
L6	165 - 160 (6)	P36x0.375	5.000	0.000	0.0	41.970	-13.486	1490.100	0.009
L7	160 - 155 (7)	P42x0.375	5.000	0.000	0.0	49.038	-17.734	1668.870	0.011
L8	155 - 150 (8)	P42x0.375	5.000	0.000	0.0	49.038	-18.891	1668.870	0.011
L9	150 - 145 (9)	P42x0.375	5.000	0.000	0.0	49.038	-23.454	1668.870	0.014
L10	145 - 140 (10)	P42x0.375	5.000	0.000	0.0	49.038	-24.698	1668.870	0.015
L11	140 - 135 (11)	P48x0.375	5.000	0.000	0.0	56.107	-26.082	1847.490	0.014
L12	135 - 130 (12)	P48x0.375	5.000	0.000	0.0	56.107	-27.470	1847.490	0.015
L13	130 - 125 (13)	P48x0.375	5.000	0.000	0.0	56.107	-28.865	1847.490	0.016
L14	125 - 120 (14)	P48x0.375	5.000	0.000	0.0	56.107	-30.439	1847.490	0.016
L15	120 - 115 (15)	P54x0.375	5.000	0.000	0.0	63.175	-31.980	2026.000	0.016
L16	115 - 112.666 (16)	P54x0.375	2.334	0.000	0.0	63.175	-32.701	2026.000	0.016
L17	112.666 - 112.416 (17)	P54x0.4875	0.250	0.000	0.0	81.956	-32.799	2797.170	0.012
L18	112.416 - 107.416 (18)	P54x0.4875	5.000	0.000	0.0	81.956	-34.886	2797.170	0.012
L19	107.416 - 102.416 (19)	P54x0.4875	5.000	0.000	0.0	81.956	-36.800	2797.170	0.013
L20	102.416 - 101.333 (20)	P54x0.4875	1.083	0.000	0.0	81.956	-37.215	2797.170	0.013
L21	101.333 - 101.083 (21)	P54x0.4875	0.250	0.000	0.0	81.956	-37.313	2797.170	0.013
L22	101.083 - 100 (22)	P54x0.4875	1.083	0.000	0.0	81.956	-37.726	2797.170	0.013
L23	100 - 95 (23)	P60x0.475	5.000	0.000	0.0	88.827	-39.859	2934.040	0.014
L24	95 - 90 (24)	P60x0.475	5.000	0.000	0.0	88.827	-42.103	2934.040	0.014

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L25	90 - 89.5 (25)	P60x0.475	0.500	0.000	0.0	88.827	-42.311	2934.040	0.014
L26	89.5 - 89.25 (26)	P60x0.55625	0.250	0.000	0.0	103.879	-42.428	3570.370	0.012
L27	89.25 - 85.5 (27)	P60x0.55625	3.750	0.000	0.0	103.879	-44.191	3570.370	0.012
L28	85.5 - 85.25 (28)	P60x0.6375	0.250	0.000	0.0	118.889	-44.338	4245.550	0.010
L29	85.25 - 84 (29)	P60x0.6375	1.250	0.000	0.0	118.889	-45.056	4245.550	0.011
L30	84 - 83.75 (30)	P60x0.525	0.250	0.000	0.0	98.094	-45.185	3321.020	0.014
L31	83.75 - 82.5 (31)	P60x0.525	1.250	0.000	0.0	98.094	-45.813	3321.020	0.014
L32	82.5 - 82.25 (32)	P60x0.45	0.250	0.000	0.0	84.187	-45.929	2746.080	0.017
L33	82.25 - 80 (33)	P60x0.45	2.250	0.000	0.0	84.187	-46.940	2746.080	0.017
L34	80 - 75 (34)	P60x0.575	5.000	0.000	0.0	107.346	-49.812	3722.740	0.013
L35	75 - 70 (35)	P60x0.575	5.000	0.000	0.0	107.346	-52.267	3722.740	0.014
L36	70 - 65 (36)	P60x0.575	5.000	0.000	0.0	107.346	-54.776	3722.740	0.015
L37	65 - 60 (37)	P60x0.575	5.000	0.000	0.0	107.346	-57.736	3722.740	0.016
L38	60 - 58.5 (38)	P60x0.7	1.500	0.000	0.0	130.408	-58.763	4791.240	0.012
L39	58.5 - 58.25 (39)	P60x0.625	0.250	0.000	0.0	116.583	-58.926	4139.150	0.014
L40	58.25 - 53.25 (40)	P60x0.625	5.000	0.000	0.0	116.583	-61.858	4139.150	0.015
L41	53.25 - 48.25 (41)	P60x0.625	5.000	0.000	0.0	116.583	-64.523	4139.150	0.016
L42	48.25 - 48 (42)	P60x0.775	0.250	0.000	0.0	144.197	-64.685	5450.650	0.012
L43	48 - 43 (43)	P60x0.775	5.000	0.000	0.0	144.197	-68.005	5450.650	0.012
L44	43 - 40 (44)	P60x0.775	3.000	0.000	0.0	144.197	-70.121	5450.650	0.013
L45	40 - 35 (45)	P60x0.775	5.000	0.000	0.0	144.197	-73.634	5450.650	0.014
L46	35 - 32.083 (46)	P60x0.775	2.917	0.000	0.0	144.197	-75.478	5450.650	0.014
L47	32.083 - 31.833 (47)	P60x0.9625	0.250	0.000	0.0	178.517	-75.675	6747.930	0.011
L48	31.833 - 28.75 (48)	P60x0.9625	3.083	0.000	0.0	178.517	-78.021	6747.930	0.012
L49	28.75 - 28.5 (49)	P60x0.8125	0.250	0.000	0.0	151.079	-78.190	5710.780	0.014
L50	28.5 - 23.5 (50)	P60x0.8125	5.000	0.000	0.0	151.079	-81.658	5710.780	0.014
L51	23.5 - 18.5 (51)	P60x0.95	5.000	0.000	0.0	176.235	-85.944	6661.700	0.013
L52	18.5 - 13.5 (52)	P60x0.95	5.000	0.000	0.0	176.235	-90.083	6661.700	0.014
L53	13.5 - 8.5 (53)	P60x0.95	5.000	0.000	0.0	176.235	-93.877	6661.700	0.014
L54	8.5 - 3.5 (54)	P60x0.95	5.000	0.000	0.0	176.235	-97.674	6661.700	0.015
L55	3.5 - 0 (55)	P60x0.95	3.500	0.000	0.0	176.235	-100.333	6661.700	0.015

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	190 - 185 (1)	P30x0.375	14.880	947.858	0.016	0.000	947.858	0.000
L2	185 - 180 (2)	P30x0.375	38.871	947.858	0.041	0.000	947.858	0.000
L3	180 - 175 (3)	P36x0.375	72.875	1338.808	0.054	0.000	1338.808	0.000
L4	175 - 170 (4)	P36x0.375	108.767	1338.808	0.081	0.000	1338.808	0.000
L5	170 - 165 (5)	P36x0.375	162.346	1338.808	0.121	0.000	1338.808	0.000
L6	165 - 160 (6)	P36x0.375	218.166	1338.808	0.163	0.000	1338.808	0.000
L7	160 - 155 (7)	P42x0.375	302.654	1796.558	0.168	0.000	1796.558	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L8	155 - 150 (8)	P42x0.375	381.526	1796.558	0.212	0.000	1796.558	0.000
L9	150 - 145 (9)	P42x0.375	492.862	1796.558	0.274	0.000	1796.558	0.000
L10	145 - 140 (10)	P42x0.375	606.384	1796.558	0.338	0.000	1796.558	0.000
L11	140 - 135 (11)	P48x0.375	722.473	2321.108	0.311	0.000	2321.108	0.000
L12	135 - 130 (12)	P48x0.375	841.225	2321.108	0.362	0.000	2321.108	0.000
L13	130 - 125 (13)	P48x0.375	962.567	2321.108	0.415	0.000	2321.108	0.000
L14	125 - 120 (14)	P48x0.375	1087.917	2321.108	0.469	0.000	2321.108	0.000
L15	120 - 115 (15)	P54x0.375	1215.292	2912.458	0.417	0.000	2912.458	0.000
L16	115 - 112.666 (16)	P54x0.375	1275.675	2912.458	0.438	0.000	2912.458	0.000
L17	112.666 - 112.416 (17)	P54x0.4875	1282.175	3864.467	0.332	0.000	3864.467	0.000
L18	112.416 - 107.416 (18)	P54x0.4875	1414.892	3864.467	0.366	0.000	3864.467	0.000
L19	107.416 - 102.416 (19)	P54x0.4875	1550.100	3864.467	0.401	0.000	3864.467	0.000
L20	102.416 - 101.333 (20)	P54x0.4875	1579.733	3864.467	0.409	0.000	3864.467	0.000
L21	101.333 - 101.083 (21)	P54x0.4875	1586.592	3864.467	0.411	0.000	3864.467	0.000
L22	101.083 - 100 (22)	P54x0.4875	1616.383	3864.467	0.418	0.000	3864.467	0.000
L23	100 - 95 (23)	P60x0.475	1755.992	4598.575	0.382	0.000	4598.575	0.000
L24	95 - 90 (24)	P60x0.475	1899.408	4598.575	0.413	0.000	4598.575	0.000
L25	90 - 89.5 (25)	P60x0.475	1913.867	4598.575	0.416	0.000	4598.575	0.000
L26	89.5 - 89.25 (26)	P60x0.55625	1921.117	5456.533	0.352	0.000	5456.533	0.000
L27	89.25 - 85.5 (27)	P60x0.55625	2030.592	5456.533	0.372	0.000	5456.533	0.000
L28	85.5 - 85.25 (28)	P60x0.6375	2037.942	6334.558	0.322	0.000	6334.558	0.000
L29	85.25 - 84 (29)	P60x0.6375	2074.825	6334.558	0.328	0.000	6334.558	0.000
L30	84 - 83.75 (30)	P60x0.525	2082.217	5124.158	0.406	0.000	5124.158	0.000
L31	83.75 - 82.5 (31)	P60x0.525	2119.308	5124.158	0.414	0.000	5124.158	0.000
L32	82.5 - 82.25 (32)	P60x0.45	2126.742	4338.667	0.490	0.000	4338.667	0.000
L33	82.25 - 80 (33)	P60x0.45	2193.967	4338.667	0.506	0.000	4338.667	0.000
L34	80 - 75 (34)	P60x0.575	2347.608	5657.383	0.415	0.000	5657.383	0.000
L35	75 - 70 (35)	P60x0.575	2502.675	5657.383	0.442	0.000	5657.383	0.000
L36	70 - 65 (36)	P60x0.575	2660.125	5657.383	0.470	0.000	5657.383	0.000
L37	65 - 60 (37)	P60x0.575	2819.892	5657.383	0.498	0.000	5657.383	0.000
L38	60 - 58.5 (38)	P60x0.7	2868.267	7023.433	0.408	0.000	7023.433	0.000
L39	58.5 - 58.25 (39)	P60x0.625	2876.350	6198.183	0.464	0.000	6198.183	0.000
L40	58.25 - 53.25 (40)	P60x0.625	3039.108	6198.183	0.490	0.000	6198.183	0.000
L41	53.25 - 48.25 (41)	P60x0.625	3203.925	6198.183	0.517	0.000	6198.183	0.000
L42	48.25 - 48 (42)	P60x0.775	3212.217	7865.350	0.408	0.000	7865.350	0.000
L43	48 - 43 (43)	P60x0.775	3379.142	7865.350	0.430	0.000	7865.350	0.000
L44	43 - 40 (44)	P60x0.775	3480.250	7865.350	0.442	0.000	7865.350	0.000
L45	40 - 35 (45)	P60x0.775	3650.233	7865.350	0.464	0.000	7865.350	0.000
L46	35 - 32.083 (46)	P60x0.775	3750.217	7865.350	0.477	0.000	7865.350	0.000
L47	32.083 - 31.833 (47)	P60x0.9625	3758.808	10041.583	0.374	0.000	10041.583	0.000
L48	31.833 - 28.75 (48)	P60x0.9625	3865.175	10041.583	0.385	0.000	10041.583	0.000
L49	28.75 - 28.5	P60x0.8125	3873.825	8292.483	0.467	0.000	8292.483	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
	(49)							
L50	28.5 - 23.5 (50)	P60x0.8125	4047.708	8292.483	0.488	0.000	8292.483	0.000
L51	23.5 - 18.5 (51)	P60x0.95	4223.133	9893.333	0.427	0.000	9893.333	0.000
L52	18.5 - 13.5 (52)	P60x0.95	4400.075	9893.333	0.445	0.000	9893.333	0.000
L53	13.5 - 8.5 (53)	P60x0.95	4578.425	9893.333	0.463	0.000	9893.333	0.000
L54	8.5 - 3.5 (54)	P60x0.95	4758.117	9893.333	0.481	0.000	9893.333	0.000
L55	3.5 - 0 (55)	P60x0.95	4884.650	9893.333	0.494	0.000	9893.333	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	190 - 185 (1)	P30x0.375	3.547	655.528	0.005	0.002	1598.367	0.000
L2	185 - 180 (2)	P30x0.375	4.703	655.528	0.007	0.412	1598.367	0.000
L3	180 - 175 (3)	P36x0.375	6.972	745.048	0.009	0.411	2189.067	0.000
L4	175 - 170 (4)	P36x0.375	7.391	745.048	0.010	0.411	2189.067	0.000
L5	170 - 165 (5)	P36x0.375	10.973	745.048	0.015	0.578	2189.067	0.000
L6	165 - 160 (6)	P36x0.375	11.381	745.048	0.015	0.578	2189.067	0.000
L7	160 - 155 (7)	P42x0.375	15.534	834.437	0.019	0.722	2868.842	0.000
L8	155 - 150 (8)	P42x0.375	16.053	834.437	0.019	0.722	2868.842	0.000
L9	150 - 145 (9)	P42x0.375	22.478	834.437	0.027	2.234	2868.842	0.001
L10	145 - 140 (10)	P42x0.375	22.972	834.437	0.028	2.234	2868.842	0.001
L11	140 - 135 (11)	P48x0.375	23.510	923.745	0.025	2.233	3637.700	0.001
L12	135 - 130 (12)	P48x0.375	24.036	923.745	0.026	2.233	3637.700	0.001
L13	130 - 125 (13)	P48x0.375	24.548	923.745	0.027	2.233	3637.700	0.001
L14	125 - 120 (14)	P48x0.375	25.232	923.745	0.027	2.354	3637.700	0.001
L15	120 - 115 (15)	P54x0.375	25.772	1013.000	0.025	2.354	4495.625	0.001
L16	115 - 112.666 (16)	P54x0.375	26.023	1013.000	0.026	2.354	4495.625	0.001
L17	112.666 - 112.416 (17)	P54x0.4875	26.052	1398.580	0.019	2.354	6181.017	0.000
L18	112.416 - 107.416 (18)	P54x0.4875	26.800	1398.580	0.019	2.354	6181.017	0.000
L19	107.416 - 102.416 (19)	P54x0.4875	27.336	1398.580	0.020	2.354	6181.017	0.000
L20	102.416 - 101.333 (20)	P54x0.4875	27.450	1398.580	0.020	2.354	6181.017	0.000
L21	101.333 - 101.083 (21)	P54x0.4875	27.477	1398.580	0.020	2.354	6181.017	0.000
L22	101.083 - 100 (22)	P54x0.4875	27.588	1398.580	0.020	2.354	6181.017	0.000
L23	100 - 95 (23)	P60x0.475	28.212	1467.020	0.019	2.192	7219.875	0.000
L24	95 - 90 (24)	P60x0.475	28.932	1467.020	0.020	2.566	7219.875	0.000
L25	90 - 89.5 (25)	P60x0.475	28.986	1467.020	0.020	2.566	7219.875	0.000
L26	89.5 - 89.25 (26)	P60x0.55625	29.018	1785.190	0.016	2.566	8762.000	0.000
L27	89.25 - 85.5 (27)	P60x0.55625	29.434	1785.190	0.016	2.566	8762.000	0.000
L28	85.5 - 85.25 (28)	P60x0.6375	29.464	2122.770	0.014	2.566	10390.750	0.000
L29	85.25 - 84 (29)	P60x0.6375	29.604	2122.770	0.014	2.566	10390.750	0.000
L30	84 - 83.75 (30)	P60x0.525	29.635	1660.510	0.018	2.565	8158.533	0.000
L31	83.75 - 82.5 (31)	P60x0.525	29.770	1660.510	0.018	2.565	8158.533	0.000
L32	82.5 - 82.25	P60x0.45	29.798	1373.040	0.022	2.565	6763.000	0.000

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
	(32)							
L33	82.25 - 80 (33)	P60x0.45	30.027	1373.040	0.022	2.565	6763.000	0.000
L34	80 - 75 (34)	P60x0.575	30.799	1861.370	0.017	2.985	9130.167	0.000
L35	75 - 70 (35)	P60x0.575	31.288	1861.370	0.017	2.984	9130.167	0.000
L36	70 - 65 (36)	P60x0.575	31.758	1861.370	0.017	2.984	9130.167	0.000
L37	65 - 60 (37)	P60x0.575	32.213	1861.370	0.017	2.984	9130.167	0.000
L38	60 - 58.5 (38)	P60x0.7	32.353	2395.620	0.014	2.984	11701.916	0.000
L39	58.5 - 58.25 (39)	P60x0.625	32.373	2069.580	0.016	2.984	10134.583	0.000
L40	58.25 - 53.25 (40)	P60x0.625	32.798	2069.580	0.016	2.984	10134.583	0.000
L41	53.25 - 48.25 (41)	P60x0.625	33.197	2069.580	0.016	2.984	10134.583	0.000
L42	48.25 - 48 (42)	P60x0.775	33.215	2725.330	0.012	2.984	13279.167	0.000
L43	48 - 43 (43)	P60x0.775	33.620	2725.330	0.012	2.984	13279.167	0.000
L44	43 - 40 (44)	P60x0.775	33.850	2725.330	0.012	2.984	13279.167	0.000
L45	40 - 35 (45)	P60x0.775	34.212	2725.330	0.013	2.984	13279.167	0.000
L46	35 - 32.083 (46)	P60x0.775	34.416	2725.330	0.013	2.983	13279.167	0.000
L47	32.083 - 31.833 (47)	P60x0.9625	34.424	3373.960	0.010	2.983	16337.249	0.000
L48	31.833 - 28.75 (48)	P60x0.9625	34.641	3373.960	0.010	2.983	16337.249	0.000
L49	28.75 - 28.5 (49)	P60x0.8125	34.654	2855.390	0.012	2.983	13895.500	0.000
L50	28.5 - 23.5 (50)	P60x0.8125	34.967	2855.390	0.012	2.983	13895.500	0.000
L51	23.5 - 18.5 (51)	P60x0.95	35.276	3330.850	0.011	2.983	16135.249	0.000
L52	18.5 - 13.5 (52)	P60x0.95	35.570	3330.850	0.011	2.983	16135.249	0.000
L53	13.5 - 8.5 (53)	P60x0.95	35.847	3330.850	0.011	2.983	16135.249	0.000
L54	8.5 - 3.5 (54)	P60x0.95	36.106	3330.850	0.011	2.983	16135.249	0.000
L55	3.5 - 0 (55)	P60x0.95	36.279	3330.850	0.011	2.983	16135.249	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	190 - 185 (1)	0.003	0.016	0.000	0.005	0.000	0.018 ✔	1.000	4.8.2 ✔
L2	185 - 180 (2)	0.003	0.041	0.000	0.007	0.000	0.045 ✔	1.000	4.8.2 ✔
L3	180 - 175 (3)	0.005	0.054	0.000	0.009	0.000	0.060 ✔	1.000	4.8.2 ✔
L4	175 - 170 (4)	0.006	0.081	0.000	0.010	0.000	0.087 ✔	1.000	4.8.2 ✔
L5	170 - 165 (5)	0.008	0.121	0.000	0.015	0.000	0.130 ✔	1.000	4.8.2 ✔
L6	165 - 160 (6)	0.009	0.163	0.000	0.015	0.000	0.172 ✔	1.000	4.8.2 ✔
L7	160 - 155 (7)	0.011	0.168	0.000	0.019	0.000	0.179 ✔	1.000	4.8.2 ✔
L8	155 - 150 (8)	0.011	0.212	0.000	0.019	0.000	0.224	1.000	4.8.2 ✔

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L9	150 - 145 (9)	0.014	0.274	0.000	0.027	0.001	0.289	1.000	4.8.2
L10	145 - 140 (10)	0.015	0.338	0.000	0.028	0.001	0.353	1.000	4.8.2
L11	140 - 135 (11)	0.014	0.311	0.000	0.025	0.001	0.326	1.000	4.8.2
L12	135 - 130 (12)	0.015	0.362	0.000	0.026	0.001	0.378	1.000	4.8.2
L13	130 - 125 (13)	0.016	0.415	0.000	0.027	0.001	0.431	1.000	4.8.2
L14	125 - 120 (14)	0.016	0.469	0.000	0.027	0.001	0.486	1.000	4.8.2
L15	120 - 115 (15)	0.016	0.417	0.000	0.025	0.001	0.434	1.000	4.8.2
L16	115 - 112.666 (16)	0.016	0.438	0.000	0.026	0.001	0.455	1.000	4.8.2
L17	112.666 - 112.416 (17)	0.012	0.332	0.000	0.019	0.000	0.344	1.000	4.8.2
L18	112.416 - 107.416 (18)	0.012	0.366	0.000	0.019	0.000	0.379	1.000	4.8.2
L19	107.416 - 102.416 (19)	0.013	0.401	0.000	0.020	0.000	0.415	1.000	4.8.2
L20	102.416 - 101.333 (20)	0.013	0.409	0.000	0.020	0.000	0.422	1.000	4.8.2
L21	101.333 - 101.083 (21)	0.013	0.411	0.000	0.020	0.000	0.424	1.000	4.8.2
L22	101.083 - 100 (22)	0.013	0.418	0.000	0.020	0.000	0.432	1.000	4.8.2
L23	100 - 95 (23)	0.014	0.382	0.000	0.019	0.000	0.396	1.000	4.8.2
L24	95 - 90 (24)	0.014	0.413	0.000	0.020	0.000	0.428	1.000	4.8.2
L25	90 - 89.5 (25)	0.014	0.416	0.000	0.020	0.000	0.431	1.000	4.8.2
L26	89.5 - 89.25 (26)	0.012	0.352	0.000	0.016	0.000	0.364	1.000	4.8.2
L27	89.25 - 85.5 (27)	0.012	0.372	0.000	0.016	0.000	0.385	1.000	4.8.2
L28	85.5 - 85.25 (28)	0.010	0.322	0.000	0.014	0.000	0.332	1.000	4.8.2
L29	85.25 - 84 (29)	0.011	0.328	0.000	0.014	0.000	0.338	1.000	4.8.2
L30	84 - 83.75 (30)	0.014	0.406	0.000	0.018	0.000	0.420	1.000	4.8.2
L31	83.75 - 82.5 (31)	0.014	0.414	0.000	0.018	0.000	0.428	1.000	4.8.2
L32	82.5 - 82.25 (32)	0.017	0.490	0.000	0.022	0.000	0.507	1.000	4.8.2
L33	82.25 - 80 (33)	0.017	0.506	0.000	0.022	0.000	0.523	1.000	4.8.2
L34	80 - 75 (34)	0.013	0.415	0.000	0.017	0.000	0.429	1.000	4.8.2

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L35	75 - 70 (35)	0.014	0.442	0.000	0.017	0.000	0.457	1.000	4.8.2
L36	70 - 65 (36)	0.015	0.470	0.000	0.017	0.000	0.485	1.000	4.8.2
L37	65 - 60 (37)	0.016	0.498	0.000	0.017	0.000	0.514	1.000	4.8.2
L38	60 - 58.5 (38)	0.012	0.408	0.000	0.014	0.000	0.421	1.000	4.8.2
L39	58.5 - 58.25 (39)	0.014	0.464	0.000	0.016	0.000	0.479	1.000	4.8.2
L40	58.25 - 53.25 (40)	0.015	0.490	0.000	0.016	0.000	0.506	1.000	4.8.2
L41	53.25 - 48.25 (41)	0.016	0.517	0.000	0.016	0.000	0.533	1.000	4.8.2
L42	48.25 - 48 (42)	0.012	0.408	0.000	0.012	0.000	0.420	1.000	4.8.2
L43	48 - 43 (43)	0.012	0.430	0.000	0.012	0.000	0.442	1.000	4.8.2
L44	43 - 40 (44)	0.013	0.442	0.000	0.012	0.000	0.456	1.000	4.8.2
L45	40 - 35 (45)	0.014	0.464	0.000	0.013	0.000	0.478	1.000	4.8.2
L46	35 - 32.083 (46)	0.014	0.477	0.000	0.013	0.000	0.491	1.000	4.8.2
L47	32.083 - 31.833 (47)	0.011	0.374	0.000	0.010	0.000	0.386	1.000	4.8.2
L48	31.833 - 28.75 (48)	0.012	0.385	0.000	0.010	0.000	0.397	1.000	4.8.2
L49	28.75 - 28.5 (49)	0.014	0.467	0.000	0.012	0.000	0.481	1.000	4.8.2
L50	28.5 - 23.5 (50)	0.014	0.488	0.000	0.012	0.000	0.503	1.000	4.8.2
L51	23.5 - 18.5 (51)	0.013	0.427	0.000	0.011	0.000	0.440	1.000	4.8.2
L52	18.5 - 13.5 (52)	0.014	0.445	0.000	0.011	0.000	0.458	1.000	4.8.2
L53	13.5 - 8.5 (53)	0.014	0.463	0.000	0.011	0.000	0.477	1.000	4.8.2
L54	8.5 - 3.5 (54)	0.015	0.481	0.000	0.011	0.000	0.496	1.000	4.8.2
L55	3.5 - 0 (55)	0.015	0.494	0.000	0.011	0.000	0.509	1.000	4.8.2

Section Capacity Table

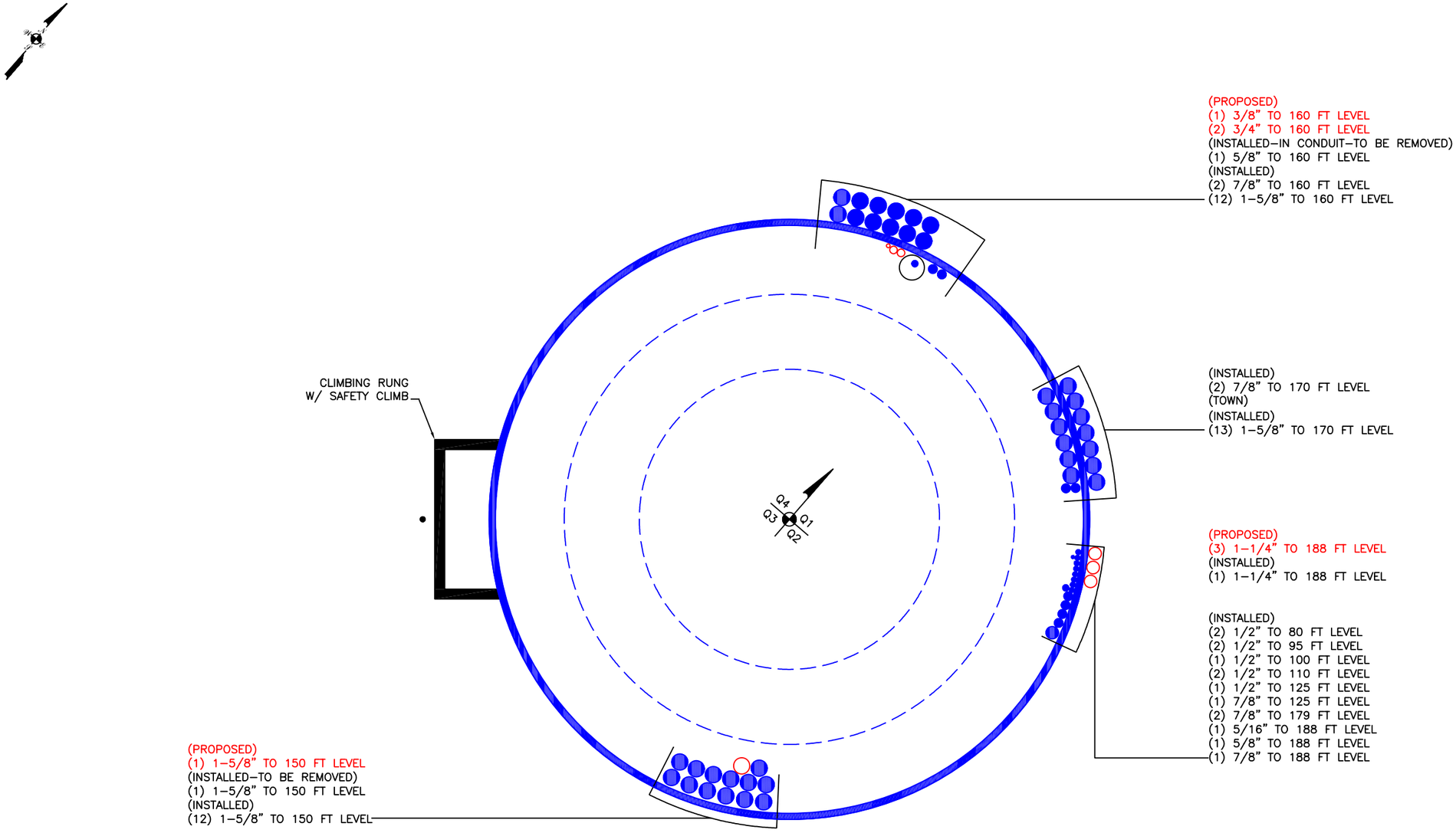
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	øP$_{allow}$ K	% Capacity	Pass Fail
L1	190 - 185	Pole	P30x0.375	1	-3.308	1311.060	1.8	Pass
L2	185 - 180	Pole	P30x0.375	2	-4.517	1311.060	4.5	Pass
L3	180 - 175	Pole	P36x0.375	3	-7.445	1490.100	6.0	Pass
L4	175 - 170	Pole	P36x0.375	4	-8.311	1490.100	8.7	Pass
L5	170 - 165	Pole	P36x0.375	5	-12.545	1490.100	13.0	Pass
L6	165 - 160	Pole	P36x0.375	6	-13.486	1490.100	17.2	Pass
L7	160 - 155	Pole	P42x0.375	7	-17.734	1668.870	17.9	Pass
L8	155 - 150	Pole	P42x0.375	8	-18.891	1668.870	22.4	Pass
L9	150 - 145	Pole	P42x0.375	9	-23.454	1668.870	28.9	Pass
L10	145 - 140	Pole	P42x0.375	10	-24.698	1668.870	35.3	Pass
L11	140 - 135	Pole	P48x0.375	11	-26.082	1847.490	32.6	Pass
L12	135 - 130	Pole	P48x0.375	12	-27.470	1847.490	37.8	Pass
L13	130 - 125	Pole	P48x0.375	13	-28.865	1847.490	43.1	Pass
L14	125 - 120	Pole	P48x0.375	14	-30.439	1847.490	48.6	Pass
L15	120 - 115	Pole	P54x0.375	15	-31.980	2026.000	43.4	Pass
L16	115 - 112.666	Pole	P54x0.375	16	-32.701	2026.000	45.5	Pass
L17	112.666 - 112.416	Pole	P54x0.4875	17	-32.799	2797.170	34.4	Pass
L18	112.416 - 107.416	Pole	P54x0.4875	18	-34.886	2797.170	37.9	Pass
L19	107.416 - 102.416	Pole	P54x0.4875	19	-36.800	2797.170	41.5	Pass
L20	102.416 - 101.333	Pole	P54x0.4875	20	-37.215	2797.170	42.2	Pass
L21	101.333 - 101.083	Pole	P54x0.4875	21	-37.313	2797.170	42.4	Pass
L22	101.083 - 100	Pole	P54x0.4875	22	-37.726	2797.170	43.2	Pass
L23	100 - 95	Pole	P60x0.475	23	-39.859	2934.040	39.6	Pass
L24	95 - 90	Pole	P60x0.475	24	-42.103	2934.040	42.8	Pass
L25	90 - 89.5	Pole	P60x0.475	25	-42.311	2934.040	43.1	Pass
L26	89.5 - 89.25	Pole	P60x0.55625	26	-42.428	3570.370	36.4	Pass
L27	89.25 - 85.5	Pole	P60x0.55625	27	-44.191	3570.370	38.5	Pass
L28	85.5 - 85.25	Pole	P60x0.6375	28	-44.338	4245.550	33.2	Pass
L29	85.25 - 84	Pole	P60x0.6375	29	-45.056	4245.550	33.8	Pass
L30	84 - 83.75	Pole	P60x0.525	30	-45.185	3321.020	42.0	Pass
L31	83.75 - 82.5	Pole	P60x0.525	31	-45.813	3321.020	42.8	Pass
L32	82.5 - 82.25	Pole	P60x0.45	32	-45.929	2746.080	50.7	Pass
L33	82.25 - 80	Pole	P60x0.45	33	-46.940	2746.080	52.3	Pass
L34	80 - 75	Pole	P60x0.575	34	-49.812	3722.740	42.9	Pass
L35	75 - 70	Pole	P60x0.575	35	-52.267	3722.740	45.7	Pass
L36	70 - 65	Pole	P60x0.575	36	-54.776	3722.740	48.5	Pass
L37	65 - 60	Pole	P60x0.575	37	-57.736	3722.740	51.4	Pass
L38	60 - 58.5	Pole	P60x0.7	38	-58.763	4791.240	42.1	Pass
L39	58.5 - 58.25	Pole	P60x0.625	39	-58.926	4139.150	47.9	Pass
L40	58.25 - 53.25	Pole	P60x0.625	40	-61.858	4139.150	50.6	Pass
L41	53.25 - 48.25	Pole	P60x0.625	41	-64.523	4139.150	53.3	Pass
L42	48.25 - 48	Pole	P60x0.775	42	-64.685	5450.650	42.0	Pass
L43	48 - 43	Pole	P60x0.775	43	-68.005	5450.650	44.2	Pass
L44	43 - 40	Pole	P60x0.775	44	-70.121	5450.650	45.6	Pass
L45	40 - 35	Pole	P60x0.775	45	-73.634	5450.650	47.8	Pass
L46	35 - 32.083	Pole	P60x0.775	46	-75.478	5450.650	49.1	Pass
L47	32.083 - 31.833	Pole	P60x0.9625	47	-75.675	6747.930	38.6	Pass
L48	31.833 - 28.75	Pole	P60x0.9625	48	-78.021	6747.930	39.7	Pass
L49	28.75 - 28.5	Pole	P60x0.8125	49	-78.190	5710.780	48.1	Pass
L50	28.5 - 23.5	Pole	P60x0.8125	50	-81.658	5710.780	50.3	Pass
L51	23.5 - 18.5	Pole	P60x0.95	51	-85.944	6661.700	44.0	Pass
L52	18.5 - 13.5	Pole	P60x0.95	52	-90.083	6661.700	45.8	Pass
L53	13.5 - 8.5	Pole	P60x0.95	53	-93.877	6661.700	47.7	Pass
L54	8.5 - 3.5	Pole	P60x0.95	54	-97.674	6661.700	49.6	Pass
L55	3.5 - 0	Pole	P60x0.95	55	-100.333	6661.700	50.9	Pass
							Summary	

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$øP_{allow}$ K	% Capacity	Pass Fail
						Pole (L41)	53.3	Pass
						RATING =	**53.3**	**Pass**

Program Version 7.0.5.1 - 2/1/2016 File:C:/Users/PRoach/Desktop/829046_Weston_Rt-57_Norfield R/17QGQH1400-STAMOO_Sprint/R.0/Analysis/ReportedTower/829046_EQT.eri

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 829046 TOWER ID: C_BASELEVEL

CROWN REGION ADDRESS

USA

9/2/2015	UPDATED PER WORK ORDER 1006627	SLW	
27/3/2015	UPDATED PER WORK ORDER 1034479	SLS	
14/7/2015	UPDATED PER WORK ORDER 1082993	ALM	
3/11/2015	UPDATED PER WORK ORDER 1129900	SLW	
18/12/2015	UPDATED PER WORK ORDER 1169320	SAT	
31/08/16	UPDATED PER WORK ORDER 1293574	ARR	
19/09/16	UPDATED PER WORK ORDER 1299583	CRM	
28/10/16	UPDATED PER WORK ORDER 1319784	BWT	
13/06/17	UPDATED PER WORK ORDER 1417969	GL	

DRAWN BY: **AK**
CHECKED BY:
DRAWING DATE: **01/03/2013**

SITE NUMBER:
SITE NAME:

SITE NAME

WESTON / RT-57 / NORFIELD R

BUSINESS UNIT NUMBER

829046

SITE ADDRESS

56 NORFIELD RD. (TOWN HALL)
WESTON, CT 06883
FAIRFIELD COUNTY
USA

SHEET TITLE

BASE LEVEL

SHEET NUMBER

A1-0

BASE LEVEL DRAWING | 1" = 1'–0" | **1**

PLOT DATE: 10/28/2016 FILE NAME: 829046_BASELEVEL.DWG
Xref R:\TEMPLATES\TYPICAL BLOCKS FOR TEMPLATES\TITLE BLOCK STD–VER 5.1.dwg

APPENDIX C

ADDITIONAL CALCULATIONS

CCIpole

per TIA-222- G

Site BU: 829046

Work Order: 1418026

Copyright © 2016 Crown Castle

Pole Geometry

	Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
1	190	10		0	30	30	0.375	n/a	A53-B-42
2	180	20		0	36.00	36	0.375	n/a	A53-B-42
3	160	20		0	42.00	42	0.375	n/a	A53-B-42
4	140	20		0	48.00	48	0.375	n/a	A53-B-42
5	120	20		0	54.00	54	0.375	n/a	A53-B-42
6	100	20		0	60.00	60	0.375	n/a	A53-B-42
7	80	20		0	60.00	60	0.5	n/a	A53-B-42
8	60	20		0	60.00	60	0.625	n/a	A53-B-42
9	40	20		0	60.00	60	0.625	n/a	A53-B-42
10	20	20		0	60.00	60	0.75	n/a	A53-B-42

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	0	32.083	plate	MS-850 (1.1875")	3	0	120	240															
2	28.75	48.25	plate	MS-650 (1.1875")	3	24	144	264															
3	58.5	85.5	plate	MS-450 (1.1875")	3	0	120	240															
4	84	101.333	plate	MS-600 (1.1875")	3	21	141	261															
5	101.333	112.666	plate	MS-600 (1.1875")	3				0	120	240												
6	82.5	89.5	plate	MS-450 (1.1875")	3							90	210	330									
7																							
8																							
9																							
10																							

Reinforcement Details

	B (in)	H (in)	Gross Area (in^2)	Pole Face to Centroid (in)	Bottom Termination Length (in)	Top Termination Length (in)	L_u (in)	Net Area (in^2)	Bolt Hole Size (in)	Reinforcement Material
1	8.5	1.25	10.625	0.625	45.000	45.000	17.250	9.063	1.1875	A572-65
2	6.5	1.25	8.125	0.625	33.000	33.000	19.250	6.563	1.1875	A572-65
3	4.5	1	4.5	0.5	18.000	18.000	20.625	3.250	1.1875	A572-65
4	6	1	6	0.5	24.000	24.000	16.375	4.750	1.1875	A572-65
5	6	1	6	0.5	24.000	24.000	16.375	4.750	1.1875	A572-65
6	4.5	1	4.5	0.5	18.000	18.000	20.625	3.250	1.1875	A572-65

TNX Geometry Input

Increment (ft): 5

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	190 - 185	5		0	30.000	30.000	0.375	A53-B-42	1.000
2	185 - 180	5	0	0	30.000	30.000	0.375	A53-B-42	1.000
3	180 - 175	5		0	36.000	36.000	0.375	A53-B-42	1.000
4	175 - 170	5		0	36.000	36.000	0.375	A53-B-42	1.000
5	170 - 165	5		0	36.000	36.000	0.375	A53-B-42	1.000
6	165 - 160	5	0	0	36.000	36.000	0.375	A53-B-42	1.000
7	160 - 155	5		0	42.000	42.000	0.375	A53-B-42	1.000
8	155 - 150	5		0	42.000	42.000	0.375	A53-B-42	1.000
9	150 - 145	5		0	42.000	42.000	0.375	A53-B-42	1.000
10	145 - 140	5	0	0	42.000	42.000	0.375	A53-B-42	1.000
11	140 - 135	5		0	48.000	48.000	0.375	A53-B-42	1.000
12	135 - 130	5		0	48.000	48.000	0.375	A53-B-42	1.000
13	130 - 125	5		0	48.000	48.000	0.375	A53-B-42	1.000
14	125 - 120	5	0	0	48.000	48.000	0.375	A53-B-42	1.000
15	120 - 115	5		0	54.000	54.000	0.375	A53-B-42	1.000
16	115 - 112.666	2.334		0	54.000	54.000	0.375	A53-B-42	1.000
17	112.666 - 112.416	0.25		0	54.000	54.000	0.4875	A53-B-42	0.990
18	112.416 - 107.416	5		0	54.000	54.000	0.4875	A53-B-42	0.990
19	107.416 - 102.416	5		0	54.000	54.000	0.4875	A53-B-42	0.990
20	102.416 - 101.333	1.083		0	54.000	54.000	0.4875	A53-B-42	0.990
21	101.333 - 101.083	0.25		0	54.000	54.000	0.4875	A53-B-42	0.990
22	101.083 - 100	1.083	0	0	54.000	54.000	0.4875	A53-B-42	0.990
23	100 - 95	5		0	60.000	60.000	0.475	A53-B-42	0.993
24	95 - 90	5		0	60.000	60.000	0.475	A53-B-42	0.993
25	90 - 89.5	0.5		0	60.000	60.000	0.475	A53-B-42	0.993
26	89.5 - 89.25	0.25		0	60.000	60.000	0.55625	A53-B-42	0.979
27	89.25 - 85.5	3.75		0	60.000	60.000	0.55625	A53-B-42	0.979
28	85.5 - 85.25	0.25		0	60.000	60.000	0.6375	A53-B-42	0.969
29	85.25 - 84	1.25		0	60.000	60.000	0.6375	A53-B-42	0.969
30	84 - 83.75	0.25		0	60.000	60.000	0.525	A53-B-42	0.991
31	83.75 - 82.5	1.25		0	60.000	60.000	0.525	A53-B-42	0.991
32	82.5 - 82.25	0.25		0	60.000	60.000	0.45	A53-B-42	0.995
33	82.25 - 80	2.25	0	0	60.000	60.000	0.45	A53-B-42	0.995
34	80 - 75	5		0	60.000	60.000	0.575	A53-B-42	0.996
35	75 - 70	5		0	60.000	60.000	0.575	A53-B-42	0.996
36	70 - 65	5		0	60.000	60.000	0.575	A53-B-42	0.996
37	65 - 60	5	0	0	60.000	60.000	0.575	A53-B-42	0.996
38	60 - 58.5	1.5		0	60.000	60.000	0.7	A53-B-42	0.998
39	58.5 - 58.25	0.25		0	60.000	60.000	0.625	A53-B-42	1.000
40	58.25 - 53.25	5		0	60.000	60.000	0.625	A53-B-42	1.000
41	53.25 - 48.25	5		0	60.000	60.000	0.625	A53-B-42	1.000
42	48.25 - 48	0.25		0	60.000	60.000	0.775	A53-B-42	0.978
43	48 - 43	5		0	60.000	60.000	0.775	A53-B-42	0.978
44	43 - 40	3	0	0	60.000	60.000	0.775	A53-B-42	0.978
45	40 - 35	5		0	60.000	60.000	0.775	A53-B-42	0.978
46	35 - 32.083	2.917		0	60.000	60.000	0.775	A53-B-42	0.978
47	32.083 - 31.833	0.25		0	60.000	60.000	0.9625	A53-B-42	0.968
48	31.833 - 28.75	3.083		0	60.000	60.000	0.9625	A53-B-42	0.968
49	28.75 - 28.5	0.25		0	60.000	60.000	0.8125	A53-B-42	0.983
50	28.5 - 23.5	5	0	0	60.000	60.000	0.8125	A53-B-42	0.983
51	23.5 - 18.5	5		0	60.000	60.000	0.95	A53-B-42	0.973
52	18.5 - 13.5	5		0	60.000	60.000	0.95	A53-B-42	0.973
53	13.5 - 8.5	5		0	60.000	60.000	0.95	A53-B-42	0.973
54	8.5 - 3.5	5		0	60.000	60.000	0.95	A53-B-42	0.973
55	3.5 - 0	3.5		0	60.000	60.000	0.95	A53-B-42	0.973

TNX Section Forces

Increment (ft): 5

	Section Height (ft)	TNX Output P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	190 - 185	3.3083	14.88	3.5471
2	185 - 180	4.5171	38.871	4.7029
3	180 - 175	7.4454	72.875	6.9721
4	175 - 170	8.3113	108.77	7.3911
5	170 - 165	12.545	162.35	10.973
6	165 - 160	13.486	218.17	11.381
7	160 - 155	17.734	302.65	15.534
8	155 - 150	18.891	381.53	16.053
9	150 - 145	23.454	492.86	22.478
10	145 - 140	24.698	606.38	22.972
11	140 - 135	26.082	722.47	23.51
12	135 - 130	27.47	841.22	24.036
13	130 - 125	28.865	962.57	24.548
14	125 - 120	30.439	1087.9	25.232
15	120 - 115	31.981	1215.3	25.772
16	115 - 112.666	32.701	1275.7	26.023
17	112.666 - 112.416	32.799	1282.2	26.052
18	112.416 - 107.416	34.886	1414.9	26.8
19	107.416 - 102.416	36.8	1550.1	27.336
20	102.416 - 101.333	37.214	1579.7	27.45
21	101.333 - 101.083	37.313	1586.6	27.477
22	101.083 - 100	37.726	1616.4	27.588
23	100 - 95	39.859	1756	28.212
24	95 - 90	42.103	1899.4	28.932
25	90 - 89.5	42.311	1913.9	28.986
26	89.5 - 89.25	42.428	1921.1	29.018
27	89.25 - 85.5	44.19	2030.6	29.434
28	85.5 - 85.25	44.338	2037.9	29.464
29	85.25 - 84	45.056	2074.8	29.604
30	84 - 83.75	45.185	2082.2	29.635
31	83.75 - 82.5	45.813	2119.3	29.77
32	82.5 - 82.25	45.929	2126.7	29.798
33	82.25 - 80	46.94	2194	30.027
34	80 - 75	49.812	2347.6	30.799
35	75 - 70	52.267	2502.7	31.288
36	70 - 65	54.776	2660.1	31.758
37	65 - 60	57.736	2819.9	32.213
38	60 - 58.5	58.763	2868.3	32.353
39	58.5 - 58.25	58.9	2876.3	32.4
40	58.25 - 53.25	61.9	3039.1	32.8
41	53.25 - 48.25	64.5	3203.9	33.2
42	48.25 - 48	64.7	3212.2	33.2
43	48 - 43	68.0	3379.1	33.6
44	43 - 40	70.1	3480.2	33.9
45	40 - 35	73.6	3650.2	34.2
46	35 - 32.083	75.5	3750.2	34.4
47	32.083 - 31.833	75.7	3758.8	34.4
48	31.833 - 28.75	78.0	3865.2	34.6
49	28.75 - 28.5	78.2	3873.8	34.7
50	28.5 - 23.5	81.7	4047.7	35.0
51	23.5 - 18.5	85.9	4223.1	35.3
52	18.5 - 13.5	90.1	4400.1	35.6
53	13.5 - 8.5	93.9	4578.4	35.8
54	8.5 - 3.5	97.7	4758.1	36.1
55	3.5 - 0	100.3	4884.7	36.3

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
190 - 185	Pole	TP30x30x0.375	Pole	1.8%	Pass
185 - 180	Pole	TP30x30x0.375	Pole	4.5%	Pass
180 - 175	Pole	TP36x36x0.375	Pole	6.0%	Pass
175 - 170	Pole	TP36x36x0.375	Pole	8.7%	Pass
170 - 165	Pole	TP36x36x0.375	Pole	13.0%	Pass
165 - 160	Pole	TP36x36x0.375	Pole	17.2%	Pass
160 - 155	Pole	TP42x42x0.375	Pole	17.9%	Pass
155 - 150	Pole	TP42x42x0.375	Pole	22.4%	Pass
150 - 145	Pole	TP42x42x0.375	Pole	28.9%	Pass
145 - 140	Pole	TP42x42x0.375	Pole	35.3%	Pass
140 - 135	Pole	TP48x48x0.375	Pole	32.6%	Pass
135 - 130	Pole	TP48x48x0.375	Pole	37.8%	Pass
130 - 125	Pole	TP48x48x0.375	Pole	43.1%	Pass
125 - 120	Pole	TP48x48x0.375	Pole	48.6%	Pass
120 - 115	Pole	TP54x54x0.375	Pole	43.4%	Pass
115 - 112.67	Pole	TP54x54x0.375	Pole	45.5%	Pass
112.67 - 112.42	Pole + Reinf.	TP54x54x0.4875	Pole	35.0%	Pass
112.42 - 107.42	Pole + Reinf.	TP54x54x0.4875	Pole	38.6%	Pass
107.42 - 102.42	Pole + Reinf.	TP54x54x0.4875	Pole	42.2%	Pass
102.42 - 101.33	Pole + Reinf.	TP54x54x0.4875	Pole	43.0%	Pass
101.33 - 101.08	Pole + Reinf.	TP54x54x0.4875	Pole	43.2%	Pass
101.08 - 100	Pole + Reinf.	TP54x54x0.4875	Pole	44.0%	Pass
100 - 95	Pole + Reinf.	TP60x60x0.475	Pole	40.1%	Pass
95 - 90	Pole + Reinf.	TP60x60x0.475	Pole	43.3%	Pass
90 - 89.5	Pole + Reinf.	TP60x60x0.475	Pole	43.6%	Pass
89.5 - 89.25	Pole + Reinf.	TP60x60x0.5563	Pole	37.8%	Pass
89.25 - 85.5	Pole + Reinf.	TP60x60x0.5563	Pole	39.9%	Pass
85.5 - 85.25	Pole + Reinf.	TP60x60x0.6375	Pole	35.2%	Pass
85.25 - 84	Pole + Reinf.	TP60x60x0.6375	Pole	35.8%	Pass
84 - 83.75	Pole + Reinf.	TP60x60x0.525	Pole	42.9%	Pass
83.75 - 82.5	Pole + Reinf.	TP60x60x0.525	Pole	43.7%	Pass
82.5 - 82.25	Pole + Reinf.	TP60x60x0.45	Pole	51.3%	Pass
82.25 - 80	Pole + Reinf.	TP60x60x0.45	Pole	52.9%	Pass
80 - 75	Pole + Reinf.	TP60x60x0.575	Reinf. 3 Compression	43.4%	Pass
75 - 70	Pole + Reinf.	TP60x60x0.575	Reinf. 3 Compression	46.3%	Pass
70 - 65	Pole + Reinf.	TP60x60x0.575	Reinf. 3 Compression	49.1%	Pass
65 - 60	Pole + Reinf.	TP60x60x0.575	Reinf. 3 Compression	52.1%	Pass
60 - 58.5	Pole + Reinf.	TP60x60x0.7	Reinf. 3 Compression	43.7%	Pass
58.5 - 58.25	Pole	TP60x60x0.625	Pole	47.9%	Pass
58.25 - 53.25	Pole	TP60x60x0.625	Pole	50.6%	Pass
53.25 - 48.25	Pole	TP60x60x0.625	Pole	53.3%	Pass
48.25 - 48	Pole + Reinf.	TP60x60x0.775	Pole	43.6%	Pass
48 - 43	Pole + Reinf.	TP60x60x0.775	Pole	45.9%	Pass
43 - 40	Pole + Reinf.	TP60x60x0.775	Pole	47.2%	Pass
40 - 35	Pole + Reinf.	TP60x60x0.775	Pole	49.5%	Pass
35 - 32.08	Pole + Reinf.	TP60x60x0.775	Pole	50.9%	Pass
32.08 - 31.83	Pole + Reinf.	TP60x60x0.9625	Pole	41.1%	Pass
31.83 - 28.75	Pole + Reinf.	TP60x60x0.9625	Pole	42.3%	Pass
28.75 - 28.5	Pole + Reinf.	TP60x60x0.8125	Pole	49.7%	Pass
28.5 - 23.5	Pole + Reinf.	TP60x60x0.8125	Pole	51.9%	Pass
23.5 - 18.5	Pole + Reinf.	TP60x60x0.95	Pole	46.0%	Pass
18.5 - 13.5	Pole + Reinf.	TP60x60x0.95	Pole	47.9%	Pass
13.5 - 8.5	Pole + Reinf.	TP60x60x0.95	Pole	49.9%	Pass
8.5 - 3.5	Pole + Reinf.	TP60x60x0.95	Pole	51.8%	Pass
3.5 - 0	Pole + Reinf.	TP60x60x0.95	Pole	53.2%	Pass
				Summary	
			Pole	53.3%	Pass
			Reinforcement	52.1%	Pass
			Overall	53.3%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in^4)			Area (in^2)			% Capacity						
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4	R5	R6
190 - 185	3829	n/a	3829	34.90	n/a	34.90	1.8%						
185 - 180	3829	n/a	3829	34.90	n/a	34.90	4.5%						
180 - 175	6659	n/a	6659	41.97	n/a	41.97	6.0%						
175 - 170	6659	n/a	6659	41.97	n/a	41.97	8.7%						
170 - 165	6659	n/a	6659	41.97	n/a	41.97	13.0%						
165 - 160	6659	n/a	6659	41.97	n/a	41.97	17.2%						
160 - 155	10622	n/a	10622	49.04	n/a	49.04	17.9%						
155 - 150	10622	n/a	10622	49.04	n/a	49.04	22.4%						
150 - 145	10622	n/a	10622	49.04	n/a	49.04	28.9%						
145 - 140	10622	n/a	10622	49.04	n/a	49.04	35.3%						
140 - 135	15908	n/a	15908	56.11	n/a	56.11	32.6%						
135 - 130	15908	n/a	15908	56.11	n/a	56.11	37.8%						
130 - 125	15908	n/a	15908	56.11	n/a	56.11	43.1%						
125 - 120	15908	n/a	15908	56.11	n/a	56.11	48.6%						
120 - 115	22710	n/a	22710	63.18	n/a	63.18	43.4%						
115 - 112.67	22710	n/a	22710	63.18	n/a	63.18	45.5%						
112.67 - 112.42	22710	6834	29544	63.18	18.00	81.18	35.0%					31.3%	
112.42 - 107.42	22710	6834	29544	63.18	18.00	81.18	38.6%					34.5%	
107.42 - 102.42	22710	6834	29544	63.18	18.00	81.18	42.2%					37.8%	
102.42 - 101.33	22710	6834	29544	63.18	18.00	81.18	43.0%					38.5%	
101.33 - 101.08	22710	6834	29544	63.18	18.00	81.18	43.2%				38.6%		
101.08 - 100	22710	6834	29544	63.18	18.00	81.18	44.0%				39.3%		
100 - 95	31217	8400	39617	70.24	18.00	88.24	40.1%				35.5%		
95 - 90	31217	8400	39617	70.24	18.00	88.24	43.3%				38.3%		
90 - 89.5	31217	8400	39617	70.24	18.00	88.24	43.6%				38.6%		
89.5 - 89.25	31217	14691	45908	70.24	31.50	101.74	37.8%				33.4%		36.9%
89.25 - 85.5	31217	14691	45908	70.24	31.50	101.74	39.9%				35.3%		39.0%
85.5 - 85.25	31217	20982	52199	70.24	45.00	115.24	35.2%			34.4%	31.1%		34.4%
85.25 - 84	31217	20982	52199	70.24	45.00	115.24	35.8%			35.0%	31.7%		35.0%
84 - 83.75	31217	12582	43799	70.24	27.00	97.24	42.9%			41.9%			41.9%
83.75 - 82.5	31217	12582	43799	70.24	27.00	97.24	43.7%			42.7%			42.7%
82.5 - 82.25	31217	6291	37508	70.24	13.50	83.74	51.3%			50.1%			
82.25 - 80	31217	6291	37508	70.24	13.50	83.74	52.9%			51.6%			
80 - 75	41363	6291	47654	93.46	13.50	106.96	43.3%			43.4%			
75 - 70	41363	6291	47654	93.46	13.50	106.96	46.1%			46.3%			
70 - 65	41363	6291	47654	93.46	13.50	106.96	49.0%			49.1%			
65 - 60	41363	6291	47654	93.46	13.50	106.96	51.9%			52.1%			
60 - 58.5	51381	6291	57672	116.58	13.50	130.08	42.5%			43.7%			
58.5 - 58.25	51381	n/a	51381	116.58	n/a	116.58	47.9%						
58.25 - 53.25	51381	n/a	51381	116.58	n/a	116.58	50.6%						
53.25 - 48.25	51381	n/a	51381	116.58	n/a	116.58	53.3%						
48.25 - 48	51381	11475	62856	116.58	24.38	140.96	43.6%		40.0%				
48 - 43	51381	11475	62856	116.58	24.38	140.96	45.9%		42.1%				
43 - 40	51381	11475	62856	116.58	24.38	140.96	47.2%		43.3%				
40 - 35	51381	11475	62856	116.58	24.38	140.96	49.5%		45.4%				
35 - 32.08	51381	11475	62856	116.58	24.38	140.96	50.9%		46.7%				
32.08 - 31.83	51381	26521	77901	116.58	56.25	172.83	41.1%	35.9%	37.7%				
31.83 - 28.75	51381	26521	77901	116.58	56.25	172.83	42.3%	36.9%	38.7%				
28.75 - 28.5	51381	15046	66426	116.58	31.88	148.46	49.7%	43.5%					
28.5 - 23.5	51381	15046	66426	116.58	31.88	148.46	51.9%	45.4%					
23.5 - 18.5	61271	15046	76317	139.60	31.88	171.48	46.0%	41.2%					
18.5 - 13.5	61271	15046	76317	139.60	31.88	171.48	47.9%	42.9%					
13.5 - 8.5	61271	15046	76317	139.60	31.88	171.48	49.9%	44.7%					
8.5 - 3.5	61271	15046	76317	139.60	31.88	171.48	51.8%	46.4%					
3.5 - 0	61271	15046	76317	139.60	31.88	171.48	53.2%	47.7%					

Note: Section capacity checked in 5 degree increments.

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

Bolted Bridge Stiffener Analysis

Project & Site Details	
Project No.	17QGQH1400
Project Name	Weston/Rt 57/Norfield R
Site ID	829046
Date	June 22, 2017
Code	ANSI/TIA-222-G
Maximum Stress Ratio	105%

Tower Data

Pole Properties									Flange Properties						
Section	Bottom Elevation (ft)	Top Elevation (ft)	Section Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Pole Material	Flange Diameter (in)	Upper Thickness (in)	Lower Thickness (in)	Bolt Quantity	Bolt Diameter (in)	Bolt Circle Diameter (in)	Angle to First Bolt (°)
1	180	190	10	Round	30	30	0.375	A53-B-42	36	1.25	1.25	24	1	33	
2	160	180	20	Round	36	36	0.375	A53-B-42	42	1.25	1.25	28	1	39	
3	140	160	20	Round	42	42	0.375	A53-B-42	48	1.25	1	32	1	45	
4	120	140	20	Round	48	48	0.375	A53-B-42	54	1.25	1.25	36	1	51	
5	100	120	20	Round	54	54	0.375	A53-B-42	60	1.25	1.25	48	1	57	
6	80	100	20	Round	60	60	0.375	A53-B-42	41	1.25	1.25	32	1.25	50	
7	60	80	20	Round	60	60	0.5	A53-B-42	41	1.25	1.25	32	1.25	50	
8	40	60	20	Round	60	60	0.625	A53-B-42	41	1.25	1.25	32	1.25	50	
9	20	40	20	Round	60	60	0.625	A53-B-42	41	1.25	1.25	32	1.25	50	
10	0	20	20	Round	0	0	0	A53-B-42	70	1.25	0	52	1.25	67	

Reactions

Reactions from TNX				Adjusted Moment	
Elevation	Moment (k-ft)	Axial (kips)	Shear (kips)	Max. Flange Bolt Tension (kips)	Adjusted Moment (k-ft)
180	38.9	4.5	4.7	2.17	38.9
160	218.2	13.5	11.4	9.10	218.2
140	606.4	24.7	23.0	19.44	606.4
120	1087.9	30.4	25.2	27.59	1087.9
100	1616.4	37.7	27.6	17.95	1068.0
80	2194.0	46.9	30.0	42.04	1450.1
60	2819.9	57.7	32.2	41.91	1457.0
40	3480.2	70.1	33.9	41.88	1468.9
20	4223.1	85.9	35.3	41.45	1471.2
0	4884.7	100.3	36.3	N/A	N/A

Bridge Stiffener Orientation Input

Group Number	Elevation	Assembly Name	Quantity	Individual Bridge Stiffener Azimuth (°)										Axis Angle of Max (°)	Max. Axial Force (kips)	Controlling	Maximum Stress Ratio	Pass/Fail
1	100	BS-1	3	17	137	257								47	148.2	Compression	53.5%	Pass
2	80	BS-2	3	60	180	300								150	194.6	Tension Rupture	99.8%	Pass
3	60	BS-3	3	60	180	300								150	354.5	Tension Rupture	90.0%	Pass
4	40	BS-4	6	0	60	120	180	240	300					30	262.9	Compression	94.9%	Pass
5	20	BS-5	6	0	60	120	180	240	300					30	358.0	Tension Rupture	90.9%	Pass
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		
16																		
17																		
18																		
19																		
20																		

Overall	99.8%	Pass

Bridge Stiffener Assembly Input

Assembly Name	Bridge Stiffener			Upper Members			Lower Members			
				Shaft Reinforcement	Filler Plate		Same as Upper Members?	Shaft Reinforcement	Filler Plate	
	Member	K Factor	Lu (in)	Member	Member	Gap (in)		Member	Member	Gap (in)
BS-1	MS-600	0.8	18	MS-600	MS -600 Filler	0	None			
BS-2	MS-450	0.8	18	None	None	0	Yes	None	None	0
BS-3	MS-650	0.8	18	None	None	0	Yes	None	None	0
BS-4	MS-600	0.8	18	None	None	0	Yes	None	None	0
BS-5	MS-650	0.8	18	None	None	0	Yes	None	None	0

FDH VELOCITEL
ENGINEERING INNOVATION

Version:	2.4
Version Date:	10/31/2016

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

Base Transfer Stiffener

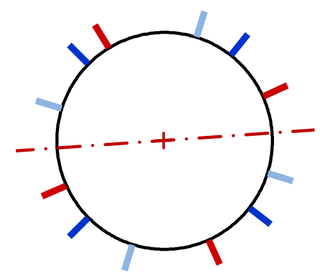
Project & Site Details	
Project No.	17QGQH1400
Project Name	Weston/Rt 57/Norfield
Site ID	829046
Date	June 22, 2017
Code	ANSI/TIA-222-G
Maximum Stress Ratio	105%

Tower Reactions		
Moment	4885	k-ft
Axial	100	kips
Shear	36	kips

Optional Inputs	
Axis Angle to 0° (°)	94
Additional Inertia (in^4)	

Centroid		
x	-0.1322	in
y	0.0774	in

Pole Properties		
Pole Diameter	60	in
Pole Thickness	0.75	in
Pole Grade	A53-B-42	
Number of Sides	Round	Sided



Moment of Inertia		
	I (in^4)	Angle (°)
Min.	108564.9	42
Max.	108564.9	169
Current	**107801.1**	**94**

Stiffener Properties		
Stiffener Quantity	12	Stiffeners
Any Symmetric Plates?	N	(Y/N)

Individual Stiffener Input

Stiffener Name	Angle to 0° (°)	Axis Angle of Max (°)	Controlling Case	Percentage	Pass/Fail
1. PL 6.25x1.25	24.23	94	Stress	44.5%	Pass
2. PL 6.25x1.25	72.69	139	Stress	44.5%	Pass
1. PL 6.25x1.25	114.23	4	Stress	44.5%	Pass
2. PL 6.25x1.25	162.69	49	Stress	44.5%	Pass
1. PL 6.25x1.25	211.15	94	Stress	44.5%	Pass
2. PL 6.25x1.25	252.69	139	Stress	44.5%	Pass
1. PL 6.25x1.25	294.23	4	Stress	44.5%	Pass
2. PL 6.25x1.25	342.69	49	Stress	44.5%	Pass
3. PL 8x0.75	51.92	117	Stress	35.8%	Pass
3. PL 8x0.75	141.92	27	Stress	35.8%	Pass
3. PL 8x0.75	225	117	Stress	35.8%	Pass
3. PL 8x0.75	315	27	Stress	35.8%	Pass
Pole		0	Stress	37.6%	Pass
			Overall	**44.5%**	**Pass**

Stiffener Input

Stiffener Name	Width (in)	Thickness (in)	Considering Plate Capacity (Y/N)	Height (in)	Notch (in)	Offset from Pole (in)	Grade	Weld Electrode (ksi)	Vertical Weld Size (in)	Horizontal Weld Type	Groove Angle (°)	Horizontal Groove Size (in)	Horizontal Fillet Size (in)
1. PL 6.25x1.25	6.25	1.25	Y	30	0	0	A572-50	80	5/16	CJP			
2. PL 6.25x1.25	6.25	1.25	Y	75	0	0	A572-50	80	5/16	CJP			
3. PL 8x0.75	8	0.75	Y	78	0.75	0	A572-65	80	3/8	Double Sided	45	0.375	0.375

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

Version:	1.7
Version Date:	4/27/2017

Monopole Anchor Rod Modifications

Project & Site Details	
Project No.	17QGQH1400
Project Name	Weston/Rt 57/Norfield R
Site ID	829046
Date	June 22, 2017
Code	ANSI/TIA-222-G
Maximum Stress Ratio	105%

Tower Reactions		
Moment	4885	k-ft
Axial	100	k
Shear	36	k

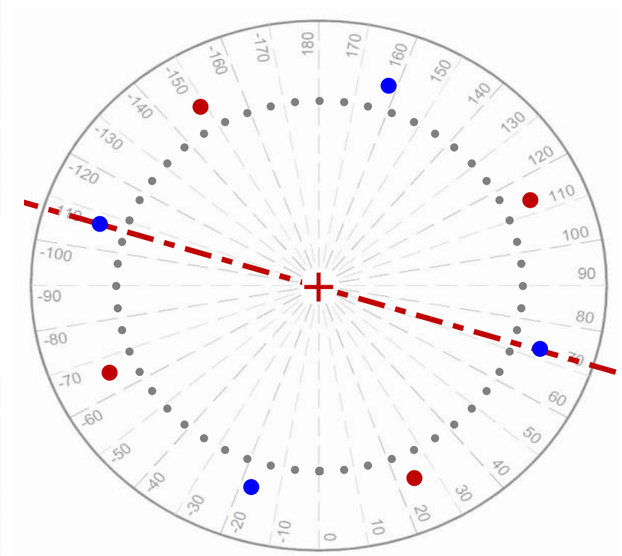
Optional Inputs	
Axis Angle to 0° (°)	72.5
Additional Inertia (in^4)	0

Centroid		
x	-0.1689	in
y	-0.0886	in

Existing Anchor Rod Input		
Anchor Rods	Y	(Y/N)
Base Plate Type	Round	
Quantity	52	Rods
Grade	F1554 Gr. 105	
Thread Form	Non-Upset	
Diameter	1.25	in
Bolt Circle	67	in
Angle to 0° of First Rod	0	degrees
Spacing		
Detail Type	d	
l_{ar}	1.375	in
ŋ	0.5	

Foundation Input		
Pier Diameter	7.5	ft
f'c, Pier Concrete Strength	5000	psi
fy, Rebar Yield Strength	60	psi
Vertical Rebar Size	#9	
Vertical Rebar Quantity		Bars
Horizontal Rebar Size	#4	
Side Cover	3	in
Top Cover	3	in
τ, Ultimate Bond Resistance	1.69	ksi
Vertical Bar Diameter	1.128	in
Horizontal Bar Diameter	0.5	in
Rebar Cage Circle	81.872	in

Moment of Inertia		
	I (in^4)	Angle (°)
Min.	58096.0	72.5
Max.	59479.5	162.5
Current	**58096.0**	**72.5**



Post-Installed Anchor Rods		
Quantity	8	Rods
Any Symmetric Rods?	N	(Y/N)

Individual Post-Installed Anchor Rod Input

Name	Angle	Axis Angle of Max (°)	Axial Force (kips)	Allow. Axial (kips)	Controlling	Percentage	Pass/Fail
AR1	24.23	113.0	150.8	246.0	Sleeve Bearing	61.3%	Pass
AR2	72.69	163.0	149.4	246.0	Sleeve Bearing	60.7%	Pass
AR1	114.23	25.5	151.2	246.0	Sleeve Bearing	61.5%	Pass
AR2	162.69	72.5	153.0	246.0	Sleeve Bearing	62.2%	Pass
AR1	211.15	119.5	150.5	246.0	Sleeve Bearing	61.2%	Pass
AR2	252.69	162.5	148.4	246.0	Sleeve Bearing	60.3%	Pass
AR1	294.23	25.5	149.7	246.0	Sleeve Bearing	60.9%	Pass
AR2	342.69	73.0	151.9	246.0	Sleeve Bearing	61.8%	Pass
Existing Rods		69.0	45.0	96.9	Shear-Tension Interaction	46.4%	Pass

Overall	**62.2%**	**Pass**

Post-Installed Anchor Rod Summary

Post-Installed Anchor Rods						Anchor Rod Sleeve		Transfer Plate	
Assembly Name	Diameter (in)	Grade	Bolt Circle (in)	Target Tension (kips)	Required Embedment (ft)	Member	Grade	Dimensions (H" x W" x T")	Grade
AR1	2.25	F1554 Gr. 105	76	190	4.53	P3x.600 (3.5 OD)	A500-50	30 x 6 1/4 x 1 1/4	A572-50
AR2	2.25	F1554 Gr. 105	76	190	4.53	P3x.600 (3.5 OD)	A500-50	75 x 6 1/4 x 1 1/4	A572-50

Anchor Rod Colors	
Apply New Rod Colors	
AR1	
AR2	

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

TIA Rev G Assumption: Clear space between bottom of leveling nut and top of concrete **not** exceeding (1)*(Rod Diameter)

Site Data

BU#:	*829046*
Site Name:	*Weston/Rt 57/Norfield R*
App #:	*393558 Rev 0*
Pole Manufacturer:	*Other*

Reactions		
Mu:	3022	ft-kips
Axial, Pu:	100	kips
Shear, Vu:	36	kips
Eta Factor, η	0.5	TIA G (Fig. 4-4)

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

Anchor Rod Data		
Qty:	52	
Diam:	1.25	in
Rod Material:	Other	
Strength (Fu):	125	ksi
Yield (Fy):	105	ksi
Bolt Circle:	67	in

Plate Data		
Diam:	70	in
Thick:	1.25	in
Grade:	36	ksi
Single-Rod B-eff:	3.62	in

Stiffener Data (Welding at both sides)		
Config:	1	*
Weld Type:	Fillet	
Groove Depth:	0.25	<-- Disregard
Groove Angle:	45	<-- Disregard
Fillet H. Weld:	0.25	in
Fillet V. Weld:	0.25	in
Width:	4.5	in
Height:	8	in
Thick:	0.625	in
Notch:	0.5	in
Grade:	36	ksi
Weld str.:	70	ksi

Pole Data		
Diam:	60	in
Thick:	0.75	in
Grade:	42	ksi
# of Sides:	0	"0" IF Round
Fu	63	ksi
Reinf. Fillet Weld	0	"0" if None

Anchor Rod Results

			Stiffened
Max Rod (Cu+ Vu/ń):	45.0	Kips	AISC LRFD
Allowable Axial, Φ*Fu*Anet:	96.9	Kips	φ*Tn
Anchor Rod Stress Ratio:	46.4%	**Pass**	

Base Plate Results Shear Check Only

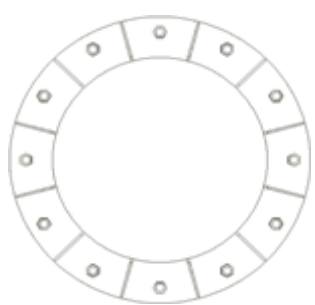
			Stiffened
Base Plate Stress:	3.9	ksi	AISC LRFD
Allowable Plate Stress:	19.4	ksi	φ*Fy
Base Plate Stress Ratio:	19.9%	**Pass**	Y.L. Length: N/A, Roark

Stiffener Results

Horizontal Weld :	58.5%	**Pass**
Vertical Weld:	37.6%	**Pass**
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	20.4%	**Pass**
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	34.3%	**Pass**
Plate Comp. (AISC Bracket):	50.8%	**Pass**

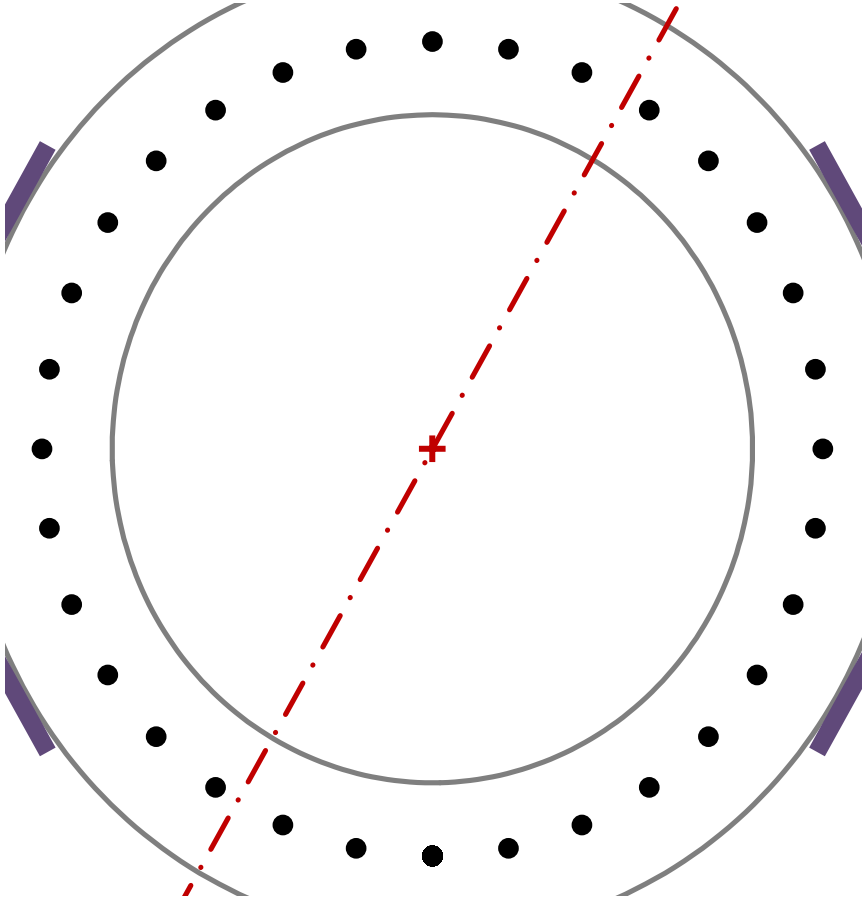
Pole Results

Pole Punching Shear Check:	8.1%	**Pass**



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

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



Assemblies:

- BS-5

Elevation: 20 ft

Stiffened or Unstiffened, Interior Flange Plate - Any Bolt Material TIA Rev G

Site Data

BU#:	*829046*
Site Name:	*Weston/Rt 57/Norfield R*
App #:	*393558 Rev 0*

Manufacturer:	Other

Reactions

Moment:	1471.20	ft-kips
Axial:	85.90	kips
Shear:	35.30	kips
Exterior Flange Run, T+q:	0.00	kips

Elevation: 20 feet

Bolt Threads:
X-Excluded
φVn=φ(0.55*Ab*Fu)
φ=0.75, φ*Vn (kips):
53.15

Bolt Data

Qty:	32		
Diam:	1.25	Bolt Fu:	105
Bolt Material:	A325	Bolt Fy:	81
N/A:	100	<-- Disregard	
N/A:	75	<-- Disregard	
Circle:	50	in	

Interior Flange Bolt Results

Maximum Bolt Tension, Tu:	41.5	Kips, Ext. Tu=Interior Tu
Adjusted φ*Tn (due to Vu=Vu/Qty)	76.3	Kips
Bolt Stress Ratio:	54.3%	**Pass**

Plate Data

Plate Outer Diam:	58.75	in
Plate Inner Diam:	41	in (Hole @ Ctr)
Thick:	1.25	in
Grade:	36	ksi
Effective Width:	5.77	in

Interior Flange Plate Results Flexural Check

Controlling Bolt Axial Force:	46.8	Kips, Ext. Cu=Interior Cu
Plate Stress:	12.7	ksi
Allowable Plate Stress, φ*Fy:	32.4	ksi
Plate Stress Ratio:	39.2%	**Pass**

Stiffener Data (Welding at Both Sides)

Config:	1	*
Weld Type:	Fillet	
Groove Depth:	0.25	<-- Disregard
Groove Angle:	45	<-- Disregard
Fillet H. Weld:	0.25	in
Fillet V. Weld:	0.25	in
Width:	7	in
Height:	10	in
Thick:	0.625	in
Notch:	0.5	in
Grade:	36	ksi
Weld str.:	70	ksi

Stiffener Results

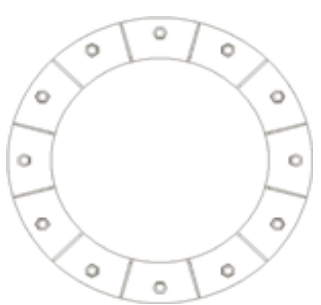
Horizontal Weld :	33.1%	**Pass**
Vertical Weld:	28.9%	**Pass**
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	14.9%	**Pass**
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	18.1%	**Pass**
Plate Comp. (AISC Bracket):	38.2%	**Pass**

Pole Results

Pole Punching Shear Check:	8.3%	**Pass**

Pole Data

Pole OuterDiam:	60	in
Thick:	0.625	in
Pole Inner Diam:	58.75	in
Grade:	42	ksi
# of Sides:	0	"0" IF Round
Fu	63	ksi



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

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

Stiffened or Unstiffened, Interior Flange Plate - Any Bolt Material TIA Rev G

Site Data

BU#:	*829046*
Site Name:	*Weston/Rt 57/Norfield R*
App #:	*393558 Rev 0*

Manufacturer:	Other

Reactions

Moment:	1471.20	ft-kips
Axial:	85.90	kips
Shear:	35.30	kips
Exterior Flange Run, T+q:	0.00	kips

Elevation: 20 feet

Bolt Threads:
X-Excluded
φVn=φ(0.55*Ab*Fu)
φ=0.75, φ*Vn (kips):
53.15

Bolt Data

Qty:	32		
Diam:	1.25	Bolt Fu:	105
Bolt Material:	A325	Bolt Fy:	81
N/A:	100	<-- Disregard	
N/A:	75	<-- Disregard	
Circle:	50	in	

Interior Flange Bolt Results

Maximum Bolt Tension, Tu:	41.5	Kips, Ext. Tu=Interior Tu
Adjusted φ*Tn (due to Vu=Vu/Qty)	76.3	Kips
Bolt Stress Ratio:	54.3%	**Pass**

Plate Data

Plate Outer Diam:	58.5	in
Plate Inner Diam:	41	in (Hole @ Ctr)
Thick:	1.25	in
Grade:	36	ksi
Effective Width:	5.74	in

Interior Flange Plate Results Flexural Check

Controlling Bolt Axial Force:	46.8	Kips, Ext. Cu=Interior Cu
Plate Stress:	12.7	ksi
Allowable Plate Stress, φ*Fy:	32.4	ksi
Plate Stress Ratio:	39.2%	**Pass**

Stiffener Data (Welding at Both Sides)

Config:	1	*
Weld Type:	Fillet	
Groove Depth:	0.25	<-- Disregard
Groove Angle:	45	<-- Disregard
Fillet H. Weld:	0.25	in
Fillet V. Weld:	0.25	in
Width:	7	in
Height:	10	in
Thick:	0.625	in
Notch:	0.5	in
Grade:	36	ksi
Weld str.:	70	ksi

Stiffener Results

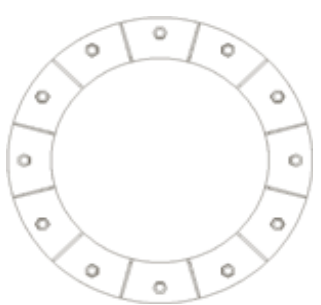
Horizontal Weld :	30.0%	**Pass**
Vertical Weld:	26.2%	**Pass**
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	13.2%	**Pass**
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	16.2%	**Pass**
Plate Comp. (AISC Bracket):	34.5%	**Pass**

Pole Results

Pole Punching Shear Check:	6.3%	**Pass**

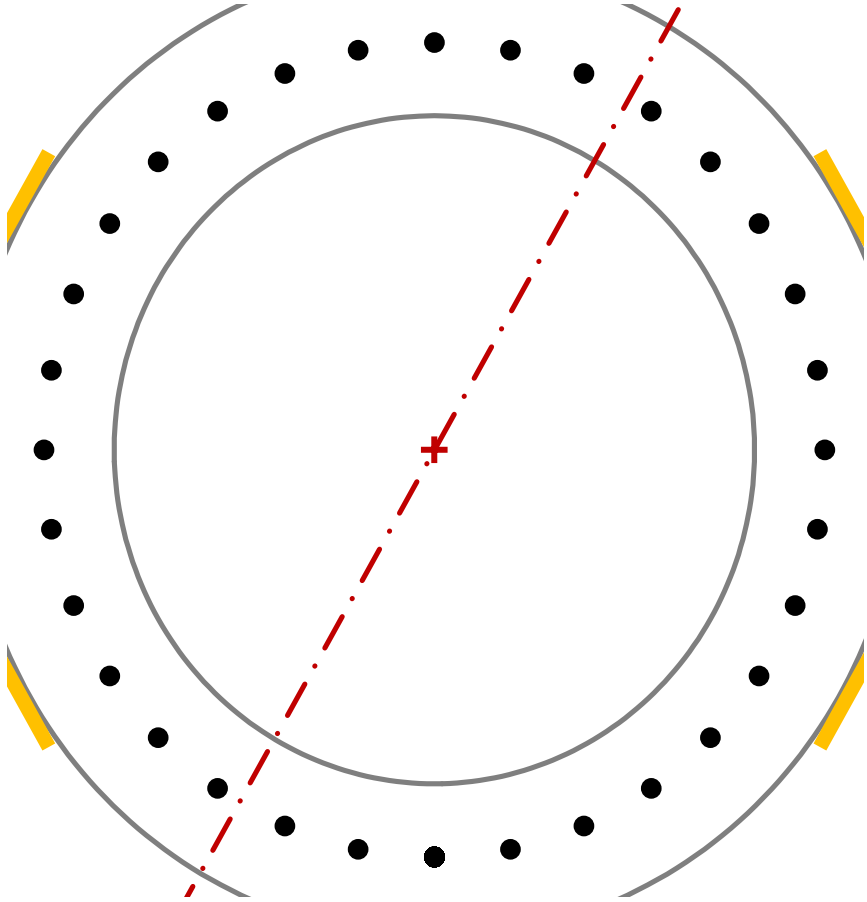
Pole Data

Pole OuterDiam:	60	in
Thick:	0.75	in
Pole Inner Diam:	58.5	in
Grade:	42	ksi
# of Sides:	0	"0" IF Round
Fu	63	ksi



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

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



Assemblies:

- BS-4

Elevation: 40 ft

Stiffened or Unstiffened, Interior Flange Plate - Any Bolt Material TIA Rev G

Site Data

BU#:	*829046*
Site Name:	*Weston/Rt 57/Norfield R*
App #:	*393558 Rev 0*

Manufacturer:	Other

Reactions

Moment:	1468.90	ft-kips
Axial:	70.12	kips
Shear:	33.85	kips
Exterior Flange Run, T+q:	0.00	kips

Elevation: 40 feet

Bolt Threads:
X-Excluded
φVn=φ(0.55*Ab*Fu)
φ=0.75, φ*Vn (kips):
53.15

Bolt Data

Qty:	32		
Diam:	1.25	Bolt Fu:	105
Bolt Material:	A325	Bolt Fy:	81
N/A:	100	<-- Disregard	
N/A:	75	<-- Disregard	
Circle:	50	in	

Interior Flange Bolt Results

Maximum Bolt Tension, Tu:	41.9	Kips, Ext. Tu=Interior Tu
Adjusted φ*Tn (due to Vu=Vu/Qty)	76.3	Kips
Bolt Stress Ratio:	54.9%	**Pass**

Plate Data

Plate Outer Diam:	58.75	in
Plate Inner Diam:	41	in (Hole @ Ctr)
Thick:	1.25	in
Grade:	36	ksi
Effective Width:	5.77	in

Interior Flange Plate Results Flexural Check

Controlling Bolt Axial Force:	46.3	Kips, Ext. Cu=Interior Cu
Plate Stress:	12.6	ksi
Allowable Plate Stress, φ*Fy:	32.4	ksi
Plate Stress Ratio:	38.8%	**Pass**

Stiffener Data (Welding at Both Sides)

Config:	1	*
Weld Type:	Fillet	
Groove Depth:	0.25	<-- Disregard
Groove Angle:	45	<-- Disregard
Fillet H. Weld:	0.25	in
Fillet V. Weld:	0.25	in
Width:	7	in
Height:	10	in
Thick:	0.625	in
Notch:	0.5	in
Grade:	36	ksi
Weld str.:	70	ksi

Stiffener Results

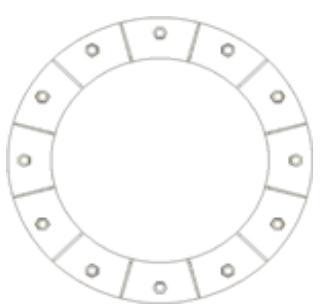
Horizontal Weld :	32.7%	**Pass**
Vertical Weld:	28.5%	**Pass**
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	14.6%	**Pass**
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	17.8%	**Pass**
Plate Comp. (AISC Bracket):	37.6%	**Pass**

Pole Results

Pole Punching Shear Check:	8.2%	**Pass**

Pole Data

Pole OuterDiam:	60	in
Thick:	0.625	in
Pole Inner Diam:	58.75	in
Grade:	42	ksi
# of Sides:	0	"0" IF Round
Fu	63	ksi



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

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

Stiffened or Unstiffened, Interior Flange Plate - Any Bolt Material TIA Rev G

Site Data

BU#:	*829046*
Site Name:	*Weston/Rt 57/Norfield R*
App #:	*393558 Rev 0*

Manufacturer:	Other

Reactions

Moment:	1468.90	ft-kips
Axial:	70.12	kips
Shear:	33.85	kips
Exterior Flange Run, T+q:	0.00	kips

Elevation: 40 feet

Bolt Threads:
X-Excluded
φVn=φ(0.55*Ab*Fu)
φ=0.75, φ*Vn (kips):
53.15

Bolt Data

Qty:	32		
Diam:	1.25	Bolt Fu:	105
Bolt Material:	A325	Bolt Fy:	81
N/A:	100	<-- Disregard	
N/A:	75	<-- Disregard	
Circle:	50	in	

Interior Flange Bolt Results

Maximum Bolt Tension, Tu:	41.9	Kips, Ext. Tu=Interior Tu
Adjusted φ*Tn (due to Vu=Vu/Qty)	76.3	Kips
Bolt Stress Ratio:	54.9%	**Pass**

Plate Data

Plate Outer Diam:	58.75	in
Plate Inner Diam:	41	in (Hole @ Ctr)
Thick:	1.25	in
Grade:	36	ksi
Effective Width:	5.77	in

Interior Flange Plate Results Flexural Check

Controlling Bolt Axial Force:	46.3	Kips, Ext. Cu=Interior Cu
Plate Stress:	12.6	ksi
Allowable Plate Stress, φ*Fy:	32.4	ksi
Plate Stress Ratio:	38.8%	**Pass**

Stiffener Data (Welding at Both Sides)

Config:	1	*
Weld Type:	Fillet	
Groove Depth:	0.25	<-- Disregard
Groove Angle:	45	<-- Disregard
Fillet H. Weld:	0.25	in
Fillet V. Weld:	0.25	in
Width:	7	in
Height:	10	in
Thick:	0.625	in
Notch:	0.5	in
Grade:	36	ksi
Weld str.:	70	ksi

Stiffener Results

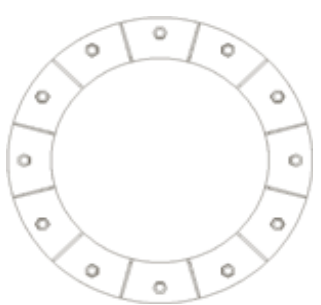
Horizontal Weld :	32.7%	**Pass**
Vertical Weld:	28.5%	**Pass**
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	14.6%	**Pass**
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	17.8%	**Pass**
Plate Comp. (AISC Bracket):	37.6%	**Pass**

Pole Results

Pole Punching Shear Check:	8.2%	**Pass**

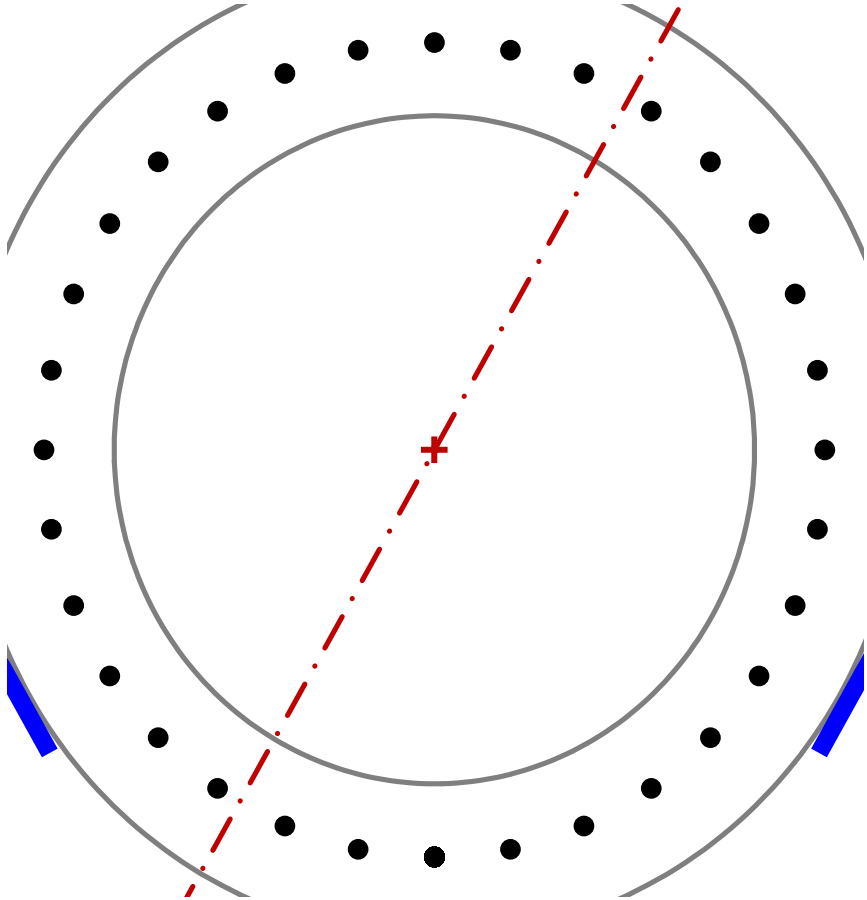
Pole Data

Pole OuterDiam:	60	in
Thick:	0.625	in
Pole Inner Diam:	58.75	in
Grade:	42	ksi
# of Sides:	0	"0" IF Round
Fu	63	ksi



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

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



Assemblies:

- BS-3

Elevation: 60 ft

Stiffened or Unstiffened, Interior Flange Plate - Any Bolt Material TIA Rev G

Site Data

BU#:	*829046*
Site Name:	*Weston/Rt 57/Norfield R*
App #:	*393558 Rev 0*

Manufacturer:	Other

Reactions

Moment:	1457.00	ft-kips
Axial:	57.74	kips
Shear:	32.21	kips
Exterior Flange Run, T+q:	0.00	kips

Elevation: 60 feet

Bolt Threads:
X-Excluded
φVn=φ(0.55*Ab*Fu)
φ=0.75, φ*Vn (kips):
53.15

Bolt Data

Qty:	32		
Diam:	1.25	Bolt Fu:	105
Bolt Material:	A325	Bolt Fy:	81
N/A:	100	<-- Disregard	
N/A:	75	<-- Disregard	
Circle:	50	in	

Interior Flange Bolt Results

Maximum Bolt Tension, Tu:	41.9	Kips, Ext. Tu=Interior Tu
Adjusted φ*Tn (due to Vu=Vu/Qty)	76.3	Kips
Bolt Stress Ratio:	54.9%	**Pass**

Plate Data

Plate Outer Diam:	59	in
Plate Inner Diam:	41	in (Hole @ Ctr)
Thick:	1.25	in
Grade:	36	ksi
Effective Width:	5.79	in

Interior Flange Plate Results Flexural Check

Controlling Bolt Axial Force:	45.5	Kips, Ext. Cu=Interior Cu
Plate Stress:	12.4	ksi
Allowable Plate Stress, φ*Fy:	32.4	ksi
Plate Stress Ratio:	38.1%	**Pass**

Stiffener Data (Welding at Both Sides)

Config:	1	*
Weld Type:	Fillet	
Groove Depth:	0.25	<-- Disregard
Groove Angle:	45	<-- Disregard
Fillet H. Weld:	0.25	in
Fillet V. Weld:	0.25	in
Width:	7	in
Height:	10	in
Thick:	0.625	in
Notch:	0.5	in
Grade:	36	ksi
Weld str.:	70	ksi

Stiffener Results

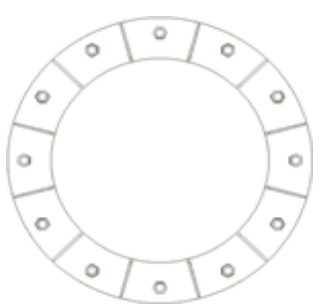
Horizontal Weld :	35.9%	**Pass**
Vertical Weld:	31.3%	**Pass**
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	16.4%	**Pass**
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	19.8%	**Pass**
Plate Comp. (AISC Bracket):	41.3%	**Pass**

Pole Results

Pole Punching Shear Check:	11.2%	**Pass**

Pole Data

Pole OuterDiam:	60	in
Thick:	0.5	in
Pole Inner Diam:	59	in
Grade:	42	ksi
# of Sides:	0	"0" IF Round
Fu	63	ksi



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

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

Stiffened or Unstiffened, Interior Flange Plate - Any Bolt Material TIA Rev G

Site Data

BU#:	*829046*
Site Name:	*Weston/Rt 57/Norfield R*
App #:	*393558 Rev 0*

Manufacturer:	Other

Reactions

Moment:	1457.00	ft-kips
Axial:	57.74	kips
Shear:	32.21	kips
Exterior Flange Run, T+q:	0.00	kips

Elevation: 60 feet

Bolt Threads:
X-Excluded
φVn=φ(0.55*Ab*Fu)
φ=0.75, φ*Vn (kips):
53.15

Bolt Data

Qty:	32		
Diam:	1.25	Bolt Fu:	105
Bolt Material:	A325	Bolt Fy:	81
N/A:	100	<-- Disregard	
N/A:	75	<-- Disregard	
Circle:	50	in	

Interior Flange Bolt Results

Maximum Bolt Tension, Tu:	41.9	Kips, Ext. Tu=Interior Tu
Adjusted φ*Tn (due to Vu=Vu/Qty)	76.3	Kips
Bolt Stress Ratio:	54.9%	**Pass**

Plate Data

Plate Outer Diam:	58.75	in
Plate Inner Diam:	41	in (Hole @ Ctr)
Thick:	1.25	in
Grade:	36	ksi
Effective Width:	5.77	in

Interior Flange Plate Results Flexural Check

Controlling Bolt Axial Force:	45.5	Kips, Ext. Cu=Interior Cu
Plate Stress:	12.4	ksi
Allowable Plate Stress, φ*Fy:	32.4	ksi
Plate Stress Ratio:	38.1%	**Pass**

Stiffener Data (Welding at Both Sides)

Config:	1	*
Weld Type:	Fillet	
Groove Depth:	0.25	<-- Disregard
Groove Angle:	45	<-- Disregard
Fillet H. Weld:	0.25	in
Fillet V. Weld:	0.25	in
Width:	7	in
Height:	10	in
Thick:	0.625	in
Notch:	0.5	in
Grade:	36	ksi
Weld str.:	70	ksi

Stiffener Results

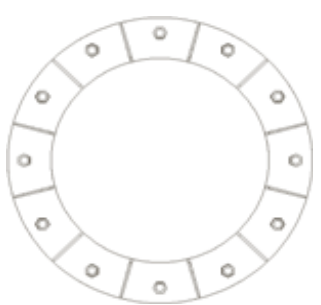
Horizontal Weld :	32.1%	**Pass**
Vertical Weld:	28.0%	**Pass**
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	14.3%	**Pass**
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	17.5%	**Pass**
Plate Comp. (AISC Bracket):	37.0%	**Pass**

Pole Results

Pole Punching Shear Check:	8.0%	**Pass**

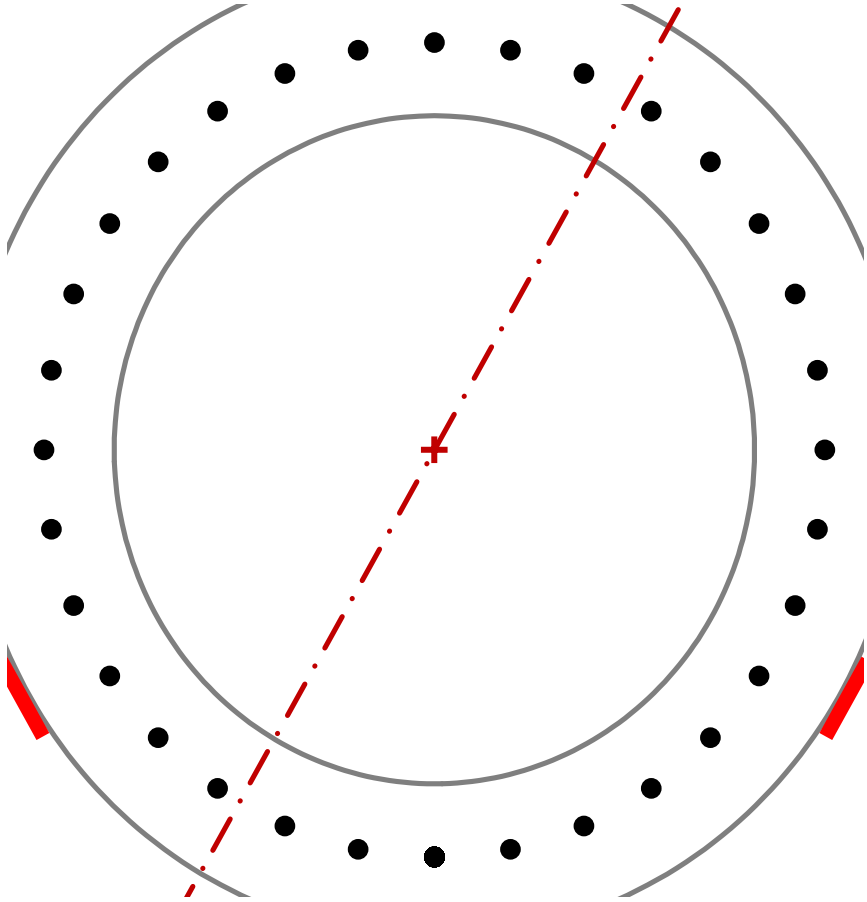
Pole Data

Pole OuterDiam:	60	in
Thick:	0.625	in
Pole Inner Diam:	58.75	in
Grade:	42	ksi
# of Sides:	0	"0" IF Round
Fu	63	ksi



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

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



Assemblies:

- BS-2

Elevation: 80 ft

Stiffened or Unstiffened, Interior Flange Plate - Any Bolt Material TIA Rev G

Site Data

BU#:	*829046*
Site Name:	*Weston/Rt 57/Norfield R*
App #:	*393558 Rev 0*

Manufacturer:	Other

Reactions

Moment:	1450.10	ft-kips
Axial:	46.94	kips
Shear:	30.03	kips
Exterior Flange Run, T+q:	0.00	kips

Elevation: 80 feet

Bolt Threads:
X-Excluded
φVn=φ(0.55*Ab*Fu)
φ=0.75, φ*Vn (kips):
53.15

Bolt Data

Qty:	32		
Diam:	1.25	Bolt Fu:	105
Bolt Material:	A325	Bolt Fy:	81
N/A:	100	<-- Disregard	
N/A:	75	<-- Disregard	
Circle:	50	in	

Interior Flange Bolt Results

Maximum Bolt Tension, Tu:	42.0	Kips, Ext. Tu=Interior Tu
Adjusted φ*Tn (due to Vu=Vu/Qty)	76.3	Kips
Bolt Stress Ratio:	55.1%	**Pass**

Plate Data

Plate Outer Diam:	59.25	in
Plate Inner Diam:	41	in (Hole @ Ctr)
Thick:	1.25	in
Grade:	36	ksi
Effective Width:	5.82	in

Interior Flange Plate Results Flexural Check

Controlling Bolt Axial Force:	45.0	Kips, Ext. Cu=Interior Cu
Plate Stress:	12.2	ksi
Allowable Plate Stress, φ*Fy:	32.4	ksi
Plate Stress Ratio:	37.7%	**Pass**

Stiffener Data (Welding at Both Sides)

Config:	1	*
Weld Type:	Fillet	
Groove Depth:	0.25	<-- Disregard
Groove Angle:	45	<-- Disregard
Fillet H. Weld:	0.25	in
Fillet V. Weld:	0.25	in
Width:	7	in
Height:	10	in
Thick:	0.625	in
Notch:	0.5	in
Grade:	36	ksi
Weld str.:	70	ksi

Stiffener Results

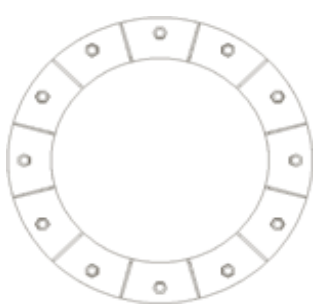
Horizontal Weld :	40.2%	**Pass**
Vertical Weld:	35.1%	**Pass**
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	18.9%	**Pass**
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	22.5%	**Pass**
Plate Comp. (AISC Bracket):	46.3%	**Pass**

Pole Results

Pole Punching Shear Check:	16.8%	**Pass**

Pole Data

Pole OuterDiam:	60	in
Thick:	0.375	in
Pole Inner Diam:	59.25	in
Grade:	42	ksi
# of Sides:	0	"0" IF Round
Fu	63	ksi



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

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

Stiffened or Unstiffened, Interior Flange Plate - Any Bolt Material TIA Rev G

Site Data

BU#:	*829046*
Site Name:	*Weston/Rt 57/Norfield R*
App #:	*393558 Rev 0*

Manufacturer:	Other

Reactions

Moment:	1450.10	ft-kips
Axial:	46.94	kips
Shear:	30.03	kips
Exterior Flange Run, T+q:	0.00	kips

Elevation: 80 feet

Bolt Threads:
X-Excluded
φVn=φ(0.55*Ab*Fu)
φ=0.75, φ*Vn (kips):
53.15

Bolt Data

Qty:	32		
Diam:	1.25	Bolt Fu:	105
Bolt Material:	A325	Bolt Fy:	81
N/A:	100	<-- Disregard	
N/A:	75	<-- Disregard	
Circle:	50	in	

Interior Flange Bolt Results

Maximum Bolt Tension, Tu:	42.0	Kips, Ext. Tu=Interior Tu
Adjusted φ*Tn (due to Vu=Vu/Qty)	76.3	Kips
Bolt Stress Ratio:	55.1%	**Pass**

Plate Data

Plate Outer Diam:	59	in
Plate Inner Diam:	41	in (Hole @ Ctr)
Thick:	1.25	in
Grade:	36	ksi
Effective Width:	5.79	in

Interior Flange Plate Results Flexural Check

Controlling Bolt Axial Force:	45.0	Kips, Ext. Cu=Interior Cu
Plate Stress:	12.2	ksi
Allowable Plate Stress, φ*Fy:	32.4	ksi
Plate Stress Ratio:	37.7%	**Pass**

Stiffener Data (Welding at Both Sides)

Config:	1	*
Weld Type:	Fillet	
Groove Depth:	0.25	<-- Disregard
Groove Angle:	45	<-- Disregard
Fillet H. Weld:	0.25	in
Fillet V. Weld:	0.25	in
Width:	7	in
Height:	10	in
Thick:	0.625	in
Notch:	0.5	in
Grade:	36	ksi
Weld str.:	70	ksi

Stiffener Results

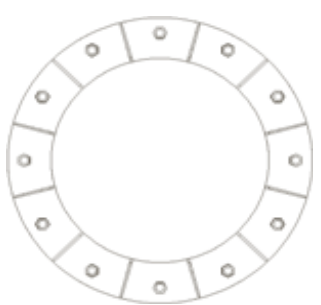
Horizontal Weld :	35.4%	**Pass**
Vertical Weld:	30.9%	**Pass**
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	16.2%	**Pass**
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	19.5%	**Pass**
Plate Comp. (AISC Bracket):	40.8%	**Pass**

Pole Results

Pole Punching Shear Check:	11.1%	**Pass**

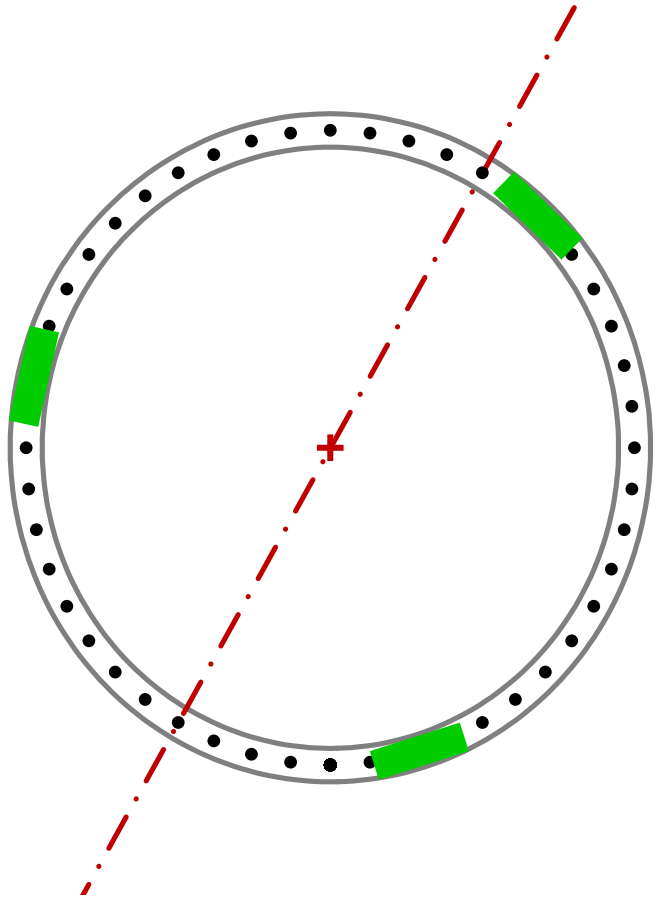
Pole Data

Pole OuterDiam:	60	in
Thick:	0.5	in
Pole Inner Diam:	59	in
Grade:	42	ksi
# of Sides:	0	"0" IF Round
Fu	63	ksi



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

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



Assemblies:

- BS-1

Elevation: 100 ft

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

Reactions		
Mu	1068.00	ft-kips
Axial, Pu:	37.73	kips
Shear, Vu:	27.59	kips
Elevation:	100	feet

Bolt Threads:
X-Excluded
φVn=φ(0.55*Ab*Fu)
φ=0.75, φ*Vn (kips):
38.88

Site Data

BU#: *829046*
Site Name: *Weston/Rt 57/Norfield R*
App #: *393558 Rev 0*

Pole Manufacturer:	Other

If No stiffeners, Criteria:	TIA G	<-Only Applcable to Unstiffened Cases

Bolt Data

Qty:	48		
Diameter (in.):	1	Bolt Fu:	120
Bolt Material:	A325	Bolt Fy:	92
N/A:	100	<-- Disregard	
N/A:	75	<-- Disregard	
Circle (in.):	57		

Plate Data

Diam:	60	in
Thick, t:	1.25	in
Grade (Fy):	36	ksi
Strength, Fu:	58	ksi
Single-Rod B-eff:	3.53	in

Stiffener Data (Welding at Both Sides)

Config:	1	*
Weld Type:	Fillet	
Groove Depth:	0.25	<-- Disregard
Groove Angle:	45	<-- Disregard
Fillet H. Weld:	0.25	in
Fillet V. Weld:	0.25	in
Width:	3	in
Height:	5	in
Thick:	0.625	in
Notch:	0.5	in
Grade:	36	ksi
Weld str.:	70	ksi

Pole Data

Diam:	54	in
Thick:	0.375	in
Grade:	42	ksi
# of Sides:	0	"0" IF Round
Fu	63	ksi
Reinf. Fillet Weld	0	"0" if None

Flange Bolt Results

			Stiffened
Bolt Tension Capacity, φ*Tn,**B1**:	54.54	kips	φ*Tn
Adjusted φ*Tn (due to Vu=Vu/Qty), **B**:	54.53	kips	φTn[(1-(Vu/φVn)^2]^0.5
Max Bolt directly applied Tu:	17.95	Kips	
Min. PL "tc" for **B** cap. **w/o** Pry:	Stiffened	in	
Min PL "treq" for actual **T w/ Pry**:	Stiffened	in	
Min PL "t1" for actual **T w/o Pry**:	Stiffened	in	
T allowable	54.54	kips	<-- B, Stiffened
Prying Force, q:	0.00	kips	Stiffened
Total Bolt Tension=Tu+q:	17.95	kips	
Non-Prying Bolt Stress Ratio, Tu/B:	32.9%	**Pass**	

Exterior Flange Plate Results Shear Check Only

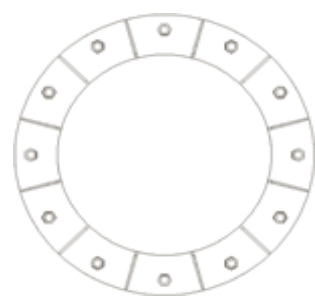
			Stiffened
Compression Side Plate Stress:	2.6	ksi	TIA G
Allowable Plate Stress:	19.4	ksi	φ*Fy
Compression Plate Stress Ratio:	13.4%	**Pass**	Comp. Y.L. Length:
Stiffened			N/A, Roark
Tension Side Stress Ratio, (treq/t)^2:	N/A		

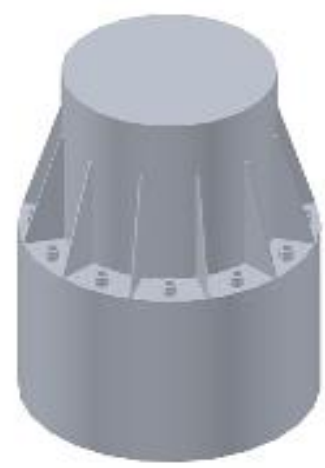
Stiffener Results

Horizontal Weld :	45.1%	**Pass**
Vertical Weld:	30.6%	**Pass**
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	15.7%	**Pass**
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	25.7%	**Pass**
Plate Comp. (AISC Bracket):	38.8%	**Pass**

Pole Results

Pole Punching Shear Check:	13.8%	**Pass**





* 0 = none, 1 = every bolt, 2 = every 2 bolts, 3 = 2 per bolt
** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

Stiffened or Unstiffened, Interior Flange Plate - Any Bolt Material TIA Rev G

Site Data

BU#:	*829046*
Site Name:	*Weston/Rt 57/Norfield R*
App #:	*393558 Rev 0*

Manufacturer:	Other

Reactions

Moment:	1068.00	ft-kips
Axial:	37.73	kips
Shear:	27.59	kips
Exterior Flange Run, T+q:	17.95	kips

Elevation: 100 feet

Bolt Threads:
X-Excluded
φVn=φ(0.55*Ab*Fu)
φ=0.75, φ*Vn (kips):
38.88

Bolt Data

Qty:	48		
Diam:	1	Bolt Fu:	120
Bolt Material:	A325	Bolt Fy:	92
N/A:	100	<-- Disregard	
N/A:	75	<-- Disregard	
Circle:	57	in	

Interior Flange Bolt Results

Maximum Bolt Tension, Tu:	18.0	Kips, Ext. Tu=Interior Tu
Adjusted φ*Tn (due to Vu=Vu/Qty)	54.5	Kips
Bolt Stress Ratio:	32.9%	**Pass**

Plate Data

Plate Outer Diam:	59.25	in
Plate Inner Diam:	54	in (Hole @ Ctr)
Thick:	1.25	in
Grade:	36	ksi
Effective Width:	3.88	in

Interior Flange Plate Results Shear Check Only

Controlling Bolt Axial Force:	19.5	Kips, Ext. Cu=Interior Cu
Plate Stress:	3.9	ksi
Allowable Plate Stress, φ*Fy:	19.4	ksi
Plate Stress Ratio:	20.1%	**Pass**

Stiffener Data (Welding at Both Sides)

Config:	1	*
Weld Type:	Fillet	
Groove Depth:	0.25	<-- Disregard
Groove Angle:	45	<-- Disregard
Fillet H. Weld:	0.25	in
Fillet V. Weld:	0.25	in
Width:	2	in
Height:	3.5	in
Thick:	0.625	in
Notch:	0.5	in
Grade:	36	ksi
Weld str.:	70	ksi

Stiffener Results

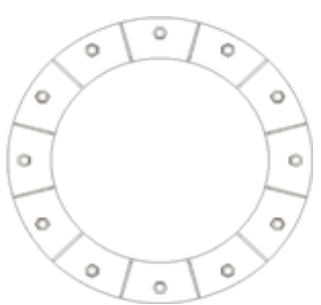
Horizontal Weld :	48.8%	**Pass**
Vertical Weld:	29.4%	**Pass**
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	14.9%	**Pass**
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	28.1%	**Pass**
Plate Comp. (AISC Bracket):	35.6%	**Pass**

Pole Results

Pole Punching Shear Check:	13.0%	**Pass**

Pole Data

Pole OuterDiam:	60	in
Thick:	0.375	in
Pole Inner Diam:	59.25	in
Grade:	42	ksi
# of Sides:	0	"0" IF Round
Fu	63	ksi



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

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

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

Reactions		
Mu	1087.92	ft-kips
Axial, Pu:	30.44	kips
Shear, Vu:	25.23	kips
Elevation:	120	feet

Bolt Threads:
X-Excluded
φVn=φ(0.55*Ab*Fu)
φ=0.75, φ*Vn (kips):
38.88

Site Data

BU#: *829046*
Site Name: *Weston/Rt 57/Norfield R*
App #: *393558 Rev 0*

Pole Manufacturer:	Pirod

If No stiffeners, Criteria:	TIA G	<-Only Applcable to Unstiffened Cases

Bolt Data				
Qty:	36			
Diameter (in.):	1	Bolt Fu:	120	
Bolt Material:	A325	Bolt Fy:	92	
N/A:	100	<-- Disregard		
N/A:	75	<-- Disregard		
Circle (in.):	51			

Plate Data		
Diam:	54	in
Thick, t:	1.25	in
Grade (Fy):	36	ksi
Strength, Fu:	58	ksi
Single-Rod B-eff:	4.19	in

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

Pole Data		
Diam:	48	in
Thick:	0.375	in
Grade:	42	ksi
# of Sides:	0	"0" IF Round
Fu	63	ksi
Reinf. Fillet Weld	0	"0" if None

Flange Bolt Results

Bolt Tension Capacity, φ*Tn,**B1**:	54.54	kips	
Adjusted φ*Tn (due to Vu=Vu/Qty), **B**:	54.53	kips	
Max Bolt directly applied Tu:	27.60	Kips	
Min. PL "tc" for **B** cap. **w/o** Pry:	0.998	in	
Min PL "treq" for actual **T w/ Pry**:	0.537	in	
Min PL "t1" for actual **T w/o Pry**:	0.710	in	
T allowable w/o Prying:	54.54	kips	α'<0 case
Prying Force, q:	0.00	kips	
Total Bolt Tension=Tu+q:	27.60	kips	
Non-Prying Bolt Stress Ratio, Tu/B:	50.6%	**Pass**	

Rigid
φ*Tn
φTn[(1-(Vu/φVn)^2]^0.5

Exterior Flange Plate Results Flexural Check

Compression Side Plate Stress:	Rohn/Pirod	OK
Allowable Plate Stress:	32.4	ksi
Compression Plate Stress Ratio:	Rohn/Pirod	OK
No Prying		
Tension Side Stress Ratio, (treq/t)^2:	Rohn/Pirod	OK

Rigid
TIA G
φ*Fy
Comp. Y.L. Length:
17.23

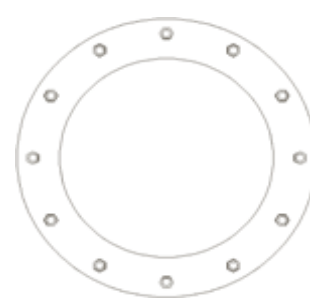
n/a

Stiffener Results N/A for Rohn / Pirod

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

Pole Results

Pole Punching Shear Check: N/A



* 0 = none, 1 = every bolt, 2 = every 2 bolts, 3 = 2 per bolt
** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

Stiffened or Unstiffened, Interior Flange Plate - Any Bolt Material TIA Rev G

Site Data

BU#:	*829046*
Site Name:	*Weston/Rt 57/Norfield R*
App #:	*393558 Rev 0*

Manufacturer:	Pirod

Reactions

Moment:	1087.92	ft-kips
Axial:	30.44	kips
Shear:	25.23	kips
Exterior Flange Run, T+q:	27.60	kips

Bolt Threads:
X-Excluded
φVn=φ(0.55*Ab*Fu)
φ=0.75, φ*Vn (kips):
38.88

Elevation: 120 feet

Bolt Data

Qty:	36		
Diam:	1	Bolt Fu:	120
Bolt Material:	A325	Bolt Fy:	92
N/A:	100	<-- Disregard	
N/A:	75	<-- Disregard	
Circle:	51	in	

Interior Flange Bolt Results

Maximum Bolt Tension, Tu:	27.6	Kips, Ext. Tu=Interior Tu
Adjusted φ*Tn (due to Vu=Vu/Qty)	54.5	Kips
Bolt Stress Ratio:	50.6%	**Pass**

Plate Data

Plate Outer Diam:	53.25	in
Plate Inner Diam:	48	in (Hole @ Ctr)
Thick:	1.25	in
Grade:	36	ksi
Effective Width:	4.65	in

Interior Flange Plate Results Flexural Check

Controlling Bolt Axial Force:	29.3	Kips, Ext. Cu=Interior Cu
Plate Stress:	Rohn/Pirod	OK
Allowable Plate Stress, φ*Fy:	32.4	ksi
Plate Stress Ratio:	Rohn/Pirod	OK

Stiffener Data (Welding at Both Sides)

Config:	0	*
Weld Type:		
Groove Depth:		<-- Disregard
Groove Angle:		<-- Disregard
Fillet H. Weld:		in
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

n/a

Stiffener Results N/A for Rohn / Pirod

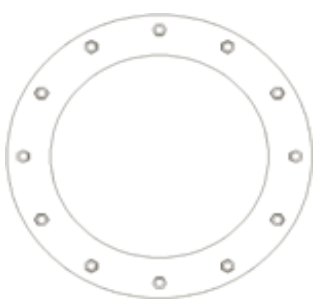
Horizontal Weld :	N/A
Vertical Weld:	N/A
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	N/A
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	N/A
Plate Comp. (AISC Bracket):	N/A

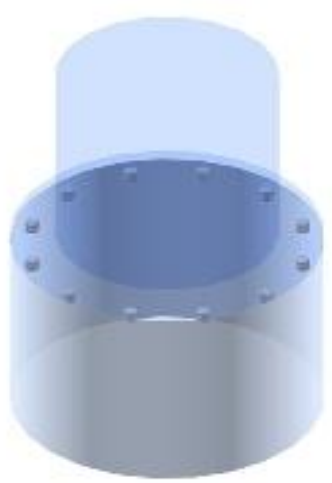
Pole Results

Pole Punching Shear Check:	N/A

Pole Data

Pole OuterDiam:	54	in
Thick:	0.375	in
Pole Inner Diam:	53.25	in
Grade:	42	ksi
# of Sides:	0	"0" IF Round
Fu	63	ksi





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

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

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

Reactions		
Mu	606.38	ft-kips
Axial, Pu:	24.70	kips
Shear, Vu:	22.97	kips
Elevation:	140	feet

Bolt Threads:
X-Excluded
φVn=φ(0.55*Ab*Fu)
φ=0.75, φ*Vn (kips):
38.88

Site Data

BU#: *829046*
Site Name: *Weston/Rt 57/Norfield R*
App #: *393558 Rev 0*

Pole Manufacturer:	Pirod

If No stiffeners, Criteria:	TIA G	<-Only Applcable to Unstiffened Cases

Bolt Data

Qty:	32		
Diameter (in.):	1	Bolt Fu:	120
Bolt Material:	A325	Bolt Fy:	92
N/A:	100	<-- Disregard	
N/A:	75	<-- Disregard	
Circle (in.):	45		

Plate Data

Diam:	48	in
Thick, t:	1.25	in
Grade (Fy):	36	ksi
Strength, Fu:	58	ksi
Single-Rod B-eff:	4.12	in

Stiffener Data (Welding at Both Sides)

Config:	0	*
Weld Type:		
Groove Depth:		<-- Disregard
Groove Angle:		<-- Disregard
Fillet H. Weld:		in
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

Pole Data

Diam:	42	in
Thick:	0.375	in
Grade:	42	ksi
# of Sides:	0	"0" IF Round
Fu	63	ksi
Reinf. Fillet Weld	0	"0" if None

Flange Bolt Results

				Rigid
Bolt Tension Capacity, φ*Tn,**B1**:	54.54	kips		φ*Tn
Adjusted φ*Tn (due to Vu=Vu/Qty), **B**:	54.53	kips		φTn[(1-(Vu/φVn)^2]^0.5
Max Bolt directly applied Tu:	19.44	Kips		
Min. PL "tc" for **B** cap. **w/o** Pry:	1.006	in		
Min PL "treq" for actual **T w/ Pry**:	0.455	in		
Min PL "t1" for actual **T w/o Pry**:	0.601	in		
T allowable w/o Prying:	54.54	kips	α'<0 case	
Prying Force, q:	0.00	kips		
Total Bolt Tension=Tu+q:	19.44	kips		
Non-Prying Bolt Stress Ratio, Tu/B:	35.7%	**Pass**		

Exterior Flange Plate Results Flexural Check

			Rigid
Compression Side Plate Stress:	Rohn/Pirod	OK	TIA G
Allowable Plate Stress:	32.4	ksi	φ*Fy
Compression Plate Stress Ratio:	Rohn/Pirod	OK	Comp. Y.L. Length:
No Prying			16.16
Tension Side Stress Ratio, (treq/t)^2:	Rohn/Pirod	OK	

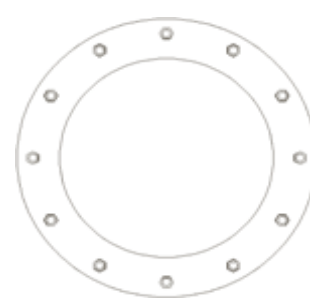
n/a

Stiffener Results N/A for Rohn / Pirod

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

Pole Results

Pole Punching Shear Check: N/A



* 0 = none, 1 = every bolt, 2 = every 2 bolts, 3 = 2 per bolt
** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

Stiffened or Unstiffened, Interior Flange Plate - Any Bolt Material TIA Rev G

Site Data

BU#:	*829046*
Site Name:	*Weston/Rt 57/Norfield R*
App #:	*393558 Rev 0*

Manufacturer:	Pirod

Reactions

Moment:	606.38	ft-kips
Axial:	24.70	kips
Shear:	22.97	kips
Exterior Flange Run, T+q:	19.44	kips

Elevation: 140 feet

Bolt Threads:
X-Excluded
φVn=φ(0.55*Ab*Fu)
φ=0.75, φ*Vn (kips):
38.88

Bolt Data

Qty:	32		
Diam:	1	Bolt Fu:	120
Bolt Material:	A325	Bolt Fy:	92
N/A:	100	<-- Disregard	
N/A:	75	<-- Disregard	
Circle:	45	in	

Interior Flange Bolt Results

Maximum Bolt Tension, Tu:	19.4	Kips, Ext. Tu=Interior Tu
Adjusted φ*Tn (due to Vu=Vu/Qty)	54.5	Kips
Bolt Stress Ratio:	35.7%	**Pass**

Plate Data

Plate Outer Diam:	47.25	in
Plate Inner Diam:	42	in (Hole @ Ctr)
Thick:	1	in
Grade:	36	ksi
Effective Width:	4.64	in

Interior Flange Plate Results Flexural Check

Controlling Bolt Axial Force:	21.0	Kips, Ext. Cu=Interior Cu
Plate Stress:	Rohn/Pirod	OK
Allowable Plate Stress, φ*Fy:	32.4	ksi
Plate Stress Ratio:	Rohn/Pirod	OK

Stiffener Data (Welding at Both Sides)

Config:	0	*
Weld Type:		
Groove Depth:		<-- Disregard
Groove Angle:		<-- Disregard
Fillet H. Weld:		in
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

n/a

Stiffener Results N/A for Rohn / Pirod

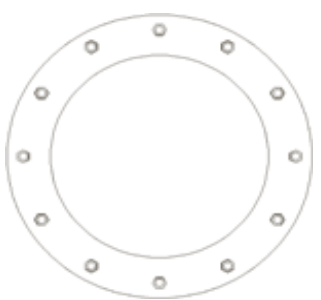
Horizontal Weld :	N/A
Vertical Weld:	N/A
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	N/A
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	N/A
Plate Comp. (AISC Bracket):	N/A

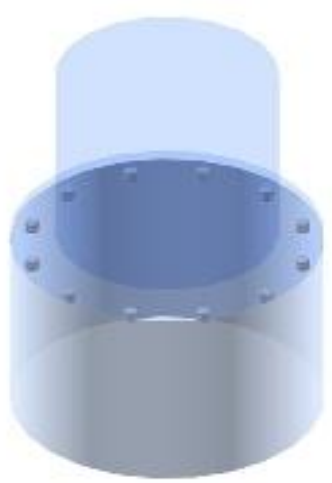
Pole Results

Pole Punching Shear Check:	N/A

Pole Data

Pole OuterDiam:	48	in
Thick:	0.375	in
Pole Inner Diam:	47.25	in
Grade:	42	ksi
# of Sides:	0	"0" IF Round
Fu	63	ksi





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

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

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

Reactions		
Mu	218.17	ft-kips
Axial, Pu:	13.49	kips
Shear, Vu:	11.38	kips
Elevation:	160	feet

Bolt Threads:
X-Excluded
φVn=φ(0.55*Ab*Fu)
φ=0.75, φ*Vn (kips):
38.88

Site Data

BU#: *829046*
Site Name: *Weston/Rt 57/Norfield R*
App #: *393558 Rev 0*

Pole Manufacturer:	Pirod

If No stiffeners, Criteria:	TIA G	<-Only Applcable to Unstiffened Cases

Bolt Data				
Qty:	28			
Diameter (in.):	1	Bolt Fu:	120	
Bolt Material:	A325	Bolt Fy:	92	
N/A:	100	<-- Disregard		
N/A:	75	<-- Disregard		
Circle (in.):	39			

Plate Data		
Diam:	42	in
Thick, t:	1.25	in
Grade (Fy):	36	ksi
Strength, Fu:	58	ksi
Single-Rod B-eff:	4.04	in

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

Pole Data		
Diam:	36	in
Thick:	0.375	in
Grade:	42	ksi
# of Sides:	0	"0" IF Round
Fu	63	ksi
Reinf. Fillet Weld	0	"0" if None

Flange Bolt Results

Bolt Tension Capacity, φ*Tn,**B1**:	54.54	kips	
Adjusted φ*Tn (due to Vu=Vu/Qty), **B**:	54.54	kips	
Max Bolt directly applied Tu:	9.11	Kips	
Min. PL "tc" for **B** cap. **w/o** Pry:	1.017	in	
Min PL "treq" for actual **T w/ Pry**:	0.315	in	
Min PL "t1" for actual **T w/o Pry**:	0.415	in	
T allowable w/o Prying:	54.54	kips	α'<0 case
Prying Force, q:	0.00	kips	
Total Bolt Tension=Tu+q:	9.11	kips	
Non-Prying Bolt Stress Ratio, Tu/B:	16.7%	**Pass**	

Rigid
φ*Tn
φTn[(1-(Vu/φVn)^2]^0.5

Exterior Flange Plate Results Flexural Check

Compression Side Plate Stress:	Rohn/Pirod	OK
Allowable Plate Stress:	32.4	ksi
Compression Plate Stress Ratio:	Rohn/Pirod	OK
No Prying		
Tension Side Stress Ratio, (treq/t)^2:	Rohn/Pirod	OK

Rigid
TIA G
φ*Fy
Comp. Y.L. Length:
15.00

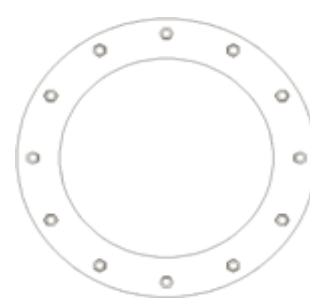
n/a

Stiffener Results N/A for Rohn / Pirod

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

Pole Results

Pole Punching Shear Check: N/A



* 0 = none, 1 = every bolt, 2 = every 2 bolts, 3 = 2 per bolt
** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

Stiffened or Unstiffened, Interior Flange Plate - Any Bolt Material TIA Rev G

Site Data

BU#:	*829046*
Site Name:	*Weston/Rt 57/Norfield R*
App #:	*393558 Rev 0*

Manufacturer:	Pirod

Reactions		
Moment:	218.17	ft-kips
Axial:	13.49	kips
Shear:	11.38	kips
Exterior Flange Run, T+q:	9.11	kips

Elevation: 160 feet

Bolt Threads:
X-Excluded
φVn=φ(0.55*Ab*Fu)
φ=0.75, φ*Vn (kips):
38.88

Bolt Data			
Qty:	28		
Diam:	1	Bolt Fu:	120
Bolt Material:	A325	Bolt Fy:	92
N/A:	100	<-- Disregard	
N/A:	75	<-- Disregard	
Circle:	39	in	

Interior Flange Bolt Results

Maximum Bolt Tension, Tu:	9.1	Kips, Ext. Tu=Interior Tu
Adjusted φ*Tn (due to Vu=Vu/Qty)	54.5	Kips
Bolt Stress Ratio:	16.7%	**Pass**

Plate Data		
Plate Outer Diam:	41.25	in
Plate Inner Diam:	36	in (Hole @ Ctr)
Thick:	1.25	in
Grade:	36	ksi
Effective Width:	4.63	in

Interior Flange Plate Results Flexural Check

Controlling Bolt Axial Force:	10.1	Kips, Ext. Cu=Interior Cu
Plate Stress:	Rohn/Pirod	OK
Allowable Plate Stress, φ*Fy:	32.4	ksi
Plate Stress Ratio:	Rohn/Pirod	OK

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

n/a

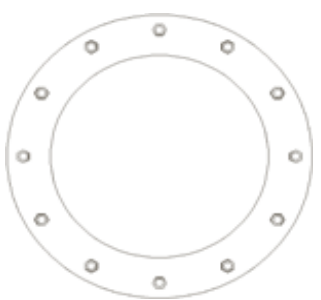
Stiffener Results N/A for Rohn / Pirod

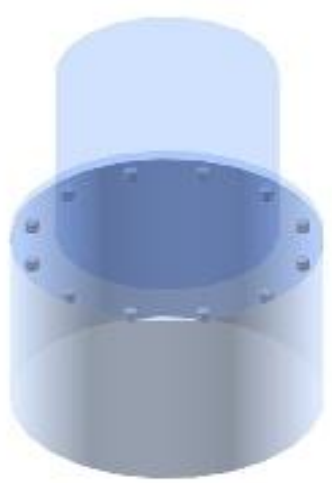
Horizontal Weld :	N/A
Vertical Weld:	N/A
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	N/A
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	N/A
Plate Comp. (AISC Bracket):	N/A

Pole Results

Pole Punching Shear Check:	N/A

Pole Data		
Pole OuterDiam:	42	in
Thick:	0.375	in
Pole Inner Diam:	41.25	in
Grade:	42	ksi
# of Sides:	0	"0" IF Round
Fu	63	ksi





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

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

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

Reactions		
Mu	38.87	ft-kips
Axial, Pu:	4.52	kips
Shear, Vu:	4.70	kips
Elevation:	180	feet

Bolt Threads:
X-Excluded
φVn=φ(0.55*Ab*Fu)
φ=0.75, φ*Vn (kips):
38.88

Site Data

BU#: *829046*
Site Name: *Weston/Rt 57/Norfield R*
App #: *393558 Rev 0*

Pole Manufacturer:	Pirod

If No stiffeners, Criteria:	TIA G	<-Only Applcable to Unstiffened Cases

Bolt Data

Qty:	24		
Diameter (in.):	1	Bolt Fu:	120
Bolt Material:	A325	Bolt Fy:	92
N/A:	100	<-- Disregard	
N/A:	75	<-- Disregard	
Circle (in.):	33		

Plate Data

Diam:	36	in
Thick, t:	1.25	in
Grade (Fy):	36	ksi
Strength, Fu:	58	ksi
Single-Rod B-eff:	3.93	in

Stiffener Data (Welding at Both Sides)

Config:	0	*
Weld Type:		
Groove Depth:		<-- Disregard
Groove Angle:		<-- Disregard
Fillet H. Weld:		in
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

Pole Data

Diam:	30	in
Thick:	0.375	in
Grade:	42	ksi
# of Sides:	0	"0" IF Round
Fu	63	ksi
Reinf. Fillet Weld	0	"0" if None

Flange Bolt Results

Bolt Tension Capacity, φ*Tn,**B1**:	54.54	kips	
Adjusted φ*Tn (due to Vu=Vu/Qty), **B**:	54.54	kips	
Max Bolt directly applied Tu:	2.17	Kips	
Min. PL "tc" for **B** cap. **w/o** Pry:	1.031	in	
Min PL "treq" for actual **T w/ Pry**:	0.156	in	
Min PL "t1" for actual **T w/o Pry**:	0.206	in	
T allowable w/o Prying:	54.54	kips	α'<0 case
Prying Force, q:	0.00	kips	
Total Bolt Tension=Tu+q:	2.17	kips	
Non-Prying Bolt Stress Ratio, Tu/B:	4.0%	**Pass**	

Rigid
φ*Tn
φTn[(1-(Vu/φVn)^2]^0.5

Exterior Flange Plate Results Flexural Check

Compression Side Plate Stress:	Rohn/Pirod	OK
Allowable Plate Stress:	32.4	ksi
Compression Plate Stress Ratio:	Rohn/Pirod	OK
No Prying		
Tension Side Stress Ratio, (treq/t)^2:	Rohn/Pirod	OK

Rigid
TIA G
φ*Fy
Comp. Y.L. Length:
13.75

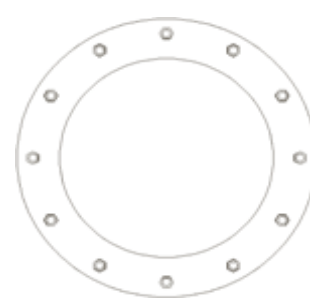
n/a

Stiffener Results N/A for Rohn / Pirod

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

Pole Results

Pole Punching Shear Check: N/A



* 0 = none, 1 = every bolt, 2 = every 2 bolts, 3 = 2 per bolt
** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

Stiffened or Unstiffened, Interior Flange Plate - Any Bolt Material TIA Rev G

Site Data

BU#:	*829046*
Site Name:	*Weston/Rt 57/Norfield R*
App #:	*393558 Rev 0*

Manufacturer:	Pirod

Reactions

Moment:	38.87	ft-kips
Axial:	4.52	kips
Shear:	4.70	kips
Exterior Flange Run, T+q:	2.17	kips

Elevation: 180 feet

Bolt Threads:
X-Excluded
φVn=φ(0.55*Ab*Fu)
φ=0.75, φ*Vn (kips):
38.88

Bolt Data

Qty:	24		
Diam:	1	Bolt Fu:	120
Bolt Material:	A325	Bolt Fy:	92
N/A:	100	<-- Disregard	
N/A:	75	<-- Disregard	
Circle:	33	in	

Interior Flange Bolt Results

Maximum Bolt Tension, Tu:	2.2	Kips, Ext. Tu=Interior Tu
Adjusted φ*Tn (due to Vu=Vu/Qty)	54.5	Kips
Bolt Stress Ratio:	4.0%	**Pass**

Plate Data

Plate Outer Diam:	35.25	in
Plate Inner Diam:	30	in (Hole @ Ctr)
Thick:	1.25	in
Grade:	36	ksi
Effective Width:	4.61	in

Interior Flange Plate Results Flexural Check

Controlling Bolt Axial Force:	2.5	Kips, Ext. Cu=Interior Cu
Plate Stress:	Rohn/Pirod	OK
Allowable Plate Stress, φ*Fy:	32.4	ksi
Plate Stress Ratio:	Rohn/Pirod	OK

Stiffener Data (Welding at Both Sides)

Config:	0	*
Weld Type:		
Groove Depth:		<-- Disregard
Groove Angle:		<-- Disregard
Fillet H. Weld:		in
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

n/a

Stiffener Results N/A for Rohn / Pirod

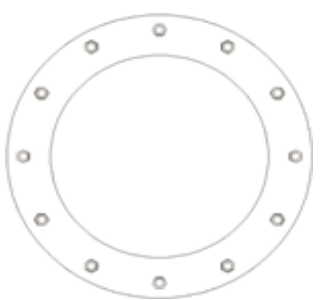
Horizontal Weld :	N/A
Vertical Weld:	N/A
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	N/A
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	N/A
Plate Comp. (AISC Bracket):	N/A

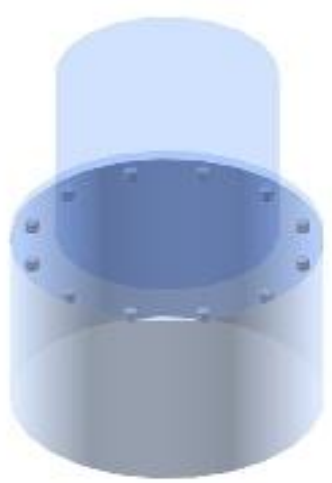
Pole Results

Pole Punching Shear Check:	N/A

Pole Data

Pole OuterDiam:	36	in
Thick:	0.375	in
Pole Inner Diam:	35.25	in
Grade:	42	ksi
# of Sides:	0	"0" IF Round
Fu	63	ksi





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

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

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#: *829046*
Site Name: *Weston/Rt 57/Norfield R*
App #: *393558 Rev 0*

Loads Already Factored		
For M (WL):	1.00	
For P (DL):	1.00	

Pier Properties		
Concrete:		
Pier Diameter =	7.5	ft
Concrete Area =	6361.7	in^2
Reinforcement:		
Clear Cover to **Tie**=	3.00	in
Horiz. **Tie** Bar Size=	4	
Vert. Cage Diameter =	6.82	ft
Vert. Cage Diameter =	81.87	in
Vertical Bar Size =	9	
Bar Diameter =	1.13	in
Bar Area =	1	in^2
Number of Bars =	47	
As Total=	47	in^2
A s/ Aconc, Rho:	0.0074	0.74%

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

(3)*(Sqrt(f'c)/Fy:	0.0035
200 / Fy:	0.0033

Minimum Rho Check:

Actual Req'd Min. Rho:	0.33%	Flexural
Provided Rho:	0.74%	**OK**

Ref. Shaft Max Axial Capacities, ϕ Max(Pn or Tn):		
Max Pu = (φ=0.65) Pn.		
Pn per ACI 318 (10-2)	15421.94	kips
at Mu=(ϕ=0.65)Mn=	10124.90	ft-kips
Max Tu, (φ=0.9) Tn =	2538	kips
at Mu=ϕ=(0.90)Mn=	0.00	ft-kips

Maximum Shaft Superimposed Forces		
TIA Revision:	G	
Max. Factored Shaft Mu:	2636.37	ft-kips **(* Note)**
Max. Factored Shaft Pu:	100	kips
Max Axial Force Type:	Comp.	

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

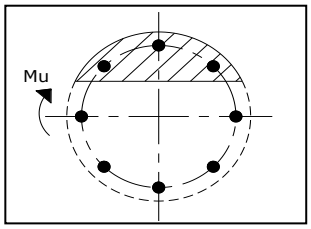
Load Factor	Shaft Factored Loads		
1.00	Mu:	2636.37	ft-kips
1.00	Pu:	100	kips

Material Properties		
Concrete Comp. strength, f'c =	5000	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=	2005	

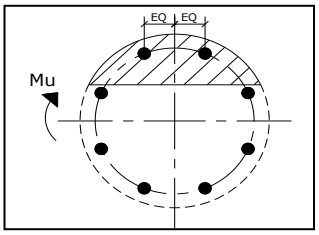
Solve (Run) <-- Press Upon Completing All Input

Results:

Governing Orientation Case: **1**



Case 1



Case 2

Dist. From Edge to Neutral Axis:	**13.27**	in
Extreme Steel Strain, ϵt:	**0.0164**	
	ϵt > 0.0050, Tension Controlled	
Reduction Factor,φ:	**0.900**	

Output Note: Negative Pu=Tension

For Axial Compression, φ Pn = Pu:	90.00	kips
Drilled Shaft Moment Capacity, φMn:	**8335.44**	ft-kips
Drilled Shaft Superimposed Mu:	**2636.37**	ft-kips

(Mu/φMn, Drilled Shaft Flexure CSR:	**31.6%**

Pier and Pad Foundation

BU # :	829046
Site Name:	Weston/Rt 57/Norfi
App. Number:	393558 Rev 0

TIA-222 Revision:	G
Tower Type:	Monopole

Block Foundation?:	☐

Superstructure Analysis Reactions

Compression, P_{comp}:	100	kips
Base Shear, Vu_comp:	36	kips
Moment, M_u:	2510.37	ft-kips
Tower Height, **H**:	190	ft
BP Dist. Above Fdn, bp_{dist}:	3	in

Foundation Analysis Checks

	Capacity	Demand	Rating	Check
Lateral (Sliding) (kips)	255.21	36.00	**14.1%**	**Pass**
Bearing Pressure (ksf)	34.98	11.30	**32.3%**	**Pass**
*Overturning (kip*ft)*	2806.61	2789.37	**99.4%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	8335.44	2636.37	**31.6%**	**Pass**
Pier Compression (kip)	35148.53	127.83	**0.4%**	**Pass**
*Pad Flexure (kip*ft)*	4268.56	1328.13	**31.1%**	**Pass**
Pad Shear - 1-way (kips)	923.47	305.00	**33.0%**	**Pass**
Pad Shear - 2-way (kips)	3500.41	127.83	**3.7%**	**Pass**

Soil Rating:	**99.4%**
Structural Rating:	**33.0%**

Pier Properties

Pier Shape:	Circular	
Pier Diameter, **dpier**:	7.5	ft
Ext. Above Grade, **E**:	1.5	ft
Pier Rebar Size, **Sc**:	9	
Pier Rebar Quantity, **mc**:	47	
Pier Tie/Spiral Size, **St**:	4	
Pier Tie/Spiral Quantity, **mt**:	3	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties

Depth, **D**:	6.0	ft
Pad Width, **W**:	18.0	ft
Pad Thickness, **T**:	4.0	ft
Pad Rebar Size, **Sp**:	9	
Pad Rebar Quantity, **mp**:	24	
Pad Clear Cover, cc_{pad}:	6	in

Material Properties

Rebar Grade, **Fy**:	60000	psi
Concrete Compressive Strength, **F'c**:	5000	psi
Dry Concrete Density, δ**c**:	150	pcf

Soil Properties

Total Soil Unit Weight, γ:	130	pcf
Ultimate Net Bearing, Qnet:	40.000	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, φ:	36	degrees
SPT Blow Count, N_{blows}:	3.67	
Base Friction, μ:	0.65	
Neglected Depth, **N**:	3.0	ft
Groundwater Depth, **gw**:	100	ft

<--Toggle between Gross and Net

EBI Consulting

environmental | engineering | due diligence

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

SPRINT Existing Facility

Site ID: CT03XC376

Weston / Omnipoint
56 Norfield Road
Weston, CT 06883

July 24, 2017

EBI Project Number: 6217003218

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**8.43 %**

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

EBI Consulting
environmental | engineering | due diligence

July 24, 2017

SPRINT
Attn: RF Engineering Manager
1 International Boulevard, Suite 800
Mahwah, NJ 07495

Emissions Analysis for Site: **CT03XC376 – Weston / Omnipoint**

EBI Consulting was directed to analyze the proposed SPRINT facility located at **56 Norfield Road, Weston, CT**, for the purpose of determining whether the emissions from the Proposed SPRINT 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 population 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 population 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.

Population 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 850 MHz Band is approximately 567 $\mu W/cm^2$. The general population exposure limit for the 1900 MHz (PCS) and 2500 MHz (BRS) 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 SPRINT Wireless antenna facility located at **56 Norfield Road, Weston, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since SPRINT 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) 1 CDMA channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.

2) 2 LTE channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.

3) 5 CDMA channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 16 Watts per Channel.

4) 2 LTE channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

5) 8 LTE channels (2500 MHz (BRS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 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 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

8) The antennas used in this modeling are the **RFS APXVSPP18-C-A20 and RFS APXVSPP18-C-A20** for transmission in the 850 MHz, 1900 MHz (PCS) and 2500 MHz (BRS) 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 centerlines of the proposed antennas are **190 feet** above ground level (AGL) for **Sector A**, **190 feet** above ground level (AGL) for **Sector B** and **190 feet** above ground level (AGL) for Sector C.

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 population threshold limits.

SPRINT Site Inventory and Power Data by Antenna

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	RFS APXVSPP18-C-A20	Make / Model:	RFS APXVSPP18-C-A20	Make / Model:	RFS APXVSPP18-C-A20
Gain:	13.4 / 15.9 dBd	Gain:	13.4 / 15.9 dBd	Gain:	13.4 / 15.9 dBd
Height (AGL):	**190 feet**	Height (AGL):	**190 feet**	Height (AGL):	**190 feet**
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	10	Channel Count	10	Channel Count	10
Total TX Power(W):	220 Watts	Total TX Power(W):	220 Watts	Total TX Power(W):	220 Watts
ERP (W):	7,537.38	ERP (W):	7,537.38	ERP (W):	7,537.38
Antenna A1 MPE%	**0.91 %**	Antenna B1 MPE%	**0.91 %**	Antenna C1 MPE%	**0.91 %**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APXVSPP18-C-A20 (Dormant)	Make / Model:	RFS APXVSPP18-C-A20 (Dormant)	Make / Model:	RFS APXVSPP18-C-A20 (Dormant)
Gain:	UNUSED	Gain:	UNUSED	Gain:	UNUSED
Height (AGL):	**190 feet**	Height (AGL):	**190 feet**	Height (AGL):	**190 feet**
Frequency Bands	UNUSED	Frequency Bands	UNUSED	Frequency Bands	UNUSED
Channel Count	0	Channel Count	0	Channel Count	0
Total TX Power(W):	0 Watts	Total TX Power(W):	0 Watts	Total TX Power(W):	0 Watts
ERP (W):	0.00	ERP (W):	0.00	ERP (W):	0.00
Antenna A2 MPE%	**0.00 %**	Antenna B2 MPE%	**0.00 %**	Antenna C2 MPE%	**0.00 %**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	RFS APXVTM14-C-I20	Make / Model:	RFS APXVTM14-C-I20	Make / Model:	RFS APXVTM14-C-I20
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	**190 feet**	Height (AGL):	**190 feet**	Height (AGL):	**190 feet**
Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)
Channel Count	8	Channel Count	8	Channel Count	8
Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts
ERP (W):	6,224.72	ERP (W):	6,224.72	ERP (W):	6,224.72
Antenna A3 MPE%	**0.66 %**	Antenna B3 MPE%	**0.66 %**	Antenna C3 MPE%	**0.66 %**

Site Composite MPE%	
Carrier	**MPE%**
SPRINT – Max per sector	**1.57 %**
Town Fire Dept	0.27 %
Town Fire Dept	0.17 %
Town of Weston	0.33 %
EMS	0.04 %
Town of Weston	0.29 %
AT&T	1.77 %
Verizon Wireless	1.90 %
T-Mobile	2.09 %
Site Total MPE %:	**8.43 %**

SPRINT Sector A Total:	1.57 %
SPRINT Sector B Total:	1.57 %
SPRINT Sector C Total:	1.57 %
Site Total:	**8.43 %**

SPRINT Max Values Per Sector:

SPRINT _ Max Values per Frequency Band / Technology	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
Sprint 850 MHz CDMA	1	437.55	190	0.46	850 MHz	567	0.08%
Sprint 850 MHz LTE	2	437.55	190	0.93	850 MHz	567	0.16%
Sprint 1900 MHz (PCS) CDMA	5	622.47	190	3.30	1900 MHz (PCS)	1000	0.33%
Sprint 1900 MHz (PCS) LTE	2	1,556.18	190	3.30	1900 MHz (PCS)	1000	0.33%
Sprint 2500 MHz (BRS) LTE	8	778.09	190	6.61	2500 MHz (BRS)	1000	0.66%
						Total:	**1.57%**

Summary

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

The anticipated maximum composite contributions from the SPRINT facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

SPRINT Sector	Power Density Value (%)
Sector A:	1.57 %
Sector B:	1.57 %
Sector C:	1.57 %
SPRINT Maximum Total (per sector):	1.57 %
Site Total:	8.43 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **8.43 %** of the allowable FCC established general population 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.